

POPULATION BULLETIN OF THE UNITED NATIONS

Nos. 19/20 — 1986
A Special Issue
in Commemoration of the
40th Anniversary of the
Population Commission



UNITED NATIONS

DEPARTMENT OF INTERNATIONAL ECONOMIC AND SOCIAL AFFAIRS

POPULATION BULLETIN OF THE UNITED NATIONS

Nos. 19/20—1986

**A Special Issue
in Commemoration of the
40th Anniversary of the
Population Commission**



**UNITED NATIONS
New York, 1987**

NOTE

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The term "country" as used in the text of this publication also refers, as appropriate, to territories or areas.

In some tables, the designations "developed" and "developing" economies are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

The views expressed in signed papers are those of the individual authors and do not imply the expression of any opinion on the part of the United Nations Secretariat.

ST/ESA/SER.N/19-20

UNITED NATIONS PUBLICATION

Sales No. E.87.XIII.2

01650

ISBN 92-1-151162-3

PREFACE

The purpose of the *Population Bulletin of the United Nations*, as stipulated by the Population Commission, is to publish population studies carried out by the United Nations, its specialized agencies and other organizations with a view to promoting scientific understanding of population questions. The studies are expected to provide a global perspective of demographic issues and to weigh the direct and indirect implications of demographic policy. The *Bulletin* is intended to be useful to Governments, international organizations, research and training institutions and other bodies that deal with questions relating to population and development.

The *Bulletin* is prepared by the Population Division of the Department of International Economic and Social Affairs of the United Nations Secretariat and published semi-annually in three languages—English, French and Spanish. Copies are distributed widely to users in all member countries of the United Nations.

Although the primary source of the material appearing in the *Bulletin* is the research carried out by the United Nations Secretariat, officials of governmental and non-governmental organizations and individual scholars are occasionally invited to contribute articles.

EXPLANATORY NOTES

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

Reference to "dollars" (\$) indicates United States dollars, unless otherwise stated.

The term "billion" signifies a thousand million.

Annual rates of growth or change refer to annual compound rates, unless otherwise stated.

A hyphen between years (e.g., 1984-1985) indicates the full period involved, including the beginning and end years; a slash (e.g., 1984/85) indicates a financial year, school year or crop year.

A point (.) is used to indicate decimals.

The following symbols have been used in the tables:

Two dots (..) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A hyphen (-) indicates that the item is not applicable.

A minus sign (-) before a number indicates a deficit or decrease, except as indicated.

Details and percentages in tables do not necessarily add to totals because of rounding.

The following abbreviations have been used:

CELADE	Centro Latinoamericano de Demografía
CICRED	Comité international de coopération dans les recherches nationales en démographie (Committee for International Co-operation in National Research in Demography)
CMEA	Council for Mutual Economic Assistance
ESCAP	Economic and Social Commission for Asia and the Pacific
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
ISI	International Statistical Institute
IUSSP	International Union for the Scientific Study of Population
OECD	Organisation for Economic Co-operation and Development
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
WFS	World Fertility Survey

CONTENTS

	<i>Page</i>
Foreword	
Shuaib Uthman Yolah	vii
Introduction	
Göran Ohlin	1
The early years of the Population Commission	
Philip M. Hauser	2
The Mysore Study	
C. Chandrasekaran	6
The significance of the United Nations international population conferences	
Milos Macura	14
Four decades of population research	
The Population Commission and demographic research: an overview	
George J. Stolnitz	27
Demographic estimates and projections	
M. A. El-Badry and Shigemi Kono	35
Fertility and family planning	
Gwendolyn Johnson-Acsádi	44
Mortality	
John Hobcraft	63
Urbanization and internal migration	
United Nations Secretariat	70
International migration	
United Nations Secretariat	82
The United Nations manuals for population analysis	
Arkady Isupov	90
Interrelationships between population and development	
Léon Tabah	97
Population policy	
United Nations Secretariat	105
International co-operation	
The Population Commission and IUSSP	
International Union for the Scientific Study of Population	115
The Population Commission and CICRED	
Jean Bourgeois-Pichat	125

Technical assistance

Population assistance to Governments	
Halvor Gille	129

Other issues

The regional population programmes of the United Nations	
P. Sankar Menon	139
Forty years of population statistics at the United Nations	
United Nations Secretariat	146

The future of the Commission

Some speculation on the challenges of the next decades for the Population Commission	
Jean Bourgeois-Pichat	159

FOREWORD

This issue of the *Population Bulletin of the United Nations* commemorates the fortieth anniversary of the Population Commission, the functional commission of the Economic and Social Council dealing with population matters.

The Population Commission held its first session at the United Nations Headquarters at Lake Success from 6 to 19 February 1947 and over the years has provided guidance and advice to the international community on demographic changes that have been occurring in the world and their interrelationships with development processes.

During the past 40 years, the world has witnessed an unprecedented growth in world population—a doubling since the founding of the United Nations. This rapid growth was not an isolated demographic phenomenon but was intertwined with global changes in the political, economic, social and technological landscape of the period since the Second World War. To ensure sustained improvement in the living standards of people, the United Nations has continued to affirm that population is a key component of international development and that development strategies must take population factors fully into account and, conversely, that population policies should be formulated as integral parts of development policies.

Under the guidance of the Population Commission, the Population Division, together with the Statistical Office, of the Department of International Economic and Social Affairs, has pioneered many activities in the field of population, including data collection, analyses, syntheses, methodology and projections, and continues to monitor world population trends and policies, improve methodology for demographic analysis and provide interpretation and clarification of the complex interrelationships between population and development. Over the years the Department—more particularly, the Population Division—has had a unique role to play within the United Nations system. Without advocating any particular viewpoint, it has provided policy makers, economic and social planners, and specialized and funding agencies with scientific and objective analyses and data which can serve as a neutral yardstick by which progress can be measured and policies formulated.

Topics covered in this special issue of the *Population Bulletin of the United Nations* include research and other activities that fall within the mandate of the Population Commission, particularly in terms of policy matters dealt with at the intergovernmental level. The authors of most articles have participated in those activities at one time or another, either as a member of the Commission or its secretariat, the Population Division. I would like to thank all the contributors not only for their knowledge and insight but also for their personal involvement in the population programme of the United Nations.

I hope this commemorative issue of the *Population Bulletin* will not only provide a retrospective view of what has been accomplished, but also generate new ideas for future tasks that remain to challenge our best efforts in years to come.

Shuaib Uthman YOLAH
Under-Secretary-General for
International Economic and Social Affairs

INTRODUCTION

Göran Ohlin*

Forty years ago, when the Population Commission was set up, I was embarking on my graduate work in economics. A few years later I discovered the fascination of population studies and had an intense affair with demography for a while. That was when I encountered the work of the United Nations Population Division, which made an indelible impression on me. Scholarly authority and technical competence were matched with a style of presentation that was restrained but forceful and impeccably correct. As a young graduate student I thought it was wonderful that the United Nations could produce such things.

Now that I have the privilege of supervising a United Nations office of which the Population Division is an important part, it is a pleasure to have the opportunity to make some personal observations on what the work of the Division has meant to me, not only at the outset but over the many decades when I was an academic economist dabbling in development studies and trying to keep up with what was going on in economic demography.

The early achievements of the Population Commission and the Population Division were indeed more extraordinary than I knew at the time. I was only aware of the analytical and theoretical work, as it was found in the *Bulletin*, with its powerful articles by Fred Lorimer and Bourgeois-Pichat and others, and of the great effort to present the state of the art in *The Determinants and Consequences of Population Trends* [1953] and to convene a world population conference. But other contributors to this issue will explain the fundamental work that was being done to improve the quality of demographic statistics throughout the world and to strengthen the quality of demographic staff.

* Assistant Secretary-General for Development Research and Policy Analysis, Department of International Economic and Social Affairs, United Nations Secretariat.

The Population Commission was indeed fortunate in the quality of the Secretariat. The directors of the Division were from the very start highly distinguished demographers—Notestein, Whelpton, Durand—and their successors have insisted on the same rigorously scientific approach that was chosen from the outset.

It was that approach that impressed me so much as a young research economist. The serious study of demography is not something that goes on everywhere. Some of the best universities in the world are weak in it, and many countries have no research in demography except that which is a byproduct of the work of their statistical agencies. Developing countries are not the only ones that are poorly supplied with demographic expertise, and some of them are better off than some developed countries. This is precisely why the Population Division has such an important role and why the Population Commission is in a sense a board of overseers, directing an effort which retains all the importance that once attracted my attention to it.

Concerns about population growth in general remain controversial, possibly because the separation of demography from economics has made us ask the wrong questions. Economists discuss the consequences of population growth as if it were some exogenous force; demographers study the impact of economic and social change on fertility. In a larger sense, these aspects of social change will undoubtedly have to be seen as the joint results of totally different forces that drive societies towards economic and social transformation.

The future work of the Population Commission and the Population Division, hopefully in ever closer co-operation with the other branches of the Department of International Economic and Social Affairs, will be essential to a better understanding of the crucial place of population dynamics in development.

THE EARLY YEARS OF THE POPULATION COMMISSION

*Philip M. Hauser**

SUMMARY

This article focuses attention on the work of the Population Commission in the first decade after its establishment, in 1946. The first Commission, which was composed of 12 members who were respected professionals in demography and related fields, drew up a set of recommendations which largely formed the agenda for the Commission at its next five sessions.

In the first decade of the Commission a significant number of countries had not taken a census and lacked accurate vital statistics. Nevertheless, the members of the Commission were well aware of demographic levels and trends in both the developed and developing countries. Therefore, the Commission emphasized assistance to Governments in developing their own demographic data. But it was also concerned with exploring interrelationships between population and various aspects of economic and social development.

Despite basic differences among the delegates, relating both to population theory and population policy, a consensus was achieved on many important matters, especially those relating to the improvement of demographic data, technical assistance and the training of demographers.

The legacy of publications from the first decade, such as *The Determinants and Consequences of Population Trends* [1953], attests to the productivity of the Population Division and the quality of the direction provided by the Population Commission. However, the secretariat also responded to requests from other bodies and exercised its own initiative in addressing problems deemed of general interest.

The Population Commission was established by the Economic and Social Council in a resolution adopted on 3 October 1946. The Commission held its first session at Lake Success, New York, from 6 to 19 February 1947. Of the 12 countries that were Commission members, nine were present at its first meeting and three were represented by observers. The nine representatives to the Commission present at its first session and their countries were: Germano Jardim, Brazil; J. T. Marshall, Canada; Alfred Sauvy, France; Jonkheer N. L. J. van Buttingha Wichers, Netherlands; Alberto Arca Parro, Peru; V. A. Rabichko, Ukrainian Soviet Socialist Republic; David V. Glass, United Kingdom of Great Britain and Northern Ireland; Philip M. Hauser, United States of America; and I. S. Malyshev, Union of Soviet Socialist Republics. For the three other countries to be represented on the Commission, the observers were: D. Munro for William Douglass Forsyth, Australia; T. Y. Wu for Franklin L. Ho, China; and Nikodije Jovanovic for Dolfe Vogelink, Yugoslavia.

Other persons who attended the Commission's first session were: Stuart A. Rice for the Statistical Commission; Y. C. Yang for the Social Commission; and T. J. Christides, alternate for Mr. Yang. The Economic and Employment Commission was not represented because it had not yet designated a representative.

Also represented were the following specialized agencies: D. Christie Tait for the International Labour Organization, Conrad Taeuber for the Food and Agriculture Organization of the United Nations; Solomon V. Arnaldo for the United Nations Educational, Scientific and Cultural Organization (UNESCO); and Zygmunt Deutschman for the World Health Organization (WHO). A. Held was present for the only non-governmental organization at the session—the American Federation of Labor. The representative of the Assistant Secretary-General was Frank W. Notestein, who subsequently served as the first director of the Population Division.

In establishing the Population Commission, the Economic and Social Council set forth its terms of reference, which in a comprehensive way called for the Commission to propose demographic studies for the Council's approval and to provide advice on population matters.

* Lucy Flower Professor Emeritus of Urban Sociology and Director Emeritus, Population Research Center, University of Chicago; representative of the United States of America to the Population Commission and participant in its first six sessions, 1947-1951.

The Commission approached its task with great vigour and in a comprehensive manner. In fact, discussions held and recommendations made during its first session provided for much of its agenda at its next five sessions, and set forth to the Secretary-General, through the Population Division, a large programme of work for years ahead. It is easy to understand why the Population Commission was able to proceed in such a manner. Its members were all mature demographers, sociologists, economists or statisticians, well aware of the world population situation at the time and of the gaps in demographic statistics and knowledge. It is well, at this point, to summarize the population situation of the world at that time.

THE WORLD POPULATION SITUATION CIRCA 1950

The description which follows of the world population situation when the Population Commission began its work is based on statistical data for 1950, as revised by 1975.¹ Since the Commission first met in 1947, the 1950 data are quite adequate for the purpose. In 1950 the population of the world was reported by the United Nations to be 2.5 billion, of which 857 million resided in the more developed countries and 1.6 billion were residents of the developing countries. Thus, of the world's total population, almost exactly two thirds were in the developing countries and only one third in the more developed countries.

Between 1940 and 1950 the average annual increase in world population was 0.9 per cent. The average annual increase of population in the more developed countries was 0.4 per cent whereas that in the developing countries was three times as great, at 1.2 per cent. The concern of the Population Commission with excessive population growth was well justified by developments in the following decade. Between 1950 and 1960 the rate of world population growth doubled, to 1.8 per cent, while that of the more developed countries tripled, to 1.3 per cent, and that of the developing countries soared to 2 per cent. The increased growth rate in the more developed countries was, of course, the product of the post-Second World War baby boom, while the increase in the developing countries was an initial product of the demographic transition during which decreasing mortality and improved morbidity of child-bearing women increased fertility.

Mortality in 1950 for the world as a whole was relatively high, with expectation of life at birth averaging 47 years. Life expectancy in the more developed countries was about 65 years, whereas, in contrast, that in the developing countries was only 42 years. The crude birth rate was 36 (births per 1,000 persons) for the world as a whole, but only 22.7 in the more developed countries and as high as 47 in the developing countries. Between 1950 and 1954 infant mortality for the world was at an average rate of 150 (infant deaths per 1,000 births) but only 47 for the more developed countries, and almost four times as high, at 180, for the developing countries.

There was considerable difference in the age structure of the more developed and developing countries, primarily as a result of differential fertility. For the world as a whole persons under 15 years of age constituted 36 per cent of the total population, but only about 28 per cent of

the population in the more developed countries and about 41 per cent of that in the developing countries. Persons 65 years of age and over made up 4.9 per cent of the world's peoples but 7.5 per cent of the more developed countries' population and less than half that level, at 3.5 per cent, of the population in the developing countries.

Finally, it is important to grasp the difference in the extent to which the populations in the more developed countries and the developing countries were urbanized. For the world as a whole about 28 per cent of the population resided in urban places, but that was true of over half the more developed countries' population (50.8 per cent) and less than 16 per cent of the population in the developing countries. Of the 75 cities in the world which contained 1 million or more persons in 1950, 51 were in the more developed countries and only 24 in the developing countries.

While the data available to the members of the Population Commission were not as comprehensive or as precise as those outlined above, the general world population situation was well known to them. Furthermore, they had reason to be concerned about the interplay of population and social and economic factors in relation to social and economic development.

Members of the Commission were also aware of the fact that, in 1950, an appreciable number of countries had never taken a census or had no recent census; and they knew of the inadequacies of vital registration and vital statistics in most of the developing countries. Finally, the accelerated pace of demographic research in the more developed countries both by Governments and in the private sector, especially in universities and other learned institutes, provided not only new demographic knowledge but, also, revealed great gaps in basic data and knowledge.

EARLY RECOMMENDATIONS OF THE POPULATION COMMISSION (1947-1951)

So comprehensive was the work of the Population Commission at its first session that its activities in the second through sixth sessions consisted largely of elaboration of its earlier directives and in the formulation of more specific requests of the secretariat. The procedure followed, of course, was to make recommendations to the Economic and Social Council, for its approval, and to request the Secretary-General to implement those recommendations. It is to be emphasized that, although it was the Commission which made the recommendations and requests, it was the secretariat staff of the Population Division which prepared the many working papers, compilations, studies and publications.

Below is a list of the accomplishments of the Population Commission and its secretariat, the Population Division staff.

1. In collaboration with the Statistical Commission and the specialized agencies, the development of plans recommended to member states for the conduct of censuses to be taken in and around 1950. The plans included a minimum list of topics for the census schedules and also a list of additional topics to be considered—training of personnel; conduct of field work; detailed outlines for tabula-

tions of the data; and programmes for the publication of the census results. The documentation for the censuses and for possible sampling studies included provisions relating to the active population, including employment and unemployment and classification by occupation, industry and industrial status (employer, employee, unpaid workers etc.).

2. Provision for member Governments of the United Nations to request technical assistance in the conduct of the censuses. Emphasis was placed on the achievement of international comparability.

3. The development of population estimates and projections, including methodologies.

4. In collaboration with the Statistical Commission and the Food and Agriculture Organization of the United Nations, the development of plans for the world census of agriculture.

5. In collaboration with the Trusteeship Council, the development of demographic statistics for trust territories.

6. The planning, compilation and publication of the *Demographic Yearbook*, containing the evaluation of data, the preparation of estimates, and explanatory notes.

7. A study of the relationships between demographic, economic, and social factors in relation to economic and social development. As recommended by the Population Commission, this led to the preparation and publication of *The Determinants and Consequences of Population Trends*.²

8. In collaboration with the World Health Organization, a study of the relationships between population factors and medical and health data and practices.

9. The development of technical assistance programmes by the United Nations for the improvement of national demographic statistics and their analysis for national use as well as for international comparability.

10. The analysis of legislative and administrative matters that affected population—fertility, mortality, growth and migration.

11. In collaboration with various agencies, the initiation of studies relating to retired and aged persons.

12. In collaboration with the specialized agencies and the International Union for the Scientific Study of Population, the planning of a world population conference under the sponsorship of the United Nations. (This led to the World Population Conference, held in Rome in 1954.)

13. To promote improved demographic statistics, the development of seminars and training programmes and programmes for providing expert demographers for technical assistance.

14. The strengthening of population programme through the regional commissions.

15. An increase in the number of Commission members, from 12 to 15, to achieve better regional representation.

16. The development of national training programme, including courses in demographic techniques, for improving demographic personnel.

17. The preparation of various studies of population by age and sex for the world and sub-areas of the world on such subject as foetal, infant and child mortality, international and internal migration, and vital registration and vital statistics for the improvement and standardization of vital statistics.

18. The preparation of manuals on methods.

The above list is drawn from the summary reports of the first six Commission sessions. While comprehensive, it does not include specific reference to the dozens of working papers prepared by the secretariat. It is apparent that the Population Commission vigorously undertook to improve demographic statistics and studies designed to provide a sound foundation of facts as a basis for the formulation of population policy and programmes as elements in development policy and programmes.

THE ATTITUDES AND POSITION OF DELEGATES

Given the rapporteur's summary reports of the Population Commission sessions, it was relatively easy to list the results of the Commission's recommendations to the Economic and Social Council and their requests for action by the secretariat. As a participant in the first six sessions of the Commission and as rapporteur for the fifth and sixth sessions, I can testify that the achievement of a majority vote—let alone a consensus on all matters—was not always easy. The prolonged discussions of the Commission revealed basic differences among its members and difficult problems of communication at some points, by reason of the need for simultaneous interpretation into the working languages of the Commission. The most obvious split in the work of the Commission was apparent in the differences on basic population policies between the delegates of the Western countries and the representative of the USSR and, to a lesser extent, the representative of Yugoslavia. It was clear from the outset that the delegates of the Western countries viewed rapid population growth as a threat to the economic and social development of the developing countries and, also, as a problem—although a lesser one—for the more developed countries. In contrast, the delegates of the USSR and the Ukrainian SSR opposed policies based on "Malthusianism", and took the position throughout the early sessions and, as a matter of fact, during the World Population Conference in Rome, in 1954, that rapid population growth was a problem only for "capitalistic" societies. They held that in socialist societies, since each "person brought two hands, as well as his mouth, to the nation, population was an asset and not a liability to economic and social progress". Needless to say, at many points in detailed discussions the disagreement was an obstacle to reaching expeditious conclusions and recommendations. On fundamental population policies incorporating the need to control fertility and rapid population growth, the Soviet delegate, sometimes joined by the delegate from Yugoslavia, constituted a minority which was out-voted by the rest of the Commission membership.

At one point in relation to recommendations on the occupational classification in the censuses being taken in or around 1950, the Soviet delegates requested that suit-

able inquiries and tabulations be made of persons who did no work but lived on income derived from their property. That proposal led to a spirited debate after which the majority of delegates voted against it on the grounds that it was not feasible to collect such information in many member States. However, on most matters relating to the improvement of demographic data, the evaluation of data, the provisions of technical assistance, and the training and education of demographic personnel consensus was achieved.

It is worth noting that, at least at one point, the interpretation from English (which was the major language used in the discussions) into Russian created a lengthy impasse. The translation of the word "sampling" was rendered into Russian in a manner confusing to the Russian delegates. A long and tedious debate was finally concluded when it became apparent that the translation had led the Russian delegates to believe that, instead of "scientific sampling", only a part of the survey or analysis was to be conducted. When they understood that scientific sampling was to be undertaken, the Soviet delegates had no objection. In general, however, the simultaneous interpreters were amazingly skilled and they greatly facilitated the Commission discussions.

Another unforeseen difficulty occurred when the delegate from the Netherlands objected to the Commission recommendation that studies be made of the relationships between demographic factors and social and economic factors in relation to development. He felt that the secretariat was not qualified to conduct such studies, because the evaluation of the factors involved "certain convictions about the nature of man and human society. These convictions cannot be based on rational grounds but are of an intuitive character." The delegate preferred "that these studies should be assigned to non-governmental agencies. He believed also that since the secretariat was primarily administrative, it could not be expected to perform scientific tasks. The Population Commission, nevertheless, in a vote in which the representative of the Netherlands abstained, adopted the recommendation.

Apart from the matters mentioned above, disagreements among the Commission members primarily involved language usage and shades of judgment, which did not prevent almost unanimous votes and consensus. To be sure, there were some tense moments in the discussions, which usually were dissipated by some member injecting a humorous note. One such an interjection was provided by the delegate of the United States, who asked to have the statement made by the representative of the United Kingdom translated into American.

THE WORK OF THE SECRETARIAT

As indicated above, much of the work of the secretariat in the early years of the Commission arose from recommendations of the Population Commission to the Economic and Social Council and from direct requests to the

Secretary-General for specified technical and policy papers and studies. However, at least two other elements contributed to the work programme of the Population Division staff. One, of course, was the United Nations and its specialized agencies, which made direct requests involving their internal needs; the second was the Population Division staff itself. The staff comprised qualified demographers who exercised their own initiative in working on problems of interest to the profession.

Significant in that regard were the two directors of the Population Division between 1947 and 1952. Frank W. Notestein, who served as the first director (from April 1947 to October 1948) and Pascal K. Whelpton, who succeeded him in November 1950 and who served well into 1952, were both among the more productive and prominent demographers in the United States. Also making a significant contribution in the early years of the Division was John D. Durand, who became director of the Division in 1953 (and served with great distinction to 1965). These expert demographers were well equipped to provide a high-level professional leadership to the Population Division staff.

A fundamental part of the work of the staff is made evident in the publications of the Division (which do not include the many memoranda and technical papers prepared for Commission sessions). Everything published from 1947 to about 1953 was essentially completed by the Division at the United Nations Headquarters at Lake Success, New York.

Perhaps the most important publication of the Division during that time was *The Determinants and Consequences of Population Trends*.² It was truly a "summary of findings of studies on the relationships between population changes and economic and social conditions". It was a prodigious undertaking for such a relatively small staff of demographers, already burdened with many other studies.

Especially notable also were the annual publications, beginning in 1949, of the *Demographic Yearbook*,³ the *Multilingual Demographic Dictionary*,⁴ the series of methodological manuals beginning in 1952 and the series of publications containing population trends, estimates and projections which first appeared in the early years of the Commission and the Population Division.

In general the relatively small staff of the Population Division, in its early work, demonstrated what a dedicated, hard-working and productive group of professional demographers could accomplish.

NOTES

¹ *The Population Debate: Dimensions and Perspectives. Papers of the World Population Conference, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. E.75.XIII.4, vol. 1, pp. 171-187).

² United Nations publication, Sales No. E.53.XIII.3.

³ United Nations publication, Sales No. EF49.XIII.1.

⁴ United Nations publication, Sales No. 58.XIII.4.

THE MYSORE STUDY

C. Chandrasekaran*

SUMMARY

This paper describes a sample survey proposed by the Population Commission at its fourth session and undertaken in co-operation with the Government of India. Conducted in the Indian state of Mysore, the study was an attempt to demonstrate, in a concrete manner, that a sample survey of households could be used to measure demographic characteristics and link them with the process of economic and social change.

Topics to be studied were selected with a view to providing demographic information needed for planning and policy-making. The study sought to shed light on how the population would grow in the future and what economic and social provisions were needed to accommodate that growth. This was accomplished by relating demographic differentials to social and economic differentials.

A closely related objective of the study was to improve the accuracy with which demographic data could be obtained by means of sample surveys of households. Of particular interest was the use of a fertility schedule which provided, *inter alia*, a complete fertility history of each woman interviewed, her attitudes towards having additional children, knowledge and practice of family planning and views on social and cultural matters related to fertility. The findings of the survey made it possible to evaluate the completeness of the reporting of births and deaths, the number of children born, the accuracy of age-reporting and the accuracy of data on economic activity and population size.

Among the substantive findings of the study were the high rate of natural increase, patterns of age at marriage, prevalence of remarriage among widows and the social and economic factors associated with the number of children born. The study gave much attention to the extent of knowledge and practices of family planning methods and found significant differences between younger and older respondents, with regard to the ideal age at marriage.

Not only did the study promote awareness of population problems and contribute to the formulation of population policies in India, but it also encouraged the conduct of field surveys on population and family planning in many other developing countries. In particular, the fertility and family planning portions of the Mysore Study served as a model for surveys in other developing countries and the fertility schedule served as one of the precursors of the schedules of the World Fertility Survey.

THE ORIGINS OF THE STUDY

At its fourth session held, in Geneva in 1949, the Population Commission supported two studies in the programme of work of the Population Division bearing on the interrelationships of demographic, economic and social factors. One was the preparation of a digest of demographic literature, which led to the publication of *The Determinants and*

Consequences of Population Trends.¹ The other was a sample survey to be undertaken in co-operation with a developing country, and India was singled out as an appropriate choice. After the session, the author, who was on the staff of the Population Division, was sent to India to negotiate the possibility of a field project to be undertaken jointly by the United Nations and the Government of India. The proposal received the whole-hearted support of the Government of India, which had begun to concern itself with the preparation of the first of a series of five-year plans for economic and social development. As noted by the Economic and Social Council in its resolution 3080 (XI), "such. . . field investigations will be of use to India

* Survey Director of the Mysore Study; former Director of the United Nations Demographic Training and Research Centre, Chembur, India; former Interregional Adviser on Family Planning for the Population Division, United Nations Secretariat. Currently Honorary Senior Fellow, Institute for Social and Economic Change, Bangalore, India.

in its programme of economic development, to other Governments facing similar problems and, above all, to the United Nations as an essential examination of the demographic aspects of the provision of technical assistance to India and similar new fields in Asia and the Far East". Mysore state was selected as the area in which the survey would be conducted because it reflected many of the economic and social conditions of a developing area in the process of economic and social change. Thus, the Mysore Population Study came into being.² After some preliminary work at Headquarters, the author was sent to India towards the end of 1950 to direct the Study and act as a liaison between the Government of India and the United Nations in the conduct of the Study.

THE INITIATION AND CONDUCT OF THE STUDY

Initial steps in preparation for the Study

The Mysore Population Study was essentially an experiment in the use of a sample survey of households to measure the trends and characteristics of the population and to investigate their interrelations with the process of economic and social change in an area undergoing economic development. At the time the Study was undertaken, statistical sampling techniques were just being developed. There was not much experience in conducting a fairly large-scale sample survey of population characteristics through personal interviews, even in developed countries, and the success with which information could be collected on such characteristics as fertility and mortality in a developing country was not known. In addition, the project was undertaken with meagre financial resources. The technical assistance programme of the United Nations had not yet developed, and for the most part the expenditure for conducting the Study and for processing the data collected had to come from Indian sources. Above all, the scope of the Study had to be determined, and that was made more difficult by the absence of reliable vital statistics in all parts of India, including Mysore state. However, India could boast of a continuous history of a population census taken every 10 years beginning in 1881, and the census data provided the main background for planning the project.

The Home Ministry of the Government of India, which was in charge of census operations, was the official agency of the Government responsible for co-operating in the Study. The Census Commissioner of the forthcoming decennial population census, to be conducted in March 1951, R. A. Gopalaswamy, was a member of the Population Advisory Committee of the Government of India and it was through discussions with that Committee that the author developed the broad plans of the Mysore Study. P. C. Mahalanobis, the well-known statistician connected with the National Sample Survey and Indian Statistical Institute at Calcutta, and his association with the Committee helped in some of the survey operations of the Study and in the mechanical processing of much of the data collected in the Study at the Indian Statistical Institute, Calcutta, at a later stage. Another member of the Committee, K. C. K. E. Raja, had considerable experience in public health activities in India and an intense interest in popula-

tion studies. He served as a link between the Committee and the author, who worked from the United Nations.

A small office had been provided in New Delhi for the United Nations staff. A large part of the initial preparation for the Study, including the development of the household schedule and its initial pretesting, was done in New Delhi and its environs. It was only around June 1951 that the United Nations team, made up of the author and a research officer, P. Sankar Menon, moved to Bangalore City, the capital of Mysore state. New Delhi proved to be a suitable base for carrying out some of the preliminary work for determining such aspects as format and size, time needed for enumeration etc.

The beginning of field operations in Mysore state was delayed, but the delay was fortuitous since it made it possible for census operations in the state to be completed and helped avoid possible confusion in the minds of the public and respondents as to the separate nature of the two enquiries. Further, the organizational experience and the substantive results of the Mysore population census of 1951 proved to be of great value in the selection of sampling areas for the Mysore Study.

The Mysore government evinced keen interest in the Study and extended its full co-operation. However, the Census Superintendent and his staff members were fully engaged in the processing of the 1951 census data and preparation of the state reports, and could not be expected to give much assistance in the day-to-day operations, especially those which related to the field work. A separate field organization had to be developed to carry out the survey. Fortunately, a retired senior officer of the Mysore government who had also served as the Census Superintendent of the state for the 1941 population census, P. H. Krishna Rao, agreed to serve as the Administrative Officer of the Mysore Study and the smoothness with which the field work of the Study was carried out owed much to his knowledge of and experience in the state and his contacts with government officials.

Specification of objectives and selection of areas for the Study

Specification of objectives

India at the time of the Mysore Study was faced with the problem of a growing population in an underdeveloped economy which could only with great difficulty be expanded in proportion to the increasing needs of consumers. Like other less economically developed countries which faced a similar problem, India was hampered in her effort to deal with the situation by lack of sufficient information on many pertinent questions of fact. Little was known about birth and death rates and how they were affected by the activities in the field of public health, the extension of population education, agricultural progress, industrialization, or other measures aimed at achieving a higher standard of living. Little was known about how the population would grow in the future or how great an expansion in employment and in investments in productive equipment, housing, schools etc. would be required on that account.

It was not possible to cover in the pilot study all the types of information relevant to population that might be obtained by interviewing a sample of households. The topics given emphasis were those that related to important gaps in census and vital statistics information that was needed for policy-making and the planning of action programmes. Certain topics on which information could be obtained from other sources were also included in order to gain experience with the use of new concepts and methods of analysis.

Areas selected for study

The choice of Mysore state was justified by the 1951 population census. The state was distinguished for its development in many fields, including public health, agriculture, industrialization, and provision of social amenities. Between 1941 and 1951 it had recorded a population growth of 23.7 per cent, as compared to the national percentage of 13.3. It also lent itself to stratification in the rural areas because of its terrain, varieties of horticultural and agricultural practices, and the type of emphasis that had been given to public health measures and agricultural development in different parts of the state. Like other states, in India, it had its fair share of cities and towns, and the nature of the Mysore Study drew attention to the need for a careful look at differences in the demographic patterns between cities, towns of different sizes and rural areas with different economic and social characteristics.

Although the entire state was stratified on the basis of selected characteristics, the field survey had to be restricted to a few areas only because of cost considerations. The entire state was first divided into six zones on a geographical basis to provide the following stratification:

- | | | |
|-----------|--------------|--|
| Zone I. | Rural hills | Villages with anti-malarial operations |
| Zone II. | Rural hills | Villages without anti-malarial operations |
| Zone III. | Rural plains | Tank-irrigated areas |
| Zone IV. | Rural plains | Canal-irrigated areas with large-scale anti-malarial operations |
| Zone V. | Rural plains | Canal-irrigated areas without large-scale anti-malarial operations |
| Zone VI. | Rural plains | Dry-farming areas |

Within each zone, administrative units were classified according to the size of the population. All communities with less than 5,000 population were treated as villages. Those with a population of 5,000 or more were treated as cities. Communities with 5,000-50,000 population were classified as towns. Towns were further sub-divided into three groups according to size—5,000-9,999, 10,000-24,999 and 25,000-49,999. Since the preliminary figures of the 1951 census for administrative units were available before the field work for the Mysore Study was designed, the size-stratification described above related to 1951.

As explained above, because of limitation of funds, the Mysore Study could not cover the entire state. It was confined to villages selected from zones I, II and III, 15 towns

of intermediate size (10,000-24,999) located in those zones, and Bangalore City, the largest city in the state. Bangalore City was divided into the following five strata, using the data on religious composition given in the 1941 census and the male literacy rates given in the 1951 census for its 50 divisions:

- Stratum 1. Over 35 per cent Muslim areas
- Stratum 2. Over 35 per cent Christian areas
- Stratum 3. Over 35 per cent scheduled caste Hindu areas
- Stratum 4. Other Hindu areas; male literacy 60 per cent or more
- Stratum 5. Other Hindu areas; male literacy below 60 per cent

The stratification procedure adopted for the Mysore Study, apart from its direct usefulness for contrasting the actual demographic situation in relation to developmental conditions in Mysore state, was consistent with the recommendation of the Population Commission on the undertaking of studies which would "provide, by carefully selected examples, useful preliminary insights into the nature of actual demographic problems to be met under varying economic and social situations, in raising the standards of living and cultural level of the population".³

Nature of information obtained in the Mysore Study

The three rural zones, the towns and the five strata into which Bangalore City was divided provided contrasts of development within a relatively, homogeneous cultural context. Using areas as units, as was done in the Mysore population study, made it possible, at least conceptually, to take into account the totality of the effect on demographic characteristics produced by various development activities. The broad nature of the development associated with an area could often be recognized and was the reason for including the area in the Study. The characteristics of development in the rural zones selected for the Mysore Study were obtained through the use of a village schedule by which information for each village selected for the Study was gathered. Further, the household schedule in which the characteristics of each household and of the members surveyed were entered also provided information relating to social and economic characteristics such as education, literacy, caste and religion.

In addition to contrasting the demographic characteristics of the three rural zones with those of the towns and of Bangalore City and of the strata within Bangalore City, the Mysore Study could also work out the differentials in demographic characteristics related to social and economic characteristics of population within each zone or stratum, through the household schedule. The household schedule contained, in essence, the types of information which are normally collected through a census schedule and through birth and death registration forms, although in greater detail. The main demographic characteristics covered by it related to age, sex, marital status and relationship to the head of the household or to closest relative, of each member of the household; the age at first marriage and number of times married for each ever-married per-

son; the number of children born and number of children living for each ever-married woman; and the principal activity of each person and the occupation and industrial status of each person who had worked during the year prior to the survey. A significant feature of the schedule was that it also collected detailed information on births and deaths that occurred in the household after a particular date, using as a bench-mark an important festival which took place about 15 months prior to the start of the field work for the schedule.

Since the Mysore Study was an experiment to test the feasibility of the use of sample surveys of households to obtain demographic and interrelated social and economic data, a great deal of effort was made to improve the accuracy with which demographic data, in particular, were obtained. In addition to the exercise of care in the selection and training of field workers, several innovations were incorporated into the household schedule to help the interviewers and interviewees recall past events, especially births and deaths.⁴ They included the formulation of questions in full on the form itself, the use of ancillary questions to call the attention of the interviewer to past events which might be overlooked, the use of several cross-checks to establish consistency in the information obtained in different parts of the schedule, and the printing of several boxes on the schedule itself where the results of the cross-checks and the explanations for inconsistencies, if any, could be entered.

A special feature of the Mysore Study was the use of a fertility schedule for women and a male attitude schedule for their husbands. The fertility schedule obtained a complete fertility history of each woman interviewed, her attitude to having additional children, her reasons for desiring or not desiring additional children, her knowledge and practice of family planning methods and her views on a number of social and cultural factors related to fertility and reproduction. The male attitude schedule was similar to the fertility schedule, but did not go into detail on the fertility history, since that information had already been obtained from the wife; its purpose was essentially to ensure accuracy and consistency. Only couples in which the wife and the husband had been married only once were selected for an interview.

A population movement schedule developed by Noel P. Gist to study the movement of population into Bangalore City was also made part of the Study when it was well advanced. The findings from the use are included in the report of the Study.

Field work, processing of data and preparation of the report

The design of the Mysore Study called for the completion of 191 village schedules, made up of 48 from zone I, 67 from zone II and 76 from zone III. The number of households selected for the survey was 1,136 from Zone I, 1,567 from zone II and 2,220 from zone III. From Bangalore City 4,548 households, well distributed in each of the five strata into which Bangalore City had been divided, were selected for survey. It was possible to survey almost all the selected households. However, owing to difficulties

mainly related to transport and accommodation for the female interviewers, the fertility survey was confined to zone II among the rural areas selected for the study. Owing to considerations of cost, women in only four strata from Bangalore City were selected from the households surveyed for the fertility schedule. The fertility schedule was completed for about 400 women from zone III and about 1,000 women from Bangalore City. About 80 per cent of the husbands of women interviewed for the fertility survey could be interviewed for the male attitude survey.

Checking of the schedules was taken up in the field. A thorough check was also taken up in the Bangalore office, and in a small fraction of cases reference had to be made to the field workers. The processing of the data on the household schedules was done mechanically, using a newly installed IBM 101 tabulator at the Indian Statistical Institute, Calcutta. The tabulation of the data on the fertility and male attitude schedules was done in New York.

MAJOR FINDINGS OF THE STUDY

Reliability of the data obtained

The Mysore Study, as has been pointed out, was designed to test whether data of sufficient reliability could be obtained through a sample survey of households on the relationships between demographic, economic and social characteristics. Therefore, the quality of the data obtained required much attention. In addition to some of the features used in designing the household schedule, described above, to improve the quality of the basic demographic data obtained by the survey, the Study employed quality checks, both by suitable design of field work and by comparing data obtained by the survey with those available from other sources. In fact, the emphasis placed on the reliability of the data obtained from the survey was so great that, one of the three major parts of the report on the Study (six out of 21 chapters), was devoted exclusively to an examination of the accuracy and reliability of the data. Completeness of reporting of births and deaths, accuracy of data on family size, accuracy of age reporting, appraisal of techniques used for obtaining data on economic activities, accuracy of estimates of population size and errors resulting from interviewer differences formed the subject matter of that part. A few of the salient methodological findings are discussed below.

Completeness of reporting of births and deaths

The completeness of the reporting of births and deaths was investigated primarily through using the cross-checking method. The cross-checking of the data on births obtained through the household survey with those on the registration lists showed that the survey had recorded 91-94 per cent of events in the three rural zones. For deaths, the corresponding percentages ranged from 83 in zone II to 94 in zone III. No significant relation was found between the completeness of recording and the population size of the village, sex, religion and, in the case of births, age of mother. As regards the age of the deceased, the cross-check showed that the recording of deaths in the age group 15-44 years was less complete than in older and

younger age groups. The cross-check of births and of deaths (primarily infant deaths) recorded in the household and fertility schedules in Bangalore City showed that in Bangalore City also, the percentage of births recorded in the household schedule exceeded 90. The number of cases of deaths involved was too few to justify any definite conclusion. Cross-checking with the birth and death registration records of Bangalore City was not attempted, since it would have involved a more exhaustive inquiry than the Mysore Study was able to undertake.⁵

Number of children born

Data on the number of children ever born to a woman were obtained in the household schedule by asking three separate questions on the number of children born and living in the household at the time of the survey, number of children born and living elsewhere, and the number of children born that had died prior to the survey, and pooling the information obtained on those three counts. Information on the number of children born was obtained in the fertility schedule by recording a complete pregnancy history of the woman interviewed. Cross-checking of the information obtained from the two sources showed that the less expensive procedure adopted in the household schedule gave highly reliable information.

Accuracy of age-reporting

Indices of digit preference were used to assess the accuracy of age-reporting. Because of the importance of the data on age distribution in demographic work, considerable effort was made to enhance the accuracy with which age was recorded in the household schedule. Although the Mysore Study gave better data on age than the Indian censuses, the accuracy in age-recording was about the same as that reached in many countries in their population censuses, including, for instance, Brazil. Neither the sex of the individual nor cultural characteristics such as mother tongue or religion were related to the accuracy with which age was reported. Education appeared to be a significant factor in improving age-reporting. It had to be concluded that the Indian population was not traditionally age-conscious. No marked improvement in census data on the age structure of the population could be expected without an extension of literacy among the people and, perhaps, a greater need for such information at various stages of life, such as on entering school, obtaining a job etc.

Accuracy of data on economic activity and population size

The accuracy with which the household schedule obtained data on economic activity and population size could not be investigated as precisely as some of the factors mentioned above. However, there was evidence that the overall information obtained was satisfactory for a survey like the Mysore Study. The Study, however, highlighted many conceptual problems on such terms as "full-time" and "part-time" employment in an agricultural setting, self-employment etc.

Interviewer differences

Interviewer differences distort the value of demographic data in studying both "levels" and "differentials". However, by using a technique called "interpenetrating" samples, interview bias can be made to average out and therefore exert less influence when the values for different groups are compared. The Mysore Study arranged the field work for the household schedule in Bangalore City in the form of a 5 x 5 x 5 Latin Square, taking into account the five strata covered, the five sets of interviewers used and the five time-intervals into which the field work was divided. Whether or not interviewer differences were statistically significant was investigated by analysing the data given by the Latin Squares using the analysis of variance technique. The test showed that there was little variation in the performance of interviewers.

While the household schedule obtained data which were mainly factual, the fertility schedule contained many questions which were subjective in character. Questions on opinions, expectations, desires and motivations formed a large part of the schedule. The male attitude survey was confined largely to subjective questions. As expected, the interviewer differences were more marked in the case of obtaining responses to subjective questions than to factual questions. Owing to practical considerations, field work on the fertility and male attitude surveys could not be so arranged that all interviewers worked equally among all groups. The differences in responses to subjective questions were partly due to differences in the cultural background of the population surveyed and their ability to comprehend the significance of some of the questions asked. In addition, there was evidence of interviewer bias in recording the responses to subjective questions. However, it was concluded that such differences did not prevent the obtaining of a broad picture of the attitudes and motivations of the surveyed women and their husbands.

Substantive findings

Birth rate, death rate and natural increase

The most important finding resulting from the study of births and deaths in the survey was the high rate of natural increase in the population, which was estimated at around 22 per 1,000 per year for the entire Mysore state. Actually, the potential for population increase was even greater. The Malnad (comprising the hilly regions which made up zones I and II), which has had the reputation of being the most unhealthy area in the state (population had declined from 1,031,000 in 1901 to 932,000 by 1941) showed a lower death rate than the Maidan (rural plains, zone III). Yet there was room for further decline in the death rate, especially in the rural plains, and in the more remote villages in the rural hills where the death rates were relatively high, as well as among population groups of low economic status in the urban areas. There were marked differentials in the birth rates between the different areas. Somewhat surprisingly, but not beyond rationalization, the two areas in the rural hills (zones I and II) gave the highest birth rates, even higher than in the rural plains. Bangalore City had a lower birth rate than the neighbouring towns and rural

areas, and the birth rate of the most well-to-do elements of the city population were especially low. In rural areas, the birth rate appeared to be highest among the groups of high economic status; the main explanation was probably the low death rates of those groups, which meant that widowhood was not so prevalent among them as among the poorer classes. Another feature was that the poorest in the rural areas had lower birth rates than those in groups of intermediate economic status. The inverted U-shaped distribution of the birth rate has been observed in other studies in India.

Age at marriage

Age at marriage assumes special importance in India, where marriage is almost universal and where it has been customary among important segments of the population for girls to be married at an early age. In Mysore state, the Infant Marriage Prevention Act, passed in 1894, prohibits the marriage of girls below 8 years of age and of boys below 14 years of age. Mysore state, however, did not adopt the Sarda Act, which was passed in British India in 1930, fixing the minimum age of marriage for a girl at 14 years and for a boy at 18 years. It was only in 1955, after the Mysore Population Study was conducted, that the minimum age of girls was raised to 15 while that for boys to 18 years.

The Mysore Study showed that the age at marriage of females had been gradually rising over a long period in all areas. The increase had been more rapid in the urban than in the rural areas. In Bangalore City, the median age of women born in 1893-1907 was 14.3 years and it had increased by one and one half years for women born in 1928-1932. In towns, the increase was of the same order, but the median age at marriage was a little lower than in Bangalore City. In the rural areas, the median age at marriage was lower than in towns and had increased more slowly.

The Bangalore City data revealed later marriages among Christian, Muslim and the more literate and well-to-do Hindu women than among the remainder of the urban population. Higher education for women appeared to have been an important factor associated with an increase in the age at marriage. But the cause and effect relationship between the two factors could not be inferred from the data obtained in the Mysore Study.

In the case of males, it was exceptional for them to marry before 18 years of age; but more significantly, the median age at marriage of males even in the rural zones had been around 24 years for all cohorts born early in the century as well as in the late 1920s. The Study not only brought out the constancy of the median age at marriage of males during the half century preceding the Study, but also revealed the absence of important differences in the ages at which men married in the different areas and categories of the population. The relatively high age at marriage of males, as compared with the low age at marriage of females, was culturally interesting but its demographic implications could not be investigated in the Mysore Study.

Widowhood and remarriage

The lower death rates recorded in Bangalore City and towns in contrast to the death rates which prevailed in the rural areas (zones I, II and III), coupled with the taboo on widow remarriage prevalent in India, led to the expectation that the proportion of widows would be higher in the rural areas than in the urban areas. That expectation was confirmed by the findings. In the age group 35-44 years, for instance, the proportion of the widowed and separated among the ever-married women in rural areas was 31 per cent as compared with about 22 per cent in Bangalore City and 25 per cent in towns.

The Mysore Study provided some data on the remarriage of widows and separated women. Assuming that all women who had married more than once were widowed or separated at the time of remarriage, it was found that in the age group 35-44 years about 13 per cent had remarried in rural areas while in the Bangalore City it was around 9 per cent. Remarriage of widowed or separated women was therefore more prevalent in the rural areas at the time of the Mysore Study. The proportion of those who had married more than once among the ever-married in the age group 35-44 years was nearly double in the rural areas what it was in Bangalore City, .045 and .021, respectively.

Average number of children born

According to the average number of children reported by ever-married women over age 45, the women in Bangalore City and the towns had a higher fertility than those in the rural areas, although the difference was not very large (5.3 children for the city women, 5.6 for those in towns and 4.8 for those in rural areas). On the other hand, the average number of children born to women who had married once and remained married till they were 45 years of age, was about the same for Bangalore City and the rural areas, the averages being 5.9 and 5.8 children, respectively. The smaller average size of families for ever-married women in the rural areas as compared with those in the city was explained by the fact that the marriages of rural women were more often interrupted by widowhood before they completed their potential child-bearing.

Among the social and economic factors studied, the one which appeared to be most significant in relation to fertility in Bangalore City was educational status. Ever-married women aged 45 years and over with high-school or university education had given birth on an average to 4.0 children, compared to 5.4 for those with less education.

In rural areas the number of children born to ever-married women increased slightly with increase in economic status. The variation was due mainly to differences in widowhood. In both urban and rural areas, women who were reported as "working" during the year preceding the survey had borne fewer children in their life-time than those who reported as "keeping house". Religion was found to be associated with fertility; ever-married Muslim women had borne on an average more children than Hindu women. The average for Christians, who were well represented only in Bangalore City, was less than that for the Hindus.

Family planning

The Mysore Study pointed to several cultural factors which affected fertility in the areas studied. Notable among them were the early age at marriage of girls and the taboo on widow re-marriage, which had opposing effects on fertility. Economic and social developments were other factors which were keeping fertility at comparatively moderate levels. Deliberate family planning efforts were bound to play a significant part in determining future trends in fertility and the Mysore Study devoted a good deal of attention to assessing the extent of knowledge and practice of family planning methods and the attitude towards controlling family size.

Knowledge of family planning methods other than abstinence was extremely limited. Nearly two thirds of the respondents in Bangalore City and nine tenths of those in the rural areas lacked knowledge of any of the eight family planning methods (other than abstinence) specified in the fertility schedule. Apart from abstinence, the method that was best known both in the city and the rural areas was sterilization of the wife. In Bangalore City the most important factor associated with knowledge of methods was found to be educational status.

Practice of any method of family limitation, including abstinence, was very limited in Bangalore City and rare in rural areas. In Bangalore City, only 9 per cent of the couples selected for the survey reported that they had used any method of family limitation—7 per cent having used only abstinence (or safe period) and 2 per cent having used other methods, including condom, pessary and withdrawal. The actual use of abstinence was probably larger than what the survey indicated.

An important finding, with implications for family planning policies, was that 59 per cent of married women in the rural areas and 72 per cent in Bangalore City with from 4 to 6 living children did not wish to have more children. For women with from 1 to 3 living children the percentages were 26 and 42 for rural areas and Bangalore City, respectively.⁶ Men wanted more children than their wives, although the desire to limit the size of the family was fairly common among them, particularly in Bangalore City. The failure to attempt family limitation on the part of persons who wanted no more children could undoubtedly be explained in many cases by lack of knowledge of methods.

Attitude towards reproduction

The attitudes of the couples interviewed in the Mysore Study, who were relatively young, differed in the majority of cases from what had been regarded as traditional ideals concerning marriage and the birth of children. In general, they felt that a woman should not assume the responsibility of motherhood until she attained a certain maturity of years, that she should cease to bear children by the time her eldest sons and daughters would be reaching adulthood and that there should be fairly wide spacing of births. Such attitudes were more prevalent in Bangalore City than in the rural areas. However, it must be pointed out that most rural women who indicated a desire to have no more

children approached the question of reproduction fatalistically and did not know that methods existed for limiting family size. It was also the best educated and most well-to-do elements of the city population that had most fully adopted the small-family idea and related attitudes towards marriage and procreation.

HISTORICAL SIGNIFICANCE OF THE STUDY

The Mysore Population Study was directly and indirectly influential in increasing awareness of population problems and shaping population policies in India and in promoting field surveys to study population and, especially, fertility and family planning in other developing countries. It is not entirely a coincidence that the Government of India incorporated in its first Five-Year Plan a research-oriented section on family planning at a time when the Mysore Study was in full swing. The Delhi office of the Mysore Population Study was visited by many distinguished demographers from abroad, and the author promoted several discussions between them and officials of the newly established Planning Commission. The Study helped to increase the interest that was growing in India to develop policies and programmes to arrest the rapid growth of population. Because of the location of the offices of the Mysore Study at Bangalore and Delhi, the pilot studies on the rhythm method of family planning,⁷ undertaken by the Government of India along with WHO, were located in Ramanagaram near Bangalore and in Lodi Colony, Delhi.

The findings of the Mysore Study gave empirical justification for broadening India's family planning programme across the country, and India's activities in family planning had repercussions in neighbouring countries. The Mysore Study also helped to augment the interest of professionals to carry out family planning research, especially in rural areas. In India itself several KAP surveys were undertaken prompted by the successful field work of the Mysore Population Study.

The fertility and family planning sections of the Mysore Survey have served as a model for promoting survey procedures in those fields in developing countries. The Committee on Comparative Studies in Fertility and Family Planning, set up by IUSSP in the 1960s, used the fertility schedule of the Mysore Study, along with some others, to develop prototype schedules, which were published by the United Nations as Variables and Questionnaire for Comparative Fertility Surveys.⁸ The work was taken as the point of departure in preparing the first version of the schedules for the World Fertility Survey, which were finalized under the guidance of its Technical Advisory Committee.

NOTES

¹ United Nations publication, Sales No. 1953.XIII.3.

² See, *The Mysore Population Study: Report of a Field Study of Interrelationship of Demographic, Economic and Social Factors in Mysore State: India* (United Nations publication, Sales No. 61.XIII.3).

³ *Official Records of the Economic and Social Council, Thirteenth Session, Supplement No. 11 (E/1989-E/CN.9/88), p. 8.*

⁴ An intensive training programme lasting six weeks involving filling of household, fertility and attitude schedules in field situations was carried out prior to the initiation of field work.

⁵ The considerable amount of residential movement which takes place in an urban setting would have made such an enquiry too expensive to undertake.

⁶ These percentages for the early 1950s are particularly interesting when compared with the 1980 acceptance rate for use of family planning

methods for Karnataka (Mysore state) given as 30 per cent in M.E. Khan and C.V.S. Prasad, "A Comparison of 1970 and 1980 survey findings on family planning in India", *Studies in Family Planning*, vol. 16 (New York, Population Council, 1985).

⁷ The results of the rhythm study had a major impact on the population policy developments in India and in the development of a large-scale programme containing the use of a broad array of family limitation methods.

⁸ United Nations publication, Sales No. 69.XIII.4.

THE SIGNIFICANCE OF THE UNITED NATIONS INTERNATIONAL POPULATION CONFERENCES

*Milos Macura**

SUMMARY

In this paper the four international population conferences held under the auspices of the United Nations are placed in historical perspective. Although each was unique, together they comprise a coherent whole reflecting the changing world situation and the increasing understanding of population dynamics and policies.

The first United Nations Population Conference was held in Rome in 1954. Organized in collaboration with IUSSP, it was comprised of experts and emphasized methods and techniques of demography, which was still evolving as an independent discipline.

The second United Nations Population Conference, which took place at Belgrade in 1965, resembled its predecessor in that the delegates were experts. However, it expanded the scope of demographic concerns to related fields and policy issues. For the first time fertility was viewed as a policy variable in the context of development planning.

The World Population Conference held at Bucharest a decade later was the first conference composed of representatives of Governments. Since the scientific and technical topics had been explored in preparatory symposia, the conference focused its efforts on drawing up the first international document on population policy, the World Population Plan of Action. That document reflected the tension between those States that emphasized the need for fertility decline and those States that emphasized the need for a new international economic order.

The International Conference on Population, held in 1984 at Mexico City, was also made up of representatives of Governments. Benefiting from extensive preparations, which included four scientific symposia, five regional meetings and meetings of the Preparatory Committee, it was successful in refining and making more concrete the World Population Plan of Action. Taken together, the four conferences transformed demography from a purely statistical discipline to a multidisciplinary science extending into the domain of population policies and programmes.

Population is, in one way or another, a factor in and a beneficiary of the activities of the United Nations in such crucial areas as peace and development, food and agriculture, international trade, health and education, science and technology, interconnected with them by complex reciprocal links and interactions. Being a complicated system *per se*, and being in addition an important subject of policy, population has been for the past 40 years on the agenda of the international debate. An important part of that debate took place at the four international population conferences organized by the United Nations in Rome, Belgrade, Bucharest and Mexico City.

* Centre for Multidisciplinary Study, Serbian Academy of Science and Arts, University of Beograd; Director of the Population Division of the United Nations Secretariat from March 1966 to January 1972.

EARLIER CONFERENCES

Of course, international population conferences had been organized even before those sponsored by the United Nations. It was at the International Statistical Conference, held at Brussels in 1853, where for the first time at the international level a question relating to population—that of population censuses was raised. Subsequent conferences in that series, convened through 1877, and conferences organized by the International Statistical Institute (ISI), after its foundation in 1885 all had population statistics and other population issues among the principal topics discussed. The same was true for a series of international meetings on demography and hygiene held from 1876 to 1912. It was even more true for the World Population Conference, organized by Margaret Sanger in 1927, with some

support from the International Labour Office and the League of Nations [Zahn, 1933].

Some of those early meetings were the scientific prerequisites and intellectual predecessors of the four United Nations conferences. But by necessity they were different in scope, character, audience and technical and policy impact. After Graunt and Petty, the nineteenth and early twentieth centuries were heavily involved in statistical and methodological development. After Malthus and Marx, however, population theory lost its substantive core, and population study became a part of statistics, sociology, biology or medical science. Specialization and the establishment of self-contained independent disciplines helped the study of population to progress in some ways but handicapped it in others. As far as population policy was concerned, the situation appeared to be especially complex. Family planning was considered for many years to be a private matter and was dealt with by private groups. At the 1927 World Population Conference, the subject of population policy was surrounded by misunderstandings and disillusion. However, encouraging developments in Scandinavian countries eventually provided the scientific, social and humanitarian background for contemporary population policy [Glass, 1940].

CHANGING CIRCUMSTANCES, 1954-1984

Despite the fact that the four United Nations-sponsored population conferences make a coherent entity, particularly if compared with other similar meetings, nothing could be less correct than to say that they were of the same nature. Of course, all four were organized by the United Nations, all were based on the best available knowledge and all were inspired by noble purposes and farsighted principles as embodied in the Charter of the United Nations. Yet, marked dissimilarities existed in the prevailing world conditions, in purposes, audiences and results.

At the time of the Rome Conference in 1954, the world was quite different in many ways. The consequences of war—destruction and human losses—were still felt in many countries and new tensions and conflicts were emerging as a result of the Cold War. Decolonization was only in its early stages. The United Nations had 60 States Members, only nine more than the original number. Among those States, 20 were from Latin America, 17 from Europe, 15 from Asia and the Middle East, four from Africa and two each from Northern America and Oceania. It was estimated that 56 per cent of world population was living in countries that were members of the United Nations.

Thirty years later, at the time of the Mexico City Conference, some 100 former colonies were independent. However, the economic, social and political effects of the change were far below expectation. The world was facing a severe economic crisis and unprecedented differentiation. With 159 States Members covering nearly all of the world population, the United Nations had become a virtually universal organization, apparently strong and united, yet deeply divided over real and imaginary issues.

Of course, the demographic situation changed considerably during the period under consideration. At the time

of the Rome Conference, the acceleration in world population growth was already in progress, with an annual increment of some 45 million persons. At the time of the Mexico City Conference the annual increment was close to 80 million. From 1954 to 1984 world population increased from 2.5 billion to 4.4 billion. Excessive population growth is now considered one of the most serious problems of the world. Of course, the economically less developed countries are particularly affected by the recent population change, which makes their economic and social situations especially difficult and acute.

Before the Second World War, and in the years just after it, statistics and research were not sufficiently organized to explain the complex and diverse world population trends. It was therefore not surprising that prior to the 1954 Conference both the general public and Governments were virtually unaware of the demographic acceleration already underway. The Rome Conference offered an opportunity for experts to mobilize information scattered throughout the world. Supplemented by fresh hypotheses, it provided new insights into population matters. Warnings were voiced as to an imminent population change, but they were mild and with no real effect.

By the time of the Mexico City Conference the demographic situation of the world was reasonably well documented. Census data were available for a majority of the world's countries. The World Fertility Survey archives contained detailed information on reproduction and reproductive behaviour for 62 countries. National and international research teams had mapped population trends and problems at the national, regional and global levels. Among the many spectacular advancements in science, mention should be made of contraceptive techniques and the means to translate them into programmes of action.

Significant change occurred in the complicated and delicate field of population policy also. At the Rome Conference a great deal of attention was paid to policies developed in response to low fertility, a pre-War population problem of Europe, and issues concerning fertility control were discussed on the basis of experience in India and Japan only. By the time of the Mexico City Conference, 30 years later, development policies that ignored population had been replaced by policies aimed at regulating critical population variables. The change was genuine and profound. It took place at both the national and international levels as a result of growing awareness of population problems.

OVERVIEW OF THE FOUR CONFERENCES

The 1954 and 1965 Conferences were organized by the United Nations and its agencies in collaboration with the International Union for the Scientific Study of Population (IUSSP). They were purely technical meetings, organized to provide an international forum for scientific discussion on population and associated matters. Individual scientists took part in their personal capacities. No resolutions or recommendations were sought; the goal was to contribute to scientific knowledge.

In contrast, the 1974 and 1984 conferences were organized by the United Nations alone. They were meetings at

the governmental level, providing an opportunity for governmental representatives to consider salient issues of population policies in relation to other official policies. The development of policies, not of scientific knowledge, was the primary objective, although it was understood that knowledge had to be an important factor. It was expected that both conferences would produce policy documents of national and international scope and value.

Although the objectives, scope, participation and end products of the four conferences differed, there was continuity not only in subject-matter itself but also in the spirit, scientific approach and impartiality in which meetings were conducted. Each conference built upon the achievements of the former. The growth of relevant knowledge, both quantitative and qualitative, satisfied general scientific curiosity and also stimulated an awareness of population problems among policy makers and the general public.

Just as membership in the United Nations was growing, so were increasing numbers of States taking part in the population conferences and adopting population policies:

	1954	1965	1975	1985
States Member of the United Nations	60	118	138	157
Countries participating in the Conferences	74	88	136	147
Countries promoting family planning	3	20	59	123

The trend was encouraging in many respects. The United Nations gradually became a universal organization, and attendance at its population meetings and adherence to population policies also became virtually universal. When assessing the value of continuity, one should not forget that in the 1950s there were only three countries promoting family planning as a policy, while in the mid 1980s there were 123 countries which had in one way or another taken part in family planning projects sponsored and assisted by the United Nations Fund for Population Activities [Salas, 1984].

THE FIRST UNITED NATIONS POPULATION CONFERENCE (1954)

The first United Nations conference in the series was the World Population Conference held in Rome from 31 August to 10 September 1954. It was authorized by the Economic and Social Council in resolution 435 (XIV), in response to a proposal by Julian Huxley and in the understanding that it would provide for the exchange of views and experience among experts on matters pertaining to population. The Conference was organized under the auspices of the United Nations with the close collaboration of the International Union for the Scientific Study of Population (IUSSP), the Food and Agriculture Organization of the United Nations (FAO), the World Bank, the International Labour Organisation (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO). A Preparatory Committee consisting of 25 persons was in charge of the planning and preparation.

Thirty years after Rome, one can only imagine how daring it was to organize a population conference at that time.

Since it was the first technical conference of its scope and magnitude to be organized by the United Nations, there was no prior experience to draw on. In most parts of the world demography was still in its infancy, while trained demographers and other experts on population were scarce indeed. The official mood was one of reluctance and hesitancy: both the Economic and Social Council and IUSSP had strong reservations as to their involvement [IUSSP, 1985].

Nevertheless, 644 experts were invited, of whom 455, from 74 countries took part. Participants were invited to submit written communications on local matters relevant to the Conference. Altogether, 411 papers were prepared and published in full. Before the Conference the first edition of *The Determinants and Consequences of Population Trends* [United Nations, 1953] had been published and circulated; estimates and projections of world and continental population and a report on gaps in knowledge on interrelations between the demographic and socio-economic factors were also published [United Nations, 1955]. A summary report of the proceedings brought together information on the organization and programmes, along with reports by rapporteurs of the substantive sessions. Most of the secretarial and technical support was provided by the staff of the Population Division, under the leadership of J. D. Durand, who was also in charge of the Preparatory Committee.

The agenda of the meetings had to be adjusted to the state of the profession and satisfy its requirements. Accordingly, nine meetings were devoted to statistical and analytic problem, 12 to substantive demographic issues such as mortality, fertility, aging and the like, five to demographic aspects of economic and social development, and two to questions of policies and administration. Synthesis was attempted on the subject of prospects for world population growth and on the economic and social implications of population trends.

Participants in each topical meeting were asked to give attention to a number of topics for discussion which were felt to be of special importance for demography. Thus, for example, the meetings on economic and social implications were to consider agricultural resources, non-biological resources, capital formation, investment and employment, internal migration, aging, family life and, finally, problems of legislation and administration—all as relating to population trends. Two officers were in charge of each topical meeting: an organizer, who had to make programme and other substantive arrangements, and a rapporteur, who had to prepare a substantive report. With so many topics to be taken into consideration, one can only marvel at the kind of imaginative planning and scrupulous organization that must have gone into the 1954 Conference.

Before trying to estimate the value of the Conference, one should ascertain what the organizers expected to gain. In his opening address on behalf of the United Nations, G. George-Picot suggested four different yet interconnected goals. The exchange of experience and pooling of knowledge was basic. But even more important was the need to correct the erroneous beliefs held by the general public and to enlighten Governments and parliaments whose leg-

islative action affected population change. He suggested that the results of the Conference should be submitted to the Population Commission and other appropriate bodies of the United Nations for their own use. Finally, the Conference should also produce a reverberation in circles devoted to scientific research [United Nations, 1955].

Similar hoped-for results were cited by L. Hersch on behalf of IUSSP. He was fully aware that the great problem of the day was the extraordinarily rapid increase in population in economically underdeveloped countries, and that Governments and social organizations were appealing to the demographers for guidance for future action. Demographers could make available the knowledge and "half-knowledge" they possessed, and it was for people of action to decide on what use to make of it [United Nations, 1955].

The contradiction between the expectation that demography would help in solving problems and the reluctance on the part of its practitioners to accept a bolder role had a complicated background, involving problems of demographic knowledge and its critical assessment, the evolution of demography as a discipline, the impact of ideology and the responsibilities of demographer.

Before the 1954 Conference few published studies dealt with international or general issues of population. They included works by the International Statistical Institute, studies on world population by Wilcox and Carr-Saunders, studies on population policies and movements by Glass, four studies prepared by Princeton University for the League of Nations, and the broader generalizations or theories advanced by Landry, Notestein and Sauvy. Under the circumstances, studies submitted to the Conference by the United Nations and individual authors were an impressive addition to the knowledge that existed before. *The Determinants and Consequences of Population Trends* [United Nations, 1953], the first population projections, and the Proceedings of the Conference [United Nations, 1955] were valuable contributions to the literature, and still are.

The Conference also provided an opportunity for what Sir Herbert Broadly called, "formations of ideas" [United Nations, 1955]. Innovative thinking was certainly very important for the development of demography and related studies, but equally important was the identification of at least some facts and trends to explain—even very sketchily—the effect of socio-economic factors on population change and vice versa. It must be acknowledged that the Conference had correctly underline the most significant aspects of the change leading to accelerated growth of population in regions of high fertility. It must also be acknowledged that it had rightly pointed to economic development and fertility control as means which could establish a dynamic balance. Thanks to the contributions made to existing knowledge at the Conference and after it, demography was in the process of establishing itself as reliable source of information and, perhaps, technical advice.

In anticipation of rapidly growing interest in population matters, the need to train demographers and other experts on population appeared to be urgent. One of the training schemes which were considered suggested that advanced

training should have the following objectives: a mastery of observation and analytic methods, with emphasis on statistics; a sound foundation in social sciences and comprehensive knowledge of population problems and demographic theory; appreciation of the interdisciplinary nature of the subject area, and ability to carry out independent thought inquiry, including facility for clear and logical expression. As far as technical aspects were concerned it was felt that demographers had no right to retire into a scientific ivory tower or to avoid great problems.

A. Sauvy was correct in suggesting that the fruits of the Conference could not be harvested at the time it was held but only after a long period of maturation [United Nations, 1955]. In fact, statistics were lacking, some findings were preliminary, some conclusions premature and some propositions not well founded. Thus, for example, the acceleration of population growth was grossly underestimated, fertility change was not fully understood, and doubts were raised concerning the feasibility and desirability of adopting the "Japanese method of legal abortion" or the "Puerto Rican method based on mass sterilization" [United Nations, 1955]. This was, perhaps, why F. M. Houser, in his capacity as rapporteur on population and socio-economic interrelations suggested that ignorance affected several dimensions of demography. Statistics were inadequate for the most of the world's populations, demographic theory was over-simplified and even obsolete; the ability to predict was very limited; and demography was particularly ill-equipped to provide the policy maker with a factual basis for social engineering purposes [United Nations, 1955]. But the criticism offered during the Conference and after it must be qualified: although it was strong, it was not voiced for its own sake but for the sake of improving the state of the discipline and knowledge.

On the surface, the ideological dispute over the Malthusian controversy, which had been going on since the early days of the Population Commission, appears to have overwhelmed certain technical meetings of the Conference. But underneath a new ideology—that of the United Nations—was slowly shaping a new concept of universal demography. The process was invisible, except in some instances, such as a meeting at which various experts discussed the problem of high birth rates, from different historical perspectives and cultural background [United Nations, 1955]. The objective of that process was set forth in conformity with United Nations philosophy, which holds that all populations of the world should be properly studied and their problems understood in the context of their particular economic, social and cultural conditions, for the benefit of their own progress, as well as for the progress of the world as a whole.

By necessity, the shaping of demography as a universal discipline was associated with a re-examination of the demographer's responsibility. Expressing more optimism and hope for the future in his concluding remarks than in his opening statement, L. Hersch observed that the Conference had at long last broken through the narrow circle of pure demography and scientific isolationism so dear to the demographers of the nineteenth and the early twentieth centuries. The Conference had shown how futile were the

over-simplified concepts of a universal law of population and how harmful was the split between demography and economic theory and practice. Moreover, the Conference had drawn attention to the need for considerable economic and scientific assistance to developing countries and had indicated some rational methods of approach to practical measures. Demographers were convinced that a new era of demography had begun.

THE SECOND UNITED NATIONS POPULATION CONFERENCE (1965)

The World Population Conference held at Belgrade from 30 August to 10 September 1965 was the second in the series of such United Nations conferences. It was a scientific conference on population, convened under the auspices of the United Nations, authorized by the Economic and Social Council (resolutions 820 C (XXXI) and 933 B (XXXV)) and the General Assembly (resolution 1838 (XVII)), and organized with the close collaboration of IUSSP and the five specialized agencies interested in population matters.

Some 1,400 experts were nominated by Governments, the organizing agencies and concerned international non-governmental organizations, of whom 852 attended the Conference in their individual capacities. Participants came from 88 countries.

There were 25 background papers prepared on behalf of the organizing agencies and 513 papers prepared by the participants, of which 266 were prepared in response to invitations from the organizers. Papers were allotted to 23 topical meetings, each having a chairperson, an organizer, responsible for substantive aspects of the meeting; a moderator, who was asked to highlight the issues raised in the papers; and a rapporteur, responsible for preparing a summary of the discussion. The published papers constituted a major contribution to scientific and technical literature relating to the population question [United Nations, 1967]. It is to be regretted that no reports of the two plenary summary meetings were published, nor were the 25 background papers, which were to have been published in a revised version of *The Determinants and Consequences of Population Trends*. (Unfortunately, that proved to be unfeasible.)

A Preparatory Committee consisting of 26 members, of whom 21 represented specialized agencies and five served in their individual capacities provided advice for preparation and organization of the Conference. The United Nations Secretary-General was represented in the Committee by J. D. Durand, Assistant Director, Bureau of Social Affairs, in Charge of the Population Branch. Most technical support to the Conference was given by the United Nations staff.

Conceptually and from the point of view of its organization, the Belgrade Conference was a continuation of the Rome Conference, but with a higher level of participation and a wider spectrum of problematique. The period between 1954 and 1965 was of course a period of maturation. But it also was a period of new search and endeavour and, of some unexpected setbacks. All the trasting fea-

tures of the world population situation had a bearing on the conduct and results of the Conference.

In addition to flourishing empirical research, a thorough re-examination of demography as a scientific discipline had been undertaken after Rome. Thus, for example, an "inventory and appraisal" of demography had been conducted by 30 scientists assembled by P. M. Hauser and O. D. Duncan [1959]. A massive study of the "system of demographic knowledge" had been initiated at the Lomonosoff University of Moscow [Valentei, 1961 and 1976]. In support of high-level education on demography and research in the population field. UNESCO had conducted two field inquiries on educational and research problems [1958, 1959]. Development of what was termed "universal demography" was, in addition, being promoted in many ways: the *Multilingual Demographic Dictionary* had been prepared and published by the United Nations in four languages [1958]; a series of international meetings on population had been organized; and training of demographers had been promoted at the leading national universities and the United Nations regional demographic centres.

The ideological dispute over population issues continued in both the parliamentary bodies of the United Nations and in the literature [Sauvy, 1958; Valentei, 1963]. Because of the objections raised by some Eastern European countries and many countries of Roman Catholic tradition, United Nations work on population policy and family planning was banned. The same was true for research on methods of fertility control at the World Health Organization. It was in this spirit of non-tolerance that a paper on family planning, written by an international recognized medical expert, was not admitted to the United Nations Conference on Science and Technology held in 1962 at Geneva.

But owing to a growing involvement in matters of development and an increasing concern over the First United Nations Development Decade, a new tide of interest in population appears to have spread through the Organization. In 1962 the General Assembly adopted a resolution in which it recognized the relationship between population growth and economic development and requested the Secretariat to provide assistance to countries in population matters when they asked for it. In 1964 an *ad hoc* Committee of Experts recommended that the scope of the United Nations assistance be extended so as to include questions of population policy and national programmes of action aimed at modifying population trends in ways which Governments consider to be in national interest. That recommendation was accepted by the Population Commission at its thirteenth session, which was held before the Conference. And finally, upon the request of the Government of India, the United Nations organized a mission to advise the Government on a family planning programme. It should be added that similar developments had taken place in WHO, FAO and other competent United Nations agencies, in line with their particular responsibilities.

Throughout the Belgrade Conference itself, three fundamental issues were of major prominence: economic and social development, particularly of the developing nations; fertility and family planning, especially in

regions where fertility was high; and research needed to support planning for, and administration of, those two aspects of development.

The twin problems of population and development were highlighted by P. Stambolic, Prime Minister of Yugoslavia. In his welcome address he said, *inter alia*: "any countries, while intensifying their economy's development, are opening the way for changes in the population's traditional structure . . . and creating conditions for more rational and more human reproduction. It goes without saying", he pointed out, "that the choice of a population policy is a matter for sovereign decision on the part of each country. That, however, does not exclude the possibility of . . . seeking in meetings such as yours, the best possible solutions . . . both from a national and a world wide point of view" [United Nations, 1966].

The representative of the Secretary-General, Philippe de Seynes, spoke of similar problems from a different perspective. In addition, he said that to "the major confrontations . . . on science and technology, on trade and development", which had taken place under the United Nations auspices, a new one had been added, "the phenomenon of accelerated [population] growth on an unprecedented scale". He observed that in the face of a complicated and pressing situation, the current state of demography was not wholly satisfactory, particularly in view of growing needs of Governments for information and advice. He urged more "factual data and the analytic tools required for the execution of economic and social policies, taking demographic factors fully into account". He mentioned the growing interest in birth control among Governments and, referring to the "neutral attitude" of the United Nations organs in that matter, he declared, "but we are ready to respond to all requests for assistance from any country which, on the basis of its own assessment of the situation, has decided to embark on such a policy or explore its possibilities" [United Nations, 1966].

In view of the growing interest in matters of population and development at the United Nations and elsewhere, it was not surprising that 65 per cent of the topical meetings and 63 per cent of the papers submitted by participants were devoted just to those topics. The discussions covered the variety of demographic aspects of development; problems of fertility, including family planning; and questions of population prospects and projections. The distribution of meetings and papers according to subject-matter is indicated below.

Subject	Number of meetings	Number of papers
Demographic aspects of development	8	163
Fertility and family planning	4	103
Population prospects and projection	3	47
SUBTOTAL	15	313
Methods and measurement	3	72
Morbidity and mortality	2	44
Internal migration (rural to urban)	1	33
Population genetics	1	13
Promotion of research and training	1	12
TOTAL	23	487

Of all papers submitted to the Belgrade Conference one third were on the demographic aspects of development, which were discussed in eight topical meetings. The old debate between "technological optimism" and "planned population equilibrium" dominated the meeting on population and natural resources. In one statement it was suggested that both increasing agricultural production and decreasing rates of population were essential for the economic and social progress of developing nations. On a more general level it was observed that high rates of population growth were detrimental to savings and investment rates. But, decline in the rate of population growth, although important, was not seen as the sole or most important variable in determining economic growth [United Nations, 1966].

Three meetings on future population and projections were also development-oriented. Different assumptions and underlying theories strongly affected the world population projected for the year 2000, which was estimated by A. Y. Boyarsky at 4.6 billion and by J. Durand at close to 6 billion [United Nations, 1967]. As far as methods were concerned, there were no differences involved in efforts to develop projections of populations that would suit purposes of development policy and planning.

Changes in fertility and its differential trends and patterns were discussed by R. Freedman in a broad social context [United Nations, 1966]. In addition to demographic and socio-economic factors of fertility, attention was given in Belgrade to religions and social attitudes, to birth control, and to mass abortion as a new phenomenon in Eastern Europe.

In the discussion of fertility at the societal level, issues of family planning programmes were quite prominent. B. Berelson summarized the main characteristics of programmes in some 20 developing countries by saying that the question was not whether such programmes were needed but whether they were effective [United Nations, 1967]. C. Chandrasekaran discussed questions of effectiveness, while some 15 papers reported on national experience in fertility. Some authors presented results in the search for a social theory of organized birth control, and others focused on its economic aspects.

The study of mortality was hampered by deficient statistics; complete mortality statistics were available for less than 40 per cent of the population of the world, 7 per cent of Asia and 4 per cent of Africa. In consequence, out of 44 papers prepared for two meetings on mortality, only 13 were from the developing world.

There was no provision made for synthesis and evaluation of the proceedings of the Belgrade Conference. Nevertheless, many comments in topical meetings make it possible to appraise the state of the discipline and foresee its evolution.

The availability of data was still poor, despite contribution made by the 1960 round of censuses. With no methods for indirect estimates of demographic parameters available, demographers had had to rely on borrowed data or crude estimates for a large portion of world population. Even a simple descriptive analysis of world population change was difficult to produce. Under the circumstances, the United Nations publications, especially *Demographic*

Yearbook, Population Bulletin and various methodological manuals, were most welcome.

Between the Rome and Belgrade Conferences many significant contributions were made to demography in the form of monographs and studies. However, most dealt with a single country, situation or period, so that syntheses or generalizations were difficult to make. This was also true, *mutatis mutandis*, of papers prepared for the Conference. Thus, at the time of the Belgrade meeting, on the world map of demographic knowledge, there were bright spots of well established data side by side with quite large areas of ignorance.

The Belgrade Conference was much more involved in substantive issues than in methods and techniques. The task of synthesis was therefore more complicated and difficult than in Rome. In the absence of data, one rapporteur pointed out, testing of hypotheses was impossible; and even if data were available for certain situations, they might not be applicable to others. In some instances available data would not necessarily lead to definitive conclusions, and recourse to models might be attempted; yet models appeared to some to be unrealistic and useless. In some instances conclusions were derived in "extremely simplified form", while in others, they remained controversial. In general, although progress had been made, much more knowledge of population needed to be acquired.

The Belgrade Conference was the first United Nations meeting of its scope at which fertility was discussed not only as an explanatory variable, but also as a policy variable. Fertility was seen as a key factor in population policy and a significant component of development. In 1954 the right of an individual parent to control the number of his or her children was regarded as a basic human right and leading principle for governmental policy; in 1965 that principle was placed in its social and international context. It was stipulated at Belgrade that the formulation and implementation of population policy was a matter of sovereign decision on the part of each country concerned and an important component of economic and social development. It was also stipulated that, population policy and assistance to development were by their very nature, not alternative policies but complementary and supporting ones.

THE THIRD UNITED NATIONS POPULATION CONFERENCE (1974)

Changes in the perception of population problems, 1954-1974

Certain developments between 1965 (Belgrade Conference) and 1974 (Bucharest Conference) prompted a profound change in the perception of population problems on the part of the United Nations, which for the first time began to involve itself in policy-making and action. Hard demographic facts combined with less than satisfactory economic performance in the developing world were the major factors. Another important factor was the desire for dignity surrounding birth, death and other events that collectively constituted population change. Furthermore, international public opinion was expecting something to

be done about rapid population growth and, moreover, to be done internationally. After the Belgrade Conference, internationalization of population policy was very much in the air. There was also a significant change in the behaviour of Governments in that opposition, neutrality and reluctance were giving way to more positive attitudes towards population policy. A number of developing countries with appreciable experience in demography—notably India, Pakistan and Egypt—wanted the United Nations to be more committed to the population cause. Opposition to it in Latin America, Eastern Europe and elsewhere was gradually diminishing on different grounds. The Scandinavian countries, Sweden, in particular—were promoting family planning. A number of industrialized countries were changing their neutral or non-committal positions, to become supporters of family planning in developing countries. A rather radical change had taken place in the United States of America from the early 1950s to the mid 1960s when President Johnson had declared that \$5 invested in population control was worth \$100 invested in economic growth.

At the Belgrade Conference it was already obvious that most population specialists were in favour of some kind of population policy and that family planning was a subject worthy of the interest of IUSSP. The International Planned Parenthood Federation, whose national member associations were acquiring increasing support, was firmly committed to the idea. Population questions were attracting increased attention from certain learned associations, and one of the oldest—the International Statistical Institute—undertook to conduct the World Fertility Survey, the largest social science inquiry ever conducted. On the whole, intellectual support for societal intervention in population matters and, particularly, in fertility was growing.

It was only natural that the change in governmental attitudes and intellectual support were felt at the United Nations and its specialized agencies. The internationalization of many aspects of population policy making was under way; a community of interest among nations with regard to control of global population trends was developing.

In 1966 the summary of highlights of the Belgrade Conference [United Nations, 1966a] had been widely circulated among the member States, to make it clear that the United Nations was ready for new tasks and responsibilities. In December 1966 the famous resolution on population growth and economic development (2211 (XXI)) was adopted by the General Assembly. Also in December 1966 Secretary-General U Thant had received a Declaration on Population signed by 12 world leaders. In order to bring population programme closer to member States and to provide, upon request, appropriate advice, regional population divisions were established and population programme officers were appointed. In addition, demographically relevant programmes were initiated, as appropriate, by the specialized agencies and other United Nations organs.

The Secretary-General established a trust fund for population matters and invited voluntary contributions, but the response was less than adequate, for reasons beyond

the control of the Organization. In 1969 the fund was reorganized into the United Nations Fund for Population Activities, and transferred to the United Nations Development Programme, and R. Salas was appointed Executive Director. At that point, prospects for the future of United Nations population and family planning brightened. Not long after its reorganization, UNFPA became an important agency in many areas of population assistance [Salas, 1977].

By the end of the 1960s a feeling had developed that the next population conference (if one were to be organized) would have to be on policy issues rather than on scientific questions. In order to collect views and opinions from different parts of the world, a small *ad hoc* committee was formed, consisting of J. Bourgeois-Pichat, A. Chandra Sekhar, W. H. Draper Jr., K. de Graft Johnson, Carmen Miro and P. G. Pody-achikh, with M. Macura from the Population Division. The recommendations of the *Ad hoc* Committee—that a conference should be scheduled to decide on matters of population policies and programmes, and that 1974 should be proclaimed World Population Year—were elaborated upon by the Population Commission and approved by the Economic and Social Council (resolution 1484 (XLVIII)) and the General Assembly (resolution 2683 (XXV)) of 1970.

The conference agenda

The third population conference held under United Nations auspices was organized for governmental representation and met from 19 to 30 August 1974, at Bucharest, in conformity with Economic and Social Council resolutions 1672 B (LII) and 1835 (LVI). Representatives of 136 States took part in it, plus one observer for a Government and representatives of four national liberation movements. The Conference was also attended by representatives of the interested organs and agencies of the United Nations, observers from 11 intergovernmental organizations and 109 international non-governmental agencies. There was also a series of parallel and associate activities in which more than 1,400 persons took part. The Conference was mandated to consider basic demographic problems, their association with development, and policies and action programmes needed to promote human welfare and development. The Population Commission was designated as the preparatory body for the Conference and for the 1974 World Population Year. A. Carrillo-Flores was appointed Secretary-General of the Conference and L. Tabah, Director of the Population Division, as his deputy. R. Salas, Executive Director of the United Nations Fund for Population Activities, was designated to be responsible for World Population Year.

There were no scientific or technical topics on the agenda of the Conference. Scientific contributions were made in four symposia: population and development; population and the environment; population and the family; and population and human rights. Reports of the symposia were submitted to the participants and later published in two volumes [United Nations, 1975a].

In addition to a few questions of procedure, there were five substantive items on the Conference agenda. Questions

on population trends and prospects were considered in the plenary. Problems of population and development, population and the environment and population and the family were allocated to committees. The key issue at the Conference was the adoption of a population plan of action, and a draft plan was allocated to a large working group.

The World Population Plan of Action

The World Population Plan of Action had been drafted by the Population Division, with assistance of an advisory committee of experts chaired by W. D. Borrie. It had subsequently been reviewed by the Population Commission and discussed with representatives of Governments at a series of five regional consultations [United Nations, 1975]. At the Conference, the draft was then thoroughly discussed, amended and redrafted in all its essential parts before finally being adopted by the representatives assigned to the working group. After 10 days of discussion and argument, sharp disagreement and compromise, it was adopted by the plenary.

The World Population Plan of Action consists of two short sections on the background to the Plan and on its principles and objectives, followed by the main section, which contains recommendations for action with regard to

- (a) Population goals and policies;
- (b) Socio-economic policies;
- (c) The promotion of knowledge and policies.

A final section deals with recommendations for implementation, addressed to national Governments and international organizations concerned [United Nations, 1975]. The Plan is regarded as major international strategy, to be implemented along with other major United Nations strategies. It is the first international document on population policies, programmes and measures. Although it deals with the fundamental aspects as well as with certain details of national population policy and programmes, it does not attempt to outline any kind of world population policy, despite the fact that such a policy must have been on the minds of at least some countries.

Certain significant differences between the final text and the original draft are worth noting. As a rule, the additions, substitutions and changes were designed to make the aspects of population policy weaker, and the aspects of social and, particularly, economic concern stronger. These changes were possible because the Conference became polarized: the "incrementalist" position, identified with a group of Western States, among which were the United States, the United Kingdom, Germany and others, believed that rapid population growth was a serious impediment to development; the "redistribution" position, followed by a group of developing countries in which Algeria and Argentina were the most vocal, believed that the population problem was a consequence—not a cause—of underdevelopment and that it could be solved by a new international economic order. There was no doubt that the idea of a new international economic order was the prime-mover behind the many amendments to the original draft.

There were other factors that contributed to the changes made at Bucharest. Among them were nationalistic or religious forces that militated against family planning and population policy in general.

After the World Population Plan of Action was adopted by the Conference, representatives of some 20 countries made statements in which they either commended the Plan or expressed their concerns or reservations to it. The hope that the Plan would stand scrutiny has been borne out. It was reviewed by the General Assembly, which recommended its implementation to all parties concerned (resolution 3344 (XXXIX)).

THE FOURTH UNITED NATIONS POPULATION CONFERENCE (1984)

The International Conference on Population, the fourth in the series convened by the United Nations and the second one of an intergovernmental nature, was organized in accordance with Economic and Social Council resolutions 1981/87 and 1982/42 and met at Mexico City from 6 to 14 August 1984. The Population Commission, with full participation open to all member States, was designated as preparatory committee. R. Salas was appointed Secretary-General of the Conference, and L. Tabah, Deputy Secretary-General.

More than 100 States took part in the work of the Preparatory Committee. Substantive preparation was carried out through four expert groups meetings, to which individual experts were invited, together with representatives of the United Nations, specialized agencies and regional commissions. Their task was to examine questions and policies relating to fertility and the family; population distribution and migration; population, resources, environment and development; and mortality and health policy. They provided the Conference with facts, analyses and policy advice on a good number of the problems before it. In addition, five regional meetings convened to consider regional aspects of population problems and policies.

The two major objectives of the Conference were to review and appraise the World Population Plan of Action and to make recommendations for the further implementation of the Plan. Several important factors worked in favour of a fruitful Conference—namely, good preparation, shifts in public opinion in favour of governmental population policies, modifications of ways in which population problems were perceived and interpreted, and growing international co-operation on mutually acceptable terms.

By 1984, after a short period of hope raised in the early 1970s with regard to the improvement of conditions in the developing countries, disillusionment and distress had spread over the world. Recession, high interest rates and protectionism significantly contributed to the world debt crisis. Distortions in the international monetary and financial system as well as inadequate economic performance adversely affected the standard of living in many countries, particularly the developing countries. At the same time, super-power rivalry, an accelerated armaments race, and political instability accompanied by local wars and

military interventions, seriously eroded international co-operation in all fields.

Nevertheless, under those unfavourable economic and political conditions, the rate of growth of world population had appreciably declined. The decline was primarily due to a change in fertility in the developing world, with marked regional and national variations. The relevant experience of some nations—notably, China—was of particular interest to the world community. It pointed to the important role which family planning programmes could play in a fertility transition where economic stimuli were rather modest and thereby confirmed, a major proposition in recent theory concerning the mutual support of population and economic development policies. This, no doubt, had stimulating implications for further policy developments.

In 1974, in resolution 3344 (XXIX), the General Assembly requested the Economic and Social Council to give special attention to the implementation of the World Population Plan of Action. That resolution and the Plan itself appeared to have at least a three-fold effect on the development of national policies. First, they had a policy and moral effect, which made population and family planning questions a legitimate concern of Governments. Before Belgrade, family planning was not considered an acceptable subject in respectable intergovernmental circles; after Bucharest it became a subject of deliberation at the highest level. Secondly, they had a direct effect on rules of conduct and standards of behaviour, both multilateral and bilateral. Thirdly, they had an effect on the volume and composition of international population assistance, which, thanks to UNFPA, were significantly increased and diversified.

In consequence, the Governments of an increasing number of developing countries were initiating population policies suited to their national interests. A rather important factor was the growth and the diversification of knowledge on population and related matters. In the extended area of demography, marked contributions were made to the more traditional topics, such as demographic variables and in particular, fertility; the complex phenomena and interactions of population and socio-economic factors; the still intriguing issues of population policies; the more recent study of the population of China, and the like. Interdisciplinary research on family planning had explored a variety of health, methodological, management and development problems, contributing to the efficiency of national population programmes. On another level, progress in the fundamental study of the reproductive system made it possible to extend the scope of research aimed at improvements in contraceptive technology applicable to the regulation of human fertility.

Under such circumstances it was possible for R. Salas to address the Conference in an open and direct manner. He suggested, *inter alia*, that an overriding objective of population policies should be the stabilization of the world population, subject to respect for the dignity and freedom of the human person and with due regard for availability of resources and other factors of production. Global population programmes should continue at a still higher level of performance. Parents should have the knowledge and

means to control the size of their families. At a more practical level he suggested that national goals and policies should be made consistent with global ones, that specific time perspectives should be realized, that recommendations and policy measures should be coherent and cognizant of the ever-changing knowledge and technology, and that Government should be sensitive to the basic human rights involved [United Nations, 1984].

Discussion in the plenary on the review and appraisal of the World Population Plan of Action was neither speculative nor hypothetical, for it was based on 10 years of experience with the Plan and, of course, political assessment of that experience. For obvious reasons, the debate followed a complex pattern in which population and other factors of development were interwoven with aspects of policy and different ideologies or policy positions and opinions. While there were some extreme views expressed with regard to unsatisfactory implementation of the Plan or, perhaps, with regard to the underlying factors of inadequate population change, the main thrust of the debate was oriented towards as accurate as possible an evaluation of world population change. On more than one occasion the Conference was snarled by political controversy and mistrust. Yet, it was finally clear, at least to the participants, that the end results and not any one part of the proceeding would speak for the Conference.

The changing positions of individual countries between 1974 and 1984 attracted a great deal of public attention. Some participants at Mexico City supported the very arguments that they had criticized or ignored at Bucharest. Thus, for example, at Bucharest, China and India made no reference to fertility control, whereas at Mexico City, they placed strong emphasis on family planning programmes. The United States, on the other hand, moved away from government-supported family planning programmes towards free market and private initiative.

The recommendations for the further implementation of the World Population Plan of Action, submitted to the plenary by the Main Committee, consisted of a preamble, a section of recommendations for action and a section of recommendations for implementation. In the course of the deliberations, a further section, on peace, security and population, was drafted and inserted after the preamble. There were altogether 88 recommendations in the new document, the structure of which was very similar to the original one, but better organized and more consistent. Yet a critical examination pointed to some inconsistencies and unsolved problems.

The new section on population growth (recommendation 13) said very little, while the section on reproduction and the family (recommendations 25-33) was not properly structured and not explicit enough. Those two sections are in sharp contrast to well-articulated sections on mortality and international migration. At another level, the twin principles of population policy—the sovereignty of nations and the rights of individuals—were rightly given a prominent place. But, continual reference to human rights appeared to have overshadowed society's need for adequate reproduction and population structure. With regard to fertility, on which conflicting opinions exist in both high-fertility and low-fertility regions, there was no

explicit reference to instruments to facilitate appreciation of society's needs. Finally, it was surprising that no mention was made of the notion that an improvement in the population situation should go hand in hand with improvement in standards of living and the quality of life [Macura, 1984].

The work of the Main Committee was seriously delayed by conflicts over peace and disarmament and the occupied territories in the Middle East [Sai, 1984]. In the plenary, after a vote on a paragraph concerning the occupied territories in the Middle East, the Conference adopted the recommendations by consensus and by acclamation [United Nations, 1984].

In addition to the recommendations, the Conference also adopted the *Mexico City Declaration on Population and Development* [United Nations, 1984, chap. I]. It was prepared by the President of the Conference, assisted by a small group of participants and was designed to bring the message of the Conference to wider audience, including policy makers, the general public and professionals whose main interest is not population questions.

It was generally felt that the Plan of Action had been strengthened and invigorated. R. Salas pointed to a "need for operational programmes and for increased resources to support them", and urged Governments to attain "self-reliance in the management of their population programmes" [United Nations, 1984]. P. Demeny observed that the "refined" Plan of Action was "a consensus document, with the Vatican alone a dissenter". He further stated, "It is a document of considerable merit, just as its Bucharest progenitor was. Its countless thoughts and precepts offer a treasury of helpful quotations" while its "exhortations and injunctions will give stimulus and lend authority to useful actions" by all concerned [Demeny, 1985]. L. Tabah thought that the new text "was more concrete" than the Plan and contained "more action-oriented commitments" [United Nations, 1984]. Finally, M. Macura thought that the recommendations were a "comprehensive policy paper, well-structured and balanced . . . easy to read and understand in spite of occasional lack of precision and unavoidable ambivalence" [Macura, 1984].

ACCOMPLISHMENTS AND IMPLICATIONS

The four Conferences under consideration have witnessed a major transformation of demography, from a wholly statistical discipline engaged in the collection and analysis of data into a multidisciplinary science whose concerns extends to the exploration of future trends, policy research and the evaluation of population policies and programmes.

At least four major accomplishments can be identified in the transformation process:

(a) The constitution of demography as an independent scientific discipline of universal import (Rome);

(b) The extension of demography to related fields of scientific and political concern—notably, to economic and social development and population policy (Belgrade);

(c) The formulation of principles and measures of sovereign national population policies, with emphasis on changing the international economic system (Bucharest);

(d) The analysis of progress on and refinements to the World Population Plan of Action with a view to its further implementation in the world (Mexico City).

The transformation of demography was obviously not made in isolation; it was intimately linked to national and international engagements in population-related programmes. Those programmes—starting with demographic statistics, through teaching of demography, to research on population and associated phenomena—were and still are important aspects of applied demography. Yet, after Belgrade and Bucharest, in particular, demography came to be increasingly applied to the formulation and evaluation of development and population policies and especially population programmes.

The fact that the United Nations and its States Members are increasingly engaged in fostering population change points to another line of accomplishment:

(a) At the intellectual level and in development policy-making, it is generally appreciated that population has a role to play in economic and social development;

(b) It is also generally appreciated that population policy and its objectives with regard to the basic dynamic and structural variables of a given population are to be formulated in a broad context of development policy;

(c) At a more practical level, there is a tendency to adjust the relevant aspects of legislation, social institutions and economic measures to the requirements of population policy, whenever feasible;

(d) Many countries have established most national population programmes in order to alter fertility and other variables.

Population policies and family planning programmes were developed, only after thorough study and long debate. Demography has produced new reasons and arguments in favour of these policies, in addition to reasons already advanced by the family planning movement, organizations for protecting migrants' rights, and the like. Unlike policies and action programmes in many other development fields, such as industrialization, agricultural development, public health etc., those in population were latecomers to the national and international scenes.

One of the major implications of that lateness is that the effective control of population growth began only after world population had already reached 44.5 billion or 5 billion people. The enormous population base is and will continue to be a factor contributing to continuous growth of world population throughout the twenty-first century. This would perhaps suggest that bolder efforts should be made to speed up population declines in all countries with fertility above replacement.

Another major implication is that further internationalization of population policies may be needed in order to accelerate population change. The call for a universal population policy at the Mexico City Conference has not been met with much response. It seems that efforts to formulate a universal policy—as urgent as it is—may be premature. It is true that no dissenting opinions were voiced in relation to further increases in life expectancy, but differences certainly existed on the subject of international migration. Consensus on differential fertility objectives maybe

viewed in the light of structural problems and difficulties, too. Moreover, a geopolitical dimension of the world population problems, referred to by the Secretary-General of the United Nations, deserves full attention.

If further internationalization aimed at a universal population policy is a plausible alternative, the positive atmosphere of which M. de la Madrid Hurtado, President of Mexico spoke, is essential. A spirit of harmony in conformity with principles of peaceful coexistence, international co-operation, justice, freedom, development, and respect for human rights is a prerequisite for the further development of population policy. One should certainly look for “a better future for the world's population”—a future of peace and justice free of racial prejudice and discrimination, a future marked by international solidarity and co-operation, and one without dominance and exploitation [United Nations, 1984].

A third major implication concerns the future role of the United Nations in population fields. World population projections imply that the system will have to face new challenges without delay. It should increase its involvement in the four following functions:

(a) The system has to provide for the research and study needed for a better understanding of population change and for more effective control of that change, in addition to monitoring and appraising the World Population Plan of Action;

(b) Policy function should be strengthened at all levels of the system in order to facilitate promotion of the international aspects of population policies and actions;

(c) The application of United Nations ideals and principles to population policies and programmes will be increasingly needed as a safeguard against new attempts to challenge the United Nations philosophy of international co-operation in world's affairs;

(d) Assistance and support of appropriate kinds, given by the United Nations Fund for Population Activities to national population policies as well as action and research programmes, will be needed on an increased scale.

No international action will be effective if the implications of the Mexico City Conference are not understood by Governments and people, and translated into action at the national and local levels. That action will to a great extent depend upon economic and political conditions and the conditions of national security in which peoples live. It would be tragic, as the Secretary-General warned at Mexico City, if population policies which were painstakingly developed over the past years, and were beginning to yield results were to be called into question because of pressures on national administration [United Nations, 1984]. It is to be hoped that the long-term interests and objectives of countries will not be sacrificed because of current economic constraints and political difficulties.

Hope that the implications of the Mexico City Conference will be understood and taken care of at the national level is nourished by General Assembly resolution 39/228, adopted in December 1984. The Assembly endorsed the report of the Conference, reiterated that population growth, high mortality and migration problems continued

to be of significant concern, and pointed out that those variables required concrete and immediate action, in accord with national objectives and policies. Concrete policies were also required, in order to enhance the status and roles of women in population fields and specifically to deal with the mounting problems of population structures.

REFERENCES

- Baron, Barnett F. (1975), "Population and the seventh special session: a report", *Population and Development Review*, vol. I, No. 2, pp. 297-306.
- Berelson, B. (1975), "The World Population Plan of Action: where now?", *Population and Development Review*, vol. I, No. 1, pp. 115-146.
- Demeny, Paul (1985), "Bucharest, Mexico City and beyond", *European Journal of Population*, vol. I, No. 2 and 3, pp. 131-139.
- Development Centre of the OECD (1969), *Population International Assistance and Research* (Paris).
- Finkle, J. L. and Barbara B. Crane (1975), "The politics of Bucharest: population, development and the New International Economic Order", *Population and Development Review*, vol. I, No. 1, pp. 87-114.
- Glass, David (1940), *Population Policies and Movement in Europe* (London, Frank Cass).
- Hauser, Philip M. and Otis Dudley Duncan (1959), *The Study of Population, an Inventory and Appraisal* (Chicago, University of Chicago Press).
- International Union for the Scientific Study of Population (1985), *The IUSSP in History*, (Florence).
- Macura, Milos (1974), "Components of an international approach to population policy", *International Social Science Journal*, vol. XXXVI., No. 2, pp. 195-206.
- _____. (1984), "Guidance for population policies", *Populi*, vol. II, No. 4, pp. 5-12.
- Rockefeller, John D. 3rd. (1974), *Population Growth: The Role of Developed World*, IUSSP Lecture Series on Population (Bucharest).
- Sai, Fred I. (1984), "Tremendous Success", *Populi*, vol. II, No. 4, pp. 21-26.
- Salas, Rafael (1977), *International Population Assistance: The First Decade* (New York, Pergamon Press).
- _____. (1984), *Reflections on Population* (New York, Pergamon Press).
- _____. (1984a), "Guidelines for a decade", *Populi*, vol. II, No. 4, pp. 35-41.
- Sauvy, Alfred (1958), *De Malthus à Mao Tse Tung* (Paris, Denöi).
- Tabah, Léon (1984), "A turning point", *Populi*, vol. II, No. 4, pp. 13-20.
- UNESCO (1958), *Les sciences sociales dans l'enseignement supérieur: démographie* (Paris).
- _____. (1959), *International Repertory of Institutions Conducting Population Studies* (Paris).
- United Nations (1953), *The Determinants and Consequences of Population Trends: A Summary of Findings of Studies on the Relationships between Population Changes and Economic and Social Conditions* (Sales No. 1953.XIII.7).
- _____. (1955), *Proceedings of the World Population Conference, Rome, 31 August-10 September 1954* (Sales No. 55.XIII.8), vol. III, Summary (Sales No. E.55.XIII.8); vols. I-VI, *Papers* (Sales Nos. 55.XIII.8).
- _____. (1958), *Multilingual Demographic Dictionary* (Sales No. 58.XIII.4).
- _____. (1966), *World Population Conference, Belgrade, 30 August-10 September 1965*, vol. I, *Summary Report* (Sales No. 66.XIII.5).
- _____. (1966a), *World Population: Challenge to Development* (non-technical summary of conference highlights), (Sales No. 66.XIII.4).
- _____. (1967), *World Population Conference, Belgrade, 30 August-10 September 1965*, vols. II-IV, *Papers* (Sales No. 66.XIII.6-8).
- _____. (1973), *The Determinants and Consequences of Population Trends: New Summary of Findings on Interaction of Demographic, Economic and Social Factors*, vol. I (Sales No. 71.XIII.5); vol. II, *Bibliography and Index* (Sales No. 71.XIII.6).
- _____. (1975), *Report of the United Nations World Population Conference, Bucharest, 19-30 August 1974* (Sales No. E.75.XIII.3).
- _____. (1975a), *The Population Debate: Dimensions and Perspectives. Papers of the World Population Conference, Bucharest, 1974*, vols. I and II (Sales No. E.75.XIII.4 and 5).
- _____. (1981), *World Population Prospects as Assessed in 1980* (Sales No. 81.XIII.8).
- _____. (1984), *Report of the International Conference on Population, Mexico City, 6-14 August 1984* (Sales No. E.84.XIII.8 and Corr. 1 and 3).
- Valentei, D. I. (1961), *Problemi nasalenia* (Moskva).
- _____. (1963), *Reakcionarnie teorii narodonaselenia* (Moskva).
- _____. (1976), *Sistema svanii o narodonaselenii* (Moskva).
- Zahn, Friedrich (1934), *Cinquante années de l'Institut international de statistique* (Paris).

FOUR DECADES OF POPULATION RESEARCH

THE POPULATION COMMISSION AND DEMOGRAPHIC RESEARCH: AN OVERVIEW

George J. Stolnitz*

SUMMARY

The author introduces eight papers on demographic research carried out under the direction of the Population Commission. He reviews the progress of the Population Division's work in making timely and useful estimates and projections of population. He describes the Division's comparative and interpretive efforts concerned with fertility and mortality levels and he discusses the work of the Division in the areas of age structure, urban analysis and internal migration. After tracing the gradual emergence of policy analyses as a major part of the Division's work and the continuing commitment of the Division to research on interrelations between population and development, he concludes his overview by identifying some significant gaps in the research work of the Division. In particular, he calls for more attention to the study of internal migration and population aging, and cites a need for comparative studies on how population trends affect needs and targets in particular sectors.

It is no accident that the 40-year existence of the Population Commission and its secretariat, the Population Division, coincides with the coming of age of demography as a globally practiced and informed research discipline. Granted, the agents contributing to demography's remarkable upsurge have been numerous: academe; individual scholars; foundations; Governments; international organizations; and others. Granted also that demographic events themselves, often unprecedented, have created new needs and opportunities for their study. It is nevertheless clear, as the eight papers below document in abundance, that the Population Division, acting under the direction of the Population Commission, has been a pivotal force affecting demography's evolution in the past four decades as infrastructural resource, pioneer in important research directions and prolific author. That this has been accomplished under close political supervision, in a subject area with great potential for controversy, demonstrates that high quality professional research in the population field can function successfully—indeed, may thrive—while addressing the scientific needs of academic analysts and governmental representatives alike.

In introducing this section on population research, it is well to emphasize that, by focusing on the Population Division's role as a producer of research studies, I abstract almost entirely from the Division's central and often critical roles in other research-related directions: as institution-builder and consulting resource, as sponsor of countless research missions, and as a kind of *de facto* global liaison centre for informal exchanges on population matters.

From its beginnings, the Division has steered a neutral course between conflicting theories of population/welfare interrelations. While it has produced history-of-thought accounts of such theories, as in the landmark *The Determinants and Consequences of Population Trends*, it has hardly ever made explicit partisan judgements. The value of its objective position continues to be demonstrated to the present day, in light not only of still-active controversies on population/welfare issues within the United Nations and other political fora but also of the no less active debates still taking place in academic circles.

The Division's explicit focus throughout the past four decades has been on factual and reportorial concerns: to serve as a catalyst and resource for deriving the main facts of national, regional and global population developments, to disseminate such information in increasingly comprehensive and timely ways, to emphasize past, present or

* Professor of Economics, Indiana University, Bloomington, Indiana; formerly Assistant Director in charge of Research on Population and Development in the Population Division, United Nations Secretariat.

emergent comparative patterns, to identify and examine significant correlates of levels and trends, to compile statistics on population policies and programmes, and to foster the establishment of an international data bank and related research infrastructures requisite for effectively meeting all of those objectives.

The result of the Division's orientation towards demographic research can be described in many ways. The first section of this paper will discuss the Division's initial and recent work with respect to estimates and projections. Changes over time in that area illustrate especially well the Division's many-faceted services as an infrastructural resource. Subsequent sections amplify what seem to have been key aspects of its contributions with respect to the components of population change, population structure, population/development interrelations and policy analysis. A concluding section, obviously speculative, considers some major challenges to current demographic research which are specially in need of the Division's attention.

ESTIMATES AND PROJECTIONS

A "before and after" comparison of the Division's early and recent publications in the area of estimates and projections reveals much about the state of international demographic knowledge during the initial stages of its work, the contrasting state of such knowledge today, and major ways in which the Division's initiatives have contributed to the contrast. As Kono and El-Badry indicate in their paper below, it was not until 1957, more than a decade after the Division was formed and after numerous projections exercises, that the Division was first willing to issue regional (as opposed to global) projections for the years beyond 1980, and those for total populations only. Crude vital rates and age distributions, also first presented in the 1957 projections, were limited to continents in coverage and to the years 1960 and 1975 in time. The high and low variants of the projected total world population for 1980 differed by as much as 10 per cent from the median. While that was well below the 20 per cent difference suggested for 1980 by the high and low variants calculated in 1951, the projected 1980 median itself was no less than 15 per cent above a corresponding projection issued only four years earlier.

Today, thanks to decades of continuous efforts by the Division in monitoring available data sources on a global scale, in providing its own estimates wherever needed, in synchronizing disparate time series and in experimenting with improved systems for presentation of data, the student of population has access, within a single volume, to biennially prepared estimates and projections which extend in time from 1950 to 2025, cover close to 200 national and regional areas, and document, for each area, measures describing population size and growth rates, sex/age distributions, age dependency parameters, urban/rural distributions and growth rates, the components of national population change and key fertility and mortality indicators.¹ Certainly no other source, governmental or private, has been willing or able to commit comparable resources to achieving those results.

Uniform tables do not, of course, equate with statistical reliability, but the Division has been an instrument for

major advances in data quality as well. No agency can match the United Nations in the immediacy or continuity of its contacts with national and regional primary sources of demographic data. The Division—through the regional commissions, countless missions, numerous seminars and conferences, continuous contacts with the Statistical Office and United Nations agencies concerned with collecting census and vital statistics data, and through its lengthy array of publications on data assessment—has been at the forefront of global efforts to raise the quality of demographic statistics. Of particular relevance to that effort has been the series of manuals discussed below in the paper by Isupov.

More directly, the Division's monitoring of both official data sources and the professional literature on worldwide population movements and components of change, made evident by its periodic publications on fertility, mortality, international migration and urban/rural trends as well as its *Concise Report* and *Monitoring Report* series, reflect continuous efforts to refine estimates and update projections. The number of its successive estimates and projections exercises and the frequency of their current revisions give further assurance that timely account can be taken of valid criticisms regarding assumptions, technical approaches and numerical outcomes. In fact, comparisons between the Division's projections of total population with those made by other organizations reveal few if any differences likely to be significant for the work of futurists.²

With respect to quality, therefore, as with respect to geographical coverage and substantive scope, the Division's function as a provider of key international estimates and forecasts surely comes notably close to being a state-of-the-art response to a central need felt by demographic researchers everywhere. While important questions of accuracy (and possibly of judgement) surely remain, most especially concerning sub-Saharan Africa and several smaller population groupings, it is difficult to argue with the conclusion expressed by El-Badry and Kono that the Division "remains by far the main supplier (of estimates and projections), the one with the longest experience, the one that provides the most detailed internationally comparable projections, and the one whose figures are most widely and authoritatively used by countries, international agencies and scientists. . .".

Finally, the Division's current practice—to issue a new revision every two years (replacing the previous five-year intervals), to retain its greatly enhanced coverage of key indicators and to satisfy at nominal fees requests for computer tapes containing major estimated and projected series—should advance even more the effectiveness of such series.³

With regard to other aspects of the Division's research, it is useful to keep in mind that their separate consideration should not obscure their functional interactions. Estimates and projections overlap in substance and programmatically with the Division's monitoring of components of change. Both of them relate to structural characteristics, and each of the foregoing is linked with population/development interrelations and questions of population policy. That the Division does in fact function that way has become increasingly evident in recent years by its efforts

to integrate those subject areas in its biennial reports on the monitoring of population trends and policies.⁴ Intended primarily for United Nations governing bodies and population specialists, four such reports have been issued (the first for 1977 and the most recent for 1983) as a result of recommendations made by the United Nations World Population Conference, held in 1974 at Bucharest. An analogous series, *Concise Report on the World Population Situation*,⁵ intended to serve similar functions for a broader audience, has also been published at varying intervals since the early 1970s.

COMPONENTS OF POPULATION CHANGE

As might be expected from the Division's steady adherence to a policy of scientific neutrality, its main comparative and interpretive efforts have been concerned with the components of demographic change—in particular, fertility and mortality levels, trends and patterns. The Division has been notably active in pioneering or helping develop innovative methodological approaches to such analyses.

Fertility

At least three aspects of the Division's research activities have made especially valuable contributions to fertility studies. One surely was the Division's early pioneering role as sponsor or co-sponsor of sample survey approaches to measuring and interpreting fertility levels, trends and their correlates, starting with the Mysore Study in the early 1950s and continuing with a succession of family planning and KAP studies during the 1950s and into the 1960s. Johnson-Acsádi notes in her paper below that the Division and collaborating United Nations agencies on occasion anticipated by decades what has today become the demographer's standard approach to probing fertility patterns and their determinants, not only in the developing regions but in most developed areas as well.

A succession of methodological studies, reflecting both the Division's own contributions and its dissemination of significant outside contributions have been a second enduring outcome of its initiatives in advancing the tools of fertility analysis. Topics which have attracted the Division's special attention over the years have included model age-specific and marital-age-specific fertility patterns at variable stages of demographic transition, model-based indirect approaches to estimating fertility levels or trends and census-based methods for attempting such estimates more generally. A decade-long project on measuring and evaluating the probable effects of family planning programmes on fertility has done much to clarify and consolidate research findings in an area of prime significance, both for formulating policy and for understanding the detailed structure of early fertility transitions. A number of the resulting studies have become standard sources, both as professional-level references and as instructional aids. It is unfortunate that this work has been discontinued despite what both Johnson-Acsádi and Isupov point out are still growing needs for such fertility-impact analysis and despite the inconclusive results achieved thus far.

A third and more recent major facet of the Division's fertility research, one in which it has invested heavily, has

been a series of comparative analyses based on World Fertility Survey data for developing countries. The results, many of which have been issued in the form of preliminary working papers, will be combined in a forthcoming volume, *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey*.⁶ It will include sections on fertility and its proximate determinants, on socio-economic factors affecting fertility, on regional perspectives, on comparisons with developed countries with respect to fertility and family planning and on reassessments of existing fertility theories in the light of developed and developing country findings. Given the substantive and geographical scope of the WFS programme and its coincidence with the first signs of widespread fertility declines in the less developed regions, the volume may well become a classic reference work on the present century's most widespread fertility transitions.

Other major Division projects on fertility and fertility-related subjects include a forthcoming global review of recent and historical marriage patterns, with emphasis on the numerous methodological problems associated with international and intertemporal nuptiality comparisons. Adolescent fertility will also be the subject of a global review, focusing on demographic characteristics and findings from recent surveys and censuses concerning teenage birth and marriage histories, abortion indicators and sexual activity patterns. A review of the literature on infant mortality and fertility is expected to lead to a monograph on empirical findings and frequently encountered conceptual issues affecting their interpretation. Each of these studies reflects the Division's propensity and special resources for undertaking broad comparative analyses of selected subject areas.

Mortality

Research activities by the Division on mortality have contributed significantly to demographic knowledge in at least three respects. First, as with fertility, its reportorial functions have provided a continuously needed service. Drawing heavily on data from the Statistical Office and the World Health Organization in addition to its own sources, the Division has long been meeting in a uniquely comprehensive manner the demographer's needs for periodic and updated mortality summaries, more recently through its *Monitoring Reports* and *Concise Reports* and throughout its existence by monograph-length publications. The latter, in fact, have been accelerating in number since 1980.

Secondly, as Hobcraft's paper below makes clear, the Division has been especially active during the past decade in sponsoring or co-sponsoring conferences, undertaking special projects and issuing publications dealing with child mortality, socio-economic differentials in mortality and case studies of mortality determinants in a number of developing regions. All of those undertakings address unmet needs, whether for summary analytic evaluations of the literature or for information pertinent to policy questions facing United Nations bodies.

Thirdly, and often forgotten, is the fact that the Division has been a pioneer in the development of model life tables with particular reference to today's higher-mortality regions. Hobcraft's paper describes that work at some

length. Today, of course, the use of such tables as a tool for reconstructing population and fertility trends has become so routine as to be unexceptional. It is worth recalling, therefore, that as far back as 1950 the Division thought it important to publish in its *Population Studies* series an account by Mortara of his classic study on Brazil,⁷ one which still ranks among the most important and extensive such investigations ever undertaken. A succession of the Division's subsequent manuals and other publications since the 1950s make evident its long-standing interest in indirect and special estimation procedures, an interest which Isupov notes became prominent in the demographic literature a decade later.⁸

International migration

The component of national population change least explored by academic demographers, international migration has received uncommonly extensive attention by the Division since its earliest years. The reasons for the contrast between academic research and the work of the Division in that area are not hard to find. On the one hand, documentation on intercountry movements is especially resistant both to needed statistical improvements and to the modelling of theoretical hypotheses; on the other hand, available documentation — however idiosyncratic — could be expected to have immediate and special relevance for Governments. As the paper below on international migration documents in detail, the Division almost from the start began to produce a considerable body of publications, extending through the latter 1950s, on definitional issues and data needs (which are still largely unresolved), on reconstructions of historical series concerning migrant characteristics, and on global reviews of main factual patterns during the early postwar period.

Following a lull during the 1960s, during which time it may have been seeking to undergird its factual base for subsequent publications, the Division has again become highly visible as a producer of factual analyses, presented in monographs and in chapters of the biennial *Monitoring Reports*. As a result, the Division has emerged as a leading research agency in the field of international migration, with studies marked both by special attention to differential regional patterns and by growing attention to significant migrant sub-categories.

As suggested above, policy aspects could never have been far from the Division's concerns with cross-national population moves. However, it was not until the 1970s, when the Division became committed to comprehensive population policy analysis, that its reviews of international migration policies became institutionalized on a systematic basis, specifically as an established part of the *Monitoring Reports*. Here again, it is hard to conceive that any student of international migration would not find the Division's summaries indispensable for research purposes.

POPULATION STRUCTURE

Age structure

A pathbreaking contribution by the Division in this area was its seminal 1956 study on the comparative effects of

mortality and fertility trends on age composition.⁹ Building on Lorimer's pioneering findings published in the Division's *Population Bulletin of the United Nations*,¹⁰ the study uses both stable-age and projections approaches to demonstrate that mortality declines over relevant ranges, with fertility held constant, are likely to have only minor or negligible effects on age distributions; such effects are far less than those to be expected from fertility shifts with mortality unchanged. Applicable to both developed and developing areas, those demonstrations did much to correct the mistaken view that mortality has significantly affected age structures, a view which was held without question until well into the 1950s (and is not infrequently expressed today). Equally important at that time, the same conclusions provided the basic theory requisite for applying quasi-stable age methods to problems of indirect estimation in areas where fertility was believed to be essentially constant. In that sense the 1956 study was also a direct and necessary antecedent of the Division's considerable theoretical, educational and empirical work on stable-age estimates for over a decade.¹¹

Worthy of note also was the same study's treatment of social and economic implications. Although some parts of it are clearly dated, the behavioural aspects and policy issues it covered can serve even now as a useful guide to the key topics considered by today's analyst of population aging. Together with the discussions of the implications of aging found in the two editions of *The Determinants* . . .,¹² the paper marks an important transition between the earlier literature on the subject in the 1930s and its rapidly accelerating successor literature of recent years. Unfortunately, it also marked the last of the Division's extensive research involvement with the aging of populations until the present, when a new project on the subject is about to begin.

Urban analysis

Among structural characteristics of populations, urbanization stands out as the area most ambitiously studied by the Division. The result, in recent years, has been an accelerated outpouring of periodic reviews, factual and policy updates of the monitoring type, detailed estimates and projections by city size and lately, individual "mega-city" analyses.

The Division's urban research programme illustrates how specific factual developments and international policy concerns may come to serve major research interests and needs outside the United Nations system. Were urban growth rates in the less developed regions far below the 4 per cent order of magnitude registered throughout the decades since the Second World War, and were concerns with spatial distribution less persistent than those expressed by Governments in the Division's successive policy inquiries, its urban research priorities would surely have been much lower and less embracing than has been the case. Further details on those priorities are described in the paper, below on urbanization and internal migration.

Internal migration

In principle, the Division's considerable research investment in urban and urban/rural distribution issues

could have intensified its concern for patterns of internal migration. In practice, that has not been the case. Beyond its findings (which are being updated to include as many countries as possible based on the 1980 census) that before 1970 net rural-to-urban movements (plus area reclassifications) accounted for about 30-60 per cent of total urban population growth in many developing areas, explained about 30-90 per cent of such growth in the developed regions, and had major dampening effects on associated rural rates,¹³ the Division's involvement with internal migration movements has been vanishingly small. Comparative analyses—of total numbers of migrants, their distributions by rural-to-urban, urban-to-urban and rural-to-rural components, or their characteristics in quantitative terms—are not to be found among the Division's publications. The Division's emphasis up to now has been methodological—ranging from an early focus on definitional, comparability and measurement questions to subsequent publication of manual-type aids to internal migration analysis,¹⁴ reviews of the literature in *The Determinants* . . . , and sponsorship or co-sponsorship of conferences and state-of-knowledge reviews. The Division in its current work programme is carrying out a comparative case study of age and sex patterns of various flows of internal migration (rural/rural, rural/urban etc.) in six developing countries located in Africa, Asia and Latin America. The current project on updated components of urban growth also seeks to improve the Division's estimation procedures.

Significant involvements in the migration field by other United Nations agencies—in particular, the International Labour Organisation—may partially explain the Division's limited involvements with internal migration to date. Another explanation, probably more important, may relate to the especially severe incomparabilities typical of data sources in that subject area. Nevertheless, analogous handicaps in the Division's experience have not precluded fruitful research undertakings in other areas—for example, labour force, education and urbanization. The paper below on urbanization and internal migration points out that the next *Monitoring Report* will include “for the first time” a chapter on internal migration. That may be an encouraging sign of useful studies to come.

POPULATION POLICY

The most recent of the Division's main programmes, population policy aspects, has in remarkably short order become a prime part of its total research enterprise. The paper below on population policy points out that policy perceptions and programme measures have, since the early 1970s, become the subject of four global inquiries to national Governments (with more scheduled to follow), been incorporated as major components of both the *Concise Reports* and *Monitoring Reports*, been the sole or central themes in several dozen monographs, and been archived in computer-accessible form. Apparently such studies have become non-controversial in the deliberations of the Population Commission.

That record is the more remarkable in light of the research programme's adversarial beginnings. Sustained opposition in the United Nations system to population pol-

icy analysis had for decades been a dominant fact. As the policy paper makes clear, acceptance of the legitimacy of such research did not come during the first quarter century of the Commission's existence. Moreover, doubts relating to the reliability of policy research were also widely prevalent on analytical grounds. Given the newness of the subject, attempts to review population policy perceptions and phenomena as reported by Governments had been rare, and such attempts on a global basis were probably nonexistent. The main concepts typically used in the inquiries—such as “Governments' perceptions” or “overall appraisal” of population growth rates (“too low,” “too high,” “satisfactory” or “no view”), “intervention to change rates” (“no direct intervention reported” and “intervention to raise [“maintain” or “lower”] rates”)—would hardly seem conducive to numerical tabulations, the procedure frequently adopted by the Division in its country-by-country processing of responses.¹⁵ Showing changes in national perceptions or policy actions by changing tallies would again seem open to question by analysts and by Governments, given the multidimensionality and elastic nature of the variables involved.

Surprisingly, objections by Governments to the Division's classification of their policy perceptions, action programmes, or shifts in either, appear to have been infrequent. Successive Population Commissions, whose evaluation of findings should have been especially well informed from both analytical and political viewpoints, have continued to support the questionnaire approach and the other reporting procedures utilized by the Division. A further step in that evolution will take the form of succinct descriptions of the population policies of every country, both developed and developing, on a biennial cycle.

It is much too soon to judge whether the Division's entry into the area of policy analysis will lead to the emergence of a major new subfield of demographic inquiry. Clearly, however, a novel data base is rapidly accumulating which could be useful for analysing interactions between demographic trends and policies. Such research is sure to expand so long as rapid population growth characterizes most of the world's nations and pronounced aging proliferates among the others. The Division's zealously maintained principles—total non-advocacy on policy issues, a fully global geographical orientation and concern for all components of population change in documenting policies—have apparently worked well in meeting the needs of Governments and academic analysts.

POPULATION/DEVELOPMENT INTERRELATIONS

From the Malthusian/Marxian interchanges of over a century ago to today's United Nations pronouncements on “integration”, themes of population and development or associated population/social/economic interrelations have been at the core of non-formal demographic research. The dominant contribution to date by the Division is surely its two landmark editions of the *The Determinants* . . .¹². That the study would become a definitive account of theories on population/development interrelations was apparent from its appearance in the early 1950s, and reconfirmed by the 1973 revision. In addition, its factual accounts of the historical growth of world and

regional populations, long-term trends in fertility, mortality and international migration, or international labour force trends and structural characteristics, stand out, even now, as major source materials for both specialists and students. As a guide to the demographic literature through the 1960s on both interrelation themes and long-run factual trends, its pre-eminence has not yet been challenged.

Less recognized perhaps is the current relevance of *The Determinants* . . . for interpreting the evidence on population/welfare interactions. Its overall conclusion—that rapid population growth need neither be an absolute barrier to early or sustained development nor a negligible negative factor—is remarkably close to where the evidence points today. Equally or more important is the wealth of specific information provided to document that countervailing positive forces, always present, could dominate population pressures in the first instance or appear significantly insufficient in the second; theoretical arguments and empirical examples, it shows, are abundantly at hand to argue either case. Granted that such “middle ground” conclusions might well have been predicted, given the Division’s organizational status, nevertheless, as Tabah notes in his paper below, they appear as pertinent today in the light of vastly expanded evidence as they were when first set down by the authors of *The Determinants* . . . two, and even four, decades ago. For that reason, if no other, the study continues to be required reading when set beside the Cassandra vs. Pangloss positions commanding prominent attention to the present day.

Among the many contributions to research on population/development interrelations made by the Division during its first quarter century, one other in particular stands out for its enduring analytic value. That was the series of interrelational studies it carried out—in collaboration with Governments but with the Division clearly in the lead—in countries on all three less developed continents during the late 1950s and early 1960s. The study for Mysore state in India,¹⁶ and two comparable studies, in the Philippines¹⁷ and the state of Guanabara in Brazil,¹⁸ were based largely on data from special surveys; the fourth, for Sudan, drew mainly on materials from a first national census.¹⁹ Viewed in retrospect, those studies were doubly significant, both as pioneering attempts to probe selected main interrelations and as attempts to do so on the basis of limited and only partially assessable data sets. The cessation of the series of studies by the mid 1960s has been a not inconsequential loss for subsequent research on interrelations, judging from the experience suggested by analogously complex survey undertakings—the World Fertility Survey, for example.

Appearance of the revised *The Determinants* . . . marked the beginning of a substantial hiatus with respect to major Division publications on development interrelations. Projects initiated about the mid 1970s—such as population trends or patterns in relation to consumption and the distribution of income, and “mappings” or conceptual (non-statistical) identifications linking demographic variables to main socio-economic, cultural and political factors affecting development—resulted in initial technical publications²⁰ but have since been phased out. A project involving case studies on patterns of socio-economic

development and fertility decline in a number of developing countries has produced a series of country reports²¹ and is expected to be the subject of a forthcoming volume on substantive findings and methodological aspects.²²

Since the middle or late 1970s, the Division’s reportorial and organizational functions have become increasing parts of its involvements with interrelational issues, as in providing reviews for the *Monitoring Reports* and *Concise Reports* and in arranging for symposia and expert group meetings before the 1984 International Conference on Population.²³ Such publications have also become occasions for providing convenient summaries of population/development research activities throughout the United Nations system—for example, those with respect to food and agriculture, labour, education and health.

With respect to recent long-run commitments to research on population/development interrelations, the Division has taken a decided turn towards policy-related projects. A series of studies on the uses of population analysis in development planning, for example, is a central part of its current work programme. The series will include the preparation of an extensive manual on the integration of population factors in development planning plus a series of country reports on how such integration has actually been implemented in developing areas.

Assessing the demographic consequences of major development projects is an undertaking just getting under way at the Division. Here again, much of the emphasis is expected to be on establishing and assessing methodologies for dealing with the question in actual country situations. A third undertaking will be the project on demographic aging, which will surely be directed to policy implications.

A number of common elements in all of those studies merit emphasis. First, all deal with developing areas, presumably because today’s main needs for interrelational research by the Division are heavily concentrated in those regions. Secondly, all of the studies will rely heavily on the Division’s comparative advantage in establishing collaborative arrangements with official and non-governmental research units in the field. Thirdly, and probably most important to demographers and other development analysts, little research on the scale of envisaged studies can be anticipated from other sources. The empirical breadth of the studies as envisaged should help point out the way to new theoretical formulations in the interrelational field.

Finally, a current Division concern of broad interrelational interest and policy importance focuses on interactions among population, resources and the environment. Present plans call for an initial review and assessment of possible methodological approaches to the special complexities of that problem area—for example, the often lengthy time intervals relevant for registering large ecological effects and the fact that alternative socio-economic arrangements can mediate significantly between such effects and population change. The study approach differs significantly from typical Division research procedures. In the past such procedures have generally involved an initial search for empirical patterns in unfamiliar subject areas, especially when they are theoretically intricate and have been only preliminarily investigated.

SOME LOOKS BEHIND AND A FEW AHEAD

An objective reading of the record clearly points to the conclusion that the Population Division, working under the direction of the Population Commission, has been a central contributor to demography's remarkable accomplishments during the past four decades. As a comprehensive provider and analyst of national, regional and global demographic data, both behavioural and policy-related, it has long functioned and continues to function as an indispensable resource for demographers and their audiences everywhere. Without it, we would surely be much less informed than we now are about current population tendencies and reasonable ranges of possibilities for the future. As a research entity in its own right, the Division has been the source of ranking reference works in most main demographic subfields and of landmark studies in some. Its numerous, more specific major roles—as contributor to advances in population survey and census methods, to indirect estimation techniques, and to the study of comparative patterns spanning all main branches of formal demography and nearly all branches of applied demographic research—are no less readily documented. And if recent trends continue, the pace of its publications will be increasing. Its technical publications during the past decade are more than double the number issued during the previous decade.

Added to the Division's formidable record of research accomplishments are its achievements in helping to build other research institutions, in promoting advances in basic data and in training demographic personnel now active throughout the world. To consider research by itself would be to obscure the broad nature of the work done under the direction of the Population Commission.

That much emphasized, it seems worthwhile also to point to some significant gaps in the Division's research programming. Perhaps most important, but not surprising, is the relative neglect of research on internal migration. The significance of that subject—given its importance as a component of subnational population change, its relevance for indicating how domestic population movements respond to socio-economic opportunities, its role as a major concomitant of longer-run development processes and, not least, its special status as a main target of population policies almost everywhere—has long been beyond debate. Presumably, therefore, research on internal migration should be uniquely suited to the Division's many special advantages for quantitatively comparing national and subnational migration patterns, their shifts over time and their main cause-and-effect correlates (much as is done for fertility, mortality and international migration).

To date, the Division's empirical concerns with internal migration seem to have emphasized the contribution made by net internal migration to urban and metropolitan population growth and development. That research was complemented by symposia more concerned with population distribution/development relations than with spatial transfer processes proper.²⁴ Granted that internal migration movements raise unusually severe research problems of coping with limited and variably defined data sets, it is

nevertheless true that rich bodies of comparable statistics exist for large groupings of populations. They can be used to extend the limits of migration analysis well beyond its present reach.²⁵ Not least among the contributions to be hoped for from such analysis would be the first internationally comprehensive quantitative documentation of rural-to-rural and urban-to-urban migration patterns, in addition to the better known rural-to-urban patterns.

A second major shortcoming has been the Division's slowness in resuming its earlier important work on the demographic causes and socio-economic implications of population aging. It is encouraging to note that, in response to a recommendation of the Population Commission, the Division has organized an International Symposium on Population Structure and Development.²⁶ While a study on aging in the developing regions is due to begin shortly, a similar research project for the developed regions (by the Economic Commission for Europe) suggests that it could be some time before the Division could deal adequately with the far more heterogeneous array of populations it will be examining.

Population/income distribution interrelations, whose slender research base has rarely precluded major controversy in public discussions and professional circles, also ranks high among issues in need of empirical, analytic and policy enlightenment.²⁷

Finally, a series of comparative studies emphasizing the development consequences of population change would be both especially adapted to the Division's research orientations and particularly valuable for addressing unmet research needs in that area. Involved in each case would be a single-sector examination of how population tends (or is likely) to affect needs and targets with respect to food consumption, food imports, housing, household energy-use levels, public-sector educational facilities, health or disease prevention programmes, absorption of the labour force, local public services and the fiscal outlay levels implied by such services, among obvious possibilities. Such studies can be justified as meriting priority research status on multiple grounds: universal importance for integrating population factors with development plans or with other policy targets and instruments; relative freedom from feedback complications likely to obscure interpretive analysis; and relative freedom from severe data limitations. Any individual study could relate to developing areas, developed areas, or both.

Whether best carried out within the Division alone, in collaboration with various United Nations agencies or with the help of outside specialists, any of the above-mentioned studies should be programmed to clarify the role of population structure in addition to numbers alone, hence to underscore the importance of considering demographic factors in depth. Household formation in relation to housing, fertility and age composition relative to facilities needed for primary schooling, sex/age linkages to labour absorption, or spatial distribution shifts calling for changing locations of public services—all illustrate that point. A growing collection of comparative empirical inquiries on such topics could go far to clarify both longer-run population/development interrelations and shorter-term population, social and economic interactions.

There again, the Division's special strengths—repeatedly proved quality performance in reporting international cross-sectional and dynamic patterns, access to the requisite data bases, field contacts commensurate with the task, and ready access to multiple important-user audiences—could serve well to blend its growing commitments to interrelational and policy issues with those emerging in the demographic profession at large.

NOTES

¹ *World Population Prospects: Estimates and Projections as Assessed in 1982* (United Nations publication, Sales No. E.83.XIII.5).

² See, for example, United States Bureau of the Census, *Illustrative Projections of World Populations to the 21st Century*. Current Population Reports, Special Studies Series P-23, No. 79 (Washington, D.C., Government Printing Office, 1979), p. 92.

³ *World Population Prospects* . . . , pp. iii and 37-40.

⁴ The latest of these reports is *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report*, vol. I. Population Trends (United Nations publication, Sales No. E.84.XIII.10); vol. II. Population and Development Interrelations and Population Policies (United Nations publication, Sales No. E.85.XIII.2).

⁵ The latest is the *Concise Report on the World Population Situation in 1983: Conditions, Trends, Policies, Prospects* (United Nations publication, Sales No. E.83.XIII.6).

⁶ To be issued as a United Nations publication.

⁷ G. Mortara, "Life tables", in *Methods of Using Census Statistics for Calculation of Life Tables and Other Demographic Measures (with Applications to the Population of Brazil)* (United Nations publication, Sales No. 1950.XIII.3).

⁸ *The Concept of a Stable Population: Application to the Study of Populations of Countries with Incomplete Demographic Statistics* (United Nations publication, Sales No. 65.XIII.3).

⁹ *The Aging of Populations and Its Economic and Social Implications* (United Nations publication, Sales No. 1958.XIII.2).

¹⁰ F. Lorimer, "Dynamics of age structure in a population with initially high fertility and mortality", *Population Bulletin of the United Nations*, No. 1 (United Nations publication, Sales No. 52.XIII.2), pp. 31-41; "The cause of the aging populations: declining mortality or declining fertility", *Population Bulletin of the United Nations*, No. 4 (United Nations publication, Sales No. 55.XIII.1), pp. 30-38.

¹¹ See, for example *Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data* (United Nations publication, Sales No. 67.XIII.2); *The Concept of a Stable Population: Application to the Study of Populations of Countries with Incomplete Demographic Statistics* (United Nations publication, Sales No. 65.XIII.3); and the many United Nations indirect estimates appearing in the *Demographic Yearbook* during the 1960s.

¹² United Nations publications, Sales No. 1953.XIII.3 and No. E.71.XIII.5.

¹³ *Patterns of Urban and Rural Population Growth* (United Nations publication, Sales No. E.79.XIII.9), tables 11 and 13; *World Population Trends and Policies: 1977 Monitoring Report*, vol. I. Population Trends

(United Nations publication, Sales No. E.78.XIII.3), table 32; *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report*, vol. I. Population Trends (United Nations publication, Sales No. E.84.XIII.10), tables 74 and 75.

¹⁴ See *Manual VI: Methods of Measuring Internal Migration* (United Nations publication, Sales No. E.70.XIII.3) and *Manual VIII: Methods for Projections of Urban and Rural Population* (United Nations publication, Sales No. E.74.XIII.3).

¹⁵ See, for example, *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report*, vol. II. Population and Development Interrelations and Population Policies (United Nations publication, Sales No. E.85.XIII.2).

¹⁶ *The Mysore Population Study: Report of a Field Study of Interrelationship of Demographic Economic and Social Factors in Mysore State: India* (United Nations publication, Sales No. 61.XIII.3).

¹⁷ *Population Growth and Manpower in the Philippines* (United Nations publication, Sales No. 61.XIII.2).

¹⁸ *Guanabara Demographic Pilot Survey* (United Nations publication, Sales No. 64.XIII.3).

¹⁹ *Population Growth and Manpower in the Sudan* (United Nations publication, Sales No. 64.XIII.5).

²⁰ See "Demographic changes and consumption patterns" (ESA/P/WP.62); "Some socio-demographic correlates of income inequalities: a case study of the Philippines" (ST/ESA/SER.R/39); and "The mapping of interrelationships between population and development" (ST/ESA/SER.R/43).

²¹ "Socio-economic development and fertility decline in Turkey" (ST/ESA/SER.R/53); "... in Sri Lanka" (ST/ESA/SER.R/54); "... in Costa Rica" (ST/ESA/SER.R/55); and "... in Colombia" (ST/ESA/SER.R/56).

²² To be issued as a United Nations publication.

²³ See, for example, *Interrelations: Resources, Environment, Population and Development* (United Nations publication, Sales No. E.80.II.A.8) and *Population, Resources, Environment and Development: Proceedings of the Expert Group on Population, Resources, Environment and Development, Geneva, 25-29 April 1983* (United Nations publication, Sales No. E.84.XIII.12).

²⁴ See, for example, *Population Distribution Policies in Development Planning: Papers of the United Nations/UNFPA Workshop on Population Distribution Policies in Development Planning, Bangkok, 4-13 September 1979* (United Nations publication, Sales No. E.81.XIII.5); and *Population Distribution, Migration and Development: Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet, Tunisia, 21-25 March 1983* (United Nations publication, Sales No. E.83.XIII.3).

²⁵ A major such example is the project entitled Comparative study on migration, urbanization and development in the ESCAP region, being carried out by the United Nations Economic and Social Commission for Asia and the Pacific.

²⁶ See Economic and Social Council resolution 1985/3 of 28 May 1985. Held at Tokyo from 10 to 12 September 1986, the Symposium was organized in collaboration with the Japan Aging Research Centre and the Institute of Population Problems of the Ministry of Health and Welfare, Government of Japan.

²⁷ See "Income distribution and fertility in the LDCs", in George J. Stolnitz (ed.), *Quantitative Approaches to Analyzing Socioeconomic Determinants of Third World Fertility Trends: Reviews of the Literature* (Bloomington, Indiana University and Futures Group, Inc., 1984).

DEMOGRAPHIC ESTIMATES AND PROJECTIONS

M. A. El-Badry and Shigemi Kono***

SUMMARY

The periodic assessment of global population growth from the past to the future has been one of the most important contributions the United Nations has provided since 1947 to Member States, as well as many other users. In this article, the authors review the development of those activities at the Population Division from decade to decade, especially with regard to data collection and evaluation, methods of analysis and projection, frequency and refinement of outputs and the utilization of computer technology. Available data and applicable methods of analysis and projections were very limited in 1947, when the first global population estimates and projections were attempted; in 1982, the last year which is reviewed in this article, only a few countries were left with a total lack of data. A revision of estimates and projections is now undertaken biennially, incorporating the latest available data, utilizing advanced analytical methods and computer technology. A number of methodological manuals have been produced as the by-product of the revisions, concerning the model life tables and indirect techniques of analysis, among other things. At the end of the article, the authors recommend several ways in which the United Nations demographic estimates and projections could be further developed, and the role which they may be expected to play in the future.

The United Nations has played a major, pioneering and leading role in demographic estimates and projections. Although countries now tend more and more to prepare their own estimates and—less often—projections, the role of the United Nations is essential for the maintenance of comparability among countries and regions and a common denominator of detail, particularly with regard to concepts and definitions, time reference, information provided, and general approach.

Methodological work has led to some of the most important advances in demographic estimation methods. It was based on substantive discussions which, when published along with the resulting techniques themselves, constituted major contributions to demographic literature, enriched libraries and provided students of population with some of their most useful tools.

The main product—the population estimates—received increasing attention from the Population Division over the years, as work in the social, economic, administrative and political fields became more quantitative and as planning gradually became more common. The projections kept expanding in geographical detail, in time coverage, in sub-

stantive classification and in methodological sophistication. Some years ago the Division, upon the recommendation of the Population Commission, despite the substantial effort involved, increased the frequency of revising the projections from once to twice every five years.

THE DECADE OF THE 1950s

In its early days the Population Division had to prepare estimates of total population for current dates for the many countries that had no national sources of such estimates. In so doing, it provided developing countries with a methodology for work in that area. Its first contribution was a manual entitled *Manual I: Methods of Estimating Total Population for Current Dates*.¹ The manual was confined to the most immediate need in the area of demographic estimation, and presented various techniques suitable for the amount and reliability of base statistical information. Besides assisting Governments, the manual served as a text for teaching demographic methods.

As one would expect *a posteriori*, the manual had to face the problem of evaluating the quality of demographic data. It stressed to developing countries the importance of data quality in the preparation of their own population estimates, and then went on to prepare a separate manual on the subject: *Manual II: Methods of Appraisal of Quality of Basic Data for Population Estimates*.² *Manual II* dealt with census enumerations of total population and age/sex groups, and with statistics of births, deaths and migration,

* Director, Cairo Demographic Centre and formerly Assistant Director of the Population Division, United Nations Secretariat.

** Director General, Institute of Population Problems, Ministry of Health and Welfare, Government of Japan; formerly Chief of the Estimates and Projections Section of the Population Division, United Nations Secretariat.

which are the principal types of statistics used in the preparation of both current estimates and future projections. For many years it was a standard text used by demographic teaching and research institutions.

The third contribution in the series of manuals on methods of estimating population was published in 1957 and included, for the first time, a systematic presentation of the methods known—at the time—for projecting total population by sex and age.³ Its main objective was to facilitate the making of future population estimates, with due attention paid to countries where the available statistics were defective and with emphasis on the “component methods” of age/sex projection. The techniques presented in the manuals were necessarily based on substantial methodological research, a good part of which was carried out at the United Nations. One important example is the derivation of the United Nations model life tables, which remained for a long time the main tool of mortality estimation in developing countries. The relevant publication became major text for mortality measurement as soon as it was issued.⁴

As they were working on the above-mentioned studies, United Nations demographers were also preparing estimates of total population for current dates and for previous dates for countries that did not have such figures, and also for regions and continents. The estimates were published in the *Demographic Yearbook*, starting with its first issue of 1949, and in the quarterly issues of the *Population and Vital Statistics Report*.

The secretariat, in response to a demand for future population estimates as aids in the planning of economic and social development programmes in developing countries, prepared and published a series of four regional reports on the subject between 1954 and 1958. They dealt consecutively with Central America, South America, South-East Asia and Asia and the Far East.⁵ The studies had 1950 as a base year and gave projections at quinquennial intervals up to 1980. The projections were by sex and five-year age groups, calculated and published for each country separately. The methodology was that of the component approach, utilizing model life tables and including migration assumptions (by sex and age whenever possible). Because of the difficulty of assessing future numbers of births, fertility assumptions were made in three variants—high, medium and low.

Africa was conspicuously absent from the series. Lack of data and the unreliability of such data as was available were factors explaining that absence. However, this does not mean that population projections for the whole world were neglected during the 1950s. In fact during those years the Population Division prepared a series of three projections for the whole world which were made available in 1951, 1954 and 1957. However, the method was much less detailed than the one followed in the regional studies.

An article published in 1951 in the first volume of the *Population Bulletin of the United Nations*⁶ gave world population projections for the years between 1950 and 1980. For the purposes of the study the world was divided into three relatively homogeneous groups of countries as regards their demographic situation and prospects. They were:

(a) Group I—low-fertility countries of Northern America, Oceania and all of Europe except Eastern Europe;

(b) Group II—Latin America, Japan, Eastern Europe and USSR, which had experienced substantial mortality decline and a lesser degree of fertility decline;

(c) Group III—Africa and remaining Asia, which had generally high levels of fertility and mortality with little decline, if at all. The projections were based on speculations concerning future trends in birth and death rates and resulting rates of growth, applied to estimated total populations of the three groups in 1950. Only total population in 1980 for each of the groups was given.

The next projections, also covering 1950-1980, were prepared in 1954 and presented to the World Population Conference.⁷ The approach differed from that of the 1951 projections in that the world was divided into 25 geographical regions which were grouped into five “types”, or “groups”, corresponding to five stages of demographic transition. An average rate of growth representing the situation in 1950 was then calculated for each type. Three variants of assumptions concerning the manner in which the growth rate might change between 1950 and 1980 were made for each type. Starting with the estimated rates of growth for 1950, the projected population of each region was computed, at intervals of five years, by applying assumed changes in growth rates up to the year 1980. The results were also added up to give three variants of the projections for the five continents.

The 1954 projections, differed from those of 1951 essentially in their geographical detail. The two methodologies were similar, both based on applying three variants of assumed rates of growth to estimated total population in 1950. The 1954 revision led to a 10 per cent increase in the estimated world population in 1980. The three variants of the 1980 world population, which were 3.0 billion, 3.3 billion and 3.6 billion in the 1951 assessment, increased, respectively to 3.3 billion, 3.6 billion, and 4.6 billion in the 1954 revision. Clearly the impact of the mortality decline that took place in the developing countries after the 1940s was not fully realized by the time the two sets of projections were prepared. A low estimate for the population of China in 1950 also contributed to the deficiency. As a result, even the high estimate provided by the 1954 projections was more than 10 per cent short of the actual world total in 1980.

The 1954 projections went a stage further, however, by attempting to derive country projections from the projected regional totals. This was carried out by means of a ratio method based on the change that took place from 1920 to 1950 in the ratio of a given country's population to the population of the region in which it was located. Obviously the results could only be approximations. However, one should keep in mind the availability and reliability of data in most developing countries at mid century. One should also note that the nature of the results was clearly described in the report which stated that the figures provided for individual countries should be employed only when other, more reliable methods than the ratio method could not be applied. Thus, in the 1954 assessment the United Nations projections provided for the first time one variant of systematically prepared projections of total

population by country at quinquennial intervals between 1950 and 1980.

A more complex and innovative methodology was used in the 1957 projections for the period beyond 1980 to the year 2000.⁸ It was based on seven models of population growth, each representing a stage of transition in 1950, and used the component method described in *Manual III*, with the initial stage characterized by high and constant fertility and mortality and the age structure represented by that of a stable population. One of the models was adopted for each of the 19 regions into which the world was divided. Regional projections of total population were prepared for every fifth year, starting in 1950, in two variants up to 1975 and in three variants between 1975 and 2000. Country projections, derived from the projections of the corresponding region by a ratio method, were given up to 1975, in one variant only.

The use of models made it possible to calculate implied vital rates and age structure, which were published for the first time in the 1957 projections which crude vital rates and age distribution were given. The limitations of the base data and of the models, and also perhaps the need to make lengthy calculations by hand, led to the decision on the part of the authors to restrict the publication of those measures to continents (i.e., groups of regions), to one variant, and to the years 1960 and 1975.

Again, the new estimates constituted an upward revision. The 1980 figures for the world total became 3.9 billion, 4.2 billion and 4.3 billion, with the medium variant increasing by more than 15 per cent only four years after the 1954 round, and clearly outside the range of estimates made in 1951. Such rapid and extensive revisions made the Population Division ask whether the attempt to estimate future world population was not being continuously defeated. It was thought, however, to be encouraging that the range between the low and high figures for 1980 had narrowed, from 660 million in 1951 to 430 million in 1957. While the change could be ascribed in part to the fact that the year 1980 was closer to 1957 than was 1951, the narrowness of the range also reflected an increased confidence on the part of the Division to estimate future demographic trends.

The main factor behind the upward revision was the addition of 100 million to the base population of China after the results of the 1953 census there became available. That led to a corresponding increase not only in the 1950 estimate of total population but also in the assumptions about future growth in China. Other reasons for the upward revision were that, by the time of its preparation, there was accumulated evidence that current and future declines in mortality were likely to be substantial, that fertility levels in developing countries were not expected to decrease soon, and that in most low-fertility countries renewed decreases did not appear imminent.

United Nations demographers found it necessary to point out the seriousness of the implications for mankind of the high and accelerated rates of growth, both current and projected, particularly for the future of the developing countries. The preface to the 1957 revision concludes with a statement which well deserves quotation within the context of the present paper: "The growth of world population

during the next 25 years, therefore, has an importance which transcends economic and social considerations. It is at the very heart of the problem of our existence. We should like the reader to keep this idea before him in considering the facts and conjectures which follow".⁹

THE DECADE OF THE 1960s

Continued progress in the field of projections was made during the 1960s. Two extensive revisions—those of 1963 and 1968—were completed. In 1964 an important study, entitled *The Concept of a Stable Population: Application to the Study of Populations of Countries with Incomplete Demographic Statistics*,¹⁰ was published. It was followed by an important methodological achievement, the publication of *Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data*.¹¹ The manual utilized the regional model life tables prepared by Coale and Demeny as well as stable and quasi-stable population models to estimate levels of fertility, mortality and age structure. Like its predecessors, *Manual IV* was extensively used in demographic estimation for many years after its publication. It was one of the main tools utilized in making the base assumptions for the 1968 revision of the projections.

By the mid 1960s demand was already growing for more specialized types of demographic projections, particularly those of urban/rural populations, labour force, school enrolment, and households and families. It was therefore necessary to collect the available knowledge about the methodology of preparing each of those projections, with a view to systematizing the presentation for use by workers in those specialized fields, particularly demographers dealing with deficient data. And a manual on estimating future school enrolment in developing countries was prepared jointly by the United Nations and UNESCO.¹² A fifth manual, on the methods of projecting the economically active population with regard to both the labour supply and demand, was prepared jointly by the United Nations and ILO.¹³ The Population Division, for its part, undertook to prepare two additional manuals, dealing with the so far underdeveloped field of households and families,¹⁴ and with projections of urban/rural populations.¹⁵ Those four manuals, with their substantive discussions and methodological content, constituted another major contribution to demography and to the important task of introducing demographic factors in planning.

Further standardization of the format of the United Nations projections was implemented in connection with the 1963 revision and retained thereafter. The world was divided into eight major areas which were subdivided into a total of 24 regions. The latter can be grouped to form the dichotomy of developing and developed countries. Four variants of the projections were prepared: low, medium, high, and constant fertility. The last was provided as a benchmark, for the purpose of indicating levels and trends if the anticipated fertility decline did not materialize. The projections were prepared by five-year age groups and five-year time intervals and implied crude birth and death rates were routinely calculated.

The general methodological approach in the 1963 projections was similar to that followed in 1958, in that

regional age sex projections were prepared by standard techniques between 1960 (the base year) and the end of the century. One variant of country projections up to 1980 was derived either from national projections or from the regional medium projection and the difference in rates of growth between the country and the region where it was located. Retrospective estimates of total population were also prepared for countries and regions between 1920 and 1960.

Once again, the 1963 revision gave higher estimates for the 1980 world total than its predecessors: the new medium total of 4.33 billion was slightly higher than the high variant of 4.28 billion provided by the 1957 revision. The upward adjustment resulted from the observation that world population was growing in 1963 at a faster rate than had been projected in 1957. However, the new medium variant implied somewhat earlier fertility decline in large parts of the world than did the medium variant calculated in 1957. Accordingly, the world total at the end of the century was slightly less in the latter projections (6.1 billion instead of 6.3 billion).

By the time the 1968 revision was being prepared, computer facilities were made available—a service that totally revolutionized the work of the Estimates and Projections Section of the Population Division. However, due to the absence of software, much time had to be spent on programming. The hard and strenuous effort involved was almost forgotten, however, when the results started coming out and the magnitude of the possible improvements in techniques and savings in time and effort began to be realized. It was possible to prepare the projections by sex and age for each country for the first time, to prepare such measures as birth and death rates, functional groups such as youths, elderly, women in the reproduction ages, etc, dependency ratios, and so on, also by country, in four variants, and to interpolate the projections by single years of age between ages 5 and 24. Backward projections, starting from the base year of 1965 and going back to 1950, were also prepared for each country.

Again, the new world projection for 1980 was higher than the earlier (1963) projection. The medium variant total world population became 4.46 billion instead of 4.33 billion. Although the 1968 projection was perhaps the closest to reality,¹⁶ it should be pointed out that the mortality assumptions of the 1968 revision were relatively low, reflecting the general optimism about prospects of mortality in developing countries that existed in the 1960s. That is why the medium variant of those projections gave for the year 2000 a total world population of 6.49 billion compared to 6.13 billion as assessed in 1963 (and to 6.25 billion, 6.12 billion and 6.13 billion, provided by the 1973, 1980 and 1982 revisions, respectively).

The 1968 projections laid the cornerstone for world demographic projections in later years and for establishing traditions both in methodological framework and in projection format. It should be noted that the 1968 projections were the first ones made by the staff of the Estimates and Projections Section of the Population Division, after the World Population Conference in 1965. The creation of the Section signaled the importance attached to the role

played by the Population Division in the field of world population projections.

Notable features of the 1968 projections include backward projections by region and country starting in 1950, construction and application of various sets of model schedules of fertility, mortality and migration where data were incomplete or less than completely accurate, computerization of all calculations, intergration with and consolidation of other sectoral projections such as those of urban/rural population, youth, labour force, school enrolment, and agricultural and non-agricultural populations. But the most important contribution made by the 1968 projections was the start of rigorous evaluation and estimation of the baseline demographic data before preparation of future projections. That undertaking coincided with the availability of new techniques of indirect estimation by the use of stable and quasi-stable population models, which culminated in the preparation of *Manual IV*.¹¹

Co-ordination was greatly improved when the 1968 projections were prepared. Since the age/sex projections provided by the United Nations were the basis of all the specialized projections, including those in the areas of competence of some of the specialized agencies, it was considered a good idea to co-ordinate the work in such a manner that the sex/age projections, prepared in an agreed format, would be the basis to which the relevant "specific rates" would be applied. Furthermore, the interrelationships between those projections (for example, between projections of urban/rural populations, agricultural and non-agricultural populations and labour force), made joint interagency work on co-ordinating the assumptions highly desirable. An encouraging degree of success was achieved. One of the outcomes was the publication in 1972 of "World comprehensive demographic projections, 1965-1985,"¹⁷ which included a co-ordinated set of demographic projections: total population by age and sex, urban and rural populations, labour force, agricultural and non-agricultural populations, population by educational characteristics and households and families".

THE DECADE OF THE 1970s

The projections prepared in the 1970s were a sequel to those assessed in the 1960s, particularly in 1968. As a matter of fact, the projections in the 1970s were essentially refinements of the 1968 assessment, but broader in scope. They were based on the more accurate and widely covered baseline data which had become available in developing countries; and they were also aided by more powerful and innovative indirect estimation techniques, better software, and computers with larger capacities. Those improvements made it possible to prepare the projections more accurately and publish them more quickly.

In the 1973 series of projections, the following important changes took place:

(a) There were more detailed indicators computed and published, largely in response to increasing demands from various units and agencies of the United Nations, Governments, non-governmental organizations and individual demographers. In 1975 all pertinent indicators were arranged by country and published in a paper entitled

"Selected world demographic indicators by countries, 1950-2000",¹⁸

(b) The conceptual framework for projections had been demographic transition theory, as used in previous United Nations projections, particularly in the 1968 assessment. When translating the theory into actual projections, the 1968 process employed a unitary model in regard to future trends in both fertility and mortality declines. In 1973, in recognition of the complex interplay of socio-economic, political and cultural factors in fertility and mortality change, the future trajectory of fertility decline was assumed to take in multiple courses. At the same time, age patterns of fertility were assumed to be subject not only to change according to the level of fertility but also to regional differences. Hence, separate schedules of age-specific fertility rates were prepared for different major regions;

(c) Baseline data was improved. In the early 1960s, the United Nations was the only organization that evaluated and adjusted incomplete demographic data. In the 1970s, many other organizations, including universities, launched data gathering and estimating activities for the developing countries;

(d) Computer programs, or software, which had been the exclusive preserve of professional programmers, became available to demographers. The development of software for population projections meant easier computation, and thus a greater number of variants. The regional commissions began to use demographic software for regional projections;

(e) Long-range projections were made, up to the twenty-second century. Such projections assumed that future trends in fertility change in less developed regions would generally follow the demographic transition theory, but with trends and patterns in multiple paths. It was assumed that currently divergent fertility and mortality levels would progressively converge into a narrow range among different regions of the world. Fertility levels would reach net replacement levels. Those in East Asia would decline first, to the level of those in the developed regions, to be followed by those of South Asia, then Latin America, then Africa. With respect to mortality, it was assumed that life expectancies would reach a plateau of around 80 years for men and 75 years for women.

The 1978 assessment differed from the 1973 in the estimated annual rates of population growth. In the three previous assessments (1963, 1968, 1973), it was assumed that the rate of growth would increase until 1975-1980—that is to say after the base year of the projections. That feature is shown in table 1, which compares the annual growth rates of different series of projections from 1963 to 1982. In the 1978 assessment, rapid growth of the world population was still seen to be under way. However, the period of the most rapid growth had already passed and the world population had begun to increase at a slowly decelerating rate. According to the estimates revised in 1978, the annual growth rate of world population in 1975-1980 was 1.8 per cent below the highest level of about 2.0 per cent estimated for 1960-1965. (In subsequent assessments, the watershed of growth rates has consistently been placed in the 1960s.) The proposition that the peak in the world population growth rate had passed seems to have become an established fact, and it has had a major impact upon the population activities of the international community. It was evident that family planning activities, at the governmental and/or non-governmental level, would facilitate further declines in fertility.

THE DECADE OF THE 1980s

In the projections prepared in the 1980s, the cycle of revision was shortened. New assessments are now issued every two years instead of every five years. Rapid demographic changes and remarkable developments in data collection and in methods of estimating basic demographic indicators from incomplete data make the more frequent assessments possible.

External demand for more frequent revision had also risen. In the 1970s, the successful World Fertility Survey programme was producing an unprecedentedly complete and accurate picture of fertility and sometimes mortality profiles for many developing countries. The new information was almost immediately usable for improvement of the United Nations baseline data for projections. In addition, large number of developing countries had taken censuses for the first time, and more of them had produced reliable vital registration data. At the same time, international and national organizations such as the World Bank,

TABLE 1. RATES OF POPULATION GROWTH, 1950-2000, AS ASSESSED, IN SIX DIFFERENT UNITED NATIONS ASSESSMENTS

Projection period	1963	1968	1973	1978	1980	1982
1950-1955.....	..	1.80	1.69	1.77	1.76	1.84
1955-1960.....	..	1.90	1.85	1.95	1.94	1.86
1960-1965.....	1.80	2.00	1.93	1.99	1.99	1.96
1965-1970.....	1.85	2.00	1.87	1.90	1.94	2.06
1970-1975.....	1.88	2.00	1.89	1.84	1.91	2.02
1975-1980.....	1.88	2.10	1.95	1.81	1.72	1.77
1980-1985.....	1.84	2.00	1.93	1.80	1.70	1.67
1985-1990.....	1.78	1.90	1.84	1.76	1.65	1.61
1990-1995.....	1.70	1.80	1.75	1.66	1.60	1.56
1995-2000.....	1.64	1.70	1.64	1.56	1.50	1.52

the United States Bureau of the Census and the University of Chicago had started preparing their own world projections. The World Bank, a latecomer in the field of population projections, started to prepare quite frequent revisions. Hence, the United Nations, with by far the longest experience in producing worldwide projections, had to be responsive to changing demands and changing circumstances. Already improved software programs and the increasing availability of high-speed computers could perform the work more easily.

The basic framework of projections in the early 1980s is essentially the same as that used in 1968, 1973 and 1978. However, the following changes are noteworthy:

(a) There are many organizations that specialize in obtaining, evaluating, adjusting and assessing fertility and mortality levels in developing countries, including United Nations demographic centres, the World Fertility Survey, the National Committee on Population and Demography, United States National Academy of Sciences, and various universities and study centres in the United States, the United Kingdom and other countries. It should be recalled that the technical know-how of estimation had been disseminated through United Nations manuals. The publication of *Manual X*, in collaboration with the Committee on Population and Demography, was a landmark development.¹⁹

(b) It used to be said that about three quarters of the effort in preparing United Nations estimates and projections went into the preparation of baseline estimates. Now that information of better quality and near complete coverage is available for the baseline, it will considerably alleviate the burden on the United Nations projection staff. Moreover, China conducted its first comprehensive and systematic census in 1982.²⁰ Since the population of China comprises one third that of all the developing countries, the availability of its high-quality accurate data will certainly enhance the quality of the United Nations estimates and projections of global population.²¹

(c) In the 1980s projections, all the pertinent indicators included in what were called "selected world demographic indicators" have been computed in every quinquennium from 1950 to 2025. For example, gross reproduction rate was not previously available for 1950-1970 or 1950-1975, but it has now become available.

(d) It must be stressed that availability of better software for projections permits the staff in the Division to try many different fertility, mortality and migration assumptions.

(e) In 1981, the United Nations prepared a new set of model life tables specified according to regions. Together with the ones prepared by Coale and Demeny, they have proved to be very useful for estimating mortality in developing countries and more realistically reflect regional patterns of mortality actually observed.

(f) United Nations estimates and projections of infant mortality for developing countries and developed countries have improved considerably. Originally, it had been thought that since so many developing countries lacked reliable direct estimates, infant mortality would be tautological to the estimate of mortality level selected from

pertinent United Nations and Coale-Demeny model life table schedules. With the increasing availability of more reliable data on infant and child mortality, together with recent rapid development in techniques of indirect estimation, however, estimates of infant mortality for all developing countries can now be made. Recently, the Division has attempted to prepare its estimates and projections in response to the needs of other United Nations organizations, such as UNICEF.²² There are 49 countries with reliable vital registration, of which 32 are developed and 17 are developing. For countries where adequate registration statistics are lacking or incomplete, other sources of information are used to estimate the rate. Attempts were made to assemble and use all relevant information, including census, sample survey and other kinds of supplementary data, to derive indirect estimates of infant mortality.

CONSIDERATION OF METHODOLOGICAL IMPROVEMENT IN THE UNITED NATIONS PROJECTIONS

Since Whelpton put into use the cohort-component method of population projections in the 1920s,²³ the United Nations has employed that method, with occasional refinements and adjustments. In recent years, however, there have been several developments in projection techniques. The Population Division may find some of the following ideas worth consideration:

(a) Cohort fertility, instead of period fertility. The cohort fertility method is increasingly being used by the Governments of the United States, Canada, Japan and others on the basis of expected fertility data for future years.²⁴

(b) The need to inject a probabilistic element. Microsimulation is being used in assigning stochastic process to fertility.²⁵ There have already been some controversial arguments that projections should specify the range of error on projections in terms of probabilistic error.²⁶

(c) Time-series models. The publication in 1970 of the Box and Jenkins study on the forecasting of time series²⁷ led to an increased interest in forecasts based on the internal structure of a time series. Saboia has applied those techniques directly to birth series for Sweden, completely bypassing the analysis of age structure.²⁸ Lee attempted to synthesize traditional demographic models with the time-series techniques in forecasting fertility in the United States.²⁹ These methods usually make the assumption that the basic features of the internal structure of the time series (mean or trend in mean, variance, auto-correlation) are invariant over time.

(d) The parity progression method. Fertility projections may be carried out in terms of parity progression.³⁰ Including the dimension of parity in addition to age has now been attempted by the United States Bureau of the Census.³¹

(e) Decomposition of total fertility into marital fertility and percentage married. Another line of thought contemplates projections of marital fertility by age and the percentage of population in each age group according to marital states. Although this approach seems fairly straightforward, it has considerable practical problems, and certainly data constraints are large. Moreover, theo-

retical work relating nuptiality change to change in population by sex, age and marital status (as in the relations of fertility and mortality to age composition) has yet to be done.

(f) The inclusion of economic factors. The present United Nations projection scheme is concerned only with endogenous demographic factors, and not with exogenous factors such as economic variables and proximate determinants, including change in marriage patterns, breast-feeding behaviour, and prevalence and effectiveness of contraceptive use.³²

Because fertility is more unpredictable than mortality, sophisticated models have concentrated on fertility estimation. The United Nations projections for the developed countries have frequently been criticized by those who advocate replacing the period fertility method with the cohort fertility method. Although the period fertility method fails to distinguish trend from fluctuation, episodic causal factors such as wars and economic depressions affect fertility primarily in the timing of births and affect the ultimate size of family (completed cohort fertility) to only a secondary degree.

In spite of such an advantage of the cohort fertility projections, there are three reasons why the United Nations still maintains the present methodological setup: Unavailability of data in many of the developing countries; doubtful reliability in long-range projections; and lack of comparability of results among different countries. They are elaborated upon below.

First, it is not feasible to apply the cohort fertility method to most of the developing countries (nearly three fourths of the world population) simply because the needed data are not sufficiently available. Since the crude level of fertility itself is difficult to measure without elaborate adjustment and estimation, it would not be realistic to employ the elaborate cohort approach.

Secondly, although it is perhaps useful to apply the cohort method to short-term or medium-term projections in the developed countries and in some developing countries where there are good fertility data, such as Argentina, Chile, Singapore, and Uruguay, in regard to long-range projections, doubt has been cast on the efficacy of the cohort approach from a cost/benefit perspective. As Brass pointed out, cohort measures are merely a weighted average of prior period measures. Although cohort rates will perforce change more slowly and smoothly than period rates, they will contain no additional information and their use will convey no advantage.³³ Take, for instance, the population projections for Japan in the year 2025. We do not know what will be its expected fertility just before the year 2025 or what is the meaning of "tempo", or the temporal factor of fertility, in such a relatively remote future. We do not know whether there will be postponement of marriage and first births, second births, etc. around 2025 or how the catch-up mechanisms will operate in child-bearing in the latter period of female reproduction.

Thirdly, one of the roles of the United Nations projections is to produce comparable global and interregional prospects of population. Comparability should be maintained in the assumptions of fertility and mortality and

the projected growth rates between the developed and developing regions and among each of the developed and developing countries within a region and between regions. Since the United Nations deals with projections for 200 countries, up to the year 2025, and must maintain comparability and balance at all times, it would not be practical to go into the kind of sophistication that the cohort method represents at the present time.

SUMMARY: THE ROLE OF THE UNITED NATIONS PROJECTIONS

In this short paper, a historical review of the United Nations work in the area of demographic projections has been presented, in reference to the basic philosophy, methodological framework, coverage, format in presentation, time span, computerization etc. It is clear that the United Nations has a very important role to play in this area, in providing the following services, among others:

(a) First and foremost, the United Nations projections provide Governments, international agencies, demographers, and the general public with estimates and projections which otherwise would be very difficult to obtain. Even today, the number of countries that prepare their own national projections is limited—probably less than one third of the 200 countries and areas of the world—and the number of those that prepare their projections on a regular basis is even smaller. It is true that there are a few other organizations that provide world projections, but the United Nations remains by far the main supplier, the one with the longest experience, the one that provides the most detailed internationally comparable projections, and the one whose figures are most widely and authoritatively used by countries, international agencies and scientists, through the most established channels of disseminating international data and information.

(b) Two basic features of the United Nations projections are standardization and comparability in baseline data estimation, preparation of future projection assumptions and ways of presenting results. In addition to those merits, the United Nations projections maintain a regional and interregional comparability of assumptions, thus avoiding a situation in which total populations and other demographic measures go out of proportion in medium- and long-range projections if the national and regional assumptions are prepared in isolation.

(c) United Nations evaluations and adjustments are always performed in a systematic way. As noted above, the work of evaluating and adjusting baseline data requires the bulk of the time allocated to the entire process. The United Nations was among the earliest advocates of the necessity of data evaluation and took upon itself to carry out the necessary work. As a result, many advances have been made in the area of methodology of indirect estimation of fertility and mortality.

(d) The United Nations estimates and projections stimulate curiosity and interest among countries, whose demographers become interested in undertaking data evaluation and adjustment and in making their own projections by using various manuals prepared by the United Nations.

(e) One of the prominent features of the United Nations projections is the surprisingly similar results in each of the revisions of total population projected over a quarter of a century, as illustrated in table 2. The table shows various projected world population totals for 1985 and for the year 2000, available from seven different series of United Nations projections prepared between 1957 and 1982. If the projected totals for the year 2000 estimated in 1957 and in 1982 are compared, the difference is only 2.5 per cent. On the other hand, the highest estimate for the year 2000 was made in the 1968 assessment, but the difference between the century-end population estimated in the 1968 and 1982 assessments amounts to less than 6 per cent—a much smaller margin than in the Bogue and Tsui estimates of 1966 and 1978.⁴ Such remarkable stability is undoubtedly due to the orthodoxy and conservatism of the United Nations methodological framework and formulation of assumptions. But, at the same time, it vindicates their accuracy, consistency and integrity, implying that in each series of past projections, evaluation and adjustment of the benchmark data have been performed in a rigorous way and in a critical manner and that careful formulation of the assumptions has been made.

TABLE 2. WORLD POPULATION TOTALS FOR 1985 and 2000, GIVEN BY THE PAST SEVEN UNITED NATIONS PROJECTIONS: 1957-1982

Year of projection	Projection for 1985	Projection for 2000
1957.....	4 660	6 280
1963.....	4 746	6 130
1968.....	4 933	6 494
1973.....	4 817	6 254
1978.....	4 829	6 199
1980.....	4 826	6 116
1982.....	4 842	6 127

Thus, the United Nations has established a rather special place for itself as producer and distributor of world population projections that are widely disseminated to and used by various countries, agencies and scientists. That enterprise is uniquely a work of the United Nations in terms of data gathering on an international scale, objectivity in data evaluation, and standardization in the formulation of projection assumptions. In view of the great importance attached to the United Nations world population projections and in view of their remarkable success, it is envisaged that work on them will continue to be a central part of the United Nations research activities in the field of population.

NOTES

- ¹ United Nations publication, Sales No. 1952.XIII.5.
- ² United Nations publication, Sales No. 1956.XIII.3.
- ³ *Manual III: Methods for Population Projections by Sex and Age* (United Nations publication, Sales No. 1957.XIII.2).

⁴ *Age and Sex Patterns of Mortality: Model Life-Tables for Underdeveloped Countries* (United Nations publication, Sales No. 1956.XIII.1).

⁵ *Future Population Estimates by Sex and Age. Report I: The Population of Central America (including Mexico), 1950-1980* (United Nations publication, Sales No. 1954.XIII.3); *Report II: The Population of South America, 1950-1980* (Sales No. 1956.XIII.2); *Report III: The Population of South-East Asia, 1950-1980* (Sales No. 1959.XIII.2); *Report IV: The Population of Asia and the Far East, 1950-1980* (Sales No. 1959.XIII.3).

⁶ "The past and future growth of world population—a long-range view", *Population Bulletin of the United Nations*, No. 1 (December 1951), pp. 1-12.

⁷ "Framework for future population estimates, 1950-1980, by world regions" in *Proceedings of the World Population Conference, 1954, Rome, 31 August - 10 September 1954* (United Nations publication, Sales No. E.55.XIII.8), vol. III, pp. 283-326.

⁸ *The Future Growth of World Population* (United Nations publication, Sales No. 1959.XIII.2).

⁹ *Ibid.*

¹⁰ United Nations publication, Sales No. 1965.XIII.3.

¹¹ *Methods of Estimating Basic Demographic Measures from Incomplete Data* (United Nations publication, Sales No. 1967.XIII.2).

¹² *Manual V: Methods of Projecting the Economically Active Population* (United Nations publication, Sales No. 70.XIII.2).

¹³ United Nations/UNESCO, *Estimating Future School Enrolment in Developing Countries: A Manual of Methodology* (United Nations publication, Sales No. 66.XIII.3).

¹⁴ *Manual VII: Methods of Projecting Households and Families* (United Nations publication, Sales No. 73.XIII.3).

¹⁵ *Manual VIII: Methods for Projections of Urban and Rural Populations* (United Nations publication, Sales No. 74.XIII.3).

¹⁶ *World Population Prospects: Estimates and Projections as Assessed in 1982* (United Nations publication, Sales No. E.83.XIII.5) gives for 1980 an estimate of 4.45 billion.

¹⁷ ESA/P/WP/52.

¹⁸ ESA/P/WP/55.

¹⁹ *Indirect Techniques for Demographic Estimation* (United Nations publication, Sales No. 83.XIII.2).

²⁰ See, for example, Li Chengrui, "The reliability of China's 1982 population census data", in IUSSP, *International Population Conference, Florence, 1985* (Liège, 1985), vol. 4, pp. 427-451; Judith Banister, "Analysis of recent data on the population of China", *Population and Development Review*, vol. 10, No. 2 (1984), pp. 241-271.

²¹ In the 1978 assessment, the benchmark population of China in 1975 was adjusted upward from 839 million to 895 million, which created a fairly large upward adjustment of the world benchmark population between the 1973 and 1978 assessments of 65 million.

²² "Infant mortality: world estimates and projections, 1950-2025", *Population Bulletin of the United Nations*, No. 14 (1982) (United Nations publication, Sales No. E.82.XIII.6), pp. 31-53.

²³ Pascal K. Whelpton, "Population of the United States, 1925-1975", *American Journal of Sociology*, vol. 34, No. 2 (September 1928), pp. 253-270.

²⁴ See, for example, Ronald Freedman, Pascal K. Whelpton and Arthur A. Campbell, *Family Planning, Sterility and Population Growth* (New York, McGraw-Hill, 1959).

²⁵ For example, S. Inoue, "Choice of policy measures to affect fertility: a computer micro-simulation study", *Population Bulletin of the United Nations*, No. 10 (1977) (United Nations publication, Sales No. E.78.XIII.6), pp. 14-35.

²⁶ For example, Nathan Keyfitz, *Applied Mathematical Demography* (New York, Wiley and Sons, 1977).

²⁷ George E.P. Box and Gwilym M. Jenkins, *Time Series Analysis: Forecasting and Control* (San Francisco, Holden-Day, 1970).

²⁸ Joao L. M. Saboia, "Modelling and forecasting populations by time series: the Swedish case", *Demography*, vol. 11, No. 3 (1974), pp. 483-492.

²⁹ Ronald D. Lee, "Forecasting births in post-transition populations: stochastic renewal with serially correlated fertility", *Journal of the American Statistical Association*, vol. 69, No. 347 (1974), pp. 607-617.

³⁰ Griffith Feeney, "Parity progression projection", in IUSSP, *International Population Conference, Florence, 1985*, vol. 4 (Liège, 1985), pp. 125-136.

³¹ Prithwis Das Gupta, "Future fertility of women by present age and parity: analysis of American historical data, 1917-80", in United States

Bureau of the Census, *Current Population Reports*, Special Studies, Series P-23, No. 142 (Washington, D.C., Government Printing Office, 1985).

³² See, for example, Michael P. Ward and William P. Butz, "Completed fertility and its timing", *Journal of Political Economy*, vol. 88, No. 5 (1980), pp. 917-940; John Bongaarts and Sharon Kirmeyer, "Estimating the impact of contraceptive prevalence on fertility: aggregate and age-specific versions of a model", in Albert I. Hermalin, ed., *The Role of*

Surveys in the Analysis of Family Planning Programs (Liège, Ordina Editions, 1982).

³³ William Brass, "Perspectives in population prediction, illustrated by the statistics of England and Wales", *Journal of the Royal Statistical Society, Series A (General)*, vol. 137, part 4 (1974), pp. 532-583.

³⁴ Paul Demeny, "On the end of the population explosion", in Population Council, *Center for Policy Studies Working Papers*, No. 39 (New York, March 1979).

FERTILITY AND FAMILY PLANNING

*Gwendolyn Johnson-Acsádi**

SUMMARY

This paper describes how the United Nations has responded to the needs of Governments for data on fertility levels and for analytic studies on the determinants of fertility and family planning behaviour.

When the Population Division was founded 40 years ago, very little accurate population data on developing countries was available. Thus, one of the first tasks undertaken by the Division was to carry out a series of pilot studies to demonstrate how Governments could improve their knowledge of demographic levels and trends using inadequate statistics. The pilot studies, in India, the Sudan, the Philippines and Brazil, demonstrated the application of survey research to fertility analysis. Similar studies were conducted to illustrate the value of census data for policy-making.

In one of a series of United Nations technical meetings for analysing fertility data, William Brass made his famous suggestion that maternity histories be used to assess fertility change.

The Population Division participated in a pioneering mission to India which established the first national family planning programme. Shortly thereafter, the Population Division, in collaboration with IUSSP, developed a standard questionnaire to serve as the basis for internationally comparable KAP surveys and in other ways sought to promote cross-national comparative research on fertility and family planning.

Given the paucity of demographic data in developing countries, the Population Division worked to develop techniques for estimating fertility in the absence of adequate birth statistics. Those techniques included the reverse-survival method and various ways of using stable population models. More recently, model-based estimates of fertility have been made from WFS data.

The Population Division has worked to provide administrators with data and studies to measure the success of family planning programmes and to serve as a basis for improving service and achieving higher acceptance rates. Thus, the Division participated in evaluations of the administration of its national family planning programmes in India and Pakistan. It also contributed to research on calculations of the cost/benefit and cost-effectiveness of fertility reduction programmes. A basic component of such studies was the measurement of the impact of family planning programmes on fertility. Therefore, the Division carried out a programme of studies to evaluate alternative methods of making such measurements. The end result of the effort was the preparation of a manual for the assessment of the effect of family planning programmes on fertility.

As the quality of the data on fertility improved, the Population Division prepared a review of knowledge on determinants of fertility, and made its own contribution by proposing a hypothesis that there was a threshold that must be crossed before development leads to fertility decline. At present the Division produces periodic overviews of fertility conditions and trends, providing a comprehensive source of fertility statistics and explanatory variables in an analytical context.

In addition to periodic reviews, the Population Division has prepared studies on levels and conditions of fertility in both developed and developing countries. In analys-

NOTE: The author is indebted to Dr. George T. Acsádi, who graciously read a draft of the text, for advice and comment. However, any shortcomings of the work are the writer's own. Thanks are also due to Virginia A. Aquino and Jeannetta Harris of the Population Division for their kindness in providing documents and other materials.

* Senior Associate, Acsádi Associates, Consultants in Demography and Statistics, New York City, and former Chief, Fertility and Family Planning Studies Section, Population Division, United Nations Secretariat.

ing WFS data the Division made important findings concerning breast-feeding, "unmet needs" for family planning, the role of type of union between parents, marital disruption and the roles of education and occupation. In addition, through the secondary analysis of KAP studies, the Division derived information of great value to the administrators of family planning programmes.

When the Population Division of the United Nations was established, demography was a relatively young discipline among the social sciences. Among what were then recognized to be the fields of demography, the study of fertility had not developed sufficiently to meet the needs of developing countries, and only a small fraction of the literature dealt with family planning. The United Nations work over 40 years in those two fields evolved in response to the need of Governments and scholars for pertinent, reliable information and to requirements within the United Nations system of organizations for data and studies as bases for implementing various programmes.

In the early years, the work on fertility consisted mainly of efforts to increase the supply of statistics useful for fertility measurement and analysis; to develop techniques with which existing, incomplete statistics could be used to measure and analyse fertility; and to enhance knowledge as to the utility of fertility data and studies in developmental planning and policy-making.

As methodology was refined and statistics of good quality became increasingly available, analytical studies of fertility levels and determinants became the focus of the United Nations work in the area of fertility. The Population Division's early studies were devoted to or included an emphasis on conditions in developed countries but, with improvements in data supply and methodology, the focus was shifted to studies of conditions in the less developed regions and the biennial monitoring of global levels and trends of fertility. Intensive regional studies were carried out by the respective regional commissions, with the Economic Commission for Europe undertaking the work on developed countries.

The national family planning programme came to be used increasingly as an instrument of population policy, and surveys of knowledge, attitude and practice (KAP) of family planning gained utility as a source of information about the benefits of the programmes and about fertility levels. In response, the Population Division and the ESCAP secretariat began research and other activities to enhance the effectiveness of the programmes, to measure their value and to upgrade practices in the conduct of KAP surveys. These undertakings consisted of assistance to Governments in family planning programme evaluation; seminars, workshops and expert group meetings; and comparative analytical studies that included methodological research to enhance the evaluation of family planning programmes.

In what follows, those activities have been classified as work relevant to problems of data supply and availability; contributions to advances in the methodology of fertility and family planning research; and comparative analytical research on levels and conditions of fertility and contraceptive use.

THE PROBLEM OF DATA AVAILABILITY AND APPLICATION

At the end of the Second World War, comparatively very little, mostly sporadic demographic information was available on the populations of most developing countries. For the vast majority, vital statistics were either totally lacking or of unreliable quality and, for many, only incomplete population enumerations or estimates existed. Moreover, such data as were available were of relatively little value for the study of fertility.

The Population Commission, at its fourth session in April 1949, recommended that the Secretary-General undertake, on the basis of existing studies, a survey of the relationships between population trends and economic and social factors.¹ In relation to the topic dealing with factors affecting fertility, the secretariat reported that, "even the simplest statistical data on the frequency of births are not available for many parts of the world" and that, around 1947, data on number of births were nonexistent, inadequate or not made available for countries of Asia and Africa, some in Eastern Europe and most in Latin America [United Nations, 1953, pp. 71 and 91]. Moreover, it was possible to calculate reliable fertility measures, such as age-specific fertility rates for few, if any, developing countries. Indeed, when the Population Division was established, most of what are now recognized as regular tools and methods of demography—mainly the techniques of deriving useful measures from inadequate statistics—had not been developed.

Improving the supply of data for measuring fertility, and its utilization

In recognition of the awesome obstacles to the complete registration of vital events in developing countries and in light of the infrequency of complete population enumerations and their limitations for the acquisition of certain types of information, the Population Division undertook a series of pilot studies to aid Governments in improving knowledge of their populations. The first was the Mysore Study, a sample survey of fertility and family planning undertaken in Mysore state, during 1951/52 in collaboration with the Government of India [United Nations, 1961a].²

In pilot studies undertaken jointly with the Government of the Philippines from the 1956 and 1957 rounds of the Philippine Statistical Survey of Households [United Nations, 1960] and with the Government of the Sudan on the basis of its first national population census in 1955/56 [United Nations, 1964b], various methods were used to estimate crude birth rates and other fertility measures with the view to filling gaps in needs for information on the fertility of those countries and indicating their uses for

planning purposes. No useful measure of the birth rate had previously existed for the Sudan. Jointly with CELADE, the Population Division collaborated with the Government of Brazil in carrying out the Guanabara Pilot Survey [United Nations, 1964a], a 1/2,000 household sample that netted 2,411 households for study. The inquiry, conducted in 1961, yielded crude birth rates and total fertility rates for the total population and for social classes in Guanabara State, but no other type of explanatory data.

The four pilot studies were intended to demonstrate the methodologies of survey research and the analysis and application of demographic statistics, including data on fertility, not only to the collaborating Governments but to other Governments as well, as examples of the means and efficacy of such studies.

A part of the United Nations programme of research on fertility involved the organization of international forums, first for the dissemination of ideas seeking to improve knowledge and, secondly, to enable scholars and students in developing countries through contact with senior demographers from other regions to improve their skills as analysts and, particularly, to enhance their ability to make effective use of deficient population statistics. Early in the programme, seminars on the evaluation and utilization of data from the 1960 round of population censuses were held for each developing region—for Latin America, at Santiago, Chile, in 1959; for Asia and the Far East, at Bombay, in 1960; and for Africa at Cairo, in 1962. Major segments of the meetings necessarily dealt with the estimation, refinement and use of fertility measures.

After the meetings and in a further effort to emphasize the importance of utilizing fully results of the 1960 population censuses, the Population Division undertook a study of the value of census data for planning and policy-making. The result demonstrates the utility of types of analytical studies of fertility and the relevant tabulations, as well as other topics and data, for planning in a variety of sectors, including needs and problems related to labour supply, educational services and facilities, housing, levels of living, health services and facilities, food and agriculture, and problems of population structure and growth potential [United Nations, 1964c].

In conjunction with its efforts to ensure full utilization of results of the 1970 round of population censuses and of the growing numbers of fertility and KAP surveys, the Population Division convened in 1971 the Technical Meeting on Methods of Analysing Fertility Data for Developing Countries [United Nations, 1971a]. Papers presented to the Meeting and discussions of them covered such questions as means of improving the quality and testing the accuracy of survey and census data on fertility; simultaneous use of questions on births in the last year prior to a survey and number of children ever born, application of the P/F ratio method to obtain better estimates of fertility; utilization of census and survey reports of "own children" to reconstruct age-specific fertility rates by single years of age for a decade or more in the past; correction of recall lapse in retrospective fertility data; application of consistency checks to retrospective fertility data; and the use of a variety of indirect methods to detect fertility change. The latter included the reverse-survival technique, child/

woman ratios, use of simulation models for testing indicators of fertility change, and methods of estimating fertility trends from census age structure.

The Meeting was the occasion on which William Brass [1971] suggested utilizing maternity histories to assess fertility change. The method requires collection of statistics on births by age of mother and parity for successive five-year periods prior to the survey. Under the assumption that current first births will be more accurately reported than others, they can be used as a standard to correct time distortions in births reported. It assumes temporal constancy in level and pattern of first births and provides techniques for adjusting for errors of omission, errors of reference period and errors in timing of births [United Nations, 1971a].

The Economic and Social Commission for Asia and the Pacific (ESCAP) has convened a number of seminars and workshops to increase the supply of national technicians capable of undertaking fertility research. Particularly noteworthy are two workshops and a seminar convened in 1977, 1978 and 1979, respectively, to aid national researchers to evaluate, analyse and apply in matters of policy data obtained from the World Fertility Survey inquiries in their countries. The workshops explored procedures for dealing with maternity histories and the application of statistical and fertility models and of statistical (multivariate) analytical techniques and estimates, including the own-children method [United Nations, 1979d], while country-specific and regional analyses of World Fertility Survey data were discussed at the seminar [United Nations, 1981c].

Surveys of knowledge, attitudes and practice of family planning

The institution known today as the national family planning programme has existed for barely three decades [Mauldin and Johnson-Acsádi, 1975]. Pioneering Governments required assistance with various components of their programmes. The Population Division joined with WHO in a 1952 pioneering mission which, at the request of the Government of India, established the first such national programme and, in 1953 and 1957 aided the Government of Barbados in developing a system of family planning statistics. Most subsequent work of this nature was undertaken by the regional commissions—principally ESCAP, the region in which family planning activities have been most extensive.

Wide use was made of surveys of knowledge, attitudes and practice of family planning (KAP surveys), over 400 having been undertaken world-wide roughly from the mid 1960s to around 1976 [United Nations, 1979a, p. 1], with the result that there developed interest in the standardization of the surveys for comparative research purposes.

The KAP surveys, patterned after the pioneering Indianapolis Study of the 1940s [Whelpton and Kiser, 1946-1958] and the 1952 Mysore Study [United Nations, 1961a], proliferated during the second half of the 1960s, mainly in the Asia and Far East region, where national family planning programmes were most prevalent, but in other regions as well. The Population Division, in collaboration with the Committee on Comparative Analysis of Fertility

of the International Union for the Scientific Study of Population (IUSSP), developed and published a standard questionnaire and a list of variables to serve as the basis for internationally comparable KAP surveys and for the comparative analysis of data obtained in those surveys [United Nations, 1970a]. The work focused upon international comparability of survey results and the ability of such results to enhance the meaningfulness of individual surveys. The variables were selected to permit analysis of how social, economic and demographic factors influence both fertility and the family planning practices that affect fertility.

Concurrently with those activities, the United Nations Working Group on Social Demography (established in 1967 in the context of the European Social Development Programme by the Economic Commission for Europe), undertook, in collaboration with the Population Division at Headquarters and the Division of Social Affairs at Geneva, preparation of a list of variables, a model questionnaire and tabulation plan for fertility and family planning inquiries in European countries [United Nations, 1971b]. The aim was to promote cross-national comparative research on conditions of fertility and family planning in European and other developed countries, so as to strengthen interpretations of findings from national surveys and to enhance possibilities of enlarging the body of population theory.

Surveys conducted under the direct auspices of the United Nations were those carried out by CELADE in rural areas of four and in principal cities of seven Latin American countries during the years 1963-1964 and 1969-1970, respectively. Those, along with a 1959 KAP survey in Chile, were the first conducted in the region [Miro and Mertens, 1968; United Nations, 1979a; Conning, 1972]. The surveys obtained from samples of women aged 20-49 years vital data, information as to their attitudes about family size and limitation, their knowledge of contraceptive methods and fertility regulation, and facts about their demographic, social and economic backgrounds. Data obtained in those and other surveys of the time provided useful information for planning and policy purposes and served to indicate fertility levels in the absence of vital statistics.

The decade of the 1970s began with a near-polarization of views about the efficacy of family planning programmes [United Nations, 1972, pp. 4-10] and about the utility and ethics of other measures, particularly disincentives to child-bearing in order to alter the course of fertility in developing countries. There was sharp divergence of opinion, too, as to the impact of the programmes on fertility, and a surfacing of ever new schemes to recruit and retain subscribers to services that the programmes offered. All of this simmered in a climate of increased awareness of the importance of the population factor in economic and social development and of some frustration with results of the First United Nations Development Decade.³ In response, the Population Division assembled and analysed a wide assortment of information related to those questions, with a view to stimulating research in greater depth and of broader scope, the results of which would serve as guidelines for decisions relative to policies and

programmes aimed to influence fertility [United Nations, 1972].

ADVANCEMENTS IN THE METHODOLOGY OF FERTILITY AND FAMILY PLANNING RESEARCH

Methods of estimating fertility measures from incomplete data

As one of its first tasks, the Population Division undertook to develop techniques of deriving from available data useful measures of fertility (as well as mortality) for developing countries and others with sparse statistics. Thus began a series of studies on means of estimating fertility in the absence of adequate birth statistics. In light of the fact that the population census was, with rare exceptions, the only source of information on the populations of most developing countries, the Population Division produced two methodological studies of uses to which census data could be put for deriving fertility and other demographic measures [United Nations, 1949a, 1949b]. The first offered generalized applications; the second, applied to Brazil, illustrated methods of estimating crude birth rates and fertility rates from census tabulations.

Some of the most widely acclaimed methodological work of the Population Division was published in 1956 in *Manual III*, as a part of its efforts to improve the quality of population estimates and projections. Recognizing the inadequacy of the crude birth rate and the general fertility rate for projection purposes and in order to account for the effects of changes over time in proportions of women aged 15-44 years and in the age distribution within that group upon birth rates where data on births by age of mother were lacking, the "sex/age adjusted birth rate" was devised. That summary rate is the "number of births per 1,000 of weighted aggregate numbers of women in the various five-year age groups 15-44" [United Nations, 1956, p. 44]. The standard weights used were constructed on the basis of the relative rates in 52 countries.

Manual III also set forth in detail the means of estimating the probable number of births in a given recent period from a census age schedule of numbers of children enumerated, experimentally applied in the Brazilian study. The method, known as "reverse survival" involves reversal of the procedure of survival computations used for population projections. The number of children enumerated at a given time is divided by the appropriate survival ratio to obtain an estimate of the number of births during a previous period [United Nations, 1956, pp. 45-47]. The manual also propounded the possibility of estimating fertility with the use of stable population models based on the close relationship of fertility to population age structure.

Building upon the work of others, but mainly of Lotka [1939] and Bourgeois-Pichat [1957], the Population Division, in an extensive study of the utility of the stable population concept for determining demographic characteristics of populations lacking useful population census data and vital statistics, proposed a means of estimating fertility with stable population models, given one or more of several demographic parameters—i.e., mortality level, sex/age structure and population growth rate [United Nations, 1965a]. In the meantime, other scholars

were focusing upon the stable population concept in an effort further to exploit and refine it as an approach to the improved estimation of fertility (and mortality) measures from incomplete data [Coale, 1957; Coale and Demeny, 1966; Lopez, 1961; Brass, 1964].

The late 1950s and early 1960s witnessed a sharp rise in the demand for information on the demography of developing countries, particularly those in Africa south of the Sahara, for which gaps in knowledge were greatest, and especially on fertility, which was increasingly recognized to be the problematic factor in population growth. The demand was partly in response to the articulated specifications in instruments of the First United Nations Development Decade that population phenomena be taken account of in developmental planning—necessitating, for planning purposes, the wider use of deficient demographic data—and partly because political and social events dramatized the paucity of knowledge about those regions.

In that climate, demographers and statisticians focused upon means of utilizing any useful data available to them to extract for developing countries such reasonably acceptable measures of fertility (and other demographic parameters) as could be derived. Previously, for countries lacking vital statistics but with population census data, wide use had been made of child/woman ratios and, from the censuses that contained the relevant questions, of the number of children ever born per woman of completed fertility [United Nations, 1949a]. However, the 8-10 years following publication of *Manual III* [United Nations, 1956] witnessed development of more sophisticated methodologies and the refinement of methods already in use to enable exploitation of data of varying types and quality. The Population Division thus commissioned an updating of *Manual III* with a view to providing a more useful handy reference on demographic methods.

Building on the work of several scholars [including Coale and Tye, 1961; Coale and Demeny, 1966; Brass, 1964 and United Nations, 1965a] as well as on *Manual III*, the new work, known widely as *Manual IV* [United Nations, 1967], clarified and illustrated techniques of estimating basic demographic measures from incomplete data. The majority of the methods dealt—exclusively or partly—with the estimation of fertility measures and parameters, such as crude birth and total fertility rates, the gross reproduction rate and the mean age of the fertility schedule. Depending on the data base available (e.g., data on age distribution from a single census or from two or more censuses or surveys; on the average number of children ever born or born during a year prior to the survey or census to women by age; children surviving by age of mother; or combinations of such data) and, in some cases, on other additional information (on migration, population growth, stability of population processes etc.), the estimation procedures were based on the extensive use of model life tables and stable populations, P/F ratios, various adjustment and reverse projection techniques. *Manual IV* also treats the problem of mistatements and misreporting of births retrospectively [see also Brass and others, 1968], and contains a set of model life tables and stable populations.

Owing to the dependence of scholars and students dealing with the population problems of developing countries upon methods of estimating fertility and other demographic parameters from incomplete data bases, to the refinement of measurement techniques following its publication and to further development of the methodology, after about a decade, the need for an updating of the material became evident. Consequently, the Population Division produced another updated manual, a textbook on indirect demographic methodology, in collaboration with the United States National Academy of Sciences [*Manual X*; United Nations, 1983a].

The indirect techniques for estimating fertility measures that are proposed and illustrated in *Manual X* reflect both the advances in demographic methodology and the technological revolution that made the computers required to apply many of the methods somewhat commonplace. The first chapter of the manual is a treatise on demographic models; in addition to model life tables and stable populations, it also gives an account of fertility and nuptiality models. The chapters dealing with the various estimation techniques systematically describe the basis of the method and its rationale, the data required and the computational procedure, and give detailed, step-by-step examples of its application.

The longest chapter in *Manual X* deals with the estimation of fertility based on information about children ever born. It included methods of the Brass type, which rely essentially on comparison of period fertility rates with reported average parities, such as the P/F ratio method, and estimation of age-specific fertility from the increment of cohort parities between two consecutive surveys, a method based on work at CELADE [Arretx, 1973]. Another method illustrated uses of data on reported achieved parity by duration of marriage to estimate fertility, including the level of natural fertility. *Manual X* also dealt methodically with fertility estimations utilizing model stable population age distributions and reverse-survival procedures, included in the previous manuals. In addition, *Manual X* illustrated the "own-children" method, a variation of the reverse-survival technique.

Other methodological advances

Over the past several decades as computers have become more readily accessible and their use more commonplace, scholars have resorted increasingly to the construction and application of complex models of reproductive behaviour as aids to the measurement and analysis of fertility. Models may be based on the reproductive histories of groups of women who share characteristics such as age, age at marriage or at birth of the first child; or on moment measures of the fertility-age function or the fertility-marriage duration function, or some other period type of observation. They may be stochastic, deterministic or a combination of those. They may be highly complex, involving a number of parameters, or very simple with as few as two variables.

In fertility studies, models of reproductive behaviour have been used to improve knowledge of factors affecting fertility and the reciprocal relations between them; for

estimating fertility measures, given certain information about the actual population; and as an aid to the interpretation of findings derived from other analytical techniques.

Following Lorimer's publication of a hypothetical fecundity model [Lorimer, 1954], the Population Division developed a series of hypothetical model age patterns of fertility and, from observed patterns, constructed a typical or model age fertility curve for comparison with Lorimer's fecundity model [United Nations, 1965b]. The work, which was carried out during 1961-1962 and represented empirical models of fertility with age curves based on patterns currently existing in 72 countries, showed the effects of variations in age-specific marital fertility rates upon age patterns of fertility. Curves of age-specific fertility were found to have early, broad and late peaks,³ with age of woman being the temporal factor. The models showed that, in most cases, early marriage yields an early-peak type of fertility curve and late marriage a late-peak type of curve, when combined with various patterns of marital birth rates. In both high and low fertility countries, the broad-peak type of curve tended to be associated with the highest gross reproduction rates. In other words, it determined that fertility will be highest where high levels of age-specific fertility persist over a broader segment of the reproductive span. Early and late peak curves, however, do not greatly differentiate average levels of fertility.

At the United Nations Demographic Training and Research Centre in Bombay, models were constructed to illustrate how a basic pattern of age-specific birth rates would be altered by changes in certain conditions. The research, based on data for rural India, showed the effect of age at marriage and at first birth on fertility patterns: an advance in age at first birth (reflecting an advance in age at marriage, since contraception was held to be absent before first birth) of three years would transform an early peak into a broad peak type. Effects of birth order and of inter-birth interval were also examined [Ghosh, 1961].

A hypothesis offered by Henry [1961]—that where fertility is not controlled voluntarily (i.e., is "natural"), the age pattern of marital fertility is approximately constant though the level of fertility may vary—expanded the thinking about human reproduction and the causes of its variations. A Coale/Trussell [1974] model, based on the empirical experience of 43 populations defined marital fertility in terms of its departure from the generalized pattern of natural fertility, due to exercising voluntary fertility control. *Manual X* [United Nations, 1983a, pp. 23-26] illustrates the model and explains its utility, for example, in generating marital fertility schedules and, when combined with a nuptiality model, also age-specific fertility. Also explained and illustrated in *Manual X* is the simpler "relational" Gompertz fertility model, which uses only two parameters for determining the shape of the age-specific fertility curve. In the model, the ratio of cumulated fertility up to specific ages and total fertility is assumed to follow a Gompertz distribution function, and a relational scheme between a standard and any other fertility pattern is postulated.

The development and use of model-based estimates of fertility from WFS data were among the concerns of the United Nations Working Group on Comparative Analysis

of World Fertility Survey Data, which dealt with model-based fertility estimates in general and, particularly, with the limitation of methods based on the P/F ratio [Acsádi, 1980d and 1982].

EVALUATION OF NATIONAL FAMILY PLANNING PROGRAMMES

Family planning programmes have given life to or stimulated research that has further elucidated the causal mechanisms of reproductive behaviour, mainly because programme administrators soon experienced a need, on the one hand, for data and studies to prove success and thereby legitimate their use of financial and other resources and demonstrate the need for continued support and, on the other hand, to serve as bases for improved services and achievement of better programme results.

Funding agencies and Governments required tangible evidence of both management efficiency and programme impact, creating the need for standards of administrative evaluation and studies of cost-effectiveness of family planning programmes and for measures of fertility impact, commonly referred to as "births averted". Thus began a focus upon family planning research that has covered several decades.

The need of programme administrators for data with which to justify expenditures and maintain efficiency of operations gave rise to the practice of evaluation. The weighting of activities pursuant to intermediate goals in terms of costs, quality and quantity of performances, services, items distributed, general logistics and other related activities constitute administrative evaluation, whereas the weighting of achievements in terms of the ultimate goal, i.e., reduction of fertility attributable to the programme, represents a demographic evaluation. Initially, the type of exercise carried out in either context depended upon the imagination and inventiveness of the person responsible for the activity. The first attempt to raise the scientific level of evaluation systematically by establishing guidelines and procedures were made by the secretariat of ESCAP.

Administrative aspects

The Economic and Social Commission for Asia and the Pacific (ESCAP) organized a series of expert group meetings and seminars, beginning in 1966, on problems relative to the administration of national family planning programmes. The expert groups investigated management problems, defined strategic concepts, clarified measurement techniques, outlined the purpose, scope and steps of administrative evaluation and, where appropriate, recommended solutions, choices and courses of action [United Nations, 1966a, 1969a, 1976a]. At a regional seminar, topics investigated included, in addition to those listed above, methods of tabulating and analysing family planning programme statistics; assessment of health and economic benefits; use of the computer in evaluation research; the setting and revision of programme targets and related subjects. The results of the assessment along with pertinent recommendations provided further guidelines for pro-

gramme administrators and their research staff [United Nations, 1970b].

Prominent among the early technical meetings on family planning programmes convened by ESCAP was a working group meeting that dealt with communications aspects [United Nations, 1968], addressing the widely prevalent notion that individuals could be motivated to regulate fertility, given the knowledge and means. The meeting concluded that, "For family planning programmes to succeed, they must change values and behaviours deeply rooted in biological nature and strongly supported by social sanctions." Further, "To achieve their purposes, family planning programmes must communicate—both widely and well" [United Nations, 1968, p. 7]. Two decades of subsequent experience have called into question the practicality—if not the veracity—of that conclusion, however, since voluntary change in reproductive behaviour is now seen to occur not in response to persuasion but to fundamental alterations in the conditions of life.

In the first of several such activities, the Population Division at Headquarters collaborated with the World Health Organization and the respective Governments in evaluation of the administration of the national family planning programmes of India [United Nations, 1969b] and Pakistan [United Nations, 1969c] by groups of experts recruited for that purpose. Recommendations were made pertinent to the establishment of programme targets, resources and other aspects of administrative planning; health and family planning services; the contraceptive methods and other methods of fertility control offered in the programmes; training and staffing; activities in respect to communication and motivation; social policy; periodic evaluation and other factors. The mission reports served as illustrative examples of administrative evaluation of a family planning programme.

Cost-benefit analysis

One of the conclusions of an *Ad Hoc* Committee of Experts on Programmes in Fertility [United Nations, 1966b], convened by the Population Division, was that in light of the growing prominence of family planning programmes as instruments of policy in developing countries, a need existed for research on their cost/benefit ratio or cost-effectiveness, apropos programme goals and possible alternative measures.

Subsequently, ESCAP convened a group of experts to consider issues in the measurement of cost-effectiveness and cost/benefit of national family planning programmes. The conclusion was that models then available were inadequate to describe the full consequences to the economy as a result of a given decline of fertility; that in terms of per capita output, the benefit of reduced fertility was not independent of benefit from other developmental processes. Research along specified lines was recommended [United Nations, 1973b]. Consequently, as a part of its continuing programme of methodological research on family planning programmes and related issues, ESCAP undertook methodological studies of programme efficiency in terms of input/output relationships [United Nations, 1976a].

Research on the project involved analysis of determinants of cost per acceptor (of a method of family planning) to ascertain economic efficiency and to allow recommendations as to alternative resource distribution given the prospective acceptors (number of non-contraceptors among the eligible females), their location within a country or community and such environmental characteristics as the female literacy rate, prevalence of home electricity, workers salaries, cost of supplies and so on. The result confirmed systematic relationships among input, environmental and output variables. In addition, an index was developed to gauge the efficiency of any product unit within the programme [United Nations, 1976a]. The ESCAP study was not intended to satisfy all requirements for research on the cost-effectiveness of family planning programmes but rather to support research on one aspect. The cost/benefit of the programmes has been the subject of considerable research by individual scholars and researchers [e.g., Robinson, 1969; Liebenstein, 1969; Enke, 1966].

Measurement of the impact of family planning programmes on fertility

Beginning in the mid 1960s, a number of researchers devised formulas for determining the number of births averted by the programmes. They ranged from simple calculations to complicated life table procedures and the application of mathematical models. Each method purported to measure the number of births averted as a result of activities connected with the programmes. Current knowledge affirms that the methods were essentially dissimilar with respect to assumptions, base population, family planning methods covered, hypotheses and quality of data, among other factors. But even after taking the differences into account, it became increasingly acknowledged that additional considerations should govern the choice of evaluation methods. Moreover, there was a need for some consensus as to the validity of findings derived with the methods, among other things, to enable comparisons among countries and over time within countries.

Nonetheless, from the mid 1960s onward, following publication by Lee and Isbister [1966] of the first recorded effort to measure programme impact, researchers tended to devise their own methods to select one of the few known to be in use or to devise a variant of one of them, with the method used being determined evidently by the degree of their technical expertise, the type and quality of data at hand and the time available.

There were, however, no guidelines for ascertaining the validity of the results; indeed neither programme administrators nor funding agencies appeared to have seriously raised the question. The situation prevailed in spite of, and possibly because of, the interest of programme officials and donor agencies in achieving and documenting the maximum number of births averted as an aid to the deceleration of population growth rates and a concomitant increase in living standards. In its first report on family planning programmes and other measures to influence fertility [United Nations, 1972], the Population Division addressed the problems of measuring the effect of the pro-

grammes on fertility levels. The report disclosed inadvertently the heterogeneity of approaches and the tendency among many researchers to exhibit inventiveness and individuality rather than to build upon the work of others or to compare results obtained by their method with that derived by other techniques.

The Population Division at ESCAP had recognized the need to encourage demographic evaluation, mainly in terms of fertility, and in 1969 began to convene seminars and workshops to familiarize nationals of the Asia and Pacific region with procedures for assessing the impact of the programmes on birth rates [see, for example, United Nations, 1970b, 1974a]. However, the agenda for the meetings generally did not provide for judgements as to the efficiency of different evaluation methods and factors that should determine choice among them. Rather, they focused upon spreading use of the methodology.

The project of the Population Division

In 1974 in one of its most extended, intensive research projects, the Population Division at Headquarters undertook a programme of studies to determine the adequacy of existing methods for measuring the impact of family planning programmes on fertility and to gauge insofar as possible the differences among evaluation methods in what they measure and the comparative results achieved with them.

The programme had four unique features:

(a) Technical research carried out within the United Nations Secretariat;

(b) National case studies of evaluation in 13 countries commissioned by the United Nations in which, with guidelines prepared by the Secretariat, national researchers applied as many of the 12 recognized evaluation methods as their data would allow, enabling a comparison of cross-method peculiarities and results and, in addition, four country studies were carried out to test the "prevalence model" of evaluation;

(c) Three groups of experts, most members of which had special expertise with or were the authors of one or more of the prominent methods, were convened to solve the problems of cross-method variance and related issues;

(d) The core members of the expert groups were members of the Committee on Demographic Aspects of Family Planning Programmes of the International Union for the Scientific Study of Population.⁴ The expert group members contributed technical analyses and statements on particular aspects of the issues, and the core members served as a review committee for the Secretariat's work.

The results of the research, carried out over the decade 1974-1983 and contained in four monographs [United Nations, 1978, 1979b, 1982a, 1985a], is greater comprehension of the efficaciousness of the various methods—what they measure and when they are useful—and of how to interpret results achieved with them.

While the project sought originally to develop a conceptual standard, or perhaps a single method for evaluation, it yielded instead the understanding that, inasmuch as evaluation purposes, data needs and availability and circumstances of evaluation differ, the current state of knowledge

did not support a single method capable of meeting all needs. It also clarified conditions for the application of the methods currently in use. Moreover, some method preferences emerged, indirectly, in that two methods—couple-years of protection (CYP) and fertility projection/trend analysis—though included in *Manual IX*, received little attention at the second and third expert group meetings. Another achievement was the identification of sources of disagreement among methods and of differences among them that are inherent in the assumptions and procedures that the methods incorporate. Finally, there was illumination as to appropriate directions for future research in light of the rapid growth of knowledge about evaluation, growth that was due in good measure to accomplishments of the United Nations project itself but also to the growing practice of integrating family planning activities with other social, health and development programmes.

The national case studies, prepared for the first expert group meeting, in which as many as possible of the different methods were applied to the same data and for the same time period, yielded insights theretofore absent in evaluation research. From those (and the later) studies, it became apparent that the project should focus upon the sources of variance among methods. The following methods, widely used or considered to hold potential for standard use, were selected for application in national case studies:

- (a) Standardization approach;
- (b) Fertility projection/trend analysis;
- (c) Experimental design;
- (d) Simulation models;
- (e) Component projection approach (CONVERSE);
- (f) Component projection approach (a modification of a method developed by Lee and Isbister, 1966);
- (g) Reproductive process analysis;
- (h) Regression analysis;
- (i) Multilevel regression analysis;
- (j) Standard couple-years of protection;
- (k) Prevalence model (at the second expert group meeting).

Cross-method variance was found to be attributable to a variety of factors, notable among which are the following:

(a) Some methods distinguish "gross" and "net" effects of the programme but not programme and non-programme effects, which others deal with, though without necessarily separating the effects;

(b) With some methods, the period covered relates either to the number of years that a programme has existed or the time that has elapsed since some reference date, while other methods take account of the life or period of effective use of a contraceptive method;

(c) With some methods, the analysis begins with acceptors and account is taken of continuation rates of the use of specific contraceptives and related factors;

(d) Methods differ in the handling of potential fertility, which must be estimated in order to arrive at the number of births averted.

Among the discrepant hypotheses and assumptions that identify the character of the different evaluation methods,

the research disclosed that one factor had a particularly telling effect upon cross-method variance and validity of results — namely, potential fertility, and how it is conceptualized and represented in the different methods. Potential fertility may be defined as what the level of fertility would have been, *ceteris paribus*, in the absence of the family planning programme.

The research also revealed that factors extraneous to the methods themselves pose difficulties for the development of a single or a standard method that can distinguish the portion of fertility change occurring within a specified period that is attributable directly to the family planning programme. Among those factors are:

(a) The tendency for reproductive behaviour to change in response to certain modifications in society and its institutions and to various governmental economic, social and health policies, in addition to family planning activities and the inability of researchers to devise a method that separates those effects;

(b) Differences among countries in the scope, organization, form and logistics of family planning programmes and the inability of one method to produce results effectively that do not reflect those differences;

(c) The method chosen is often contingent upon the type and amount of data available, so that the inadequacy of vital and other statistics utilized in evaluation research represents a constraint to the development and refinement of evaluation methodology. Other conditions that influence method development were held to involve, *inter alia*, lack of consensus as to choice of fertility indicator, variations in the chronological age of the programmes and the frequent lack of technical equipment, such as a computer, for evaluation research.

It has been said that if the Population Division had not undertaken this programme, there would have been a recognized need for it; that the United Nations is responsible for much of the progress made in evaluation research [United Nations, 1984a, p. 18; Mauldin, 1984, pp. 391-393], and that the demographic profession owes the United Nations a great debt for the published results of the work [Ross, 1985, p. 246]. The case studies not only assure that adequate material is available for additional needed research, but their development by national researchers for use as an international research laboratory promotes the wide comprehension and application of the techniques in many developing countries.

The methodological manual: Manual IX

The First Expert Group Meeting on Methods of Measuring the Impact of Family Planning Programmes on Fertility recommended that the United Nations develop a manual on measurement techniques in order to facilitate wider use of evaluation techniques and to increase the number of middle-level technicians in developing countries with the capacity to carry out valid research in that area. The resultant publication, *Manual IX*, illustrates step-by-step the application of seven methods commonly used to assess programme impact on fertility and outlines in similar fashion two approaches to the application of an

eighth technique [United Nations, 1979g]. The methods described are:

- (a) Standardization;
- (b) Standard couple-years of protection;
- (c) Analysis of reproductive process;
- (d) Multivariate areal analysis;
- (e) Simulation;
- (f) Experimental designs;
- (g) Fertility projection/trend analysis;
- (h) Component projection;
 - (i) Computerized model;
 - (ii) Model for desk calculator.

Standardization, as its name implies, is a method for separating the change in birth rates due to contraceptive use from that due to other factors. However, it does not distinguish the effect of contraceptive use from programme and non-programme sources. It is recommended as a first step in evaluation procedure.

Several evaluation methods base the assessment of programme effect upon acceptors, the contraceptive methods chosen or supplies dispensed. Standard couple-years of protection attempts to estimate births averted in a calendar year but assesses the total number of births averted over the years by the number of acceptors of a family planning method in a programme. That is achieved by separate calculations of the number of births averted by each contraceptive method accepted under the programme. Reproductive process analysis assesses gross number of births averted, basing the calculations on data for all who obtained supplies from the programme and thus includes those who change from private to public sector and vice versa. The potential fertility of acceptors is estimated on the basis of marital fertility rather than age-specific pre-acceptance birth rates. Analysis by that method can yield births averted in a 12-month period following acceptance or in a calendar year.

The component-projection approach, beginning with data on number of acceptors by age, use continuation and year of acceptance, measures births averted in each calendar year of programme performance. The model for desk calculators, for use when computer facilities are lacking, estimates potential fertility by using the age-specific fertility rates of five-year age groups of acceptors prior to acceptance. The computerized model uses the gross births averted concept and measures the impact of the programme on the crude birth rate (based on the female population). It estimates potential fertility as the expected fertility of fecund women in the absence of birth control.

Three of the methods illustrated in *Manual IX* stressed the importance of taking account of non-programme factors and their influence: experimental and quasi-experimental designs; fertility projection/trend analysis; and multivariate areal analysis. The first two infer programme effect as a residual of total minus non-programme effect, while multivariate areal analysis provides for the direct indication of programme effect.

In fertility projection/trend analysis approach, an estimate is made, with reasonable assumptions, as to what the

course of a population's fertility would have been without the family planning programme. That potential trend, an estimate of potential fertility, is then compared with the actual trend, and the difference is attributed to the programme. The experimental design method compares the behaviour of a control group with that of a treatment group, both having been selected in accordance with statistical principles of randomization and replication. The control group shows the effect of non-programme factors and the treatment group, the programme influence. In the multivariate areal analysis, a measure of fertility is the dependent variable, and the independent variables represent programme and non-programme effects. Through the values given the independent variables, the analysis reveals the influence of each upon fertility change.

The final method explained and illustrated in *Manual IX* is simulation. Its virtue is its ability to suggest the influence of various factors upon fertility behaviour when experimentation with a human population is impossible or impractical. *Manual IX* uses a microsimulation model (REPSIM-B) to illustrate the use of simulation in determining the impact of the programmes on fertility. It applies four experiments to ascertain the extent to which different family planning programme mixes would influence the fertility of a cohort of women.

Except for the standardization method and the component-projection model for desk calculator, written by the Population Division, the chapters explaining and illustrating the methods were prepared either by the creators of the methods or by scholars most closely associated with their refinement and application. The prevalence model [United Nations, 1985a, part IV] was not then in use. In the introduction to the manual, it is noted that the principal issues attending evaluation are estimation of potential fertility; correlated variables and interaction; uncontrolled variables; and independence of method. The selection of a method does not imply choosing among those problems, since some will be encountered no matter what method is chosen. They represent the issues that researchers must comprehend and whose value and impact must be measured or, at least, interpreted aptly, if the results of evaluation are to be valid and reliable.

Manual IX made it clear that choice of method is contingent upon a number of questions, including what one wishes to measure, the population for which evaluation is needed, the time period to be covered, whether it is desirable to separate programme and non-programme effects, the required reliability of method results, the availability of data for analysis, and the technical competence of the researcher. As noted above, the observations contained in *Manual IX* antedated development of the prevalence model, the application of which is not encumbered by a number of the shortcomings that are associated with other methods. Among other things, data for its application are obtained from sample surveys, and certain of the required information is obtained by questionnaire rather than by mathematical deduction.

Manual IX stands as the definitive reference for assessment of the effect of family planning programmes on fertility and, because its illustrations have placed the techniques of evaluation research within the capacity of

middle-level technicians, has become the standard for interested researchers and organizations.

STUDIES IN FERTILITY AND FAMILY PLANNING

The virtual ignorance of global levels and conditions of fertility, the limited perspective about national and regional variations and the dearth of illuminating statistics with which researchers were faced in the latter half of the 1940s are hardly imaginable today. Not only was there a paucity of reliable statistics for measuring fertility even for many of the more developed countries but the measurement techniques were comparatively unsophisticated by today's standards. Analyses of fertility performances of cohorts of women born or married in the same year—so common today—gained wide currency only in the late 1940s [Eldridge, 1959], enhancing the understanding of reproductive behaviour.

As improvements in estimating techniques and data supply permitted, scholars began increasingly to observe variations in fertility within and among developing countries and to direct their attention more and more to analysis of the economic, social and psychological factors that might account for those variations. However, such information as existed about fertility was scattered and inaccessible to many interested scholars. One important result was that theories of fertility change had not been developed in full cognizance of the conditions of fertility in high fertility countries or in light of the phenomena to which variations in levels of fertility among high fertility populations might be attributed.

In that state of knowledge about fertility, the Population Division undertook an analytical inventory of existing knowledge and hypotheses of fertility within the context of an international assessment of the determinants and consequences of population trends, based on a world-wide review of relevant, existing literature [United Nations, 1953]. The first "state of the art" report on fertility examined (to the extent that the published materials allowed) levels and conditions of fertility in countries of low and high fertility and intercountry differences by rural/urban residence, economic status, occupation of husband, employment of women, education of husband and wife and religion. The marshalling of that wide assortment of materials and their analysis was developed into what was then the definitive text on levels and determinants of fertility and its consequences in various settings. However, the advancement of knowledge was so swift that, in little more than a decade, an updating was required.

The second summary of findings on the determinants and consequences of fertility and of other population conditions and trends [United Nations, 1973a] was developed in a climate of improved knowledge about demographic phenomena in general and fertility in particular. This is evident both in respect to the aspects of fertility on which it was possible to marshal substantial information and the theoretical frameworks in which the materials were summarized and presented.

The second review facilitated a broadening of the scope of understanding about fertility by the discussion of "explanatory" variables that were not included or had

been given minor or unstructured treatment in the first review. Accordingly, much of the discussion was presented within the framework of the demographic transition, which had been refined and generalized [Notestein, 1952; Coale and Hoover, 1958] in the interim following the first review.

The great quantities of relevant research that ensued from the development by Davis and Blake [1956] of a theoretical framework of the intermediate variables through which social phenomena operate to influence fertility permitted inclusion in the second review of a considerable amount of information on the physiological or socio-biological and socio-cultural practices affecting fertility in countries and regions throughout the world. Other new studies enabled the review to include, in addition to the classic explanatory variables, expanded information on the relationship between social mobility and fertility, though it was found to be problematical, if not tenuous.

The Population Division had carried out research leading to the positing of a theory of the relationship of the combined effects of social and economic development on fertility [1965b]. Accordingly, the overall effect of changes in social and economic factors (or in level of modernization or development) upon fertility were theorized as being the key to changes in family size norms and attitudes and behaviour in respect to family size limitation—to wit, that where fertility is high, a certain stage or “threshold” of development was required for the modification of reproductive attitudes and behaviour. Improving social and economic conditions would very likely have little effect upon fertility until a certain level of development had been reached, after which fertility would decline and become stabilized at a much lower level. Although the theory had broadened the scope for research on fertility determinants, the second review [United Nations, 1973a] did not find it to have universal application.

GLOBAL ASSESSMENTS OF FERTILITY CONDITIONS AND TRENDS

Much of the United Nations contribution in the field of population grew out of its mandate to provide periodically as comprehensive as possible a review of current world conditions and trends of fertility (as well as other demographic phenomena). Over the years it produced what might be called overviews of fertility conditions and trends—reports that, while having analytical content and occasionally theoretical propositions, were basically source materials for government officials and individual researchers. Those and other earlier reports of a monitoring sort are discussed below.

For all countries having at least 250,000 inhabitants around 1960, the Population Division undertook a global analysis leading to several important previously unreported findings [United Nations, 1965b]. For the first time, it was known reliably that there were considerable variations in levels of fertility among the high-fertility countries. Also, it was found that the distribution of countries by level of fertility was bi-modal: the high fertility group had birth rates of 30 per 1,000 population and above and GRRs of 2.0 or higher; the low-fertility countries had

crude birth rates below 30 and GRRs under 2.0. Importantly, the former group of countries were all classified as developing, and the latter as economically more advanced. Moreover, among 125 countries, fertility more sharply distinguished the developed from the developing ones than did any of a dozen other social, economic and demographic indicators. That analysis was the basis for the “threshold” hypothesis, mentioned above. In the same work, age patterns of fertility were distinguished which made explicit the impact of changing age at marriage on fertility in low- and high-fertility countries, on the portion of reproductive life spent in child-bearing and on the ages of peak reproductive activity.

Subsequent research in the Population Division documented a decline of fertility, which several individual researchers had already observed to be occurring during the 1960s in many developing countries, even though gains in economic and social development were below both targets and expectations [United Nations, 1971c]. A later global study by the Secretariat revealed conflicting national and regional trends, the balance of which moderated world fertility during the decade of the 1960s, though the gap in levels between developed and developing regions widened somewhat from around 1960 [United Nations, 1965b] to 1970-1975 [United Nations, 1977]. Within a decade and a half, the situation changed to such an extent that the level which in 1960 had differentiated developed and developing countries no longer held.

The biennial monitoring of world population conditions and trends, begun by the Population Division during the late 1970s, produces what is certainly the most comprehensive, up-to-date source of fertility statistics and explanatory variables in an analytical context which is to be found. The programme ensures that reasonably up-to-date information on the course of world fertility and important factors that influence it will be readily available to interested Governments and individual researchers [United Nations, 1979c; 1980a; 1982b; 1985b].

Those monitoring reports have documented, as occurring over the past three decades, a gradual decline in world fertility that has been marked by a general broadening of the differences between developed and developing regions due to conflicting trends within each, confirming results of earlier research. Differences in fertility among developing countries now approximate those between developed and developing regions. The course of fertility in the developing region is attributable, among other things, to variations in modernization and individuals' responses to the changes associated with development; to the prevalence of, nature of and response to organized family planning activities; and to changing marriage and mating patterns [United Nations, 1985b].

The monitoring of fertility conditions and trends has revealed for most economically more advanced countries only sporadic divergencies from the secular decline of fertility [United Nations, 1985b, pp. 44-45], though, in several, levels appear to have stabilized. And fertility rates indicate increasing homogeneity of levels among those countries.

Studies of fertility and fertility change in developed countries

On the principle that there were in most developed countries scholars capable of analysing conditions of fertility there and of judging the demographic conditions vis-à-vis those of other nations, the Population Division concentrated intensive research on fertility in the economically less advanced countries. The notable exception—its study of the rise in birth rates in low-fertility countries following the Second World War—was made both because of the pervasiveness of the trend and the importance of seeking, in a comparative context, common factors pertinent to the rise. In more recent years, intensive research on the fertility of developed countries came largely within the purview of the Economic Commission for Europe.

The conundrum of the "baby boom" after the Second World War in western, developed countries following the secular declines in fertility engaged the interests of policy makers, planning officials, scholars, entrepreneurs and others. The phenomenon was one of the most important demographic developments of the mid twentieth century. The secular decline in fertility in the more advanced countries had previously been interrupted since its onset around the time of the industrial revolution only temporarily immediately following the First World War.

The Population Division undertook a study of 20 industrialized countries in what proved to be the most extensive comparative research on the demographic determinants of the "baby boom" upswing in the birth rate [United Nations, 1958]. Based upon analysis of time series crude birth rates, gross reproduction rates, age and marital cohort fertility rates, the study suggested a discontinuation of the secular decline of fertility. But it did not indicate a rise in completed fertility; rather, the change was found to be a "period" movement. The high birth rates were shown to reflect increases in the size of marriage and birth cohorts and the possible advancement of births to the early years of marriage. The change in the timing of births was also characterized by a declining relative contribution of older women to gross total fertility, though there had been some making up of births postponed during the war years.

Results of a study of fertility in 24 European countries [United Nations, 1975], carried out more than a decade and a half later, supported those findings. It showed that some of the changes in patterns of family building that had resulted in the "baby boom" presaged the subsequent decline, which had been all but universal on the continent and in the United Kingdom. The changes in reproductive patterns were profound. And though the character of decline had varied among countries in significant ways, there had been a convergence of processes that resulted in a high degree of similarity in reproductive behaviour.

The universally lower fertility was found to have been characterized by early child-bearing: its concentration within a shorter span of the reproductive years, reduction in the contribution to total fertility made by older women and the corollary, lower birth rates at higher parities and, importantly, further spread of the small family ideal. The concentration of child-bearing within a narrow span early

in the woman's reproductive years and adoption of the small family norm were noted to have been made possible by the successful practice of contraception, although, in many countries, liberalization of abortion policies played an important part. The research, undertaken by the Economic Commission for Europe, was based upon fertility and other statistics for the years 1950-1973 [United Nations, 1975].

The ECE secretariat, desirous of undertaking a more intensive study documenting conditions of fertility in developed countries following the "baby boom", obtained for that purpose results of independent sample surveys conducted in the United States and 11 European countries. The work was done in collaboration with the United Nations Working Group on Social Demography. The study, which pertained to years around 1970, served mainly to confirm patterns and trends noted above, at least as far as the represented countries are concerned [United Nations, 1976b]. In spite of the limited comparability of the data, they revealed a movement towards the two-child family as the norm and the persistence of some social and economic differentials, even within the context of a general convergence to very low fertility. It was also evident from the analysis that, if child preferences were realized, couples married in the 1960s would eventually have fewer children than earlier cohorts, buttressed by such structural changes as further urbanization and industrialization, increased incidence of female employment and rising educational standards.

The value of this research is limited by the fact that the survey instruments were not co-ordinated, with the result that some needed comparability was lacking. Also important is the fact that the samples were limited to married women, excluding women in cohabiting and other non-legal unions, a group that was markedly on the rise in the 1960s [United Nations, 1982, pp. 89, 104-106; Wijewickrema, 1984].

ECE, continuing its study of fertility determinants, utilized statistics for the United States and 16 European countries that were collected in association with the World Fertility Survey for a comparative analysis of factors supporting continued low fertility in developed countries [United Nations, 1984e]. The result, which reflects conditions during the latter half of the 1970s, are further confirmation of the convergence of developed societies towards low fertility norms, a preference for the two-child family, a sharp contraction of the number of years devoted to child-bearing and the shifting of those to about the first five years of marriage. The classic differentials, with some exceptions, were found to persist. Importantly, participation of women in the labour force proved to be incompatible with high fertility, though the mechanism through which the influence is made manifest remains in question.

Studies of levels and conditions of fertility in developing countries

Owing to the paucity of useful statistics, until the late 1970s there had been relatively little in the way of comparative analysis of fertility conditions in developing countries, apart from that included in the Population Division's

global studies cited above [United Nations, 1965b; 1977]. Researchers had relied upon surveys—mainly the KAP type of surveys of relatively small sample size—and population censuses as their sources for studies of fertility in individual countries. Even in the mid 1970s, vital statistics were judged to be relatively complete for 30 countries with only 12 per cent of the population of the developing regions [1977]. All of those sources produced data of only minimum comparability for cross-national research. Statistics obtained in the World Fertility Survey⁵ both increased the number of developing countries for which reliable statistics were available for the study of fertility and broadened the scope for analysis.

Because of the richness of the WFS statistics available for research on fertility, the importance of exploiting them fully as an aid to planning and policy-making in developing countries, the opportunity that the data presented for research from the perspective of all members of the United Nations system and, most especially, the need to avoid duplication of work and a conflict of results, the Population Division organized for itself, the regional commissions and the specialized agencies a broad programme of comparative analysis of the statistics obtained.⁶ The research plan [Acsádi, 1980a], which reflected priorities set forth in the World Population Plan of Action, was intended to promote the exploitation of WFS data not only by the Population Division and the co-operating members of the United Nations system (organized as the United Nations Working Group on Comparative Analysis of WFS Data and referred to here as the Working Group) but by other researchers as well. From the plan, a minimum research programme was devised [Acsádi, 1980b] with a view to meeting the more pressing information needs of national planners and policy makers and of scholars concerned with the advancement of demography as science.

Although the research plan envisaged different analytical procedures [Acsádi, 1980b; 1980c; 1980d], the Population Division commissioned the illustration of one approach to comparative analysis which combines sample survey data on individuals with aggregate level data on political and ecological units to show the means of multi-level analysis and its efficacy as a tool for enhancing comprehension of variations in fertility behaviour [Hermalin and Mason, 1980]. Further, to aid members of the Working Group in their research and to facilitate a measure of uniformity in research design and analytic approach, the Population Division provided a manual dealing with the logic, relevance and interpretation of comparative analyses, data reliability and validity, methodological strategies and analytical techniques [Acsádi, 1982].

The Population Division and the Working Group's programme of comparative analysis is the most extensive yet undertaken on the statistics obtained in the WFS. Because for many countries the WFS statistics were the first reliable fertility data and, in some cases, the first reliable demographic statistics, the Population Division has provided an analytical study of the utility of the data and studies based upon them for governmental planning and policy making [United Nations, 1986]. The following sections describe briefly the principal studies and some of their major findings.

Studies of levels and trends of fertility

More is known reliably today of fertility levels and trends in developing countries than before results of the WFS became available. In the monitoring of fertility levels and trends referred to above, there has been heavy reliance upon those results. Analyses of the data have confirmed sharp differences in birth rates and total fertility rates among developing countries and within the developing regions [United Nations, 1982c; 1984c], a phenomenon to which the Population Division first drew attention two decades earlier [United Nations, 1965b]. The Latin American countries were found to be the most heterogeneous in respect to fertility rates, which is not surprising inasmuch as levels have decreased considerably in many of those countries. The WFS statistics indicate that fertility is, on the average, highest in Africa, lower in the region of Asia and the Pacific and lowest in Latin America. And national total fertility rates were differentiated somewhat more sharply by level of national development than by family planning programme effort [United Nations, 1984c, p. 21].

For reasons widely known, one-time demographic sample surveys are not well suited for the study of trends, although, with appropriate procedures, the statistics may yield useful indications of the essential trajectory of fertility during a relatively short period prior to an inquiry. The Population Division analysed fertility trends for the first 20 developing countries for which WFS data became available. However, assessment of the quality of the statistics from the standpoint of age reporting and reliability of marital and birth histories led to the judgement that results of only 12 of the surveys provided good bases for observing trends. In those 12 countries, fertility was shown to have undergone solid, accelerating decreases during the periods covered, roughly the late 1960s through early 1970s [United Nations, 1983b]. The contribution of the study lies not only in its findings in respect to trends but also in its demonstration of the need for systematic evaluation of the reliability and validity of the WFS statistics [Acsádi, 1982].

Studies of factors affecting fertility levels and trends

The small number of explanatory variables upon which WFS obtained information limited the scope for analysis and, particularly, for improving knowledge of the causes of fertility change. However, the surveys yielded several sets of explanatory statistics on physiological factors of fertility, such as breast-feeding, post-partum amenorrhoea and post-partum abstinence etc., that engaged wide interest [see, e.g., Acsádi, 1980a; McCann and others, 1981; Kent, 1981]. The Population Division investigated the incidence, patterns and consequences of those phenomena in 35 WFS countries. Its particular contribution to the understanding of their influence on fertility emerged mainly from the analytic strategy which, among other things, classified their incidence and average duration by the country's level of development and family planning programme strength [United Nations, 1985e].

Though it was known that the incidence and duration of breast-feeding varied among cultures and, therefore, among countries, the Population Division determined that both—but especially duration—also varied among developing countries inversely with level of development, the period of nursing being more than two and one half times as long in countries of low level as in those of higher-level development. Furthermore, in countries with strong family planning programmes, women breastfed, on the average, for fewer months than they did where the programmes were weak or non-existent. Those revelations, along with the finding that the mean duration of post-partum amenorrhoea is shorter than or equal to that of post-partum abstinence in eight of 12 countries, lends support to the hypothesis that modernization weakens traditions and practices that formerly served to regulate fertility and causes it to rise, at least in the short run [e.g., Acsádi, 1980d; Kent, 1981; Acsádi and Johnson-Acsádi, 1983].

Variations in fertility among and within countries often reflects differences in child preferences and in the ability of individuals to effectuate them. Two studies carried out by the Population Division using WFS statistics have focused upon child preferences as causal factors in reproductive behaviour, with two principal results. The first, not often found in such studies, is that the observed discrepancies between the expressed fertility desires of survey respondents and their reproductive behaviour may reflect, at least in part the differences in preference between a woman and her husband or partner and that such information should also be obtained from the men in order to improve understanding of the relationship between women's preferences and their behaviour [United Nations, 1981b]. Another important finding from the Division's work not previously noted in other works is that the "unmet need" for family planning is greater in the more developed than in the less advanced of the developing countries. The more developed the country, the greater the proportion of women who desire to terminate child-bearing and, because desired family size is smaller, the more likely it is that women will exceed it [United Nations, 1985c].

Along with the biological and socio-psychological variables that are keys to reproductive behaviour, there exist demographic, social and economic attributes of individuals and societies that explain variations in fertility. With research based upon WFS statistics, several scholars have documented substantial effects of reproductive patterns (length of inter-birth interval, parity and age of mother at birth of child) upon early childhood mortality in developing countries [Chidambaram, McDonald and Bracher, 1985; Maine and McNamara, 1985; Trussell and Pebley, 1984; Acsádi and Johnson-Acsádi, 1985]. However, the impact of infant and early childhood mortality upon fertility, as revealed in WFS statistics, has received less attention. Alone among members of the Working Group, the ESCAP secretariat undertook a study of that relationship in countries of the Asia and Pacific region [United Nations, 1984h].

The ESCAP study yielded some support for both replacement and insurance as means by which child mortality influences fertility levels. When current contracep-

tive use was the dependent variable, the replacement effect of a child's death operated most strongly in populations in which parents could reach their reproductive goals quickly and terminate child-bearing thereafter—i.e., in countries where both fertility and mortality were comparatively low. But the effect upon fertility was not very great. On the other hand, when desires for no more children were studied, the influence of a child's death was strong in both high and low mortality countries. The interpretation, in keeping with a classic hypothesis, was that pronatalism in populations arises in part from high mortality, which gives parents concern for their children's survival chances and causes people to ensure against child deaths by having more children than they need [United Nations, 1984h].

Patterns of nuptiality are important socio-demographic determinants of fertility, especially where, as in most of the developing countries, a majority of women at risk of pregnancy do not practice contraception. Modifying a long held theory about mating patterns and fertility (i.e., that fertility varies positively with stability of union, which is seen as strong in legal marriage, less strong in consensual union and least strong in visiting unions [Blake, 1955; Ebanks, 1973], the Population Division, in a study of fertility and mating in the West Indies, found that the status of the relationship type of union and fertility at a point in time depends on the net result of fertility in each past type of union. Thus, a woman's cumulative fertility was found to depend more upon her mating history than on the current status of the union. Long stabilized non-legal unions, including consensual ones with typically higher fertility, tended to result in legal marriage [United Nations, 1984d].

Lack of adequate nuptiality data may account in good measure for the relative sparseness of comparative analytical studies of nuptiality and fertility in the developing regions prior to the WFS, results of which have aroused interest in such research. Work carried out by the Population Division and the regional commissions have confirmed existing knowledge that differences among countries in age at first marriage contribute to the variations in levels and patterns of fertility [United Nations, 1982d; 1982e; 1982f; 1982g; 1983c]. However, the Population Division discerned from its research that the disruption of marriage does not have a large effect on fertility, since high rates of remarriage tend to accompany high frequencies of disruption [United Nations, 1983c]. However, that does not hold for the ESCAP region; analysis for 10 of the countries there led to the conclusion that marital disruption has a negative influence on fertility levels [United Nations, 1982e].

It has long been recognized that level of education contributes in some way to differences among women in fertility. The WFS statistics made possible for the first time intensive studies of that relationship in developing countries. Together with the results of research done by the Population Division [United Nations, 1983d] at ECLAC/CELADE [United Nations, 1980b] and ESCAP [United Nations, 1984f], the studies have confirmed that both the strength and the direction of the relationship between education and fertility varies among developing countries: it is generally negative but not universally so. Furthermore,

the United Nations studies showed that the woman's education affects fertility even when account is taken of the attributes of age at marriage and rural/urban residence. The ECA secretariat's intensive analysis of data for two countries in sub-Saharan Africa indicated that, in that region, the negative impact on fertility may derive at least in part from its pressure to higher age at marriage, pointing to investments in the education of women as a policy option with value beyond extension of education for its own sake [United Nations, 1982h]. That role of education in the syndrome of phenomena affecting fertility has also been noted in studies by other members of the Working Group [United Nations, 1983d; 1982g].

Using an analytical strategy that involved the testing of various hypotheses in a multivariate analysis, the Population Division determined the possibility of an educational "threshold" prior to which fertility remains stationary, a hypothesis not previously offered, except indirectly in an earlier Population Division study [United Nations, 1965b]. It found that the strength of the education/fertility relationship is linked to the level of national development, being strongest at higher levels,⁸ which may explain the differences among developing regions in the relationship which some other scholars have noted [e.g., Rodriguez and Cleland, 1981].

The research programme of the Working Group also provided for the study of fertility in relation to rural/urban residence and women's employment. Generally speaking, the WFS yielded no remarkable new information on the rural/urban differentials, which were found to be stronger in the more developed Latin American region than in countries of Asia and Africa [Lattes and Weiss-Altaner, 1982]. That recalls the finding noted above in respect to the education differentials. Indeed the pattern may also exist within regions, as suggested by work done at ESCAP [United Nations, 1982i].

As yet, little use has been made of the WFS data to assess the mechanisms through which the fertility of rural and urban populations in developing countries is differentiated. Some research at ESCAP indicated higher urban fertility in five countries of primarily Moslem culture and higher rural fertility in five other, non-Moslem, countries. The explanation for the higher urban Moslem fertility was the lower health standard of rural women in the Moslem countries and their very early age at marriage (with the resulting long intervals between marriage and first birth), on the one hand, and, on the other, the higher levels of health and education and somewhat later age at marriage among the urban women [United Nations, 1984f].

Demographic and social science literature contains a wealth of research on the relationship between fertility and female economic activity, much of which confirm that women who work, particularly away from home and in non-familial settings, tend to have fewer children than other women. However, studies of that phenomenon have failed to establish satisfactorily the causal nexus. Parts of the problem have been the reliability and validity of data, the definitions of work and work status applied in data collection instruments and, for comparative research, the occupational and other classification schemes used. So that the studies could be undertaken by the Working

Group, the Population Division developed a four-category coding scheme that permits the classification of occupations on the basis of reasonable comparability of meaning and definition [United Nations, 1981d]. The scheme has been used widely by many individual researchers as well as members of the United Nations system.

The Population Division's study of female employment and fertility in 38 WFS countries [United Nations, 1985d] yielded significant findings, including a further testament to the efficacy of bilevel analytical research. It disclosed that the relationship between occupation and fertility (i.e., the differences in fertility between women working in modern and traditional occupations) appeared strongest in the countries at higher levels of development, where family planning programme effort is strong, women first marry comparatively late and levels of education among women are comparatively high. The study also supported some existing hypotheses—for example, that women engaged in modern occupations have lower fertility than those employed in the traditional sector. And it clarified some causal paths—namely, that work before marriage tends to influence fertility by advancing the age at first marriage and by increasing the likelihood of work following marriage. By and large, however, the WFS data did not permit such exploration as might have yielded deep insights into the fabric of the relationship between fertility and women's work.

Most of the research on socio-psychological phenomena affecting reproduction that United Nations has produced is attributable to the ESCAP secretariat. As a part of its activities to broaden understanding of the mechanisms of fertility change, ESCAP carried out a programme on the social and psychological aspects of fertility in Asia, which included an expert group meeting and a technical seminar. The issues addressed included dimensions of the value of children, their costs and benefits and child preferences [United Nations, 1974b]. The work resulted in a comprehensive research plan in which universities and other institutions and individual scholars, as well as the ESCAP secretariat, would participate.

Studies of conditions and trends of contraceptive use

It is only comparatively recently that researchers have had access to the results of field inquiries for cross-national studies of fertility regulation practices and the conditions that influence them. Surveys had been taken earlier in the United States, the United Kingdom and India, but for the most part, it is only in the past quarter century that statistics of contraceptive use suitable for analysis have been available for many countries.

The ECE secretariat carried out two studies that included analyses of levels and conditions of contraceptive use in developed countries, and both gave evidence of changes that support lower fertility. The first was based upon results of independent surveys in the United States and 11 European countries, carried out around 1970 [United Nations, 1976b]. The second dealt with results of surveys taken by 17 ECE countries in collaboration with WFS, and generally relate to around 1975 [United Nations, 1984e].

The most notable finding was the evidence that developed countries have undergone a process of diffusion towards the use of more effective contraceptives, as successive cohorts have depended less upon withdrawal and the rhythm method and more upon the IUD and the Pill. The effect was expected to be a reduction in the need for and incidence of induced abortion, which was found to have played a major role in the backstopping of failures with inefficient methods [United Nations, 1976b]. The more recent study confirmed for most countries the trends noted in the earlier work. Not surprisingly, the use of modern methods was most prevalent among urban, educated and economically active women [1984e].

Several studies had found the lack of communication on family planning between a woman and her husband or partner to be a barrier to contraceptive use [see, e.g., CELADE and CFSC, 1972]. An ESCAP study based on field inquiries in four Asian countries confirmed that but placed the relationship below four others found to influence fertility regulation: (1) family size in excess of three or four children; (2) acceptance of the legitimacy of family planning; (3) desire for no more children; (4) contact with a family planning communications programme [United Nations, 1974c].

In the early 1960s, when an understanding of the possibilities and limitations of the national family planning programme as an agent of fertility change in high-fertility countries was meagre and derived principally from some Asian experiences, the view was current that individuals and couples would regulate fertility, given the knowledge and means [United Nations, 1972, p. 9]. However, as differences among subnational groups, countries and regions in acceptability of the programmes and, inferentially, of the logic of controlled fertility became increasingly apparent, the Population Division sought to ascertain from such useful data as were available what factors determined whether an individual or couple would use contraception.

Results of KAP surveys were analysed to measure fertility and the prevalence of contraceptive practice, to identify target groups for programme initiatives and to show change in patterns as to knowledge, attitudes and practice of fertility regulation. The Population Division undertook a secondary analysis of 17 surveys carried out in 12 countries of Asia, Africa and Latin America to determine, so far as possible, factors that influence the use of contraception by married women or couples [United Nations, 1979a]. Although the analysis was constrained by differences among the surveys as to design and the content of the questionnaires, the work yielded important findings. It showed that the impact of selected demographic, socio-economic and motivational factors on contraceptive use varies cross-nationally, and that where levels of use were found to be low, that was not necessarily attributable to lack of knowledge. But such factors as motivation to regulate fertility and the availability and acceptability of methods do influence level and type of contraception practice. For the most part, desire for no more children did not prove to be a strong predictor of contraceptive status, nor did it have much influence upon the effect of such background factors as age, number of living children and of living sons.

A major contribution of the study was its support of most hypotheses about the influence of background factors on contraceptive use. In a multivariate analysis, amount of the woman's education proved to have a marked influence upon contraceptive use, although the influence was modified somewhat by the effect of other individual and societal factors. Nonetheless, the message for policy makers was very clear: the education of women offers strong support for policies aimed at reducing fertility.

Utilizing results obtained for developing countries in the World Fertility Survey, the Population Division continued its study of factors affecting use and non-use of contraceptives. The comparative analysis of data for 20 countries supported the findings of the earlier study and revealed, in addition, conditions not previously confirmed for lack of reliable data, conditions that are of immense importance to programme administrators. Younger women are more likely to space births and older women to limit them; more women had heard of a method than of an outlet; and more knew of an efficient method than of a place where it could be obtained [United Nations, 1982b, chap. IV].

Another, more intensive study of the same data [United Nations, 1981a] confirmed the foregoing but revealed that not only death of one's own children but also the general level of child mortality influences contraceptive use. Another disclosure of importance was that the influence of individual background characteristics, such as education and occupational status, upon contraceptive use is moderated by family planning programmes, so that the differentials tend to be weaker where programmes are effective. Moreover, the existence and strength of programmes as well as level of national development were found to explain some of the intercountry differences in respect to levels and patterns of contraceptive use. Significantly, the research disclosed that among developing countries the incidence of contraceptive knowledge, ever-use and current use varies positively with level of socio-economic development and strength of family planning programme effort. Even the use of traditional methods tended to be higher under more developed conditions [United Nations, 1984g].

The Population Division also produced a comprehensive assessment of levels and trends of contraceptive use, covering 80 per cent of the population of developing countries and 60 per cent of that in the developed regions, finding that 40-50 per cent of married couples with a wife of reproductive age were practising contraception—62-74 per cent in developed and 34-42 per cent in developing regions [United Nations, 1984b]. That work filled a great void, inasmuch as such information does not appear periodically in any source; only selected data are provided in the Population Division's monitoring reports [United Nations, 1979c; 1980a; 1982b; 1985b].

In one study that focused on education as a determinant of fertility [United Nations, 1983d], the Population Division reported that, in low-literacy countries, "unwanted fertility" (as measured by the difference between number of children desired and number born) diminished with education, whereas in high-literacy countries, the excess increased with education, reflecting both upon the lower family size ideals in the latter and upon the difficulty of

attaining them. Thus, in high-literacy countries, the real "unmet need" for family planning would vary positively with educational level, whereas in low-literacy countries, it would rise with descending level of educational attainment.

NOTES

¹ At its earlier sessions, the Population Commission had focused on the gaps in knowledge about demographic conditions world-wide and ways of filling them, but it was particularly concerned with lack of information as to conditions in the less advanced regions.

² Details of the Study are provided elsewhere in this *Population Bulletin*.

³ The aim of the First United Nations Development Decade was to achieve "a minimum annual rate of aggregate national income of 5 per cent in all—or at the very least, the great majority—of under-developed countries by 1970". See *United Nations Development Decade: Proposals for Action* [United Nations publication, Sales No. E.62.II.B.2], p. 8.

⁴ The early-peak type of curve is one in which the maximum fertility occurs in the age group 20-24 years. A late-peak type is one in which the maximum is in the age group 25-29 years. A broad-peak type is one in which age-specific fertility rates in the age groups 20-24 and 25-29 differ very little, while exceeding rates for the younger and older age groups [United Nations, 1965b, chap. VII].

⁵ The Population Division invited the Committee on Demographic Aspects of Family Planning Programmes of IUSSP to collaborate in the Division's project to improve evaluation techniques. The Population Division considered that collaboration would minimize duplication of effort and, at the same time, enable the United Nations to work with researchers who had either devised or refined the evaluation methods that were in use. Members of the IUSSP Committee (whose membership changed periodically) are identified in the Population Division's published reports on family planning evaluation [United Nations, 1978, p. 162; 1979b, p. 153; 1982a, p. 25; 1985a, pp. 23-24].

⁶ The World Fertility Survey was an international research programme undertaken, with the collaboration of the United Nations, by the International Statistical Institute in co-operation with the International Union for the Scientific Study of Population, in order to assess levels and conditions of fertility throughout the world through the promotion and support of representative, internationally comparable and scientifically designed and conducted sample surveys of fertility behaviour in as many countries as possible. Using a single core questionnaire and additional data collecting instruments developed by WFS, 40 developing countries in the Asian, African, Latin American and Caribbean regions carried out surveys. In addition, the United States and 19 developed countries of Europe collaborated in the project by carrying out surveys in which, through co-operation in the United Nations Working Group on Social Demography, some comparability among them was achieved. However, the questionnaires adopted by the individual developed countries were not designed for comparability of results with data obtained for the participating developing countries.

⁷ The Population Division organized the United Nations Working Group on Comparative Analysis of World Fertility Survey Data to ensure full exploitation of the statistics obtained from the WFS inquiries. The Working Group's composition was as follows: the Population Division at United Nations Headquarters, which guided and organized the work (including the preparation of a prospectus for each topic of investigation to be undertaken by its staff and the staff of the regional commissions and the furnishing of statistical tables as bases for the analyses); the regional commissions; the World Health Organization; the United Nations Educational, Scientific and Cultural Organization; and the International Labour Organisation. Representatives of funding agencies of the WFS - the United Nations Fund for Population Activities and the United States Agency for International Development—and WFS attended the meetings.

⁸ The World Population Plan of Action called for research on a wide range of topics in the field of demography, including fertility and family planning and conditions that influence them, with a view to facilitating a broader and deeper understanding of phenomena that are constraints to economic and social development and that impede efforts to enhance the well-being of individuals. See *Report of the United Nations World Population Conference, Bucharest, 19-30 August 1974* [United Nations publication, Sales No. E.75.XIII.3, chap. I].

⁹ This finding and others similar to it confirm the efficacy of a proposed strategy for analysing WFS data. The strategy, outlined in materials that the

Population Division provided to the Working Group on Comparative Analysis of WFS Data, in order to guide their research, allowed that, when differences among countries arise from individual or microlevel characteristics as well as from the characteristics of the societies, it was appropriate in analysis to take account of both [Hermalin and Mason, 1980].

REFERENCES

- Acsádi, G. T. (1980a), "Research plan for comparative analysis of WFS data of the Population Division of the United Nations" in *The United Nations Programme for Comparative Analysis of World Fertility Survey Data* (New York, United Nations Fund for Population Activities), part I, pp. 3-26.
- (1980b), "Research objectives, hypotheses and a minimum tabulation plan" (relevant to the United Nations Minimum Research Programme for Comparative Analysis of World Fertility Survey Data) in *The United Nations Programme for Comparative Analysis of World Fertility Survey Data* (New York, United Nations Fund for Population Activities), part 3, pp. 63-89.
- (1980c), "Review of characteristics, measures and other indicators" (variables considered for use in Comparative Analysis of World Fertility Survey Data in the Frame of the United Nations Minimum Research Programme) in *The United Nations Programme for Comparative Analysis of World Fertility Survey Data* (New York, United Nations Fund for Population Activities), part 2, pp. 27-62.
- (1980d), "New findings and hypotheses emerging from the comparative analysis of WFS data in the developing countries". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 18-21 November 1980 (UN/UNFPA/WFS.IV/16).
- (1982), "Comparative demographic analysis: a manual". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (UN/UNFPA/WFS.V/16).
- Acsádi, G. T. and G. Johnson-Acsádi (1983), *Demand for Children and Spacing in Sub-Sahara Africa* (Washington, D. C., The World Bank). PHN Technical Note 85-6.
- (1985), *Perspectives of Family Planning in Developing Countries: Some Lessons Learned from the WFS* (London, International Planned Parenthood Federation).
- Arretx, C. (1973), "Fertility estimates derived from information on children ever born using data from censuses", *International Population Conference, Liège, 1973* (Liège, IUSSP), vol. 2, pp. 247-261.
- Blake, J. (1955), "Family instability and reproductive behaviour in Jamaica", *Current Research in Human Fertility* (New York, Milbank Memorial Fund), pp. 24-41.
- Bourgeois-Pichat, J. (1957) "Utilization de la notion de population stable pour mesurer la mortalité et la fécondité des populations des pays sous-développés", *Actes de la 30ème Session de l'Institut International de Statistique* (Stockholm).
- Brass, W. (1964), "Uses of census or survey data for the estimation of vital rates". African Seminar on Vital Statistics. Economic Commission for Africa (E/CN.14/CAS.4/VS/7).
- (1971), "The analysis of maternity histories to detect changes in fertility". United Nations Technical Meeting on Methods of Analysing Fertility Data for Developing Countries, Budapest, 14-25 June 1971 (E/CN.9/AC/12/R.11).
- Brass, W. and others (1968), *The Demography of Tropical Africa*. (Princeton, Princeton University Press).
- Centro Latinoamericano de Demografía (CELADE) and Community and Family Study Center (CFSC) (1972), *Fertility and Family Planning in Metropolitan Latin America* (Chicago, University of Chicago Press).
- Chidambaram, V. C., J. W. McDonald and M. D. Bracher (1985), "Infant and child mortality in the developing world: information from the World Fertility Survey", *International Family Planning Perspectives*, vol. 11, No. 1 (March 1985), pp. 17-25.
- Coale, A. J. (1957), "A new method of estimating Lotka's r : The intrinsic rate of Governments in a stable population", *Population Studies*, vol. 9, No. 1, (July 1957), pp. 92-94.
- Coale, A. J. and P. Demeny (1966), *Regional Model Life Tables and Stable Populations* (Princeton, Princeton University Press).
- Coale, A. J. and E. M. Hoover (1958), *Population Growth and Economic Development in Low-income Countries: A Case Study of India's Prospects*. (Princeton, Princeton University Press).

- Coale, A. J. and J. T. Trussell (1974), "Model fertility schedules: variations in the age structure of childbearing in human populations", *Population Index*, vol. 40, No. 2 (April), pp. 185-258.
- Coale, A. J. and C. Y. Tye (1961), "The significance of age-patterns of fertility in high fertility populations", *Milbank Memorial Fund Quarterly*, vol. 39 (October), pp. 631-646.
- Conning, A. M. (1972), "Encuestas comparativas de fecundidad en America Latina: algunos aspectos metodologicas", paper presented at the annual meeting of la Sociedade Brasileira para o Progreso de Ciencia, Sao Paulo, July 1972.
- Davis, K. and J. Blake (1956), "Social structure and fertility: an analytic framework", *Economic Development and Cultural Change*, vol. 4, No. 2 (April), pp. 211-235.
- Ebanks, G. E. (1973), "Fertility, union status and partners", *International Journal of Sociology of the Family*, vol. 28, No. 3 (November).
- Eldridge, H. T. (1959), *The Materials of Demography*. A Selected and Annotated Bibliography. (Liège, IUSSP/New York, Columbia University Press).
- Enke, S. (1966), "The economic aspect of slowing population growth", *The Economic Journal*, vol. 76, pp. 44-56.
- Ghosh, N. (1961), "Some considerations of the variations in the forms of age-specific fertility curves" (Bombay, United Nations Training and Research Centre), mimeographed.
- Henry, L. (1961), "Some data on natural fertility", *Eugenics Quarterly*, vol. 8, No. 2 (June), pp. 81-91.
- Hermalin, A. I. and W. M. Mason (1980), "A strategy for the comparative analysis of WFS data, with illustrative examples" in *The United Nations Programme for Comparative Analysis of World Fertility Survey Data* (New York, United Nations Fund for Population Activities), part 4, pp. 90-168.
- Kent, M. (1981), *Breastfeeding in the Developing World: Current Patterns and Implications for Future Trends*. Report on the World Fertility Survey (Washington, D.C., Population Reference Bureau).
- Lattes, A. E. and E. R. Weiss-Altaner (1982), "Rural-urban differences in marital fertility in 20 developing countries". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (UN/UNFPA/WFS.V/21).
- Lee, B. M. and J. Isbiter (1966), "The impact of birth control programs on fertility" in *Family Planning and Population Programs: A Review of World Development*, B. Berelson and others, eds. (Chicago, University of Chicago Press), pp. 737-758.
- Leibenstein, H. (1969), "Pitfalls in benefit-cost analysis of birth prevention", *Population Studies*, vol. 22, No. 2, (July), pp. 161-170.
- López, A. (1961), *Problems in Stable Population Theory* (Princeton, Princeton University, Office of Population Research).
- Lorimer, F. (1954), *Culture and Human Fertility* (Paris, UNESCO).
- Lotka, A. J. (1939), *Théorie analytique des associations biologiques*. Deuxième partie (Paris, Hermann).
- Maine, D. and R. McNamara (1985), *Birth Spacing and Child Survival* (New York, Columbia University, Center for Population and Family Health).
- Mauldin, W. P. (1984), "Measuring the impact of population policies and programmes on fertility", *Fertility and Family* (see United Nations, 1984a), pp. 377-409.
- Mauldin, W. P. and G. Johnson-Acsádi (1975), "Introduction" in C. Chandrasekaran and A. I. Hermalin, eds., *Measuring the Effect of Family Planning Programmes on Fertility* (Dolhain, IUSSP/OECD Development Centre; Ordina Editions), chap. 1.
- McCann, M. F. and others (1981), "Breastfeeding, fertility and family planning", *Population Reports*, Series J, No. 24, (November-December).
- Miro, C. A. and W. Mertens (1968), "Influences affecting fertility in urban and rural Latin America", *Milbank Memorial Fund Quarterly*, vol. 46, No. 3, part II (July), pp. 89-113.
- Notestein, F. W. (1952), "Economic problems of population change", in *Proceedings of the 8th International Conference of Agricultural Economists, East Lansing, Michigan State College of Agriculture and Applied Sciences* (London).
- Robinson, W. (1969), *A Cost-Effectiveness Analysis of Selected Family Planning Programs* (University Park, University of Pennsylvania: Press).
- Rodríguez, G. and J. Cleland (1981), "Socio-economic determinants of marital fertility in twenty countries: a multivariate analysis", in *World Fertility Survey Conference 1980. Record Proceedings*. (Voorburg, International Statistical Institute), vol. 2, pp. 337-403.
- Ross, J. A. (1985), "Overview" in *Studies to Enhance the Evaluation of Family Planning Programmes* [see United Nations, 1985a, pp. 239-246].
- Trussell, J. and A. R. Pebley (1984), *The Potential Impact of Changes in Fertility on Infant, Child and Maternal Mortality*. World Bank Staff Working Papers, No. 698 (Washington, D.C., World Bank).
- United Nations (1949a), *Fertility Data in Population Censuses* (United Nations publication, Sales No. 1950.XIII.2).
- _____ (1949b), *Methods of Using Census Statistics for the Calculation of Life Tables and Other Demographic Measures (with applications to the population of Brazil)*. Population Studies, No. 22 (United Nations publication, Sales No. 1950.XIII.3).
- _____ (1953), *The Determinants and Consequences of Population Trends. A Summary of the Findings of Studies on the Relationships Between Population Changes and Economic and Social Conditions*. Population Studies, No. 17 (United Nations publication, Sales No. 53.XIII.3).
- _____ (1956), *Manual III: Methods for Population Projections by Sex and Age*. Population Studies, No. 25 (United Nations publication, Sales No. 1956.XIII.3).
- _____ (1958), *Recent Trends of Fertility in Industrialized Countries*. Population Studies, No. 27 (United Nations publication, Sales No. 1957.XIII.2).
- _____ (1960), *Population Growth and Manpower in the Philippines*. Population Studies, No. 32 (United Nations publication, Sales No. 61.XIII.2).
- _____ (1961a), *The Mysore Population Study*. Population Studies, No. 34 (United Nations publication, Sales No. 61.XIII.3).
- _____ (1964a), *Guanabara Demographic Pilot Survey*. Population Studies, No. 35 (United Nations publication, Sales No. 64.XIII.3).
- _____ (1964b), *Population Growth and Manpower in the Sudan*. Population Studies, No. 37 (United Nations publication, Sales No. 64.XIII.5).
- _____ (1964c), *National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy Making*. Population Studies, No. 36 (United Nations publication, Sales No. 64.XIII.4).
- _____ (1965a), *The Concept of Stable Population. Application to the Study of Populations of Countries with Incomplete Demographic Statistics*. Population Studies, No. 39 (United Nations publication, Sales No. E.65.XIII.3). This work was completed at the end of the 1950s, but was not published until about five years later.
- _____ (1965b), *Population Bulletin of the United Nations, No. 7 - with special reference to conditions and trends of fertility in the world* (United Nations publication, Sales No. 64.XIII.2).
- _____ (1966a), *Administrative Aspects of Family Planning Programmes*. Report of a Working Group. Asian Population Studies Series, No. 1 (United Nations publication, Sales No. 66.II.F.10).
- _____ (1966b), "Report of the Ad Hoc Committee of Experts on Programmes in Fertility" (E/CN.9/203).
- _____ (1967), *Manual IV. Methods of Estimating Basic Demographic Measures from Incomplete Data*. Population Studies, No. 42 (United Nations publication, Sales No. E.67.XIII.2).
- _____ (1968), *Communications in Family Planning*. Report of a Working Group. Asian Population Studies Series, No. 3 (United Nations publication, Sales No. E.68.II.F.17).
- _____ (1969a), *Assessment of Acceptance and Effectiveness of Family Planning Methods*. Report of an Expert Group. Asian Population Studies Series, No. 4 (United Nations publication, Sales No. E.69.II.F.15).
- _____ (1969b), "An evaluation of the family planning programme of the Government of India" (ST/SOA/SER.R/11).
- _____ (1969c), "Report on an evaluation of the family planning programme of the Government of Pakistan" (ST/SOA/SER.R/9).
- _____ (1970a), *Variables and Questionnaire for Comparative Fertility Surveys*. Population Studies, No. 45 (United Nations publication, Sales No. E.69.XIII.4).
- _____ (1970b), *Evaluation of Family Planning Programmes*. Report of a Regional Seminar. Asian Population Studies Series, No. 5 (United Nations publication, Sales No. E.70.II.F.20).
- _____ (1971a), "Report of the Technical Meeting on Methods of Analysing Fertility Data for Developing Countries, Budapest, 14-25 June 1971" (E/CN.9/241).
- _____ (1971b), "Report of the Fifth Meeting of the Working Group on Social Demography" (SOA/ESDP/1971/1).
- _____ (1971c) *The World Population Situation in 1970*. Population Studies, No. 49 (United Nations publication, Sales No. E.71.XIII.4).
- _____ (1972) *Measures, Policies and Programmes Affecting Fertility, with Particular Reference to National Family Planning Programmes*. Population Studies, No. 51 (United Nations publication, Sales No. E.72.XIII.2).

- _____. (1973a), *The Determinants and Consequences of Population Trends. New Summary of Findings on Interaction of Demographic, Economic and Social Factors*. Population Studies, No. 50 (United Nations publication, Sales No. E.71.XIII.5).
- _____. (1973b), *Socio-economic Returns of Family Planning Programmes*. Report of an Expert Group Meeting. Asian Population Studies Series, No. 12 (E/CN.11/1070).
- _____. (1974a), *Some Techniques for Measuring the Impact of Contraception*. Asian Population Studies Series, No. 18 (E/CN.11/1119).
- _____. (1974b), *Report and Papers of the Expert Group Meeting on Social and Psychological Aspects of Fertility Behaviour*. Asian Population Studies Series, No. 26 (E/CN.11/1231).
- _____. (1974c), *Husband-wife Communication and Practice of Family Planning*. Asian Population Studies Series, No. 16 (E/CN.11/1212).
- _____. (1975), *Economic Survey of Europe in 1974. Part II: Post-war Demographic Trends in Europe and the Outlook until the Year 2000* (United Nations publication, Sales No. E.75.II.E.16).
- _____. (1976a), *A Comparative Study on the Input-output Relationships of Family Planning Programmes in Selected Countries of the ESCAP Region*. Asian Population Studies Series, No. 30 (ST/ESCAP/76).
- _____. (1976b), *Fertility and Family Planning in Europe Around 1970: A Comparative Study of Twelve National Surveys* (United Nations publication, Sales No. E.76.XIII.2).
- _____. (1977), *Levels and Trends of Fertility Throughout the World, 1950-1970*. Population Studies, No. 59 (United Nations publication, Sales No. E.77.XIII.2).
- _____. (1978a), *Methods of Measuring the Impact of Family Planning Programmes on Fertility: Problems and Issues*. Population Studies, No. 61 (United Nations publication, Sales No. E.78.XIII.2).
- _____. (1979a), *Factors Affecting the Use and Non-use of Contraception: Findings from a Comparative Analysis of Selected KAP Surveys*. Population Studies, No. 69 (United Nations publication, Sales No. E.79.XIII.6).
- _____. (1979b), *Manual IX. The Methodology of Measuring the Impact of Family Planning Programmes on Fertility*. Population Studies, No. 66 (United Nations publication, Sales No. E.78.XIII.8).
- _____. (1979c), *World Population Trends and Policies. 1977 Monitoring Report*. vol. 1. *Population Trends*. Population Studies, No. 62 (United Nations publication, Sales No. E.78.XIII.3).
- _____. (1979d), *Regional Workshop on Techniques of Analysis of World Fertility Survey Data*. Report and selected papers. Asian Population Studies Series, No. 44 (ST/ESCAP/89).
- _____. (1980a), *World Population Trends and Policies. 1979 Monitoring Report*. vol. 1. *Population Trends*. Population Studies, No. 70 (United Nations publication, Sales No. E.79.XIII.4).
- _____. (1980b), "Socio-economic differentials of fertility". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 18-21 November 1980 (United Nations/UNFPA/IV/15).
- _____. (1981a), *Variations in the Incidence of Knowledge and Use of Contraception. A Comparative Analysis of World Fertility Survey results for Twenty Developing Countries* (ST/ESA/SER.R/40).
- _____. (1981b), *Selected Factors Affecting Fertility and Fertility Preferences in Developing Countries* (ST/ESA/SER.R/37).
- _____. (1981c), *Multivariate Analysis of World Fertility Survey Data for Selected ESCAP Countries*. Report and selected papers of the Regional Workshop and Seminar. Asian Population Studies Series, No. 49 (ST/ESCAP/151).
- _____. (1981d), "Occupational classification systems constructed for application in the United Nations Programme of International Comparative Analysis of World Fertility Survey Data" (ESA/P/WP.70).
- _____. (1982a), *Evaluation of the Impact of Family Planning Programmes on Fertility: Sources of Variance*. Population Studies, No. 76 (United Nations publication, Sales No. E.81.XIII.9).
- _____. (1982b), *World Population Trends and Policies. 1981 Monitoring Report*. vol. 1. *Population Trends*. Population Studies, No. 79 (United Nations publication, Sales No. E.82.XIII.2).
- _____. (1982c), *The Impact of Population Structure on Crude Fertility Measures: A Comparative Analysis of World Fertility Survey Results for Twenty-one Developing countries* (ST/ESA/SER.R/49).
- _____. (1982d), "Age at first marital union and fertility". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/20).
- _____. (1982e), "Marital status composition and fertility: a comparative analysis of world fertility data". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/13).
- _____. (1982f), "Age at first marital union and fertility: Kenya and Lesotho". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/10).
- _____. (1982g), "Estructura matrimonial y fecundidad". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/15).
- _____. (1982h), "Effects of marital duration, ethnicity and education on mean parity in Kenya and Lesotho". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/11).
- _____. (1982i), "Differentials in urban-rural fertility in the countries of the ESCAP region". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 26-29 January 1982 (United Nations/UNFPA/WFS.V/14).
- _____. (1983a), *Manual X. Indirect Techniques for Demographic Estimation*. Population Studies, No. 81 (United Nations publication, Sales No. E.83.XIII.2).
- _____. (1983b), *Fertility Levels and Trends as Assessed from Twenty World Fertility Surveys* (ST/ESA/SER.R/50).
- _____. (1983c), *Marital Status and Fertility: A Comparative Analysis of World Fertility Survey Data for Twenty-one Countries* (ST/ESA/SER.R/52).
- _____. (1983d), *Relationships Between Fertility and Education. A Comparative Analysis of World Fertility Survey Data for Twenty-two Developing Countries* (ST/ESA/SER.R/48).
- _____. (1984a), *Fertility and Family. Proceedings of the Expert Group on Fertility and Family, New Delhi, 5-11 January 1983* (United Nations publication, Sales No. E.84.XIII.7).
- _____. (1984b), *Recent Levels and Trends of Contraceptive Use as Assessed in 1983* (United Nations publications, Sales No. E.84.XIII.5).
- _____. (1984c), "Levels and trends in actual fertility". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, New York, 22-25 October 1984 (United Nations/UNFPA/WFS.VI/9).
- _____. (1984d), *Some Relationships Between Nuptiality and Fertility in Countries of the West Indies* (ST/ESA/SER.R/46).
- _____. (1984e), "Fertility and family planning in Europe and the USA: a summary of findings of the ECE/WFS comparative study" (United Nations/UNFPA/WFS.VI/17).
- _____. (1984f), "Review of the fertility situation in the countries of the ESCAP region: comparative analysis of WFS data". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, New York, 22-25 October 1984 (United Nations/UNFPA/WFS.VI/4).
- _____. (1984g), "Contraception". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, New York, 22-25 October 1984 (United Nations/UNFPA/WFS.VI/15).
- _____. (1984h), "The influence of infant and child mortality on fertility in the countries of the ESCAP region: an analysis of data from the World Fertility Survey". United Nations Working Group on Comparative Analysis of World Fertility Survey Data, New York, 22-25 October 1984 (United Nations/UNFPA/WFS.VI/5).
- _____. (1985a), *Studies to Enhance the Evaluation of Family Planning Programmes*. Population Studies, No. 87 (United Nations publication, Sales No. E.84.XIII.9).
- _____. (1985b), *World Population Trends, Population and Development Interrelations and Population Policies. 1983 Monitoring Report*. vol. 1. *Population Trends*. Population Studies, No. 93 (United Nations publication, Sales No. E.84.XIII.10).
- _____. (1985c), "Fertility preferences: selected findings from the World Fertility Survey data" (IESA/P/WP/89).
- _____. (1985d), *Women's Employment and Fertility* (United Nations publication, Sales No. E.85.XIII.5).
- _____. (1985e), "Breastfeeding and related aspects of post-partum reproductive behaviour" (IESA/P/WP/90).
- _____. (1986), *Policy Relevance of Findings of the World Fertility Survey* (ST/ESA/SER.R/59).
- Whelpton, P. K. and C. V. Kiser, eds. (1946-1958), *Social and Psychological Factors Affecting Fertility* (New York, Milbank Memorial Fund), vols. I-V.
- Wijewickrema, S. M. (1984), *Reproductive Performance Over the Last Decade in the Council of Europe Member States*, Population Studies, No. 14 (Strasbourg, Council of Europe).

MORTALITY

*John Hobcraft**

SUMMARY

Among the roles played by the United Nations in the field of mortality studies, the author considers three to be of greatest importance. They are synthesizing the findings of national and regional research on mortality issues; developing and disseminating methods for improving estimates of levels and trends in mortality and standards of analysis; and bringing together researchers working from different perspectives to discuss mortality issues of global importance and disseminating the results of those meetings to potential users.

The Population Division has prepared and published a series of reviews of mortality research, beginning in the 1950s, with a chapter in *The Determinants and Consequences on Population Trends*, and periodic reports for the biennial monitoring of population trends and policies. The reports provide regularly revised summaries of mortality levels, trends and differentials on a world-wide basis.

One of the most important contributions of the Population Division to methods of mortality analysis was the development of a system of model life tables in the 1950s. Two decades later the United Nations generated a new set of model life tables based on the mortality experience of developing countries.

In *Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data*, the Division synthesized currently available methods for estimating levels of mortality in situations where the available data was limited or defective. More recently, in *Manual X*, it provides numerous refinements and extensions to procedures for indirect estimation of mortality. Like its predecessors, *Manual X* has been widely used by mortality analysts because of its availability in several languages. The Population Division has also prepared estimates of levels and trends in infant mortality and packages of programmes to facilitate mortality analysis on microcomputers.

The role of the Population Division in bringing together international experts on mortality is perhaps best illustrated by the preparatory symposia for the World Population Conference. But the Division has also co-sponsored a series of international conferences on mortality, beginning with a meeting concerned with the determinants and consequences of mortality, and followed by a meeting on data bases for mortality measurement and a meeting on sex differentials in mortality.

Recently, the Division published a report on the determinants of mortality change and differentials, based on five detailed case studies, a study on socio-economic differentials in child mortality in developing countries, and a volume on the consequences of trends and differentials in mortality.

Looking towards the future, it can be expected that the Division will continue to make original contributions to the study of mortality which will have an international character and perspective.

In assessing the contribution of the Population Division to the study of mortality, it is important to judge achievements by appropriate criteria. Thus, it would be unreasonable

to expect the Division to collect and produce primary information on mortality levels, trends or differentials. That task rightly belongs to national Governments, universities and research institutions, and derives support from those international agencies directly concerned with technical assistance, data collection and analysis. However, as we shall see, the Division can be expected to play

* London School of Economics and Political Science; formerly Senior Population Affairs Officer of the Population Division, United Nations Secretariat.

an important role in secondary analysis of such information [see, e.g., United Nations, 1985d], in synthesizing and interpreting the results of national and regional research (which the Division may have initiated and coordinated) on population issues, including mortality.

A second important role of the Population Division consists of developing or making available methods and procedures which can be used to improve estimates of levels and trends of mortality and to achieve more satisfactory standards of analysis.

Finally, the Division has a third role, linked to its broad network of contacts. It can bring together experts working from different perspectives, in international agencies, regional commissions, national governmental offices and universities, to discuss topics related to mortality and to help disseminate the results of recent academic research on a timely basis to those who need it.

There have been some major shifts in the relative importance of mortality research within demography over the past 40 years, as indicated by the following table, which shows rough counts of the numbers and proportions of articles on mortality which were published in pairs of years in *Population Studies*, probably the leading English language population journal in those years.

Years	Number of articles on		Percentage on
	Mortality	All Topics	
1950-1951	5	42	12
1955-1956	5	34	15
1960-1961	1	29	3
1965-1966	1	39	3
1970-1971	5	59	8
1975-1976	14	66	21
1980-1981	12	59	20
1984-1985	17	53	32

The table illustrates the dearth of interest in mortality during the 1960s and early 1970s, when interest in fertility was undoubtedly dominant, and the resurgence of work on mortality in the past 10 years or so. It is perhaps not surprising that the contribution of the Population Division reflects the same broad pattern, with a considerable surge in the volume of material on mortality published since 1977. Characteristically, Léon Tabah, the Director of the Division at the time, was alert to the growing interest in mortality and set about enhancing work in that field in the mid 1970s. This led him to recruit Sam Preston, the demographer who has contributed more than any other to renewed demographic interest in the study of mortality, as chief of the Population Trends and Structure Section. Although he only stayed for two years (1977-1979), Preston exerted a decisive influence on the Division's work in mortality, and subsequent contributions to the field by the Division have been built upon the firm foundations and ambitious programmes he developed.

GLOBAL REVIEWS

The series of global reviews produced by the Population Division fill an important gap, bringing together a vast

range of useful information with a very practical approach. The Division began to synthesize information and knowledge about mortality on a global basis in the early 1950s [United Nations, 1952a, 1952b, 1953 and 1954], and continued with a thorough overview in the early 1960s [United Nations, 1962] and a chapter on mortality in *The Determinants and Consequences of Population Trends*, [United Nations, 1971], which derived from extensive revisions of the paper prepared by Spicer for the United Nations Population Conference of 1965. Mortality has been covered regularly in the biennial monitoring reports [United Nations, 1978a, 1979a, 1982c and 1985a], and was the subject of a more detailed major review [United Nations, 1981a].

The character of the Division's global reviews has changed considerably over time, particularly as a result of the accumulation of information on levels and trends in mortality for the third world. The scale of the changes can be clearly understood when the reviews published in 1962 and 1982 are compared. In 1962, regional variations in mortality in Africa, Asia and Latin America rated about 17 pages, one of which was devoted to the mortality of European and Asian minorities in Africa. Attempts were made to incorporate the very limited available estimates for developing countries into the major chapter (of about 20 pages) on characteristics of the decline in mortality, but it inevitably focused on experience of the more developed regions. For the final and most extensive chapter on variations in mortality by cause of death (some 43 pages), attention was restricted to more developed countries. The problem was fundamentally a lack of information.

The development of indirect estimation procedures and the United Nations considerable efforts to encourage countries to incorporate relevant questions into censuses and surveys have transformed the amount of knowledge available. In the 1982 review, the more developed countries, which still had more accurate and detailed information, especially on causes of death, take up some 77 pages, but sizeable chapters were devoted to Africa (30 pages), Asia (31 pages) and Latin America (34 pages).¹

A further striking change over the 20 years is the increased attention to socio-economic differentials in mortality, which partly reflects a shift of emphasis in mortality research. The next major global review will surely place even greater emphasis upon those differentials, especially since the World Fertility Survey and other sources of data have transformed the extent of our knowledge of them. No doubt the next global review will also focus upon recent studies of bio-demographic differentials in child mortality—again, drawing on World Fertility Survey data, and on the important emerging topic of programme impact in the third world.

The monitoring reports issued by the Division provide regularly revised summaries of information on mortality levels, trends, and differentials on a world-wide basis. It is, however, essential that such summaries maintain a balanced treatment, rather than giving too much emphasis to aspects of the recent work plan of the Division. To give a particular example, it was probably unwise for a major portion of the chapter on mortality in the 1981 monitoring report to have been devoted to the project on model life

tables, even though such work is an essential part of the work plan. Governments, international agencies and academics probably benefit from a more balanced treatment, even at the cost of repeating some of the material from a previous report. But this minor criticism should in no way detract from the overall positive assessment of the reports.

There is not a great deal of direct competition for these studies, especially more recently. Noteworthy exceptions of journal-article length are the series of reviews by Stolnitz [1955, 1956, 1965 and 1975] and Dyson's reviews on child mortality [1977 and 1984]. Books which bring together so broad a range of basic factual information, interwoven with sensible commentary, are all too rare, although UNICEF's annual reviews, *The State of the World's Children*, is an invaluable source of basic knowledge.

It is too early for the impact of the move towards primary health care and specific programmes (such as oral rehydration therapy for diarrhoeal diseases (ORT), extended immunization (EPI), and their combination in the UNICEF GOBI-FF programme (growth monitoring, ORT, breast-feeding, immunization, food supplements and family planning) to have been assessed in the Population Division's global reviews, but in the fullness of time some of the few global assessments of those programmes can be expected to emerge.

MODEL LIFE TABLES

In the early 1950s the Population Division played a major, pioneering role in the development of a system of model life tables. Such models, in their various forms, have become a fundamental tool in the professional demographer's armoury, being invaluable as reference points for all sorts of analytic procedures involved in producing estimates of mortality and fertility for developing countries and in historical demography. The United Nations model life tables, as they are widely known, reflected a painstaking assemblage and analysis of 158 life tables from a wide range of countries and time periods [United Nations, 1955 and 1956], and they dominated the field until the appearance of the Coale and Demeny tables in 1966.

All important developments in any subject area are followed by intense debate and considerable elaboration and refinement. The significance of the United Nations models is best shown by considering in some detail the subsequent developments.

Almost immediately, the methods used were criticized for introducing statistical bias [Gabriel and Ronen, 1958], and alternative analyses of the same basic set of information were produced [Ledermann and Breas, 1959; see also Bourgeois-Pichat in United Nations, 1962]. Later, Brass [1964; see also Brass, 1971, and Carrier and Hobcraft, 1971] proposed a completely different approach to model life table formulation, which has more recently been integrated into traditional regression or principal component methods for summarizing wide ranges of mortality experience. And Coale and Demeny [1966] produced their well-known set of regional model life tables, which both improved upon some of the statistical shortcomings of the

United Nations tables and considered a wider range of historical and contemporary life tables, which were much more carefully assessed for data-quality before being incorporated in the final analyses. Ledermann [1969] took his earlier work on a factor analysis of the original United Nations collection of 158 life tables to its logical conclusion and produced several new sets of model life tables.

There have been a series of more recent developments in the model life tables field, including a valuable, but unpublished, study by Le Bras for the Population Division, which was summarized by the United Nations [United Nations, 1979b], and a number of unpublished Ph.D. theses, which were often concerned to incorporate information on causes of death, following upon Preston's invaluable work [Preston, 1976; also Preston, Keyfitz and Schoen, 1972; Husein, 1978; Lundy, 1978; and Polissar, 1973]. During the 1970s considerable concern began to be felt among demographers about the appropriateness of using the existing model life tables—almost exclusively derived from the experience of developed countries—for estimation of mortality in third-world countries. The emerging awareness that the relationships between levels of child mortality and levels of adult mortality were much more variable than shown in the existing models led to the use of a number of unaesthetic splicing procedures. In addition, some reliable information on patterns of mortality in the first few years of life, especially for Senegal, showed how much standard indirect estimation procedures could be affected by incorrect patterns implicit in existing model life tables [see Garenne, 1982; Pison and Langaney, 1985].

Those concerns about the applicability of existing model life tables to developing countries led to proposals which increased the number of parameters to four [Zaba, 1979; Ewbank, de Leon and Stoto, 1983], though that number provides too many unknowns for most practical estimation purposes where information is limited and defective. Perhaps more importantly, the dissatisfaction led to attempts to assemble whatever reliable information there was on patterns of mortality for developing countries, and to use it to generate a new set of model life tables. Such attempts were part of the work programme of the Population Division in 1975, and of the Development Centre of OECD (at the initiative of Guillaume Wunsch) in 1976. Collaborative links were quickly established. Today, there are two new sets of model life tables for developing countries, with fairly different underlying philosophies and radical differences in selectivity for inclusion in the final computations [OECD, 1979a, 1979b, 1979c, 1980a, 1980b and 1980c; United Nations, 1979b, 1981b, 1982a and 1982b]. The OECD publications provide much more detail on data sources and adjustment procedures used, and are less stringent concerning data quality for final inclusion. On the other hand, the United Nations tables provide interesting regional patterns, result from more careful assessment and screening on a country-by-country basis and give more supplementary tables (although they are not as carefully tailored to demographic estimation as are the supplementary tables now available for the Coale and Demeny model life tables [Coale and Demeny, 1966; United Nations, 1983a]—e.g., propor-

tions of adults surviving from age 25 for females and from ages 32.5 and 37.5 for males.

Thus, the procedure has come almost full-circle: the Population Division provided the spur for the development of model life table systems with its pathbreaking work of the 1950s; it also produced the most recent set of model life tables, which is one of the two available sets that are based upon the experience of developing countries. Even though there will undoubtedly be further developments in years to come, it is clear that the contribution of the Division, which has been sustained over many years, has been of crucial importance.

METHODS OF ESTIMATION

The Population Division has been an important channel for the dissemination of information on best practice in the field of demographic estimation. It began with Mortara's innovative work on Brazil [United Nations, 1950]. During the late 1950s and the early 1960s, a great deal of pioneering work was done by scholars around the world on methods for estimating levels of mortality and fertility in situations where the available data were defective and/or limited. Those methods were synthesized in *Manual IV* by Ansley Coale and Paul Demeny, two of the leading scholars in the field [United Nations, 1967b]. It should be stressed that since the Division's accounts of recent developments have always been published in several major languages, they have been available to a far wider audience than would be the case through most other organs of dissemination.

Naturally, there have been continued developments in the field of indirect estimation since the publication of *Manual IV* (e.g., Carrier and Hobcraft, 1971; Brass, 1975). During the late 1970s and early 1980s, the Committee on Population and Demography of the United States National Academy of Sciences, chaired by Ansley Coale, undertook an extensive programme of estimation for a large number of third-world countries. In the course of the investigation, numerous refinements and extensions to available procedures for indirect demographic estimation were made and were brought together, along with best existing practice, in a volume written for the Academy by Ken Hill, James Trussell and Hania Zlotnik. The volume was eventually published as *Manual X* of the Population Division, and it too had the unique accessibility that comes with publication in several major languages [United Nations, 1983a]. United Nations regional advisers played an important role in collecting the data necessary for the application of indirect procedures to estimate levels and trends of mortality.

The staff of the Population Division have recently renewed a more active role in demographic estimation, both through collaborative projects with UNICEF to estimate levels and trends of infant mortality [United Nations, 1982d] and of child mortality and in the development of packages of programmes for microcomputers. It is particularly gratifying to see the Division beginning to play a pioneering role in the use of microcomputers for basic demographic estimation [United Nations, 1986]. It is to be

hoped that the system of regional advisers can adapt to the growing need for installation and training in the use of the microcomputers and relevant software.

INTERNATIONAL MEETINGS

The Population Division has made a significant contribution to the world-wide revival of interest in mortality and health. In particular, it has in past few years played an important role (often jointly with WHO) in convening international meetings on mortality. Such meetings help to consolidate existing knowledge and act as an important spur to further development. For example, the Division took an active part in the preparations for the world population conferences, in which expert group meetings bring together a wide range of scholars and representatives of international agencies in order to ensure that a balanced and well-informed document is placed before the conference [United Nations, 1973 and 1984]. Meetings provide a useful source of diverse opinion concerning the state of research and knowledge on mortality and policy consequences.

Since 1979, the Population Division has co-sponsored with WHO a series of international conferences on the topic of mortality. They are partly a response to the re-emerging concern with mortality among demographers and others but have also contributed to the re-awakening of interest. Similar developments have been taking place elsewhere, with perhaps the closest parallel being the series of meetings held under the auspices of the Committee on Factors Affecting Mortality and the Length of Life, which was set up by IUSSP in 1977 and held its first meeting in 1980. In contrasting the two undertakings, one must bear in mind the differing emphases of IUSSP and the United Nations/WHO. IUSSP is primarily a professional association, whereas the United Nations seeks to address a wider audience, including Governments, planners and others outside the population field proper. It is thus to be expected that IUSSP meetings tend to have a more academic focus and that the United Nations/WHO meetings a more practical focus, although the overlap of content and contributors is considerable.

The United Nations/WHO series began with a timely conference on the socio-economic determinants and consequences of mortality [United Nations, 1980], a topic which has come to be of considerable and continuing importance in debates about health care policy [e.g., Mosely and Chen, 1984; Vallin and Lopez, 1985]. The first of the IUSSP series was also partly concerned with the social aspects of mortality but spread its net wider to encompass biological and behavioural aspects as well [Preston, 1982].

In 1981, a United Nations/WHO meeting was held on data bases for mortality measurement [United Nations, 1983b], again with a rather close parallel in an IUSSP meeting on methodologies for the collection and analysis of mortality data, also held in 1981 [Vallin, Pollard and Heligman, 1984]. The IUSSP meeting was probably broader ranging in its coverage, and was certainly more technical in its treatment of the subject. The United Nations/WHO meeting focused heavily on assessing the

relative merits of differing approaches to the measurement of mortality, especially in the developing countries, where basic data needs are most pressing.

After 1981, the two series of meetings diverged considerably in terms of their focus. The IUSSP held a fascinating meeting on social policy, health policy and mortality prospects [Vallin and Lopez, 1985], while the United Nations/WHO co-sponsored, with the Australian National University, a meeting on the much narrower topic of sex differentials in mortality. One indication of the rising level of activity on mortality is the fact that the Rockefeller and Ford Foundations also sponsored a major international meeting on mortality in 1983 [Mosely and Chen, 1984] and that IUSSP held a further meeting in Tokyo in 1984 and in Italy in 1986.

OTHER RECENT ACTIVITIES

The current burst of activity on mortality has also led the Population Division to commission a number of major studies, three of which were published in 1985 [United Nations, 1985b, 1985c and 1985d].

The first study [United Nations, 1985b], is concerned with the determinants of mortality change and differentials, being based upon five detailed case studies for Sri Lanka, Kenya, Senegal, Matlab [Bangladesh] and rural Guatemala. The case studies were commissioned from scholars with special knowledge of the societies involved. That work is complemented by a study on socio-economic differentials in child mortality in developing countries, which was carried out by a team of researchers at the University of Pennsylvania and involved detailed secondary analysis of data files for 15 developing countries [United Nations, 1985d].

Together, the two studies teach innumerable lessons about mortality interrelations. The well-known association between maternal education and child survival is confirmed as being of very considerable importance, even after careful controls for other variables. Set against that factor, paternal education appears to be of consequence only in urban areas. Quite remarkably, confirming similar results from the World Fertility Survey, urban/rural differentials in child mortality are shown to be consistently small. That finding is "consistent with the view that existing urban health care systems, emphasizing large hospitals and expensive curative strategies... may not be appropriately adapted to conditions in most developing countries... The considerable impact of mother's education and ethnicity points above all to the potential importance of child care practices in determining levels of child mortality." Such findings, which confirm, for representative national samples, views which have long been advanced by those concerned with primary health care, are of considerable policy importance.

The third recent study dealt with the consequences of trends and differentials in mortality [United Nations, 1985c], and was the first to address many of the topics considered. The Population Division, in collaboration with editors based at the Australian National University, commissioned a galaxy of international authors to write

chapters on most aspects of the topic. The first group of chapters addresses societal and biological adaptations to mortality change, mainly at the macro level, but also at the individual level (e.g., dying and mourning). Other chapters address consequences related to the life cycle, including kinship, marriage and family matters. A third group of chapters considers consequences for health care systems and insurance and pension schemes, including other aspects of aging.

CONCLUSION

The contribution of the Population Division to the study of mortality has clearly been considerable. By far the most notable of the early achievements was the provision of the first set of model life tables ever devised, which were not supplanted until some 11 years after their publication.

It is probably not too unfair to characterize mortality as a low-priority topic in the activities of the Population Division—particularly in its Population Trends and Structure Section between the mid 1950s and the mid 1970s. The Division was reflecting world-wide shifts in priorities in the population field. But it is also evident that personnel changes in the Section have played a significant—perhaps even crucial—role in reinforcing changes in emphasis. For many years, it was ably headed by John Grauman, whose primary interest was in urbanization. In 1977 Samuel Preston became section chief for about two years, during which time he laid the foundations for much of the programme of mortality research which has come to fruition during the past five years.

The Section is now headed by a chief with dual interests in mortality and migration. It has benefitted considerably from recent staff additions, several of whom have a strong technical background and a clear interest in mortality. The prospects look very good over the next few years for sustained and original contributions to the study of mortality within the traditional framework of the United Nations, with its international character and perspective.

The next decade or so will almost certainly prove a crucial one in mortality research, as links between socio-economic and biological determinants of mortality become further clarified and knowledge accumulates on the effects of primary health care and efforts under the WHO banner of "Health for All by the Year 2000". Well before the end of the century, we shall have a great deal of information on successes and failures in the many existing programmes, including the impact of WHO's extended programme of immunization and of oral rehydration therapy. The 1980s is also the International Drinking Water Supply and Sanitation Decade, and its impact on health and mortality needs to be assessed. The UNICEF programmes for growth monitoring, oral rehydration therapy, breast-feeding and immunization, with food supplements and family spacing (GOBI-FF), also need broad evaluation. Beyond those focused programmes, the move towards primary health care with its emphasis on basic health needs and the decentralization of services will have various types of impact, depending upon a host of political, societal and institutional constraints, in addition to the more basic

issues of effectiveness of delivery and of management. Although much of the monitoring of the programmes will be carried out locally or by specialized agencies, it is clear that a broad evaluation of their impact on population is required. The Population Division, with its global perspective, is well placed to carry out that evaluation, synthesize the results and place variations in success in their wider context. Of course, continued collaboration with the agencies which are more directly involved in the programmes (e.g., WHO and UNICEF) will be necessary. The prospects for additional contributions by the Division to the study of health and mortality look good.

NOTES

¹ For the developing countries, it was still not feasible to examine information on cause of death on a systematic basis and there were significant gaps, especially for sub-Saharan Africa, where basic levels and trends were often unknown.

REFERENCES

- Brass, W. (1964), "Uses of census or survey data for the estimation of vital rates". African Seminar on Vital Statistics. UNECA, Addis Ababa.
- _____. (1971), "On the scale of mortality" in W. Brass, ed., *Biological Aspects of Demography* (London, Taylor & Francis).
- _____. (1975), *Methods for Estimating Fertility and Mortality from Limited and Defective Data* (Chapel Hill, Laboratories for Population Statistics, University of North Carolina).
- Carrier, N. H. and J. N. Hobcraft (1971), *Demographic Estimation for Developing Societies* (London, Population Investigation Committee).
- Coale, A. J. and P. Demeny (1966), *Regional Model Life-Tables and Stable Populations* (Princeton, Princeton University Press).
- Dyson, T. (1977), "Levels, trends, differentials and causes of child mortality: a survey," *World Health Statistics Report*, vol. 30, No. 4, pp. 282-311.
- _____. (1984), "Infant and child mortality in developing countries" in R. K. Chandra, ed., *Critical Reviews in Tropical Medicine*, vol. II (New York, Plenum), pp. 39-76.
- Ewbank, D. C., J. C. Gomez de Leon and M. A. Stoto (1983), "A reducible four-parameter system of model life tables", *Population Studies*, vol. 37, pp. 105-127.
- Gabriel, K. R. and I. Ronen (1958), "Estimates of mortality from infant mortality rates", *Population Studies*, vol. 12, pp. 164-169.
- Garenne, M. (1982), "Variations in the age pattern of infant and child mortality, with reference to a case study in Ngayokheme (rural Senegal)", Ph.D. dissertation, University of Pennsylvania.
- Husein, M. H. M. (1978), The age pattern of mortality as a function of cause of death structure", Ph.D. dissertation, University of London.
- Ledermann, S. (1969), *Nouvelles tables-types de mortalité*. Cahier no. 53 de l'Institut National d'Etudes Demographiques (Paris, Presses Universitaires de France).
- _____. and J. Breas (1959), "Les dimensions de la mortalité", *Population*, vol. 14, pp. 637-682.
- Lopez, A. and L. T. Ruzicka, eds. (1984), *Sex Differentials in Mortality: Trends, Determinants and Consequences* (Canberra, Australian National University Press).
- Lundy, R. (1978), "Age patterns of mortality", Ph.D. dissertation, University of California at Berkeley.
- Mosley, W. H. and L. C. Chen, eds. (1984), *Child Survival: Strategies for Research* (Cambridge, Cambridge University Press).
- Organisation for Economic Co-operation and Development (1979a), *Annotated Bibliography on the Sources of Demographic Data*, vol. I: Africa and the Middle East (Paris).
- _____. (1979b), *Annotated Bibliography on the Sources of Demographic Data*, vol. II: Latin America and the Caribbean (Paris).
- _____. (1979c), *Annotated Bibliography on the Sources of Demographic Data*, vol. III: Asia (Paris).
- _____. (1980a), *Mortality in Developing Countries*, Book 1: Data Bank (Paris).
- _____. (1980b), *Mortality in Developing Countries*, Book 2: Data Bank (Paris). (J. Condé, M. Fleury-Brousse and D. Waltisperger).
- _____. (1980c), *Mortality in Developing Countries*, Book 3: New Model Life Tables for Use in Developing Countries (Paris).
- Pison, G. and A. Langaney (1985), "The level and age pattern of mortality in Bandafassi (eastern Senegal): results from a small-scale and intensive multi-round survey", *Population Studies*, vol. 39, pp. 387-405.
- Polissar, L. (1973), "Parameterizing age distributions of death by cause", Ph.D. dissertation, Princeton University.
- Preston, S. H. (1976), *Mortality Patterns in National Populations: With Special Reference to Recorded Causes of Death* (New York, Academic Press).
- _____. and A. Palloni (1978), "Fine-tuning Brass-type mortality estimates with data on ages of surviving children", *Population Bulletin of the United Nations*, No. 10 (United Nations publication, Sales No. 78.XIII.6).
- _____. ed. (1982), *Biological and Social Aspects of Mortality and the Length of Life* (Llege, Ordina).
- _____. N. Keyfitz and R. Schoen (1972), *Causes of Death: Life Tables for National Populations* (New York, Seminar Press).
- Stolnitz, G. J. (1955), "A century of international mortality trends: I", *Population Studies*, vol. 9, pp. 24-55.
- _____. (1956), "A century of international mortality trends: II", *Population Studies*, vol. 10, pp. 17-42.
- _____. (1965), "Recent mortality trends in Latin America, Asia and Africa", *Population Studies*, vol. 19, pp. 117-138.
- _____. (1975), "International mortality trends: some main facts and implications", in *The Population Debate: Dimensions and Perspectives* (United Nations publication, Sales No. E.75.XIII.4), vol. I, pp. 220-236.
- United Nations (1950), *Methods of Using Census Statistics for Calculation of Life Tables and Other Demographic Measures (with Applications to the Population of Brazil)* (United Nations publication, Sales No. 1950.XIII.3).
- _____. (1952), *1951 Demographic Yearbook* (United Nations publication, Sales No. 52.XIII.1).
- _____. (1953), *The Determinants and Consequences of Population Trends. A Summary of Findings of Studies on the Relationships Between Population Changes and Economic and Social Conditions* (United Nations publication, Sales No. 1953.XIII.3).
- _____. (1954), *Foetal, Infant and Early Childhood Mortality* (United Nations publication, Sales No. 1954.IV.8).
- _____. (1955), *Age and Sex Patterns of Mortality. Model Life-tables for Underdeveloped Countries* (United Nations publication, Sales No. 1956.XIII.1).
- _____. (1956), *Manual III: Methods for Population Projections by Sex and Age* (United Nations publication, Sales No. 1957.XIII.2).
- _____. (1962), "The situation and recent trends in mortality in the world", in *Population Bulletin of the United Nations*, No. 6 (United Nations publication, Sales No. 62.XIII.2).
- _____. (1967a), *1966 Demographic Yearbook* (United Nations publication, Sales No. 67.XIII.1).
- _____. (1967b), *Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data* (United Nations publication, Sales No. 67.XIII.2).
- _____. (1971), *The Determinants and Consequences of Population Trends. New Summary of Findings on Interaction of Demographic, Economic and Social Factors* (2 vols.) (United Nations publication, Sales No. 71.III.5 and 6).
- _____. (1973), Report of the Interregional Seminar on Mortality Analysis (ST/SOA/SER.5/15).
- _____. (1977), "Social and demographic factors on fertility and mortality levels", in *Population Bulletin of the United Nations*, No. 9 (United Nations publication, Sales No. 77.XIII.3).
- _____. (1978a), *World Population Trends and Policies: 1977 Monitoring Report* (2 vols.) (United Nations publication, Sales No. 78.XIII.3 and 4).
- _____. (1979a), *World Population Trends and Policies: 1979 Monitoring Report* (2 vols.) (United Nations publication, Sales No. 79.XIII.4 and 5).
- _____. (1979b), "Model life tables for developing countries: an interim report" (ESA/P/WP.63).

- _____ and WHO (1980), *Proceedings of the Meeting on Socio-economic Determinants and Consequences of Mortality*, Mexico City, 19-15 June 1979 (Geneva).
- _____ (1981a), *Levels and Trends of Mortality since 1950* (United Nations publication, Sales No. 81.XIII.3).
- _____ (1981b), *Model Life Tables for Developing Countries* (United Nations publication, Sales No. 81.XIII.7).
- _____ (1982a), "Stable populations corresponding to the new United Nations model life tables for developing countries" (ST/ESA/SER.R/44).
- _____ (1982b), "Unabridged model life tables corresponding to the new United Nations model life tables for developing countries" (ST/ESA/SER.R/47).
- _____ (1982c), *World Population Trends and Policies: 1981 Monitoring Report* (2 vols.) (United Nations publication, Sales No. E.82.XIII.2 and 3).
- _____ (1982d), "World estimates and projections on infant mortality, 1950-2025", in *Population Bulletin of the United Nations*, No. 14 (United Nations publication, Sales No. E.82.XIII.6).
- _____ (1983a), *Manual X: Indirect Techniques for Demographic Estimation* (United Nations publication, Sales No. 82.XIII.2).
- _____ (1983b), *Data Bases for Mortality Measurement* (United Nations publication, Sales No. 83.XIII.3).
- _____ (1984), *Mortality and Health Policy* (United Nations publication, Sales No. E.84.XIII.4).
- _____ (1985a), *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report* (2 vols.) (United Nations publication, Sales No. 84.XIII.10 and 85.XIII.2).
- _____ (1985b), *Determinants of Mortality Change and Differentials in Developing Countries: The Five-country Case Study Project* (United Nations publication, Sales No. 85.XIII.4).
- _____ (1985c), *Consequences of Mortality Change and Differentials in Developing Countries* (United Nations publication, Sales No. 85.XIII.3).
- _____ (1985d), *Socio-economic Differentials in Child Mortality in Developing Countries* (United Nations publication, Sales No. E.85.XIII.7).
- UNICEF (1984), *The State of the World's Children, 1984* (New York, Oxford University Press).
- _____ (1985), *The State of the World's Children, 1985* (New York, Oxford University Press).
- _____ (1986), *The State of the World's Children, 1986* (New York, Oxford University Press).
- Vallin, J. and A. Lopez, eds., with H. Behm (1985), *La lutte contre la mort* (Paris, Presses Universitaires de France).
- _____ J. H. Pollard and L. Heligman, eds. (1984), *Methodologies for the Collection and Analysis of Mortality Data* (Liege, Ordina).
- Zaba, B. (1979), "The four-parameter logit life table system", *Population Studies*, vol. 33, pp. 79-100.

URBANIZATION AND INTERNAL MIGRATION

*United Nations Secretariat**

SUMMARY

The Population Division produced many publications both on urbanization and internal migration during its first 40 years. They have been organized into five broad subject areas: estimates and projections of urban, rural and city populations, including problems of data comparability and methods to measure internal migration; monitoring of trends in urbanization; estimates and analyses of migration as a component of urban and metropolitan growth; studies of demographic and socio-economic aspects of urbanization, and studies of demographic and socio-economic aspects of internal migration. Publications on each of these subjects were not produced regularly during the period under consideration. During the first decade, attention was focused mostly on problems of comparability of urban definitions, and on a review of migration research. Early estimates and projections of urban and rural populations on a comparable basis were developed from 1956 to 1969. From 1970 to 1976, the Population Division developed a methodology for carrying out urban/rural projections and published several revisions of them. During the early 1970s migration as a component of urban growth was estimated, and an updated review of the scientific literature on both migration and urbanization was published. During its fourth decade the Population Division produced publications on all the above-mentioned topics, including estimates and analysis for very large individual cities or by city-size category along with global urban population. Those developments coincided with a period of rapid increase in the proportion of the urban population living in large metropolitan areas. One of the most recent publications dealing with urbanization and internal migration consists of the proceedings of an expert group meeting on recent approaches to the analysis of migration and urbanization in developing countries, organized by the Division as one of the preparatory activities for the 1984 International Conference on Population.

The Population Division has provided the international community with many publications on urbanization during its first 40 years of research. The subjects range from articles on the problems of urban data and detailed estimates and projections for most countries of the world to comprehensive studies on the determinants and consequences of urbanization and urban growth.¹ The publications on internal migration are less abundant, but the topics treated are equally varied: methodology; estimates; demographic and socio-economic aspects; and reviews of the scientific literature.

That work has not been carried out in a vacuum. Research done by the Population Division has influenced the international academic community and has been influenced by it. The process of mutual interaction is sometimes perfectly clear, as when professionals working at the Division were members of the IUSSP Committee on Urbanization and Population Redistribution² or when the

Population Division published *Manual VI: Methods of Measuring Internal Migration*, prepared under the responsibility of the Committee on Internal Migration of IUSSP [1970a]. Sometimes co-operation occurred more informally, as when Kingsley Davis shared his file on urban population data with the Population Division in the 1950s. In general, the work of the Division has been well integrated into the mainstream of work on urbanization and internal migration of the research community at large.

In order to review the work carried out by the Population Division in the areas of urbanization and internal migration, the relevant United Nations publications have been classified according to four broad topics:

- (a) Estimates and projections of urban and rural population, including problems of data comparability and methods of measuring internal migration;
- (b) Monitoring of urbanization;
- (c) Estimates and analyses of migration as a component of urban growth;
- (d) Studies of demographic and socio-economic aspects of urbanization and internal migration.

* Population Division, Department of International Economic and Social Affairs.

A schematic presentation of the publications and the topics they cover is given in the figure at the end. Each publication is assigned one or more symbols, depending on the topics it covers and the unit of analysis (global urban population or individual cities) it uses. Symbols for a given publication are displayed for the year of publication, and when several publications appeared during the same year, they are distinguished from one another by lower case letters (a-d). The upper panel of the figure shows the trend followed during the 1946-1986 period by urban growth of the world as a whole and by the proportion of the urban population living in cities of at least 4 million inhabitants.

As the figure shows, publications on urbanization and internal migration were not produced regularly during the 40 years under consideration. The Population Commission, in mandating the Population Division's work programme, gave priority to different issues at different times. During the first decade, attention was focused mostly on problems of comparability of urban definitions and on a review of migration research.³ Early estimates and projections of urban and rural populations on a comparable basis were developed from 1956 to 1969, during the period when the rate of urban growth reached a peak.⁴ From 1970 to 1976—when urban growth rates were declining, according to the Division's most recent estimates—the Population Division developed the methodology to carry out urban/rural projections and published several revisions of them. In the early 1970s several attempts were made to estimate migration as a component of urban growth, and an updated review of the scientific literature was published, on both migration and urbanization. During its fourth decade the Population Division produced publications dealing with all previously mentioned topics, including estimates and analysis for very large individual cities or by city-size category. Those developments coincided with the period of rapid increase in the proportion of the urban population living in large metropolitan areas, as can be seen in the upper panel of the figure.

ESTIMATES AND PROJECTIONS OF URBAN, RURAL AND CITY POPULATIONS

The systematic production of estimates and projections of urban and rural populations—today one of the periodically conducted tasks of the Population Division—developed slowly through the years. Several problems had to be dealt with and a new avenue of research opened before the first series of urban and rural population projections could be produced. The subsections below attempt to reconstruct the stages through which urbanization research evolved at the Population Division.

The concern for international comparability of urban statistics

Since the early days of the United Nations the achievement of international comparability in statistics and population estimates has been a major goal. In the case of urban and rural populations, attainment of that goal was recognized as a formidable task, given the variety of existing national practices. It would take some 20 years of effort

and research to conclude that comparability was almost impossible to achieve in those areas and that national practices reflected genuine differences that ought not to be eliminated from the statistics. The international guidelines proposed by the International Statistical Institute (ISI) in 1938 [United Nations, 1950] to achieve comparability in urban definitions did not seem satisfactory as the 1950 round of censuses approached and the Economic and Social Council requested the Secretary-General to formulate proposals for improving the comparability and quality of data obtained by censuses.⁵ Problems in the area of urban and rural statistics were identified a few months later as one of the many topics on which the Population Division and the Statistical Office⁶ would work [Linder, 1947].

In 1949 the Population Commission rejected the standards proposed previously by ISI for the classification of urban and rural localities, based on administrative subdivisions and made concrete suggestions for the adoption of a single urban and rural classification in the 1950 round of population censuses.⁷ Later that year, *Population Census Methods* was published [United Nations, 1949]. It contained a chapter prepared by FAO entitled "Urban and rural population", which basically reviewed major types of urban/rural classifications and existing international recommendations.

In 1950 *Data on Urban and Rural Population in Recent Censuses* [United Nations, 1950] was prepared by the Population Division and the Statistical Office, again in close collaboration with FAO. It presented the state of the art at the time, including a classification of the definitions of urban population that had actually been used in the censuses of the period 1924-1947.⁸ It highlighted the wide variety of definitions and classification systems used to distinguish urban and rural populations around the world and made clear that research was needed to understand the implications of the different definitions and the feasibility of adopting a common one.

The problem of international comparability in a context of varying definitions was addressed again in 1952 in an article entitled "Urban trends and characteristics", prepared by the Statistical Office with the assistance of the Population Division [United Nations, 1952]. The article presented a general description of the urbanization process and some demographic characteristics of the urban and rural populations for a handful of countries. At that time there had been no further attempts to update Weber's 1899 publication, *The Growth of Cities in the Nineteenth Century*.⁹ It was nevertheless recognized that urbanization was spreading over the entire globe, even though more than 10 years and another census round would be necessary in order to establish the fact that the world's urban population had increased at an accelerated rate during the 1950s.

Opening a new avenue of research

The Population Division started demographic research on the estimation of urban and rural populations in the mid 1950s. Two papers on demographic aspects of urbanization were contributed to regional meetings on urbanization in Asia and Latin America, in 1956 and 1959,

respectively.¹⁰ They presented estimates of the urban population of the countries of both regions prepared by the Population Division, and references were made to urbanization levels for the world and major regions, taken from Davis and Golden [1954]. In order to allow international comparisons, two different measures of a country's urban population were shown in the paper presented at the Asian meeting: the total population living in places of 20,000 inhabitants or more; and the total population living in places of 100,000 inhabitants or more [United Nations, 1957]. Three years later, those two measures plus the urban population as defined nationally appeared in the paper presented at the Latin American meeting [United Nations, 1961].

Since both papers were intended to provide the basic demographic background for the seminars, they also presented several demographic characteristics of the urban population in relation to those of the rural population: age/sex composition and differentials in fertility and mortality. The paper on Latin America also included some analysis of urban/rural differentials in marital status, place of birth (natives and foreign born) and certain socio-economic characteristics, and estimates of rural/urban migration. Published as part of the proceedings of the meetings [Hauser, 1957 and 1961], the papers were widely used in both regions during the early 1960s. They constitute the initial stages of an avenue of research that has been pursued ever since by the Division and whose products have become common reference for all scholars working in the field. The reports of the seminars were considered milestones in the progress of research on urbanization, and both served as stimuli for research and policy-formulation in developing countries.

Historical series of the world's urban and rural populations

Drawing up a historical series of the urban population of the world as a whole and its major regions was a task that took a good number of years to accomplish. It proceeded hand in hand with research on the quantification of the world's urban population through history—from 2500 B.C. to our era [Grauman, 1977], and provided the needed perspective for the estimates for the present.

There were two main concerns in relation to the estimation of the size of the current urban and rural populations: the quality and availability of statistics and their comparability. Since it was decided that several decades of urbanization trends should be reviewed, the compilation and evaluation of the statistics took several years. After producing several interim versions [United Nations, 1967a and 1968a], the Population Division published the *Growth of the World's Urban and Rural Population, 1920-2000* in 1969.

International comparability—the common denominator of all United Nations estimates—was in that case especially difficult to achieve because the urban phenomenon has many facets: demographic, socio-economic, political and cultural. Some features of an urban locality can be present in certain localities and not in others; they can also change over time. Census practices establishing criteria

for delimiting urban areas and tabulating data differ from country to country and, frequently, even from census to census in a given country. A careful review of the current features of the urban phenomenon and the consideration of historic aspects led to the conclusion that a definition of “urban” places that had unvarying relevance throughout the changes in time and diversity in local conditions could not be devised. Accordingly, since variations in national definitions of “urban population” could not (and still cannot) be overcome, and even more, since the definitions reflect genuine differences in the urban phenomenon, it was decided to show urban estimates in the 1969 publication according to national definitions. At its fourteenth session (1967) the Population Commission declared its preference for the use of data and estimates of urban and rural population as nationally defined, however diverse the national definitions might be.¹¹

Growth of the World's Urban and Rural Population also presented an alternative set of estimates of urban population, defined as that population living in localities of 20,000 inhabitants or more, and denominated “agglomerated” population for short. Excluding small towns of less than 20,000 inhabitants, the second set of estimates gained in comparability—though there were still variations in national practices for establishing the boundaries of localities that could not be taken into account with the resources available to the Division. A comparison of both sets of estimates showed that they were different in terms of the size and proportion of the urban and rural populations, but that the trends in the level of urbanization for the estimation period (1920-1960) ran parallel in both sets.

General tables for the world as a whole and for its major regions covering the period 1920-2000 accompanied the analysis of trends, including a few breakdowns by sex intended to convey the social complexity of the urban phenomenon. Estimates for the urban population of individual countries and that of big cities (500,000 inhabitants or more) were given in an annex together with a comprehensive list of national definitions of urban population.

The development of methodology and of periodic urban, rural and city projections

The publication of the 1969 report, *Growth of the World's Urban and Rural Population, 1920-2000*, contributed to a growing awareness of the increasing level of urbanization of the world's population and its social and economic implications, especially for less developed regions whose urban growth rates were already more than double those of the developed world. In 1967 the Population Commission decided that the analysis of urbanization should be included among the continuing functions of the Population Division.¹² The completion of the first comprehensive set of estimates and projections of urban and rural populations set the foundation for new assessments, updating the data used in deriving the basic set.

In the early 1970s efforts to develop better projection techniques were reflected in new revisions of the urban/rural estimates and projections [United Nations, 1970b and 1971a]. The first version of the United Nations method to project urban and rural populations was circulated in a

working paper that also included the resulting revised projections [United Nations, 1970c]. The method assumed that the proportion urban depended only on the difference between the urban and rural rates of population growth, held constant over the projection period. As in most other methods used to project sub-populations, the projected proportions urban are applied to independent projections of national populations. In that way, urban and rural estimates and projections are linked to the various assessments of the global population.¹²

Other working papers, prepared between 1970 and 1972, described different methods for projecting the global urban population, the urban and the rural populations by age and sex, or the population of individual cities, or urban agglomerations.¹³ Most of the methods took into account the data constraints as well as the needs typical of developing countries. Revised versions of the working papers later constituted the different chapters of *Manual VIII* [United Nations, 1974].

A few years later, while revising the results of the 1973 assessment, the United Nations modified the former method by taking into account differentials in urban/rural growth related to the level of urbanization. The revised method thus allowed the rural/urban growth difference "to evolve from the last observed to a universal norm in line with general world-wide experience" [United Nations, 1985a, p. 4]. With only slight modifications [United Nations, 1985a, pp. 2-9] that revised United Nations method has been in use ever since.

Once the data file and the methods to produce urban and rural projections were firmly established, the Division embarked upon the periodical review of estimates and projections of urban, rural and city populations. A summary presentation of the many projection revisions is shown in table 1.

During the late 1970s a concern for the growth of large cities started to emerge. It reflected an observed fact: the proportion of the urban population in cities with at least 4 million inhabitants was growing faster than in the past (see the figure). Greater attention to the detailed study of city growth was needed.

The first attempt to project the population of individual cities using the method available (that corresponding to the 1968 assessment) was carried out for agglomerations of at least 1 million inhabitants, and projections were carried on only up to 1985 [United Nations, 1972b]. The second and third attempts, both based upon the 1973 assessment, included all cities with at least 100,000 inhabitants and covered the full estimation and projection periods 1950 to 2000. During the exercise a question arose regarding the concept of "city" to be used and the need to create a new data file. The Population Division preferred to use data "approximating the concept of agglomeration. [But] this goal could not be achieved in every instance", since for many countries data on administrative city areas only were available [United Nations, 1980a]. When data on metropolitan areas were available, it was preferred to data classified by administrative units. In many instances,

TABLE 1. DETAILS OF ESTIMATES AND PROJECTIONS OF URBAN/RURAL AND CITY POPULATION MADE BY THE POPULATION DIVISION, BY ASSESSMENT^a

Years of assessment	World/major regions	Individual countries	Total urban/rural	Cities		Age/sex groups	Period	Publication	
				Individual	Size class			Type	Date:
1963.....	E,P	..	E,P ^b	Multimillion (E)	E	..	1920-1980 ^c	CP	1966
1963.....	E,P	E	E,P ^b	100 000 +	E,P	..	1920-2000 ^c	WP/15	1967
1963.....	E,P	E ^d	E,P ^b	500 000 + (E)	..	..	1920-2000 ^c	Series A/44	1969
1963.....	E	E	E	..	..	..	1950-1960	WP/31	1970
1968.....	E,P	E,P	E,P	..	..	..	1950-1985 ^e	WP/33/Rev.1	1970
1968.....	E,P	..	E,P	..	..	..	1950-2000 ^c	Series A/49	1971
1968.....	E	E	E	..	..	E	1960	WP/44	1972
1968.....	..	..	..	1 000 000 +	..	..	1950-1985 ^e	WP/45	1972
1973.....	E,P	E,P	E,P	..	..	..	1950-2000 ^f	WP/54	1975
1973.....	E,P	E,P	E,P	100 000 + §	E,P	..	1950-2000 ^f	WP/58	1975
1973.....	E	E	E	..	..	E	1975	WP/64	1979
1973.....	E,P	E,P	E,P	100 000 + §	E,P	..	1950-2000 ^f	Series A/68	1980
1978.....	E,P	E,P	E,P	100 000 + §	..	..	1950-2000 ^f	WP/66	1980
1980.....	E,P	E(1980)	E,P	..	..	E,P	1970-2000 ^d	WP/81	1982
1980.....	E,P	E,P	E,P	25 largest	E,P	..	1950-2025 ^e	Series R/45	1982
1982.....	E,P	E,P	E,P	35 largest	E,P	..	1950-2025 ^e	Series R/58	1985
1984.....	E,P	E,P	E,P	2 000 000 + §	..	..	1950-2025 ^e	To be issued:	

NOTES: E : estimate
P : projection
.. : detail not available
Individual: the minimum size of cities included in estimate or projection or the number of cities.
CP: Conference paper
Series A: sales publication
WP: working paper (very limited distribution)
Series R: non-sales publication with wider distribution than a working paper

^a Assessments correspond to national estimates/projections of total population.

^b Two sets of estimates and projections: urban population as nationally defined; agglomerations of 20,000 and plus.

^c Ten-year intervals.

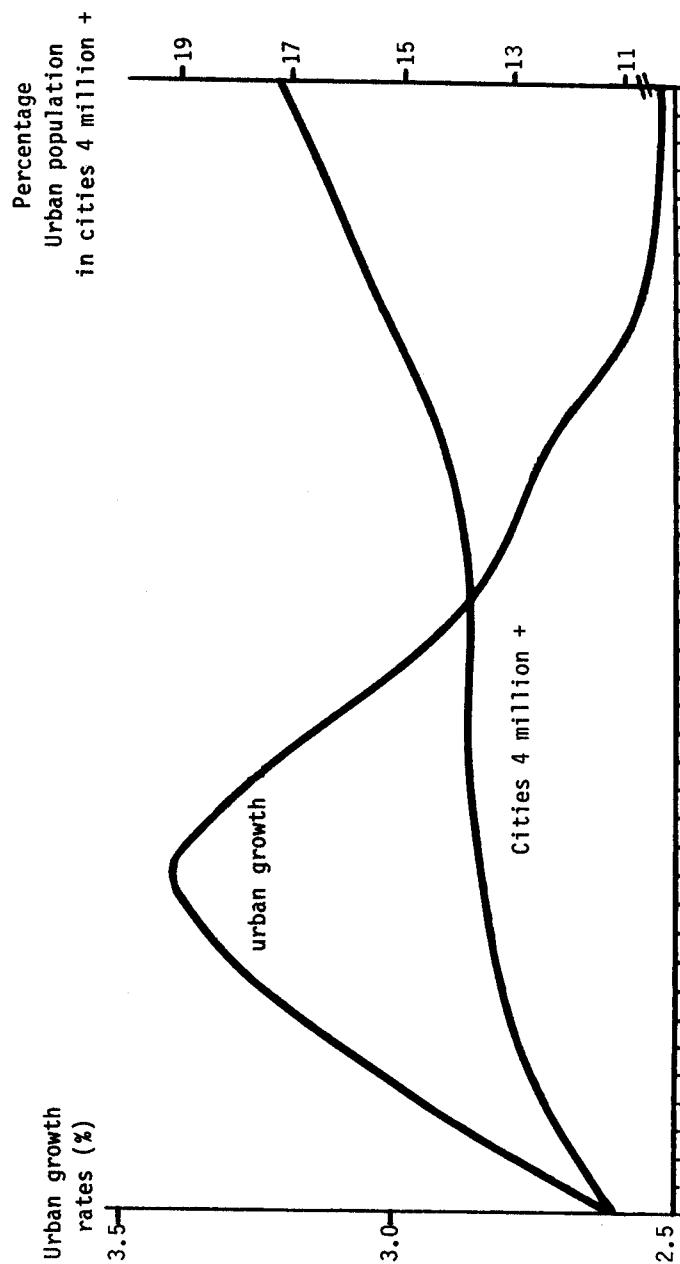
^d Countries with at least 1 million in localities of 20,000 or more in 1960. Estimates for 1950 and 1960.

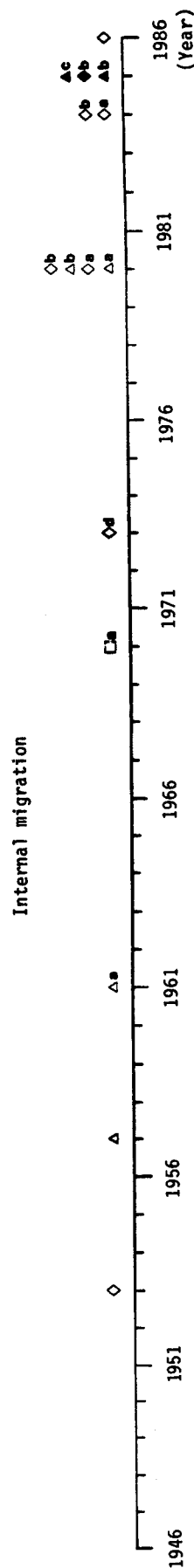
^e Five-year intervals.

^f Ten-year interval and the year 1975.

[§] And national capitals of smaller population size.

Figure. World's urban growth rates and proportion urban population in cities of 4 million and plus; and publications of the Population Division on urbanization and internal migration by subject, unit (urban and individual city) and publication date





Urban City

- Estimates and projections
- Monitoring activities
- △ Components of urban growth
- ◇ Demographic and socio-economic aspects

Sources: United Nations (1985a), tables A-2 and A-9, and bibliography.

additional research was necessary to make the estimates comparable in terms of agglomerations. Using national census populations, the new file attempted to record "population figures for cities below but approaching the 100,000 limit at the most recent date of concrete estimate" [United Nations, 1980a]. The results, published in 1980, showed that the number of cities with at least 4 million inhabitants had increased from 11 in 1950 to 30 in 1975, 17 of which were located in less developed regions.

Projections for individual cities with at least 100,000 inhabitants were updated [United Nations, 1980c], but the results had a limited circulation. Demand for city estimates and projections has been large ever since, but, because a detailed evaluation of the data for individual cities requires more resources than those available, the exercise has not been repeated.¹⁴ Instead, results relative to cities have been presented by size class in the 1980 and 1982 assessments—because aggregation of results compensates to a certain degree for errors—and only those for the 25 or 35 largest agglomerations were shown individually. Since the first attempt to project city population was made, the number and the size of cities have grown considerably. The 1982 assessment projected that by 1985 there would be 42 cities with at least 4 million inhabitants—of which 18 would have at least 8 million—and that that figure would increase to 66 by the year 2000, of which 50 would be in less developed regions, and 25 would have at least 8 million inhabitants [United Nations, 1985a].

Table 1 shows that very few attempts have been made to estimate and project urban and rural populations by age and sex, since the data required for such task are generally scarce and inadequate. Estimates by age and sex were made at the country level for 1960, 1975 and 1980 (in the 1968, 1973 and 1980 assessments, respectively) and projections by age and sex at the regional and world levels for the period 1970-2000 were carried out only for the 1980 assessment.

UNDERSTANDING THE PROCESS OF URBANIZATION AND INTERNAL MIGRATION

Monitoring activities on urbanization

Since the beginning of its work on urbanization, the Population Division has produced analyses of trends of several dimensions of the urbanization process (including urban/rural and city population growth and urban structure)—for example, in papers presented at regional meetings [United Nations, 1957 and 1961]. Descriptive analyses have also accompanied the tables in the two major United Nations publications on the subject [United Nations, 1969 and 1980a], and in some reports on estimates and projections. The report corresponding to the 1982 assessment, for example, systematically describes trends in the percentage urban, in the rate of urbanization, in the urban and rural growth rates and in the urban structure for the world, its regions and subregions [United Nations, 1985a].

One of the sections of the chapter "Population distribution, internal migration and urbanization" in *The Determinants and Consequences of Population Trends* [United

Nations, 1973d] included an analysis of the distribution of urban and rural population in 1965, and a historical overview of the growth of the urban and rural populations in modern times. The overview made it possible to conclude that "the most unique feature of contemporary urbanization appears to be the proliferation of settlements of unprecedented size". It also described demographic and socio-economic aspects of different patterns of rural settlements and small towns.

Complying with a recommendation made in the World Population Plan of Action [United Nations, 1975d], the Population Division carried out four monitoring reports of world population trends and policies [United Nations, 1979, 1980b, 1982a and 1985c] before the 1984 International Conference on Population.¹⁵ Each of the monitoring reports contained a chapter highlighting different dimensions of the urbanization process in the world and its major regions: levels and trends of urbanization; urban and rural growth rates; urban structure and the growth of cities; the largest urban agglomerations; and the components of urban and metropolitan growth. The material was drawn from the estimates and projections of urban and rural populations at the regional level or other work in progress. The 1977 monitoring report [United Nations, 1979] also included an analysis of the urbanization process in 80 countries that by 1975 had at least 5 million inhabitants.

A recent publication on children and youth [United Nations, 1986a] presents a brief analysis of the distribution of children and youth in the urban and rural areas of the world and major regions, highlighting the special patterns of those population groups in comparison with the population of all ages in relation to urbanization levels, urban and rural growth and the sex composition of urban and rural populations.

Estimates and projections from the various assessments mentioned above also served as a basis for the analysis of trends in many outside publications on the subject. The introduction and the chapter on recent and projected trends in world urbanization in the two-volume publication of the IUSSP Committee on Urbanization and Population Distribution [Goldstein and Sly, 1977] is one of the many publications in which the Division's figures for the world and major regions have been quoted. Another is the paper on the urban future, prepared by Hauser and Gardner for the International Conference on Population and the Urban Future [UNFPA, 1980]. Extensive use has also been made of the Population Division's regional figures, following the tradition established in the early 1960s with the documents produced for Asia and Latin America [United Nations, 1957 and 1961]. Notable recent examples include the article produced for the Latin American Congress on Population and Development [Lattes, 1984] and the document on the Asian region presented at one of the preparatory meetings for the 1984 International Conference on Population [ESCAP, 1984]. Recently, the Division's analyses served as the basis for documentation presented at the preparatory meeting of the 1984 International Conference on Population [United Nations, 1984b] and at the Conference itself [United Nations, 1986b], and they helped in the formulation of recommendations [United Nations, 1984c] that, it is hoped, will guide Gov-

ernments in the formulation of policies during the next 10 years.

Migration as a component of urban and metropolitan growth

For the Governments and planners of developing countries, rapid urban population growth is more often a source of concern than is urbanization (the increase in the proportion urban). When large metropolitan areas experience very high rates of population growth, the problems they face are exacerbated. Urban and rural populations, like countries, change as a result of births, deaths and international migration. In addition, urban and rural population growth is affected by the migration of individuals between the two zones. Furthermore, through the emergence of new towns or the redefinition of the boundaries of expanding cities, areas previously classified as rural become urban, causing an additional rural-to-urban population shift. Identifying these sources [of change] is an important first step in understanding the social, economic and biological processes that underlie demographic development. If urban populations are growing rapidly in relation to rural populations because of the lower mortality in the former, the implications for policy and planning are quite different than they would be if the source of growth were job-inspired migration [United Nations, 1980a].

A section on the demographic components of urban and rural growth was included in the literature review contained in the 1973 edition of *The Determinants and Consequences of Population Trends*. An estimate of the components of population change in urban, rural and metropolitan areas of many countries was also prepared, using standard methods. The first results had limited circulation in the form of working papers [United Nations, 1972c and 1973a]. Later, a study on the components of urban and rural population change¹⁶ was published as part of a major report [United Nations, 1980a]. Analysis of 40 observations from developing countries and 25 from developed countries (mainly for the 1960s with a few cases from the 1950s) indicated that there were quite different average weights from migration and from reclassification, on the one hand, compared to those from natural increase, on the other, between the developed and the developing countries. But the variation from country to country and from one period to the next within the developed and the developing regions was also substantial. Obviously, more information was needed before any sound conclusion could be reached regarding the relative importance of the different components of urban growth.¹⁷

In the attempt to disentangle the complexities of urban growth, another report was produced, which concentrated on the growth of large metropolitan areas in developing countries during the 1960s [United Nations, 1985b]. Data could be found for only 26 such cities. They had grown during that decade at average rates varying from 2 to 8 per cent per year. Given that the age structure of migrants usually favours natural increase, the indirect effect of migration on natural increase was also estimated. A comparison with the results obtained in the previous study on total urban growth demonstrated that migration is a more important component in the growth of metropolitan areas

than it is in the remaining urban areas of a given country. Furthermore, the findings pointed out the enormous difficulties in understanding urban growth and suggested new paths to pursue in further analysis. For example, generalization about the relative weight of migration on metropolitan growth was still not possible, but the analysis showed clearly that migration is the most important source of growth of the metropolitan population aged 15-29, the age group during which many persons enter the labour market for the first time.

Demographic and socio-economic aspects of urbanization

The urbanization process differs among countries not only in its level and tempo but also in its economic, social, political and cultural aspects. The Population Division has devoted considerable attention to the study of the demographic and socio-economic characteristics of urban, rural and metropolitan populations. An understanding of the differential features of urban populations is relevant for planning and for policy formulation and evaluation. It must be recognized, however, that scarcity of data is very severe and international comparability very difficult to attain when such characteristics as age and sex, marital status or occupation are considered.

The sex distributions of urban and rural populations were described in the 1969 report, *Growth of the World's Urban and Rural Population, 1920-2000*. It was also shown that the sex ratios of both urban and rural populations varied widely among the world's regions, and that higher urban than rural sex ratios were not characteristic of all world regions. The distribution by age and sex of urban and rural populations was considered in several working papers published during the early 1970s [United Nations, 1970d, 1971c and 1973b] and in the report, *Patterns of Urban and Rural Population Growth* [1980a]. They concluded that, generally, "very young children are less urbanized than teen-agers or young adults" [United Nations, 1980a, p. 109] and that "the urban proportion tends to peak in the age interval 20-29" [United Nations, 1980a, p. 111]. Remarkable diversity was found in the distribution by sex of the urban populations in different age groups. Differentials in rural/urban fertility and mortality patterns were inferred from differentials in the distribution by age and sex, as well as rural-to-urban migration.

Results of research on rural/urban differences in the distribution by marital status were reported in various working papers [United Nations, 1973c and 1976] and later revised and included in *Patterns of Urban and Rural Population Growth* [1980a]. For a group of African and Asian countries, both male and female urban residents spent on average two more years single than did rural residents. The same was true of females in countries of Latin America, Europe and Northern America; as for males in those regions, rural residents spent a slightly longer average time single than did their urban counterparts.

An exploratory study on urbanization and economic and social change was prepared by the Population Division in collaboration with Sidney Goldstein and presented to the United Nations Interregional Seminar on Development Policies and Planning in Relation to Urbanization orga-

nized by the Department of Economic and Social Affairs in 1966. The study investigated the relationships between urbanization and other demographic, social and economic variables that were used to identify stages of socio-economic development. The results, though tentative, indicated a certain degree of over-urbanization in many developing countries in relation to their economic development [United Nations, 1968b].

The 1953 edition of *The Determinants and Consequences of Population Trends* did not contain a chapter on urbanization, although rural/urban differentials were considered in the mortality and fertility chapters and the importance of migration for urban growth was stressed in the chapter on migration. Urban growth had not yet been consistently estimated on a global basis and there was no global concern about its importance. Several years had to elapse and global figures on urban growth had to become available before its importance and implications for development were clearly perceived in relation to overall population growth.

Population distribution was a topic included in the agenda of the United Nations Population Conference in 1965. A paper written for that Conference on behalf of the United Nations by Donald Bogue and Philip Hauser [1965] addressed in a schematic manner a topic that would later be developed and expanded by the Population Division in the chapter entitled "Population distribution, internal migration and urbanization" of the 1973 edition of *The Determinants and Consequences of Population Trends*. The sections on urbanization included an analysis of the growth of urban and rural populations and its demographic components, a review of current knowledge of factors affecting the urban/rural distribution of population, and a classification of the problems that had arisen in the urban and rural areas, illustrated by policy strategies and programmes adopted by Governments. A bibliographic review of the factors affecting urbanization distinguished between observed conditions and theories explaining different facets of urbanization, such as city-size distribution, the location of economic activities, and the economic functions of cities. Among the observed conditions, emphasis was given to the explanations that had been advanced by the early 1970s to characterize the urbanization process in developing countries.

Patterns of Urban and Rural Population Growth [1980a] included a chapter on the occupational characteristics of the urban and rural labour forces and another on the occupational characteristics of women. The information was presented in relation to development levels in the countries studied. A similar study, concentrating on employment rather than labour force, was later conducted for large cities in developing countries [United Nations, 1985b]. It was shown that "on average, about one half of male employment [in 24 metropolitan areas of Africa, Asia and Latin America] consists of production workers, with another fourth in clerical and sales occupations" and that "there is no comparable strong concentration of female employment in one occupational category" [United Nations, 1985b].

Socio-economic factors associated with the urbanization process were discussed at large in an expert group

meeting organized by the Division as one of the preparatory activities for the International Conference on Population held in 1984. The proceedings of that meeting [United Nations, 1984a] partially updated the section on urbanization and internal migration of the 1973 *The Determinants and Consequences of Population Trends*. They showed that the dynamics of the urbanization process—a demographic subject to which relatively little attention had been given by population specialists in the past—had attracted greater attention during the 1970s. Furthermore, they strongly influenced the preparation of the chapter on population distribution and internal migration, presented to the population conference held in Mexico in 1984 [United Nations, 1986b] and the relevant recommendations adopted by the conference. It is noteworthy that, in contrast to the World Population Plan of Action, those recommendations do not reflect a negative assessment of the consequences of urbanization.

Demographic and socio-economic aspects of internal migration

The use of net rural/urban migration figures to estimate the components of urban growth for a number of countries—as discussed above—was extended to an analysis of the relationship between internal migration and other socio-economic variables. The analysis suggested that net rural/urban migration is integrated into the process of economic and social development [United Nations, 1980a, pp. 30-33]. More recently, when net migration was estimated for 25 metropolitan areas in developing countries, the age/sex selectivity of migration and its relationship with employment and other economic indicators of development were also investigated [United Nations, 1985b], following the recommendations of the Population Commission.¹⁸ The results showed no clear association between net migration and the occupational structure of metropolitan areas, suggesting that no simple generalization is possible about the impact of migration on development.

The study of net migration for metropolitan areas revealed the usual concentration of migrants of 15-29 years old. Similarly, a review of the literature on the age selectivity of migration in developed and developing countries showed the important role that children and youth of both sexes play in the process of internal migration because of their high propensity to migrate [United Nations, 1986a].

The Division, following the recommendations of the Population Commission,¹⁹ made two surveys of existing studies concerning the relationships between population changes and economic and social conditions. A summary of the first survey [United Nations, 1953] contained a chapter on economic and social factors affecting both internal and international migration. A summary of the second survey [United Nations, 1973] covered internal migration and urbanization in a single chapter, while international migration was treated separately. A similar breakdown was adopted by the Expert Group on Population Distribution, Migration and Development, which met in 1983, in preparation for the 1984 International Confer-

ence on Population [United Nations, 1984a]: international migration was discussed separately from internal migration, urbanization, rural development and population distribution policies. The papers presented at the meeting did not attempt a complete review of the scientific literature on the relationships between internal migration and socio-economic development, but they nevertheless reflected the state of knowledge in that area. In comparing the migration chapters of the two versions of *The Determinants and Consequences of Population Trends* and the proceedings of the Expert Group meeting, one obtains a clear idea of the development of migration research from the early 1950s to the early 1980s.

In the 1953 and 1973 publications the concept of internal migration was restricted to movements involving a substantial length of stay or a permanent change of residence. It explicitly excluded, for example, seasonal migration. In the proceedings of the Expert Group, the scope of internal migration included short-term change of residence, such as the repetitive movement of "circulatory" migrants.

The first version of *The Determinants and Consequences of Population Trends* considered only two types of internal migration: interregional and rural/urban. The 1973 version did not attempt a classification of movements, but the review of major migratory movements concentrated mostly on frontier and rural/urban migration, and in the sections devoted to the determinants proper, both volumes dealt exclusively with factors affecting rural-to-urban migration. In contrast, the papers produced for the 1983 meeting showed a clear attempt to acknowledge a diversity of migratory movements, including rural to urban, urban to rural, rural to rural, and urban to urban.

The two versions of *The Determinants and Consequences of Population Trends* organized the discussion of the determinants by chapters devoted to the different demographic phenomena: fertility, mortality and migration. The consequences of trends and differentials in those variables were systematically treated with respect to resources, labour force, consumption and economic growth. Internal migration was often seen as having negative consequences for development by, for example, contributing to underemployment in the cities. That view—predominant in the early 1970s—was reflected in the World Population Plan of Action, adopted in 1974, but it had changed by the eve of the 1984 Conference. The proceedings of the 1983 Expert Group Meeting reflect the different theoretical approaches characterizing migration research in developing countries during recent years which tend to view migration as having both positive and negative consequences for development. In analysing the consequences of migration two levels were distinguished: the micro level—that is, individuals and households; and the macro level—that is, in terms of employment, labour supply, technology and economic growth in both sending and receiving areas. Consideration of both levels led to the conclusion that the positive consequences generally balanced the negative ones. This "balanced" perception of migration and its consequences was reflected in the recommendations adopted in Mexico City in 1984.

CONCLUSION

Publications by the Population Division on urbanization and internal migration cover a variety of subjects. Important contributions can be highlighted in the research carried out. First, the Division's manuals on the measurement of internal migration and that on urban/rural projections are the only ones available in three languages, and they are well-suited to meeting the needs of developing countries. Secondly, a comprehensive and up-to-date data base allowing for the periodic preparation of estimates and projections of urban, rural and city populations is now available. Thirdly, the monitoring of urbanization trends for the world as a whole and its regions is now a regular continuing activity. Fourthly, the Division's contribution to the understanding of the demographic components of urban and metropolitan population growth has been of great importance, mainly because of the effort made to estimate net rural/urban migration for a number of countries and net migration for selected metropolitan areas of developing countries, using a standard methodology. Lastly, the preparation of comprehensive reviews of the scientific literature on internal migration in the early 1950s and of internal migration and urbanization in the early 1970s has provided points of departure for research carried out in many developing countries. More recently, the proceedings of the Expert Group on Population Distribution, Migration and Development, provide an updated survey of current knowledge.

NOTES

¹ Urbanization and urban growth are two different but related concepts. Urbanization is a redistribution of the population whereby the proportion urban increases. When urban growth rates exceed rural growth rates, urbanization takes place.

² See, for example, the preface of the publication by Goldstein and Sly (1977), made on behalf of the IUSSP Committee on Urbanization and Population Redistribution.

³ The mandate of the Population Commission established, in general, that the Commission should report on the relationships between population trends and economic and social factors (see *Official Records of the Economic and Social Council, Ninth Session, Supplement No. 7, E/1313 and Add. 1*).

⁴ Of course, that growth was not measured until the late 1960s—when most censuses from the 1960s round became available.

⁵ Economic and Social Council resolution 41 (IV) of 29 March 1947. The article by Eldridge (1956), originally published in 1942, was the most serious attempt to define cities and the process of urbanization at that time.

⁶ At the time, the Population Division was part of the Department of Social Affairs and the Statistical Office was part of the Department of Economic Affairs. Close collaboration between them was initiated in their early days and has been the practice ever since.

⁷ The documentation on this subject for the fourth session of the Commission was prepared by FAO. See *Official Records of the Economic and Social Council, Ninth Session, Supplement No. 7 (E/1313 and Add. 1)*. The Commission's recommendations are also reproduced in United Nations [1949], chap. XVI.

⁸ Gibbs (1961) adapted this report, which was included in the reader *Urban Research Methods* [see United Nations (1961b)].

⁹ See Davis and Golden (1954) and the introduction in Goldstein and Sly [1977] for a review of publications on estimates of world-wide trends of urbanization.

¹⁰ The meeting in Asia was organized by the Department of Social Affairs—to which the Population Division belonged—and UNESCO, in co-operation with ILO. The Latin American meeting was sponsored by the Department of Social Affairs, the Economic Commission for Latin Amer-

ica and UNESCO, in co-operation with the Organization of American States.

¹¹ See *Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 9 (E/445)*, p. 16.

¹² Regarding national population projections, see the article by El-Badry and Kono in this *Bulletin*.

¹³ Estimates and projections for urban/rural populations by age and sex and for individual cities were new areas of research undertaken by the Population Division in the 1970s.

¹⁴ There were at least 1,655 such cities in 1975, according to the 1973 assessment [United Nations, 1980, table 20].

¹⁵ The first monitoring report after the 1984 International Conference on Population is currently being prepared. It will include a chapter on population distribution and, for the first time, one on internal migration.

¹⁶ Net rural-to-urban migration was estimated with the census survival ratios method, previously discussed in *Manual VI* (United Nations, 1970a). The *Manual* also discusses other indirect measures of net internal migration.

¹⁷ The only firm conclusion was that "in virtually all populations, urbanization occurs primarily because of net rural/urban migration" [United Nations, 1980a, p. 34, emphasis added].

¹⁸ See *Official Records of the Economic and Social Council, 1979, Supplement No. 2 (E/1979/22)*, para. 168.

¹⁹ See *Official Records of the Economic and Social Council, Ninth Session, Supplement No. 7 (E/1313 and Add. 1)*, or of the Economic and Social Council, *Thirty-first Session, Supplement No. 3 (E/3451)*, para. 18; *Thirty-fifth Session, Supplement No. 2 (E/3723/Rev.1)*, para. 52.

REFERENCES

- Bogue, Donald J. and Philip M. Hauser (1965), "Population distribution, urbanism and internal migration", background paper prepared for the United Nations Population Conference, Belgrade, Yugoslavia, 30 August to 10 September 1965.
- Davis, Kingsley and Hilda Hertz Golden (1954), "Urbanization and the development of pre-industrial areas", *Economic Development and Cultural Change*, vol. 3, No. 1 (October 1954), pp. 6-26.
- Eldridge, Hope Tisdale (1956), "The process of urbanization", in Joseph J. Spengler and Otis Dudley Duncan, eds., *Demographic Analysis* (Glencoe, Ill., Free Press), pp. 338-343.
- Gibbs, Jack P., ed. (1961), *Urban Research Methods* (Princeton, Van Nostrand).
- Goldstein, Sidney and David F. Sly, eds. (1977), *Patterns of Urbanization: Comparative Country Studies*, vol. 1 (Liège, Ordina Editions).
- Grauman, John V. (1977), "Orders of magnitude of the world's urban population in history", *Population Bulletin of the United Nations*, No. 8 (United Nations publication, Sales No. E.76.XIII.3), pp. 16-33.
- Hauser, Philip M., ed. (1957), *Urbanization in Asia and the Far East*, Proceedings of the Joint United Nations/UNESCO Seminar (in co-operation with the International Labour Office) on Urbanization in the ECAFE Region, Bangkok, 8-18 August 1956 (SS.57/V.7/A, Calcutta, 1957).
- _____. (1961), *Urbanization in Latin America*. Proceedings of a seminar jointly sponsored by the Bureau of Social Affairs of the United Nations, the Economic Commission for Latin America, and UNESCO (in co-operation with the International Labour Organisation and the Organization of American States) on urbanization problems in Latin America, Santiago (Chile), 6-18 July 1959 (SS.60/V.9/A, Paris, 1961).
- Lattes, Alfredo E. (1984), "Algunas dimensiones demográficas de la urbanización reciente y futura en América Latina", in *Memorias del Congreso Latinoamericano de Población y Desarrollo. Celebrado en la Ciudad de México del 8 al 10 de noviembre de 1983*, vol. 2 (Mexico, El Colegio de México, UNAM, PISPAL), pp. 893-930.
- Linder, Forrest E. (1947), "The development of international demographic statistics" in William J. Bruce, ed., *Proceedings of the International Statistical Conferences*, vol. 2, World Statistical Congress, September 6-18, 1947 (Washington, D.C.), pp. 215-225.
- United Nations, (1949), *Population Census Methods* (United Nations publication, Sales No. 1949.XIII.4).
- _____. (1950), *Data on Urban and Rural Population in Recent Censuses* (United Nations publication, Sales No. 1950.XIII.4).
- _____. (1952), "Urban trends and characteristics", *Demographic Yearbook 1952* (United Nations publication, Sales No. 1953.XIII.1), chap. 1.
- _____. (1953), "Factors affecting population distribution", *The Determinants and Consequences of Population Trends*, Population Studies, No. 17 (United Nations publication, Sales No. E.53.XIII.3), chap. IX, pp. 163-177.
- _____. (1961), "On the distinction between rural and urban: national practices and recommendations" in Jack P. Gibbs, ed., *Urban Research Methods* (Princeton, Van Nostrand), chap. 13, pp. 472-504.
- _____. (1967a), "Urban and rural population growth, 1920-1960, with projections" (ESA/P/WP/15).
- _____. (1967b), "Report of the United Nations Interregional Seminar on Development Policies and Planning in Relation to Urbanization, Pittsburgh, Pennsylvania, United States of America, 24 October-4 November 1966" (ST/TAO/SER.C/97).
- _____. (1968a), "World urbanization trends, 1920-1960", in "Urbanization: development policies and planning", *International Social Development Review, No. 1* (United Nations publication, Sales No. E.68.IV.1), pp. 9-20.
- _____. in collaboration with Sidney Goldstein (1968b), "Urbanization and economic and social change. An exploratory demographic investigation" in "Urbanization: development policies and planning", *International Social Development Review, No. 1* (United Nations publication, Sales No. E.68.IV.1), pp. 21-35.
- _____. (1969), *Growth of the World's Urban and Rural Population, 1920-2000*, Population Studies No. 44 (United Nations publication, Sales No. E.69.XIII.3).
- _____. (1970a), *Manual VI: Methods of Measuring Internal Migration*, Population Studies No. 47 (United Nations publication, Sales No. E.70.XIII.3).
- _____. (1970b), "Population estimates by regions and countries, 1950-1960: total population, age/sex structure and urban/rural distribution" (ESA/P/WP/31).
- _____. (1970c), "Urban and rural population: individual countries 1950-1985 and regions and major areas 1950-2000" (ESA/P/WP/33/Rev.1).
- _____. (1970d), "Sex and age patterns of the urban population" (ESA/P/WP/36).
- _____. (1971a), *The World Population Situation in 1970*, Population Studies No. 49 (United Nations publication, Sales No. E.71.XIII.4).
- _____. (1971b), "Some simple methods for urban and rural population forecasts" (ESA/P/WP/41).
- _____. (1971c), "Comparative regional typology of urbanization patterns by sex and age" (ESA/P/WP/42).
- _____. (1972a), "Sex/age composition of the urban and rural population of the world, major areas, regions, and individual countries, in 1960" (ESA/P/WP/44).
- _____. (1972b), "The world's million-cities, 1950-1985" (ESA/P/WP/45).
- _____. (1972c), "The components of urban and rural population change: tentative estimates for the world and twenty-four regions for 1960" (ESA/P/WP/46).
- _____. (1973a), "The dynamics of rural-to-urban population transfers by sex and age" (ESA/P/WP/48).
- _____. (1973b), "Sex composition of the population according to size of locality" (ESA/P/WP/49).
- _____. (1973c), "Urban/rural differences in the marital-status composition of the population" (ESA/P/WP/51).
- _____. (1973d), "Population distribution, internal migration and urbanization", in *The Determinants and Consequences of Population Trends*, Population Studies No. 50 (United Nations publication, Sales No. E.71.XIII.5), vol. I, chap. 1.
- _____. (1974), *Manual VIII: Methods for Projections of Urban and Rural Population*, Population Studies No. 55 (United Nations publication, Sales No. E.74.XIII.3).
- _____. (1975a), "Trends and prospects in urban and rural population, 1950-2000, as assessed in 1973-1974" (ESA/P/WP/54).
- _____. (1975b), "Agriculture, industry and services in the urban and rural labour force" (ESA/P/WP/57).
- _____. (1975c), "Trends and prospects in the population of urban agglomerations, 1950-2000, as assessed in 1973-1975" (ESA/P/WP/58).
- _____. (1975d), *Report of the United Nations World Population Conference, 1974, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. E.75.XIII.3).
- _____. (1976), "Up-dated study of urban/rural differences in the marital-status composition of the population" (ESA/P/WP/59).

- _____ (1979a), "Age/sex distributions in rural and urban areas" (ESA/P/WP/64).
- _____ (1979b), "Population distribution and urbanization" in *World Population Trends and Policies, 1977 Monitoring Report*, vol. I, *Population Trends*. Population Studies No. 62 (United Nations publication, Sales No. E.78.XIII.3), chap. V, pp. 111-122.
- _____ (1980a), *Patterns of Urban and Rural Population Growth*, Population Studies No. 68 (United Nations publication, Sales No. E.79.XIII.9).
- _____ (1980b), "Urbanization and population distribution" in *World Population Trends and Policies, 1979 Monitoring Report*, vol. I, *Population Trends*, Population Studies No. 70 (United Nations publication, Sales No. E.79.XIII.4), chap. V, pp. 124-141.
- _____ (1980c), "Urban, rural and city population, 1950-2000, as assessed in 1978" (ESA/P/WP/66).
- _____ (1982a), "Urbanization" in *World Population Trends and Policies, 1981 Monitoring Report*, vol. I, *Population Trends*, Population Studies No. 79 (United Nations publication, Sales No. E.82.XIII.2), chap. IX, pp. 147-159.
- _____ (1982b), "Age and sex structure of urban and rural populations, 1970-2000: the 1980 assessment" (ESA/P/WP/81).
- _____ (1982c), "Estimates and projections of urban, rural and city populations, 1950-2025: the 1980 assessment" (ST/ESA/SER.R/45).
- _____ (1984a), *Population Distribution, Migration and Development. Proceedings of the Expert Group on Population Distribution, Migration and Development. Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.84.XIII.3).
- _____ (1984b), "Population distribution, migration and development: highlights of the issues in the context of the World Population Plan of Action" in *Population Distribution, Migration and Development. Proceedings of the Expert Group on Population Distribution, Migration and Development. Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.84.XIII.3).
- _____ (1984c), *Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984* (United Nations publication, Sales No. E.84.XIII.8 and Corr. 1 and 3).
- _____ (1985a), "Estimates and projections of urban, rural and city populations, 1950-2025: the 1982 assessment" (ST/ESA/SER.R/58).
- _____ (1985b), "Migration, population growth and employment in metropolitan areas of selected developing countries" (ST/ESA/SER.R/57).
- _____ (1985c), "Urbanization" in *World Population Trends, Population and Development Interrelations and Population Policies, 1983 Monitoring Report*, vol. I, *Population Trends*, Population Studies No. 93 (United Nations publication, Sales No. E.84.XIII.10), chap. IV, pp. 181-206.
- _____ (1986a), "Selected demographic and social characteristics of the world's children and youth" (ST/ESA/SER.R/60).
- _____ (1986b), *Review and Appraisal of the World Population Plan of Action* (United Nations publication, Sales No. E.86.XIII.2).
- United Nations, Economic and Social Commission for Asia and the Pacific, (1984), "Population distribution and development policies in the ESCAP region", in *Population Distribution, Migration and Development. Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.84.XIII.3).
- United Nations Fund for Population Activities (1980), *International Conference on Population and the Urban Future, Rome, Italy, 1-4 September 1980: Documents* (New York, 1980).

INTERNATIONAL MIGRATION

*United Nations Secretariat**

SUMMARY

During its 40 years of existence the Population Division has made a solid contribution to the study and understanding of international migration. Its productivity related to that subject can be divided into four areas of endeavour—namely, work on the compilation and improvement of international migration statistics; analytical studies on the levels and trends of migration; the overview of policies shaping international migration flows; and the study of the interrelations between international migration and social and economic factors. Those areas have not been accorded equal attention during the life of the Population Division. During the 1950s, a concern for the quality and availability of statistics was paramount and led to the publication of two important compilations of international migration statistics covering approximately the 1918-1950 period. In later years all compilation activities have been carried out by the Statistical Office of the United Nations Secretariat.

Work on the analysis and monitoring of international migration trends has been pursued with greater continuity during the 40-year period under consideration and, especially as a result of the adoption of the World Population Plan of Action in 1974, has become one of the ongoing activities of the Population Division, together with the monitoring of policies on international migration, a subject that has received considerable attention during the past decade.

Through the study of the causes and consequences of international migration, the consideration of social and economic factors related to it has been undertaken at least twice by the Population Division: during the early 1950s and during the early 1970s. Work in that area culminated with the publication of the report on the Expert Group Meeting on Population Distribution, Migration and Development, which served as a basis for the formulation of recommendations for the further implementation of the World Population Plan of Action. Through them, the solid foundation constructed by the Division during 40 years of research provides a means to influence policy formulation throughout the world.

As one of the basic phenomena shaping the size and structure of populations, international migration has always been an area of activity falling within the terms of reference of the Population Commission and hence, a subject for research at the Population Division. In fact, when the Population Commission first met in 1947, the draft terms of reference it received from the Economic and Social Council stated that "the Population Commission shall arrange for studies and advise the Council on", *inter alia*, "migratory movements of population and factors associated with such movements".¹ When the terms of reference of the Commission were finally established in 1948,² explicit mention of migration had been dropped, though it remained clear that migration was one of the

relevant demographic factors whose influence on population structure and whose interplay with economic and social factors demanded the attention of the Commission and fell within the normal activities of the Population Division.

Responding to the concerns of the period after the Second World War, the Population Commission accorded considerable importance to projects in the area of international migration during its first years of activity. In response to the guidelines set up by the Population Commission, the Population Division embarked on a series of projects dealing with international migration. The reports and papers prepared by the Population Division on that subject can be classified into four different areas—namely, work on the compilation and improvement of international migration statistics, analytical studies on the levels and trends of migration, the overview of policies regarding

* Population Division, Department of International Economic and Social Affairs.

international migration; and work on the interrelations between social and economic factors, on the one hand and international migration, on the other. In more recent times the Population Division has also given some attention to methodological issues related to the estimation of international migration but, essentially, the focus of its work has been concentrated on the same areas established earlier on. It is therefore appropriate to present this overview of the Division's work in terms of the areas identified above.

A CONCERN FOR STATISTICS

In every area of demographic endeavour, a concern for statistics—their quality and their availability—is paramount. The Population Commission gave voice to that concern by requesting, early on in its work, that attention be given to an assessment of available statistics and to the elaboration of recommendations tending to ameliorate the basic data required for demographic research. Thus, at its first session,³ the Population Commission requested that every effort be made to set standards for the 1950 round of censuses so as to ensure comparability between the data gathered by different countries. Such efforts led to the publication in 1949 of Population Studies No. 4, *Population Census Methods*,⁴ a report that reiterated the Commission's recommendation regarding the inclusion of, *inter alia*, a question on place of birth and another on nationality in census schedules. The Population Division prepared the chapters of the report dealing with those items of information.

With regard to data on place of birth, it was recognized that a classification of the population of a given area by place of birth made possible a crude measure of the volume and sources of migration into the area during an indefinite number of prior years. Clearly, the term "migration" encompasses in that case both internal and international movements, but specifically with respect to international migration, the availability of census data on place of birth remains, even today, one of the main sources of information on the effects of migration on the receiving country. In fact, in recent years, when the Working Group on the Methodology for the Study of International Migration of the International Union for the Scientific Study of Population (IUSSP) issued its recommendations for improving the measurement of international migration, it gave priority to the use of census information on place of birth for that purpose.⁵

Of similar importance is the availability of information on legal nationality or citizenship since it allows "the study of problems relating to the legal status and civil rights of immigrants".⁶ Availability of that information is especially important in countries where non-naturalized migrants and their offspring constitute an important minority group from the socio-economic and cultural perspectives.

Thus, the recommendations made by the Population Commission nearly 35 years ago remain valid to the present date. Through the efforts of the Statistical Office, those recommendations have been reiterated from one census round to the next since 1960. It is recognized, however, that although the pertinent questions are usually

included in censuses, much remains to be done in extracting from the data gathered all the tabulations that are considered useful for analytical purposes.

With regard to flow statistics, in 1948, during its third session, the Population Commission gave priority to work aimed at improving international migration statistics. Recognizing that the imperfections and lack of comparability of migration statistics greatly impeded studies in the field of migration,² the Commission called for the preparation of a report on the problems of migration statistics. That report was prepared by the Population Division in consultation with the Statistical Office and it constitutes the first attempt by the United Nations to make a critical analysis of the data sources available and of the methods of data collection used.⁷ The report itself cites previous attempts to improve migration statistics on a world-wide basis. The work of the International Conference of Migration Statistics sponsored by the International Labour Organisation in 1932, was highlighted. That Conference adopted a set of resolutions conducive to the improvement of migration statistics. Taking into account those resolutions and on the basis of the research carried out by the Population Division, the Population Commission at its fourth session drew up a series of draft recommendations for the improvement of migration statistics.⁸

The draft recommendations suggested, among other things, that statistics be obtained on all arrivals and, if possible, all departures of international travellers and that arrivals, for example, be classified according to the following categories: visitors; residents (whether national or alien) returning after less than one year abroad; temporary immigrants; permanent immigrants; refugees; and transferred populations. The equivalent categories were distinguished in the case of departures. For both arrivals and departures, permanent immigrants and emigrants were distinguished in accordance to the criterion established by the 1932 resolutions, which held that when the removal was for one year or more, the migration should be regarded as permanent migration.

It is noteworthy that the basic tenets of those recommendations are still reflected in the latest version of the official United Nations *Recommendations on Statistics of International Migration*,⁹ prepared by the Statistical Office and published in 1980. There has been, however, slow progress in the improvement of migration statistics and, even today, more than 35 years after the International Labour Office reported to the United Nations on the state of migration statistics throughout the world, its main conclusion remains valid—namely, that "migration statistics are still very imperfect and incapable of serving as a basis of international comparisons".¹⁰ Because international comparability of migration statistics was seen as essential if a quantitative approach to the study of international migration were to be possible, the role played by the Statistical Commission through the activities of the Statistical Office in furthering the comparability of migration statistics remains as important today as it was 36 years ago when the Population Commission first adopted draft recommendations to achieve that goal.

Parallel to its concern for the improvement of migration statistics, the Population Commission expressed interest

in promoting the compilation and dissemination of the main types of demographic statistics. Thus, at its first session, the Population Commission requested the publication of a demographic yearbook¹¹ and at its second session it further recommended that statistics on international movements of population be included among the tabulations published in the *Demographic Yearbook*.¹² In addition, at its sixth session, the Population Commission requested that a compilation of statistics of migration by age, sex and economic characteristics be carried out, covering a period starting in 1918.¹³

Work on the compilation of current statistics to be published in the *Demographic Yearbook* was carried out by the Statistical Office, although from time to time the Population Division co-operated in preparing the introductory remarks to the tables included. On the other hand, the Population Division was responsible for the publication of the historical series of migration statistics by age and sex available for the period 1918-1947 in 74 countries and territories.¹⁴ That compilation built upon earlier work carried out mainly at the International Labour Office by Imre Ferenczi, who was principally responsible for three compilations covering the 1918-1927 period.¹⁵ The task of updating existing compilations and documenting the scope and meaning of the statistics available was a challenge that yielded an invaluable source of demographic information. Equally impressive is the compilation published by the Population Division in 1958, *Economic Characteristics of International Migrants*.¹⁶ That compilation includes statistics for 36 selected countries or territories (the most affected by European migration), covering the period 1918-1954. Most of the tables published show the number of emigrants and/or immigrants classified by occupation or by branch of economic activity (industry). For some countries tables on other economic characteristics - such as status as employer, employee (etc.), amount of cash declared, amount of expenditures for assisted passage schemes, or remittances by emigrants to their home country - are also included.

Aside from presenting a comprehensive picture of the most salient characteristics of international migrants, the two compilations mentioned above make explicit the variability in concepts and tabulation practices that characterizes statistics of international migration. By concentrating, in a single source, information that is generally scattered throughout a wide variety of national publications (usually inaccessible to researchers), the Population Division's compilations greatly facilitated the analysis of the effects of migration on the size and structure of populations and on the characteristics of their economically active subpopulations. In more recent years, the effort involved in producing those compilations has not been repeated and, although in the case of migration statistics classified by age and sex, the tabulations that used to be published periodically in the *Demographic Yearbook* prior to 1967 and the 1967-1977 tabulations published in the 1977 *Demographic Yearbook*¹⁷ go some way towards filling the gap in the availability of easily accessible sources, they are far from achieving full coverage.

This brief overview of the activities initiated by the Population Commission in regard to statistics of international

migration highlights the basic importance of the topic for the study of migration and its impact on population or its interaction with economic and social factors. The role played by the Population Division in calling attention to the problems characterizing migration statistics and in compiling historical information to set the stage, so to speak, for future research was crucial during the late 1940s and during the 1950s. In more recent years, the quality and the availability of migration statistics have been mostly the concern of the Statistical Office, while the Population Division has turned its attention to the tasks of monitoring and analysing migration trends, the policies that shape them and their socio-economic implications.

THE ANALYSIS AND MONITORING OF INTERNATIONAL MIGRATION

Undoubtedly, the task of monitoring and analysing the demographic implications of international migration constitutes the core of the Population Division's activities in relation to that demographic phenomenon. Therefore, it is not surprising to find that the Population Division's output includes a fairly large number of materials devoted to the quantification and analysis of international migration flows and of the stocks of international migrants that they have given rise to. A quick appraisal of the output available reveals, however, that the Division's work in that area has waxed and waned in response to the perceived importance of international migration and its consequences during different periods. Thus, during the early 1950s, when the world was still living the aftermath of the Second World War and of the massive population movements that it had brought about, work on international migration received priority, but as the late 1950s led into the 1960s and the industrialized world recovered from the devastating effects of the war, the plight of the developing world moved into the limelight and migration was soon discarded as a possible solution to the population problems facing that part of the world. More recently, interest in migration has revived, partly because the importance of its social and economic consequences is now widely recognized and also owing to the fact that migration is finally perceived as a worldwide phenomenon, taking place in a variety of contexts and affecting an increasing number of countries.

In assessing the import of the Population Division's work relative to the monitoring of international migration, two features deserve particular attention. First, the majority of the Division's papers or reports dealing with levels and trends of international migration treat, with as much detail as possible—given the statistical evidence available—not merely the cases of migration flows between developed countries or those between developing and developed countries but also, and most importantly, those occurring between developing countries. Secondly, although it is recognized that data on international migration are often subject to serious flaws that generally defy adjustment or correction, an attempt has usually been made to make use of all available statistical evidence in order to provide a comprehensive—albeit rough—picture of migration flows and their evolution through time. In other words, in studying international migration, the Population Division has had to rely more often than not on the

indications provided by partial or defective data, and, because of the Division's concern for the attainment of a truly global coverage, in numerous occasions statements have had to be made on the basis of very weak evidence, particularly in the case of flows taking place between developing countries or of those occurring illegally (i.e., without the sanction of the receiving State).

Those two features are already evident in the first products of the Division dealing with trends of international migration. Indeed, the two papers published in 1952 in the *Population Bulletin of the United Nations* on international migration in the Far East during recent times¹⁸ set the tone for the work that would follow. By describing the experience of the countries of emigration and immigration of the Far East during a period spanning the late nineteenth and the twentieth centuries, attention is focused on the migration experience of the world's most populous region and, *a fortiori*, on migratory flows between developing countries. Statistical evidence, though scarce and far from reliable, is exploited to the maximum in order to yield a creditable sketch of migration flows and their main demographic characteristics. It is noteworthy that that first in-depth study of international migration carried out by the Population Division should focus on a region other than Europe, whose plight after the Second World War was the centre of attention. Clearly, by discussing the situation in one of the developing regions most directly affected by the war, the Division highlighted the importance of learning more about non-European migration and its relationship to global events.

The second major piece on international migration trends prepared by the Population Division appeared soon after the papers on the Far East: it is the section entitled "Principal international migrations of modern times", appearing in the chapter on economic and social factors affecting migration of the 1953 volume, *The Determinants and Consequences of Population Trends*.¹⁹ It constitutes a real *tour de force*, attempting a comprehensive review of the main migration flows taking place since the sixteenth or seventeenth centuries. Because of the greater availability of data on European migrants and given their relative importance during the period considered, they received the greatest attention. However, the review also included a discussion of the main flows recorded within the African and Asian regions and between those regions and countries on other continents. It is noteworthy that, even at that early stage in the analysis of international migration, care was taken to describe the varying nature of the flows involved. For example, it was noted that while certain flows occurred for the purpose of colonization, others were motivated mostly by the need to provide labour to certain areas or industries. In addition, a clear distinction was made between "normal" migration and the movements of transferred populations or the massive refugee resettlement occurring after the First and Second World Wars. That incipient attempt at differentiation seems to foreshadow the basic framework that, some 25 years later, would serve to structure the analysis of an increasingly varied set of migration flows.

In 1954, at the World Population Conference, the Population Division presented a paper entitled "A survey of

intercontinental migration in the post-war period".²⁰ By focusing on the most recent period at the time (1945-1953 or thereabouts), the paper complemented the long-term perspective embraced in the preparation of the 1953 overview contained in *The Determinants and Consequences of Population Trends*.¹⁹ Once more, an attempt was made to attain global coverage and, although European intercontinental migration was estimated to be the largest in magnitude during 1945-1953, a section was nevertheless devoted to the discussion of flows originating in other continents. The paper noted, however, that a reliable assessment of migration flows, especially those of non-Europeans, was hampered by the seriously defective nature of migration statistics—when they existed at all. In some cases, existing lacunae had to be filled by using alternative, secondary sources or by making estimates for "certain statistically unrecorded movements".²¹ That practice, unfortunately, has changed little during the past 30 years, since, as already noted, migration statistics have not improved as fast as desired.

The 1950s saw no other publication of the Population Division dealing specifically with international migration levels and trends. As noted in the previous section, the need for a better statistical base impelled the Division to devote its efforts to the compilation of statistical series, so that during the late 1950s and most of the 1960s no other analytical work was published. The first break in the trend occurred in the early 1970s when a one-page summary on the main migration flows occurring since 1950 appeared in the *The World Population Situation in 1970*.²² Two years later, in 1973, the revised *The Determinants and Consequences of Population Trends* was published, and the final volume contained again a chapter devoted to international migration including, *inter alia*, an overview of migration trends.²³ As in the 1953 edition, the overview is as well balanced and comprehensive as possible, although it is evident that lack of reliable and timely information, among other things, gave rise to certain lacunae evident from today's perspective. For instance, little was said about the movement of workers to the oil-rich countries of the Middle East which, by the time *The Determinants* . . . appeared, was already rising in importance. There was also no mention of certain temporary movements of workers, such as those between Mexico and the United States via the *bracero* programme. The nature of those flows suggests another possible reason for their omission: although not stated explicitly, the concept of migration underlying the Division's work at the time was derived mainly from the experience of European migrants going as settlers to the "new world". Because such conceptualization did not accommodate easily the emerging flows of temporary workers, their coverage was not carried out systematically, a point that underscores the importance of the conceptual advances made since the preparation of the 1973 publication.

As in the 1950s, the panoramic overview of migration trends included in the 1973 edition of *The Determinants and Consequences of Population Trends* was complemented soon afterwards by the paper entitled "International migration trends, 1950-1970", presented at the United Nations World Population Conference, in 1974.²⁴

By focusing attention on a relatively short period of time, that paper was more successful than the overview in *The Determinants* . . . in highlighting the increasing importance of certain movements, such as those between developing countries and the traditional countries of immigration (the United States, Canada and Australia) or those between North African countries and France. Yet, whereas movements between developed countries and from developing to developed countries were treated in some detail, those between developing countries were covered only in very general terms, mostly because, as the text itself noted, migrations of non-Europeans were less well documented statistically,²⁵ a situation that has changed little since then.

In contrast with the 1960s, the decade of the 1970s witnessed a reemergence of interest in international migration and, in particular, it saw the appearance of the first and only report devoted entirely to a demographic analysis of international migration—namely, *Trends and Characteristics of International Migration since 1950*.²⁶ That report compares in importance with the statistical compilations carried out during the 1950s, since it represents a unique source of information on migration trends and on the demographic characteristics of international migrants. Special emphasis was given to the analysis of the age and sex structures of migrants and of the foreign stocks found in receiving countries. The feat of putting together and analysing in a single volume the very diverse and widely dispersed statistical evidence available on migrant stocks and flows cannot be sufficiently commended. In a way, the publication of that report represents the culmination of the Division's work in the area of monitoring of international migration and served to launch a new era in which the clear institutionalization of the Division's monitoring activities established by the World Population Plan of Action²⁷ ensured the continuity of work in the area of international migration and led to the periodic publication of *Monitoring Reports* aimed at the timely evaluation of levels and trends.

To date, four monitoring reports have been published.²⁸ The first, entitled *World Population Trends and Policies: 1977 Monitoring Report*, appeared in 1979 and contained a chapter devoted to an assessment of recent levels and trends of international migration, first from the perspective of developed countries and then from that of developing countries. Taking as a stepping stone the report on *The Trends and Characteristics* . . . , the 1977 overview achieved a well balanced global coverage and, in fact, devoted greater attention to international movements originating in the developing world than to those involving the movement of Europeans, thus reflecting the important change in trends that had occurred during the 1960s and that had become patent during the 1970s.

A chapter devoted to the analysis of levels and trends of international migration has been included in every *Monitoring Report* published since 1979. Although it is not yet possible to assess the cumulative impact of the different *Monitoring Reports* on the study of international migration, it is nevertheless useful to pinpoint their most promising characteristics. Undoubtedly, they constitute the first systematic attempt to follow the evolution of the present

multifarious migration flows. Their thoroughness in covering the experience of developing countries has drawn attention to the importance of flows originating in those countries even when, as is usually the case, reliable and complete statistical evidence regarding their magnitude and characteristics has been elusive.

The *Monitoring Reports* have also been useful in establishing a basic framework for consideration of the migration phenomenon, its trends, characteristics and consequences. Through the fruitful co-operation of the Population Division and the International Labour Office, the 1979 *Monitoring Report*²⁹ made the main traits of that framework explicit, by dealing separately with flows occurring within the context of long-term and permanent migration, those involving the migration of labour and those constituted of undocumented migrants. That attempt at differentiating the varying migration flows that characterize the modern world was developed further during the early 1980s³⁰ and appears in crystallized form in the 1983 *Monitoring Report*³¹ which is the first to approach the study of migration trends by focusing separately on migration for permanent resettlement, labour migration, undocumented migration and refugee movements. The new perspective regarding the varying nature of existing international population movements was validated on the occasion of the 1984 International Conference on Population whose recommendations for the further implementation of the World Population Plan of Action make explicit the need to deal separately with issues related to the different types of flows—namely, documented labour migration, undocumented labour migration and refugees.³²

This brief overview of the Population Division's work in the area of monitoring shows that the effort invested during 40 years of research has yielded an important set of publications documenting the evolution of international migration during the whole of the modern era (from the European colonization of the Americas to our days). Taken as a whole, this body of research undoubtedly represents a useful contribution to the understanding of migration as a demographic phenomenon. Unfortunately, its value is tarnished by a recurring leitmotif: the inadequacy of basic statistics. Numerous flows known to occur go virtually undocumented, statistical evidence is generally scarce or flawed, and inconsistencies abound due to varying definitions or conceptualizations of the migration phenomenon. This state of affairs is hardly conducive to the development of reliable estimation or analytical procedures. It is therefore not surprising that the Division's work in the area of monitoring has for the most part excluded all methodological considerations. In recent years, however, the Division has co-operated in developing methods to estimate indirectly the level of lifetime emigration from a given country.³³ This area of research, however, is still in its infancy and any pronouncement about its usefulness is premature.

In conclusion, the immediate future is unlikely to see any breakthroughs that might increase the reliability of international migration estimates. Periodic reporting on current conditions and recent changes will continue through the *Monitoring Reports* and more attention will be given to a deeper assessment of the demographic conse-

quences of migration but, on the whole, estimates of international migration will continue to be the weakest link in the quantitative assessment of a population's evolution.

INTERNATIONAL MIGRATION POLICIES

The task of monitoring population policies in general and policies on international migration in particular is one that the Population Division received relatively recently, as a result of the adoption of the World Population Plan of Action in 1974.³⁴ This does not mean, however, that the Division's work had totally ignored the policy aspect of international migration up to 1974. In fact, in the early 1950s, the Population Division collaborated with the secretariats of several specialized agencies to produce a report entitled *Elements of Immigration Policy*,³⁵ whose aim was to discuss certain considerations that Governments might want to take into account in formulating immigration policies. A variety of topics, such as the demographic consequences of immigration, its economic impact, the need for health and medical requirements and the rights of migrant workers were discussed. However, the report did not include a discussion of existing immigration policies *per se*.

The first publication dealing with that topic was the 1953 *The Determinants and Consequences of Population Trends*.¹⁹ In fact, that publication and the revision in 1973 of the same title²³ contained subsections dealing with the effect of population policies on immigration and emigration. Without attempting a comprehensive overview of population policies, the subsections summarized the most important trends observed globally and offered a few examples to illustrate the variety of measures that had been adopted.

During the late 1970s, as a result of the 1974 World Population Conference, the Population Division embarked for the first time on a consistent and in-depth monitoring of migration policies. Consequently, each of the four subsequent *Monitoring Reports* contains a chapter devoted to policies on international migration.²⁸ In general, those chapters have been based on the results of the different Inquiries among Governments carried out by the Population Division as part of the monitoring process. Governments' answers to questions regarding their attitudes with respect to international migration flows and their consequences are analysed and discussed in each *Monitoring Report*. Such an approach makes possible the early detection of changing attitudes or perceptions by Governments and a comparative analysis of policy responses. By putting the responses to the inquiry in the corresponding demographic context, the Population Division provides in each *Monitoring Report* a comprehensive and useful picture of current interactions between trends and policies, thus providing a valuable tool for the future understanding of the long-term evolution of migration flows and their causes.

A more detailed study of migration policies is presented in the report entitled *International Migration Policies and Programmes: A World Survey*,³⁶ which represents a first step in elucidating the role played by the policies of receiving and sending countries in shaping migration during

most of the 1960s and 1970s. The publication of that report marks another "first" in the Division's work and helps to highlight the special nature of international migration as a demographic phenomenon, namely, that it is the most responsive to governmental action. It may well be that the relatively new emphasis on understanding governmental action might lead to an unexpected breakthrough in the study of international migration. Indeed, consideration of each Government's perspective seems to be a necessary first step in determining the nature of the flows involved and their likely consequences. As will be seen below, the attempt to analyse the consequences of migration flows without referring to the specific policy contexts that give rise to them often leads to varying and confusing results.

ECONOMIC AND SOCIAL ASPECTS OF INTERNATIONAL MIGRATION

During the past four decades, the Population Division has published three substantive works dealing with the interrelationships between international migration and economic and social factors. The first two are separate chapters in the two editions of *The Determinants and Consequences of Population Trends*,^{19,23} dealing, on the one hand, with economic and social factors as determinants of migration flows and, on the other, with the effects of migration on the economic and social conditions of both sending and receiving countries. Since the purpose of the two volumes was to summarize all research findings regarding interactions between demographic, economic and social factors, they provided comprehensive overviews of the prevailing knowledge at the time of writing. The feat of summarizing all that was known of the economic and social causes and consequences of the various migration movements occurring since 1800 yielded a compendium of arguments, counterarguments and special cases which, taken together, convey mostly a sense of variability and change.

That outcome is to be commended because, given the heterogeneity and volatility that has characterized migration flows, especially during the present century, the interactions of migration with specific social and economic factors are unlikely to be unique, being mediated, as they are, by a host of other factors equally varied and subject to change. That realization underscores the importance of studying the causes and consequences of migration in different contexts and of elucidating the minimum set of common factors linking with near certainty a cause with an effect.

The work of the Population Division provides a good basis for the identification of some of those sets of common factors. For example, although both editions of *The Determinants* . . . stress the importance of economic factors as determinants of migration, it is pointed out that not all economically motivated migration flows have the same consequences. In terms of the receiving country, economic consequences tend to be positive when migration is fueled by labour shortages coexisting with an excess of resources or capital. Benefits may also accrue to the receiving country when the immigration of persons having needed skills is promoted even under conditions of general

labour surpluses. The implications of those conclusions apply, respectively, to such varied cases as those of the countries that have actively engaged foreign labour during the past 20 or 30 years and to those of the developing countries that, faced with high unemployment, engage foreign technicians to help develop their industrial capacity.

Of similar validity in certain contexts are the social consequences noted by the Population Division. For instance, the difficulties in integration caused by differences in language, religion or cultural background between immigrants and the native population are painfully evident in many countries today.

These few examples help to illustrate the value of the reviews carried out by the Population Division. Clearly, they provide the necessary foundation for furthering our understanding of the forces that shape migration and of the varied consequences that it entails. In addition, by reflecting the state of knowledge at their respective times of preparation, the two editions of the *The Determinants and Consequences* ... make possible an assessment of the advances made since their publication. In particular, both editions give too much weight to the experience of developed countries and fail to reflect adequately the conditions prevalent in the developing world. Evidently, such a bias is due mostly to paucity of information, but its existence helps to underscore the need for studies focusing specifically on the experience of developing countries.

It is of interest to compare the latest edition of *The Determinants and Consequences* ... with the most recent work that the Division has published on the topic of interrelations between socio-economic factors and migration—namely, *Population Distribution, Migration and Development: Proceedings of the Expert Group on Population Distribution, Migration and Development*.³⁷ Besides containing an overview of the main issues on migration and development confronting the international community and a summary of the discussions of the Expert Group, the *Proceedings* include a series of papers prepared by either experts or international organizations referring to specific facets of international migration. It is symptomatic of the changes that occurred during the 1970s that the papers highlight the importance of considering separately different types of migrants—namely, regular migrants (that is, those fulfilling all the legal requirements for residence and exercise of economic activity of the country in which they find themselves); irregular or undocumented migrants (those who fail to fulfil those requirements); and refugees. These types are closely related to those mentioned in the recommendations on international migration contained in the World Population Plan of Action,³⁸ and their identification on the basis of the legal status that migrants have in the receiving country is seen as a first step towards understanding the varied causes and consequences of migration, because, as one of the papers states, “one cannot satisfactorily explain either the movements of people” or the effects of those movements “without reference to the institutions and policies of the countries concerned”.³⁹

Indeed, the most salient difference between the approach adopted in *The Determinants and Consequences*

... and the approach evident in the *Proceedings* of the Expert Group is that, while in the former all migration flows, except perhaps those caused by persecution or war, were treated as essentially equal, in the latter an effort was made to elucidate how differences in causation lead to different types of flows and hence to differing effects. According to the newer perspective, governmental policies cannot be treated as just another, incidental, cause of migration but are seen rather as an integral element in the set of interrelated causes that give rise to specific types of flows and conditions their effects. By suggesting the basic elements of a new framework for the study and understanding of the causes and consequences of international migration, the *Proceedings* mark an important turning point in this area of research. It is hoped that future adherence to that framework may yield even more important advances than those already recorded.

CONCLUSION

This overview has shown that during its first 40 years the Population Division has contributed a solid amount of high quality research to advance the study of international migration—its size, modalities, causes and consequences. Of particular importance are the contributions made by the Population Division early on in its work in the area of improvement and compilation of statistics of international migration. In more recent years, the Division's work regarding the monitoring of migration policies has set an important precedent—namely, that the analysis of migration trends should not be divorced from an understanding of the policies that shape them.

Throughout its life, the Division has consistently devoted a significant effort to the task of measuring the levels and characteristics of migration flows. The Division's production on that topic today constitutes an invaluable repository of information regarding the evolution of migration during the modern era. On the basis of past experience, the Division's strength in that area is expected to continue. Whether an equivalent strength will be attained in furthering the understanding of the socio-economic causes and consequences of migration remains an open question and, given the high policy relevance of that topic, it constitutes one of the main challenges to be met in the future.

NOTES

¹ *Official Records of the Economic and Social Council, Fourth Session, Supplement No. 5 (E/267 and Add. 1), pp. 2-3.*

² *See Official Records of the Economic and Social Council, Seventh Session, Supplement No. 7 (E/805).*

³ *Official Records of the Economic and Social Council, Fourth Session, Supplement No. 5 (E/267 and Add. 1), p. 7.*

⁴ United Nations publication, Sales No. 1949.XIII.4.

⁵ See International Union for the Scientific Study of Population, “Utilization of population census data for compilation of international migration data”, Recommendations of the IUSSP Working Group on the Methodology for the Study of International Migration (Liège), mimeo.

⁶ *Population Census Methods* (United Nations publication, Sales No. 1949.XIII.4), p. 60.

⁷ *Problems of Migration Statistics* (United Nations publication, Sales No. 1950.XIII.1).

⁸ *Official Records of the Economic and Social Council, Ninth Session, Supplement No. 7 (E/1313).*

⁹ United Nations publication, Sales No. E.79.XIII.18.

¹⁰ *Problems of Migration Statistics* (United Nations publication, Sales No. 1950.XIII.1), p. 1.

¹¹ *Official Records of the Economic and Social Council, Fourth Session, Supplement No. 5 (E/267 and Add. 1), para. 22.*

¹² *Official Records of the Economic and Social Council, Sixth Session, Supplement No. 4 (E/571 and Corr.1), p. 13.*

¹³ *Official Records of the Economic and Social Council, Thirteenth Session, Supplement No. 11 (E/1989), para. 17.*

¹⁴ *Sex and Age of International Migrants: Statistics for 1918-1947* (United Nations publication, Sales No. 1953.IV.15).

¹⁵ *Ibid.*, p. 2.

¹⁶ *Economic Characteristics of International Migrants: Statistics for Selected Countries, 1918-1954* (United Nations publication, Sales No. 1958.XIII.3).

¹⁷ United Nations publication, Sales No. 78.XIII.1.

¹⁸ "International migration in the Far East during recent times: the countries of emigration", *Population Bulletin of the United Nations*, No. 1 (United Nations publication, Sales No. 1952.XIII.2), pp. 31-41; "International migration in the Far East during recent times: the countries of immigration", *Population Bulletin of the United Nations*, No. 2 (United Nations publication, Sales No. 1952.XIII.4), pp. 29-63.

¹⁹ *Population Studies No. 17* (United Nations publication, Sales No. 1953.XIII.3).

²⁰ See *Proceedings of the World Population Conference, 1954, Rome, 31 August-10 September 1954*, vol. I (United Nations publication, Sales No. 1955.XIII.8).

²¹ *Ibid.*, p. 261.

²² *Population Studies No. 49* (United Nations publication, Sales No. 71.XIII.4), pp. 13-14.

²³ *Population Studies No. 50* (United Nations publication, Sales Nos. 71.XIII.5 and 71.XIII.6).

²⁴ See *The Population Debate: Dimensions and Perspectives*, *Population Studies No. 57*, vol. 1 (United Nations publication, Sales No. 75.XIII.4).

²⁵ *Ibid.*, p. 237.

²⁶ *Population Studies No. 64* (United Nations publication, Sales No. 78.XIII.5).

²⁷ *Report of the United Nations World Population Conference, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. 75.XIII.3), chap. I, recommendation 107.

²⁸ *World Population Trends and Policies: 1977 Monitoring Report*, *Population Studies No. 62* (United Nations publication, Sales No. 78.XIII.3); *World Population Trends and Policies: 1979 Monitoring Report*, *Population Studies No. 70* (United Nations publication, Sales No. 79.XIII.5); *World Population Trends and Policies: 1981 Monitoring Report*, *Population Studies No. 79* (United Nations publication, Sales No. 82.XIII.3); *World Population Trends, Population and Development Interrelations and Population Policies. 1983 Monitoring Report* (United Nations publication, Sales No. 85.XIII.2).

²⁹ *World Population Trends and Policies: 1979 Monitoring Report*, *Population Studies No. 70* (United Nations publication, Sales No. 79.XIII.5), vol. I, pp. 112-123.

³⁰ See, for example, *International Migration Policies and Programmes: A World Survey* (United Nations publication, Sales No. 82.XIII.4); *Population Distribution, Migration and Development. Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.83.XIII.3), pp. 66-72; and *Review and Appraisal of the World Population Plan of Action* (United Nations publication, Sales No. E.86.XIII.2), pp. 78-93.

³¹ *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report* (United Nations publication, Sales No. E.85.XIII.2), pp. 207-235.

³² *Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984* (United Nations publication, Sales No. E.84.XIII.8 and Corr.1 and 3), pp. 6-42.

³³ "Indirect estimation of lifetime emigration from Colombia", *Population Bulletin of the United Nations* (to be issued).

³⁴ *Report of the United Nations World Population Conference, Bucharest 19-30 August 1974* (United Nations publication, Sales No. 75.XIII.3), chap. I, recommendation 107.

³⁵ United Nations publication, Sales No. 1954.IV.2.

³⁶ United Nations publication, Sales No. 82.XIII.4.

³⁷ United Nations publication, Sales No. E.83.XIII.3.

³⁸ *Report of the United Nations World Population Conference, Bucharest 19-30 August 1974* (United Nations publication, Sales No. 75.XIII.3), chap. I., recommendation 51-62.

³⁹ W.R. Böhning, "International migration: implications for development and policies" in *Population Distribution, Migration and Development. Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.83.XIII.3).

THE UNITED NATIONS MANUALS FOR POPULATION ANALYSIS

*Arkady Isupov**

SUMMARY

Between 1952 and 1983 the United Nations Secretariat, acting on the recommendations of the Population Commission, published 10 manuals on population analysis, evaluation and forecasting. The importance and utility of the manuals has been recognized by demographers and statisticians in a wide range of countries, especially those in the developing regions which do not yet have complete population statistics or a fully developed capability for evaluating demographic information. The manuals continue to be extensively used in both research and applied work on population.

Research is being expanded and improvements are being made in population statistics and the techniques of data calculation, in accordance with decisions made at the 1974 World Population Conference and the World Population Plan of Action adopted there, and with recommendations of the 1984 International Conference on Population. As a result, there is a growing need for the manuals to be updated and to present methods of conducting a more thorough analysis of demographic processes in association with economic and social factors, and for the subsequent derivation of, if possible, more realistic assumptions about future trends in population growth.

INTRODUCTION

After the Second World War there was a marked trend in many countries to devote greater attention to planning, considered the most effective means of managing an economy. The developing countries ascribe particular importance to the planned management of their economies. One view, for example, is that the developing countries can catch up with the more advanced ones only by concentrating on planned development.

The spread of planning was accompanied by an expansion in information on relevant social and economic variables, prominent among them being population data. In order to provide the necessary information for economic and social development plans and programmes, more attention is being devoted to censuses, population research and continuous population registers.

In many of the countries which after the War embarked on a path of independent development, population information was either non-existent or deficient. Accordingly, the Population Commission—one of whose principal functions is to study changes in population size and composition—discussed the status of demographic information and data analysis at its very first sessions and recommended the preparation of a series of manuals on methods used in making estimates of current and future population.¹ The primary purpose of the manuals was to

help countries to obtain population information and to assess its quality. It was also intended that the manuals might be used as teaching materials in the training of population specialists.

To date, 10 manuals have been prepared by the Population Division, in collaboration with consultants, and published by the United Nations. This article will consider manuals I-VIII.

BRIEF REVIEW OF THE SUBJECT MATTER OF THE MANUALS

Manual I deals with methods of estimating total population.² In justification of the need for such estimates, it cites the increasing involvement of Governments in the planning of socio-economic development, a task which requires accurate knowledge of population size, rates of growth, levels of employment by sector, levels of education, nationality, and so forth, both for the country as a whole and for regions within it. As far as possible, the estimates of one country's population should be compatible with estimates for other countries, so as to permit comparative analysis.³

Depending on the availability of data, different methods of estimation are selected. In countries which conduct censuses but have no continuous population registers or only incomplete systems, the recommended method is extrapolation from census data, even though it often provides unreliable estimates and cannot, in any case, be used when only one census has been conducted. In such cases, population figures for a given date can be obtained by mak-

* Central Statistical Administration, Department of Censuses and Population Studies, Government of the Union of Soviet Socialist Republics, Moscow; formerly a Senior Population Affairs Officer, Population Division, United Nations Secretariat.

ing selected assumptions about rates of population growth. For countries that have never conducted a population census, the only basis for estimates of their population is guesswork and comparison with the situation in other countries where similar conditions exist.

Manual I discusses the use of data from a variety of sources and the corresponding means of estimating population size on the basis of specific examples, during which it gradually sets out the entire estimation procedure. The practical orientation of the volume is of positive benefit to its users, be they officials in national or international statistical services or students in the related faculties and disciplines.

Manual II describes methods of appraising the quality of basic data for population estimates.⁴ It sets out the procedure for ascertaining the reliability of census-derived sex/age figures and the accuracy of fertility, mortality and migration statistics. Five approaches are used:

- (a) A comparison of actual data with theoretical assumptions;
- (b) A comparison of data from one country with data from another;
- (c) A comparison of population data with similar data obtained for non-demographic purposes;
- (d) Balancing equations between directly interrelated data;
- (e) Direct verification (selective re-enumeration or other such tests).

In its examination of the various methods, *Manual II* also analyses the causes underlying given demographic statistics. It shows, for example, that high fertility indices⁵ are generally a feature of parts of the world where backward social conditions remain unchanged or have changed only to an insignificant extent under the influence of modern industrialization. Low birth rates, on the other hand, are generally found in those countries which have undergone a profound social transformation as a result of industrialization, urbanization, a rising level of popular education and other related factors.

Manual III, on methods for projecting population by sex and age,⁶ is one of the most widely used in the series for practical work, chiefly because of the need for population forecasts during the preparation of socio-economic development plans and programmes. The Polish demographer, Edward Rosset, wrote in the late 1960s that calculating future population size had become an inseparable part of the functions of demographers, planners, economists and, often, politicians; such figures were an essential component of plans for economic and social development and without data on assumed population size and composition, no planning would be possible.⁷

Manual III briefly describes mathematical and demographic methods of forecasting population. It concentrates on the component method, which is the most widespread and best meets modern requirements. The method involves a complete analysis of the size and structure of a population by age and sex, fertility, mortality and migration. It requires the basic figures on numbers of males and females in each age group of the population to be multiplied by the age-specific survival rates for men

and women separately in order to determine the numbers that will survive to the corresponding ages in the forecast calendar year; the number of women of child-bearing age, expressed in one-year or five-year age groups, is multiplied by an assumed fertility rate to obtain a total number of births, which is then disaggregated into boys and girls, in accordance with an assumed ratio at the time of birth, the numbers of children are multiplied by separate male and female newborn survival rates to obtain the number of children surviving to the corresponding age in the forecast year; and to the resultant sex/age population figures for, say, one or five years ahead, there is an added assumed net migration component for males and females of different ages.

In the *Manual's* discussion of how to obtain basic data for forecasting and making assumptions about future births, deaths and migration trends, allowance is made for the fact that a number of developing countries may not have the necessary information. In such cases it is suggested that, for example, survival rates should be devised from model life tables, fertility rates through the use of the procedure known as "reverse survival", and the size of the population by sex and age by assuming a stable population or by means of interpolation (when information on the age composition of the population is available in terms of groups other than those required for the forecast).

Manual IV, on methods of estimating basic demographic measures from incomplete data,⁸ is intended for use in determining the characteristics of population in countries where the necessary statistics are unavailable or incomplete. It uses specific examples to show how, when fragmentary information is available, at least approximately correct figures can be obtained. For instance, fertility is calculated from the age/sex composition of a population at a single enumeration, and estimates of death and birth rates are made on the basis of two or more enumerations. The same figures are also calculated by reverse projection.

Manual IV makes extensive use of the model life tables constructed by A. Coale and P. Demeny. They are basically similar to the tables appearing in *Manual III* but differ in that they are calculated on the basis of later and, consequently, more detailed statistical data on mortality rates in various countries. Furthermore, the tables are accompanied by stable population models which conveniently make available a number of vital pieces of information for calculating birth and death rates.

Manual V, on methods of projecting the economically active population,⁹ includes a discussion on sources of information, procedures for arriving at basic data and for forecasting the size of the labour force. Population censuses are the prime source of information for estimates of labour supply. They are used to calculate the structure by sex and age of the economically active population and that information is then projected, using appropriate assumptions. On the basis of that figure and a forecast of the total size of the population by sex and age, the size of the assumed work force in future years can be determined.

Figures on economic activity are, naturally, subject to the influence of a whole range of economic and social factors, such as the availability of jobs, general educa-

tional levels, pension provisions, age at marriage and number of children. Accordingly, approaches to the forecasting of the labour force varies, depending upon countries' levels of socio-economic development, the availability of statistical data and their quality. Four basic forecasting methods are put forward, each based on one of the following assumptions:

(a) Trends in the sex and age co-efficient of economic activity in the population for future years can be extrapolated from past tendencies;

(b) Current activity rates will be maintained in future years;

(c) Activity rates in future years will be the same as in more developed countries or more developed areas of the country concerned;

(d) Activity rates will depend on assumed changes in such factors as the demand for labour in the economy, school enrolment, growth in urban population, developments in the pension system, marriage levels and birth rates. In actual fact, two or more of these assumptions are often used in forecasts of the economically active population.

Forecasts of demand for labour can be made, according to the *Manual*, by both direct and analytical methods. The former entail selecting a small number of economic indicators and applying an appropriate formula to determine the rough direction of the trend in demand for labour, the latter calls for detailed analysis of the factors affecting employment levels in the labour force. The second approach, instead of simplified models and a limited range of general economic indicators, uses the results of detailed research into the entire process by which such demand is generated. The *Manual* gives preference to such analytical methods.

Manual VI deals with methods of measuring internal migration.¹⁰ It offers a detailed discussion of the problems associated with estimating the extent of migration using direct census data, continuous population registers and indirect methods. The advantages and disadvantages of including questions on place of birth, length of residence, place of last permanent residence and place of permanent residence at a given date in census programmes and population research programmes are analysed. The discussion of indirect methods pays particular attention to survival ratios obtained from life tables or census data. When indirect methods are used and there is a substantial amount of international migration, the sex and age structure of the population is not deemed to be affected by it until survival ratios have been calculated from census data.

Manual VI provides extensive illustrations of the use of ratios, correlations and other indicators for measuring migration intensity. When the necessary data are available, the indicators can be calculated separately for migrants proper, such as from the countryside to the towns, and for persons who become "urban" as a result of the reclassification of their place of residence from village to township. Such reclassification can occur when, for example, there are changes in the size and composition of the population so that over a period of time the majority takes up employment in sectors other than agriculture.

Manual VII, on methods of projecting households and families,¹¹ introduces and defines those categories and related terms, such as, "head of household" and "head of family", adopted in the Statistical Commission's *Principles and Recommendations for the 1970 Population Censuses*,¹² and sets out the procedure for generating basic forecasting data and carrying out the projections themselves. Drawing on the experience of countries making household and family projections, the *Manual* discusses a variety of methods, using a simple ratio of households or families to the population as a whole; life tables; vital statistics; and specific sex/age rates for heads of households or families.

The *Manual* concentrates on the last of the above-mentioned methods, which is more widely used than the others in a variety of countries and gives acceptable results. The method in essence consists of multiplying the age/sex ratios of heads of households or families to the total population of corresponding sex and age by the projected total population by sex and age. Adding the results of those multiplications yields the number of households or families in the calendar year of the forecast. The ratios in question can be calculated for various population characteristics; individually, say, for urban and rural populations, or for the employed and unemployed if the necessary data can be obtained from censuses. Assumptions regarding future trends in the sex and age of heads of households and families are considered in relation to the socio-economic development factors that affect them. A number of approaches are used: the constant rate method; extrapolation from current trends; regression; and a normative approach. The latter term implies the use of the Government's housing policy in accordance with its economic and social development programmes.

Manual VIII, on methods for projections of urban and rural population,¹³ contains a fairly extensive analysis of changes in the size and rates of growth of those population categories, and of variations in the definitions of urban population. Definitions are categorized into three types: administrative, economic, and geographical. The simplest kinds of projection are favoured. The *Manual* considers methods making use of urban and rural population growth rates and of the ratio between them. The latter method is regarded as the most widespread, and rests on the assumption that an existing trend in the ratio of the population in an individual area to the country's total population will continue. It is pointed out that the method is highly practical for the estimation and projection of regional and provincial populations, as well as urban and rural ones.¹⁴

The forecasting of urban and rural population by the United Nations method is gone into in detail. The method uses the difference in growth rates of urban and rural population, and assumes that a forecast of the total country population is already available.¹⁵ Future assumptions about possible variants in urban and rural population growth are made on the basis of the original percentage difference between the respective growth rates. It is suggested that the population of individual towns can be forecast either by this method, or by the ratio method discussed above.

Since for planning purposes population forecasts cate-

gorized by age and sex are necessary, the *Manual* provides an illustration of how to obtain a rough assessment of the sex/age composition of projected urban and rural populations. It also provides a brief account of how to calculate population projections by the cohort method.

*Applications of the population assessment and
forecasting methods presented in the United Nations
Manuals*

The United Nations *Manuals* continue to be extensively used in many national and international statistical and demographic institutes and organizations, and by individual specialists engaged in population research on practical activities. Together with the available training materials and practical literature, they provide guidance for future demographers and background information for economists and planners concerned with economic and social development. The demand for such manuals has been so great that the original editions were not large enough and the volumes have been reprinted. References to the *Manuals* can be found in many documents concerned with population evaluation and forecasting.¹⁶ The methods presented in the *Manuals* can be used in demographic calculations, both for entire countries, and for individual regions within them.¹⁷

The *Manual* on methods for population projections by sex and age has won especially wide acclaim, presumably because:

(a) Data on projected population by sex and age are needed to produce plans and programmes for the development of different economic sectors;

(b) In addition to forecasting methods, the *Manual* sets out the basic steps for evaluating current population statistics (the base year);

(c) The component method presented in the *Manual* is the most comprehensive, requiring all demographic processes to be followed simultaneously, including the sex and age structure of the population, births, deaths, migration and the related socio-economic factors.

Use of the component method actually began in the 1920s,¹⁸ and as it was developed, it attracted the attention of a growing number of specialists.¹⁹ As El-Badry commented, the method has exerted a unifying force in demography because it involves a joint application of knowledge concerning trends of fertility, mortality and migration.²⁰

The method began to be widely used in United Nations population forecasts in the 1963 *World Population Prospects*, when the population of each region of the world, distributed by age and sex, was estimated up to the year 2000 inclusive.²¹ Thereafter, it came into more general use because developments in demographic calculation techniques and the publication in 1967 of *Manual IV*, on methods of estimating basic demographic measures from incomplete data, provided the means of determining the current sex and age structure of a population, as well as basic levels of fertility and mortality in countries where reliable statistics were not available. In the world population forecasts produced by the United Nations Secretariat in 1968 and subsequent years (up to and including 1984), the component approach was used in calculations for all

countries, except for those with population of under roughly 300,000 people; for them, forecasts of total population size were made using assumed growth rates.²²

The use of the component method or any other analytical method will not necessarily yield a more accurate final forecast than simple methods. According to the United Nations forecast of 1958, for instance, during which the component method was used for whole regions of the world only, while the future populations of individual countries were determined by the ratio method, total world population by the year 2000 according to the medium variant would be 6,280 million people;²³ according to the 1968 forecast, the figure was 6,494 million people.²⁴ Judging by present population growth trends and the results of the most recently available forecasts (1980 and 1982), the figure from the earlier (1958) forecast is closer to reality than the second (1968), although the latter was calculated by a more accurate method. In any event, the 1968 forecast rests on more secure foundations than that of 1957, the latter of which underestimated the 1980 population by 233 million people, or by 5 per cent. Because of the divergence, the 1957 assessment projected the world population in the year 2000 to be 6.3 billion, which is larger than 6.1 billion currently calculated.

The economically advanced countries have been using the component method for a long time in their forecasts of population by sex and age, using a variety of assumptions regarding future trends in fertility, mortality and migration. Most such countries are assuming that mortality will continue to decline; life expectancy at birth for the population as a whole, which is now generally above 70 years, may by the year 2000 have risen to 72-74 years. In the light of social progress and, in particular, improvements in health care, expected mortality rates are assessed by extrapolation from recent sex/age specific mortality trends. Several countries assume different rates of decline in mortality for men and women in different age groups and for different forecast periods. Some forecasts, bearing in mind the now low level of mortality and its insignificant effect on future population size, use constant life expectancy rates for the entire forecasting period.

During recent years when mortality in certain sex/age groups began to rise in a number of developed countries,²⁵ more attention has begun to be paid to analysis of the causes of mortality and the application of that knowledge in making assumptions about future mortality trends. The necessity of such an approach was discussed at the 1965 World Population Conference²⁶ and the 1968 World Health Organization Meeting on Programmes of Analysis of Mortality Trends and Levels.²⁷ The meeting strongly recommended that mortality projections should be made for separate categories of causes. Only a limited number of countries, however, are using that method. One reason for its limited application may be the unavailability of the requisite data. Nor can it be ruled out that, being significantly more complicated than the straightforward methods now in use, mortality forecasting by individual causes requires a greater outlay in effort without always yielding the desired results. There is no doubt, however, that analysis of changes in mortality levels as a function of different causes, which was recommended by the *Ad Hoc* Group of

Experts on Demographic Projections for mandatory use in the preparation of population forecasts within the United Nations, is of positive value.²⁸

A survey of national fertility projections shows that most of them use the same method as the United Nations: future births are calculated on the basis of assumed fertility rates for women aged 15-49 (or 44) in one-year or five-year age groups. This simple and convenient method is to some extent arbitrary and does not always produce logically justifiable figures on, for example, average family size.²⁹ A few countries, using detailed information on fertility, apply more refined and complex methods for calculating future birth levels, using an analysis of marital fertility or births per cohort of women. The former approach allows for the effects on fertility of age upon marriage, duration of marriage and other factors conducive to the development of more realistic assumptions on future birth trends. With the latter approach, future fertility is projected from the documented births of real cohorts of women, and this permits more extensive comparison of changes in family size.³⁰

The cohort-birth method, which is more accurate than the normal method using age-related birth rates, also suffers from a series of limitations. It takes no account of such fertility-affecting factors as age upon marriage, duration of marriage and current marital status. If, for example, there is a trend towards early marriages and a reduction in the intervals between marriage and the first and subsequent births over the short term and, given marriages of long duration, there will be an increase in final family size. A desire to take these factors into account stimulated the development of a more advanced method of forecasting fertility by cohorts, but of married women.³¹ Even this method, however, is considered to have its shortcomings. Because the fertility rates obtained with the cohort approach relate to a relatively long period of time, they are not sufficiently sensitive to current social and economic changes which may affect population trends. Another method was, therefore, proposed, using analysis and projections of fertility in a hypothetical cohort of women and using as its principal data the average age of women at childbirth and the average number of children born.³²

This brief review of methods of forecasting fertility reveals that there are substantial differences between them and, more important, that it is not clear which method deserves preference. Comparisons between actual fertility levels and those forecast by various methods (for the same period of time) may help to settle the matter. For now, research indicates that fertility projections by complicated methods are not necessarily going to be more accurate than forecasts made by simple means. W. Brass commented in this connection that "the regrettable tendency in many developed countries has been the increased complexity of projection methods, unaccompanied by any discernable advances in precision".³³

Given the current status of fertility projection methods the *Ad Hoc* Group of Experts on Demographic Projections recommended that the United Nations Secretariat not undertake elaborate and time-consuming studies designed to apply the cohort-fertility method of projecting fertility except, perhaps, for a limited number of countries where

the patterns of reproductive behaviour, marriage and divorce tend to change radically and satisfactory data existed.³⁴

The assumptions about international migration made in many national forecasts are largely arbitrary. Normally, the number of migrants and their distribution by sex and age are assessed on the basis of recent migration trends. The clarifications supplied with the forecasts show that a migration component is added or subtracted at the end of each calendar year or five-year period, depending upon the forecasting period. Fertility and mortality among immigrants are calculated using the assumptions applied in national forecasts to the total population.

POSSIBLE IMPROVEMENTS IN THE UNITED NATIONS MANUALS ON METHODS FOR POPULATION ESTIMATION AND FORECASTING

It has been shown above that the methods of population forecasting and estimation presented in the United Nations manuals go a long way towards resolving the problems of obtaining the information necessary to analyse demographic processes and draw up socio-economic development plans and programmes. The methods generally answer to present-day demands, but as statistics become more refined and new techniques are developed, they will require periodic updating and refinement. The above review has shown, for example, that a more thorough analysis of the causes of mortality is needed for making assumptions about future mortality trends, and that there is a need for a more extensive discussion of the means used to forecast fertility and population migration. Such work is, broadly speaking, in hand. *Manual IV*, on methods of estimating basic demographic measures from incomplete data, was reviewed in the light of new research and the result was published as *Manual X*.³⁵ Clarifications also need to be made, obviously, in *Manual VII*, on methods of projecting households and families, in view of the present tendency in population censuses to employ concepts other than the *Manual's* "head of household" or "head of family".³⁶ Moreover, that *Manual* is rarely used at present, obviously, for lack of the necessary data.³⁷

The recommendations of the International Conference on Population, held at Mexico City in 1984, which stressed the importance of hastening economic and social development as a means of resolving population problems, have given rise to a number of new demands. In the light of the recommendations, the new syllabus for the United Nations courses on population and development includes such topics as population and the maintenance of peace, and the impact of war on fertility, mortality, population distribution and social development as a whole. More prominence has been given to the role of women; and increased importance has been assigned to the issue of urban planning as an integral part of regional planning.³⁸ In this context, population estimating and forecasting for demographic analysis and development planning takes on added importance. The demand for estimates and forecasts applying to individual regions of a country and to urban and rural areas, separately, is greater than ever before. Léon Tabah strongly doubts whether population

forecasts for a country as a whole can satisfy growing demands; most economists and planners are used to dealing with more detailed statistics covering individual parts of a country.³⁹ The need of individual population forecasts for different regions of a country has long been discussed.⁴⁰ For want of the necessary statistical data and difficulties in obtaining them, however, such forecasts have not yet become sufficiently commonplace. Today the situation is changing. Over the past 40 years, thanks in significant part to immense efforts on the part of the United Nations, population information has improved substantially. Nowadays, virtually all countries conduct population censuses or research,⁴¹ and continuous population registers have improved markedly. Given such sources of information and the methods of evaluating and refining data now available, it is entirely possible today to produce sex/age population forecasts for individual areas of a country.

Separate component-method projections of urban and rural population, to use in forecasting a country's total population, are especially important. Assumptions on fertility and mortality under the component method can be more solidly based and realistic, deriving as they do from analysis of the interrelationships between population statistics and the socio-economic circumstances specific to urban and rural areas. *Manual II* was already recommending the separate calculation of population statistics for towns and for rural areas.⁴ Some members of the *Ad Hoc* Group of Experts on Demographic Projections expressed regret that no attempt had been made to employ urban/rural projections to develop projections of the total population; they recommended research on improving population forecasting techniques and the development of separate assumptions about fertility, mortality and migration for urban and rural populations.³⁴ Such recommendations stimulate the development of vital statistics and data on internal population migration, encouraging the growth of national statistical services.

The methods used for the estimates and projections of urban and rural population published recently by the United Nations were based on ratios and differences in growth rates between urban and rural population presented in *Manual VIII*, applied to the figures from the 1982 assessment of total world population.⁴² This is a highly useful publication, but the forecasting method used is largely mechanical. The forecast makes no assumptions, such as those used in projections prepared by the component method, on future trends in fertility, mortality or migration based on an analysis on their interrelationships with economic and social factors.

Experience to date with national population forecasts by sex and age for separate urban and rural populations is evidence of their substantial advantages over forecasts for entire countries.⁴³ In the USSR, projections of population are made by 1-year age groups for each Union Republic and calculated separately for men and women, and for urban and rural areas; the projection for the country as a whole is obtained by adding together the figures for the Union Republics.⁴⁴ This approach allows present and future differences in fertility, mortality and migration within individual Union Republics to be taken into

account. The assumption that mortality will continue to decline is based on an analysis of change in mortality due to individual causes by sex/age groups and a study of mortality region by region. Fertility projections are based on research into current statistics, census results and population surveys. For example, the 1985 programme of selective social and population surveys included a series of questions relating to fertility.⁴⁵ The extent and direction of rural/urban and interregional migration and the size of the population in rural districts which may be transformed into urban areas are determined by the planning bodies on the basis of development prospects and the distribution of productive forces.

The socio-economic development plans through which the population policy of the USSR is pursued are, of course, also used in the determination of future fertility and mortality trends. The draft of the document setting the basic guidelines for economic and social development for 1986-1990 and up to the year 2000 calls for a population policy that takes fuller account of the individual features of different regions of the country, general efforts to extend the life expectancy and capacity for active work of the population at large, a strengthening of the family, better conditions in which to raise the younger generation, motherhood combined with active involvement by women in work and public activities, and extended and improved State assistance to families with children and to younger families.⁴⁶ V. N. Starovsky considered the projected growth of the population to be crucial to the calculation of a number of important indicators for this long-term planning exercise yet, at the same time dependent on the rates of economic and social development set by such plans. He, therefore, recommended the calculation of projections in three stages:

(a) Calculation of the future population with due regard for its sex and age structure and assumed age-specific mortality and fertility;

(b) Recalculation with allowance for the effects of planning targets, refining the hypotheses made during the first stage and determining the extent, direction and structure of any migration;

(c) Preparation of a final version incorporating the corrections calculated at the second stage.⁴⁷ Such an approach is, broadly speaking, now used to compile population forecasts with a number of variants.

CONCLUSION

The United Nations *Manuals* on population estimation and forecasting are chiefly intended to help developing countries obtain data for demographic research and to use that information in laying their socio-economic development plans. There is extensive internal migration in such countries, and population projections are more realistic and useful if they take such migration into account. It would be worthwhile preparing a new manual based on *Manuals III, VI and VIII*, on methods of producing separate population projections for individual regions and for urban and rural areas.

NOTES

¹ *Official Records of the Economic and Social Council, Thirteenth Session, Supplement No. 11* (E/1989), para. 25.

² *Manual I. Methods of Estimating Total Population for Current Dates* (United Nations publication, Sales No. 1952.XIII.5).

³ The problem of data comparability exists to some extent even today. In their censuses, for example, some countries enumerate *de facto* population; others, permanent (usual) population; and still others, *de jure* population. Moreover, they do not always give a clear indication of what category of population was being considered.

⁴ *Manual II. Methods of Appraisal of Quality of Basic Data for Population Estimates* (United Nations publication, Sales No. 56.XIII.2).

⁵ Three levels of fertility are considered in the *Manual*: high, when the number of births per 1,000 fluctuates from 35 to 45; moderate, from 25 to 35; and low, from 15 to 25.

⁶ *Manual III. Methods for Population Projections by Sex and Age* (United Nations publication, Sales No. 56.XIII.3).

⁷ E. Rosset, "On the cognitive value of demographic forecasts" in *World Views of Population Problems* (Budapest, 1968), p. 277.

⁸ *Manual IV. Methods of Estimating Basic Demographic Measures from Incomplete Data* (United Nations publication, Sales No. 67.XIII.2).

⁹ *Manual V. Methods of Projecting the Economically Active Population* (United Nations publication, Sales No. E.70.XIII.2).

¹⁰ *Manual VI. Methods of Measuring Internal Migration* (United Nations publication, Sales No. E.70.XIII.3).

¹¹ *Manual VII. Methods of Projecting Households and Families* (United Nations publication, Sales No. E.73.XIII.2).

¹² United Nations publication, Sales No. 67.XVII.3.

¹³ *Manual VIII. Methods for Projections of Urban and Rural Population* (United Nations publication, Sales No. E.74.XIII.3).

¹⁴ *Ibid.*, p. 34.

¹⁵ In calculation the following formula is applied:

$$U' = \frac{(T' + dR) U}{(T)}$$

where: T, U, R, is the total, urban and rural population respectively; T', U' denote total population and urban population for projection year (rural population is received by subtraction of urban population from total population);

d denotes the difference between the rates of growth of urban and rural population.

¹⁶ See, for instance, *Sectoral Aspects of Projections for the World Economy* (United Nations publication, Sales No. E.69.II.C.3), pp. 17, 18; D. I. Valentei, chief ed. and others, *Demografichesky Entsiklopedichesky Slovar* (Moscow, 1985), pp. 301-303; Edith Adams, "Evaluation of demographic data and future population growth in Mauritius: 1962-1987" (TAO/MAURI/1, 2 March 1966); J. Tohr Yamaguchi, "Under-enumeration of the births as sources of errors in population projections" in *Report of the United Nations Population Conference, Belgrade, 30 August-10 September 1965*, vol. III (United Nations publication, Sales No. 66.XIII.7), pp. 51-54; Henry Shriock and Jacob S. Siegel, *The Methods and Materials of Demography*, vol. II (New York, Academic Press), pp. 781-785; *The Determinants and Consequences of Population Trends*, vol. I (United Nations publication, Sales No. E.71.XIII.5), pp. 264, 274, 276, 561, 583; Milos Macura and Miroslav Macura, "Population projections and development models"; M.A. El-Badry, "Demographic projections in historical perspective"; Shigemi Kono, "Estimation and adjustment of current population and its sex/age composition"; Samuel H. Preston, "Estimation of mortality levels from incomplete data"; K. C. Zachariah, "Internal migration and subnational population projections" in "Population projections: problems and solutions" (TCD/SEM.81/3).

¹⁷ See, for instance, a paper prepared by the Economic Commission for Asia and the Far East, "Projections of population of sub-national areas" (E/CN.11/897), 1969, pp. 7, 14, 27, 36.

¹⁸ S. G. Strumilin, *Problemy Ekonomiki Truda* (Moscow, 1957), pp. 37-50.

¹⁹ See D. I. Valentei, *op. cit.*, pp. 344, 345.

²⁰ M. A. El-Badry, "Demographic projections in historical perspective", *op. cit.*, pp. 66, 67.

²¹ *World Population Prospects as Assessed in 1963* (United Nations publication, Sales No. 66.XIII.2), pp. 44-48.

²² *World Population Prospects as Assessed in 1968; 1973; 1980; 1982* (United Nations publications, Sales No. 72.XIII.4, 76.XIII.4, 81.XIII.8, 83.XIII.5, respectively) and "World population trends and prospects by country: summary report of the 1978 assessment" (ST/ESA/SER.R/33).

²³ *The Future Growth of Population* (United Nations publication, Sales No. 58.XIII.2).

²⁴ *World Population Prospects as Assessed in 1968* (United Nations publication, Sales No. 72.XIII.4).

²⁵ *Levels and Trends of Mortality since 1950* (United Nations publication, Sales No. E.81.XIII.3), pp. 69-80.

²⁶ *Proceedings of the United Nations World Population Conference, Belgrade, 30 August-10 September 1965*, vol. I (United Nations publication, Sales No. 66.XIII.5), p. 254.

²⁷ "Report of the United Nations/World Health Organization Meeting on Programmes of Analysis of Mortality Trends and Levels, Geneva, 7-11 October 1968", (E/CN.9/221, 16 June 1969).

²⁸ Nathan Keyfitz, "Long-range projections, models, pitfalls, possible break-throughs" and "Recommendations of the Meeting" in *Prospects of Population: Methodology and Assumptions* (United Nations publication, Sales No. E.79.XIII.3), p. 119.

²⁹ Pascal K. Whelpton and Arthur A. Campbell, "Fertility tables for birth cohort of American women", *Vital Statistics*, vol. 51, No. 1 (29 January 1960), p. 11.

³⁰ Canada, Dominion Bureau of Statistics, Census Division, *The Population Projections for Canada, 1969-1984*, Analytical and Technical Memorandum No. 4 (Ottawa, April 1970).

³¹ Henry Shriock and Jacob S. Siegel, *The Methods and Materials of Demography*, vol. II (New York, Academic Press, 1971), p. 787.

³² See, for example, L. E. Darsky, "Tablitci Plodovitosti dlya Gipoteticheskogo Pokoleniya", *Problemy Demograficheskoy Statistiki* (Moscow, 1966), pp. 82-104.

³³ W. Brass, "Note on how to improve the United Nations population projections" in *Prospects of Population: Methodology and Assumptions* (United Nations publication, Sales No. E.79.XIII.3), p. 105.

³⁴ See *Prospects of Population: Methodology and Assumptions* (United Nations publication, Sales No. E.79.XIII.3).

³⁵ *Manual X. Indirect Techniques for Demographic Estimation* (United Nations publication, Sales No. E.83.XIII.2), pp. iii, iv.

³⁶ *The Principles and Recommendations for Population and Housing Censuses* (United Nations publication, Sales No. E.80.XVII.8).

³⁷ Léon Tabah, "Population projections and action in the field of population", *Population Projections: Problems and Solutions* (United Nations publication, Sales No. TCD/SEM.81/3), p. 34.

³⁸ *Courses on Population and Development: Aspects of Technical Cooperation* (United Nations publication, Sales No. E.85.II.A.1), pp. 38-49.

³⁹ Léon Tabah, *op. cit.*, p. 34.

⁴⁰ See, for instance, *Proceedings of the World Population Conference, 1954, Rome, 31 August-10 September 1954*, vol. III (United Nations publication, Sales No. 1955.XIII.8), pp. 1-146.

⁴¹ See, *Demographic Yearbook 1983* (United Nations publication, Sales No. E/F.84.XIII.1), pp. 4-9, 146-152.

⁴² "Estimates and projections of urban, rural and city populations, 1950-2025: the 1982 assessment" (ST/ESA/SER.R/58).

⁴³ See, for example, P. G. Podyachykh, "Population projections in which allowance is made for migration" and Jacob S. Siegel, "Some principles and methods of projections of urban-rural population by age" in *Proceedings of the United Nations World Population Conference, 1965*, vol. III (United Nations publication, Sales No. 66.XIII.7), pp. 83-90, 91-96.

⁴⁴ A. A. Isupov and R. M. Dmitrieva, *Organizatsiya Perepisey i Tekushchego Ucheta Naseleniya SSSR* (Moscow, 1980), pp. 53-57.

⁴⁵ *Vestnik Statistiki* (Moscow) No. 4 (1984), pp. 6-11.

⁴⁶ *Osnovnye Napravleniya Ekonomicheskogo i Sotsialnogo Razvitiya SSSR na 1986-1990 Gody i na Period do 2000 Goda* (Moscow, Proekt, 1985), p. 12.

⁴⁷ V. N. Starovsky, "O Metodike Prognoza Rosta Chislennosti Nasele-niya Sovetskogo Soyuza" in *Teoriya i Praktika Sovetskoy Gosudarstvennoy Statistiki* (Moscow, 1977), pp. 175-184.

INTERRELATIONSHIPS BETWEEN POPULATION AND DEVELOPMENT

*Léon Tabah**

SUMMARY

This paper advances the thesis that the work of the Population Division demonstrates that it is possible to do scientific research in the field of population/development relationships which is free of ideological influence, even when that work is guided and supervised by a highly political parent body. A sharp contrast is made between the documentation prepared by the Secretariat, which adheres firmly to an objective evaluation of facts, and the discussions at conferences of governmental representatives, which generally have an ideological orientation.

There has been intense politicization on the question of the role of population in development, dating from the earliest sessions of the Population Commission, and this politicization was particularly apparent in the world population conferences held at Bucharest and Mexico City. As a result of them all research done by the Population Division must be undertaken in the context of economic, social and cultural factors.

The past work of the Population Division has served to initiate fruitful lines of research in universities throughout the world. The research has dealt with such subjects as the socio-economic aspects of the aging process; the interrelations between population, resources, the environment and development; and the determinants and consequences of population trends. The work of the Division reflects an evolution in the thinking of the United Nations about the population issue, from an approach which was devoted mainly to the concerns of developed countries to one which is devoted mainly to the concerns of developing countries.

When the United Nations began to provide technical assistance in the area of population and development, the effort was hampered by a lack of knowledge and methodology on the part of the experts. Later it was hampered by the fact that the technical assistance staff were placed in the Department of Technical Co-operation for Development, separated from the staff conducting research in population and development.

Even now, after 40 years of research, our knowledge of the impact of the population factor on development is scanty. In general, limited analysis focusing on key areas has been most successful. One of the major barriers to clarifying the linkages between population and development is our imperfect understanding of the development process. A second is the fact that demographic analysis generally deals with a much longer time scale than does development analysis.

Despite these problems, significant progress has been made in some areas, such as the interrelationships between population, resources, the environment and development. The apocalyptic view which dominated the United Nations Symposium held at Stockholm in 1973 was replaced by a more moderate position at the corresponding United Nations meeting held in Geneva in 1983. Instead of a call for zero economic growth in the developed countries or zero population growth in the developing countries, there was a mutual awareness of the importance of the links between demographic trends and socio-economic development.

As new evidence accumulates and new questions are raised about the consequences of population growth, the United Nations—with its competence and neutrality—provides a suitable vehicle for exploring the issue. However, it should consider the effects of population growth on a country-by-country basis rather than undertaking research of universal scope that neglects the specifics of national situations.

* Vice-Chairman, Committee for International Co-operation in National Research in Demography (CICRED), Paris; Director of Studies, Ecole des hautes études en sciences sociales (EHESS); Administrator, Institut national de statistique et des études économiques (INSEE); and former Director, Population Division, United Nations Secretariat.

THE RULES OF THE GAME

The Population Division, which for 40 years has been producing a steady stream of reports on world population issues, has demonstrated that it is quite possible to do high quality scientific work under the guidance and supervision of a highly political parent body, the Economic and Social Council, functioning through the Population Commission. The Division provides further evidence that scientists and technicians cannot remain apolitical, as Max Weber wished, when fundamental questions such as the relationship between population and economic and social conditions are at issue. It is common knowledge that politics took control of demography a long time ago, with unexpected reversals—today's Malthusians becoming tomorrow's anti-Malthusians, and vice versa. The shift is clear from the recent history of accepted ideas on the relationship between population and development, between the time of the Bucharest Conference (1974) and the Mexico City Conference 10 years later. What had changed between the two Conferences was not so much the demographic situation itself as the interpretation of that situation during a re-evaluation of general thinking about the conduct of economic and social affairs on the part of both the developed and the developing countries.

In an area as basic as population, scientists and technicians often have ties to the people with decision-making power. Under pressure from their Governments, leading scientists have often been seen defending points of view which they had been opposing shortly before.

Research workers at the United Nations must work with a good deal of caution, being in the service of an organization composed of many countries with widely divergent interests. They have to limit themselves to offering assistance in decision-making, remembering the responsibility they bear, the delicacy which the subject requires and the unassuming role which their influence demands. Their work is at once a collective and an anonymous effort. Rather than take what they know as an indication of what the Organization thinks, they must seek the views of Governments on the basis of what they know and then formulate recommendations for action. They participate in the decision-making process by means of the advice and recommendations which they are called upon to give Governments after consulting them through a form of positive feedback.

By firm adherence to the objective evaluation of facts and ideas over the past 40 years, the Population Division has managed (not always easily, it must be said) to escape sharp criticism by the political organs of the United Nations and to win the respect of the international scientific community of demographers, economists and sociologists. No doubt the fact that it remains accountable to bodies where different and highly changeable political options are represented helps it to avoid leaning to one side or the other and forces it to produce information and (even more demanding) analyses that no side can fault. The multiplicity of ideologies within its parent bodies is a useful safeguard. A review of the Division's work over the past four decades will reveal no traces of ideological influence, although population and development as subjects offer vast scope for it.

Of course, the past has not always been untroubled. At the fifth session of the Population Commission, in 1950, when the Division submitted the first version of *The Determinants and Consequences of Population Trends*,¹ delegations accused it of putting forward a tendentious text tainted with "Anglo-Saxon Malthusianism", which took no account of Marxist ideas. Rereading the paper today, one is certainly sorry that the references are almost entirely drawn from the English-language literature, but on issues of substance the criticisms seem derisory, given the positions later taken at Bucharest by what was then the majority—a majority, one may recall, rather reluctant to endorse "Anglo-Saxon" notions. On the question of birth control, the text is hardly outspoken and, in any event, completely neutral. The Population Division had anticipated a change in thinking, as it had in the draft World Population Plan of Action which it had prepared for the Bucharest Conference. The Mexico City Conference would go a great deal further still, as will be seen below.

The conferences organized by the Division have almost always taken an ideological turn, the most striking example being the 1974 Bucharest Conference; the documents prepared by the Secretariat, however, have always avoided taking sides. It may also be noted that the scientific symposia which the Division organized for the Bucharest and Mexico City Conferences produced reports which were, politically, relatively neutral, and it was the Conferences proper which gave the added ideological orientation. In other words, the scientists and the politicians were each doing what was expected of them.

There was intense politicization of the question of population in relation to development from the earliest sessions of the Population Commission. At that stage, the main point at issue was the Malthusianism of which the United States, the United Kingdom and the Scandinavian countries, in particular, were accused by representatives of European socialist countries and countries with Catholic majorities. The discussions were intellectually weak and led inevitably to a deadlock. On one side were delegations which believed that demographic variables depended entirely on development and social justice, and were therefore passive; on the other were those that regarded demographic variables as active components of development, and therefore tended to insist on objectives formulated in terms of birth control. Nowadays no one would even think of arguing that a population policy is any substitute for a development policy, but, on the other hand, no one would dispute that a development policy must include some demographic objectives.

The politicization, however, was confined to the Population Commission and the Economic and Social Council, and went no further. For 20 years the major international conferences on population were conducted on purely scientific lines, in collaboration with the International Union for the Scientific Study of Population (Rome, 1954; Belgrade, 1965). The conclusions remained the preserve of a narrow circle of experts. Only with the two most recent world conferences (Bucharest, 1974; Mexico City, 1984) has the politicization of the population debate had repercussions very far outside the United Nations policy-making bodies or been given wide coverage by the mass media.

The advantage of the wider audience is that the political aspects of population are no longer discussed in limited confines dominated by a few strong personalities, and a richer debate has resulted.

Of course, the Division's work has always taken account of the ideological discussions which prevailed at Bucharest (where the dominant idea was that there was no hope of resolving population problems except by, at the same time, resolving problems of economic and social development) and led to the adoption of the World Population Plan of Action², itself influenced by the adoption by the General Assembly of the Declaration on the Establishment of a New International Economic Order, only three months before (the principal idea there being that the most important function of a balanced world would be distribution, not only production).³ The upshot of the two statements of position on the international political stage was specific research undertaken with the realization that none of the problems the Division was called upon to deal with could ever again be regarded as purely demographic but must be viewed in terms of economic, social and cultural factors. In the United Nations, purely demographic problems no longer exist. Since no one now contests that point of view, it has ceased to belong to any particular ideology. The central idea of the World Population Plan of Action—that the chief cause of population problems is underdevelopment and that considering demography out of its economic and social context is pointless—has become ideological common ground. Today the notion is taken for granted and is unlikely to be revised soon. The function of the United Nations is often to take ideas once considered controversial and, by repetition, to make them respectable.

Although the ideas embodied in the World Population Plan of Action had an immediate effect on the work of the United Nations, the less specific ideas of the New International Economic Order, which hinge on the need for a better world-wide distribution of resources, have not yet found many applications in demography. That task seems more difficult.

It has often been said that research by the United Nations lacks the originality of work by private institutions, which have greater freedom in selecting topics and ways of treating them. It has been argued that over-sensitivity to the various political aspects of a problem and eagerness to cover them all may eventually paralyse the creativity of imagination. But has the Division lacked creativity? Far from it. Indeed, much of the work done by the Division has spawned fruitful research in universities throughout the world. Take, for example, its work on the construction of model life tables, hailed as a genuine innovation 30 years ago; its research on stable populations; its elucidation of the aging process, which was so controversial in the 1950s; its reflections on the interrelationship between population, resources, the environment and development, the complexities of which were first addressed during the preparations for the Bucharest Conference; and its famous volume *The Determinants and Consequences of Population Trends*,¹ which is used in universities throughout the world as a basic instruction and research manual.

The sober presentation of all that research has not excluded innovation in substance. The Division's research into demographic methods has led to appreciable advances, even though it is not supposed to be a body devoted to theoretical investigation. The Division has simply had to develop appropriate methods whenever the lack of them has hindered its work, and the methods have emerged primarily in the form of manuals. The manual now under preparation, on the incorporation of the population factor in economic planning, is an excellent example.

THE EVOLUTION OF UNITED NATIONS THINKING

Before the Second World War, in the days of the League of Nations, population problems were viewed almost exclusively in terms of the European experience. There was keen controversy, prompted by Margaret Sanger, over family planning and the question of individual freedom versus the interests of a community threatened by the fear of a decreasing birth rate, particularly in France. The economic side of the question was raised only in the highly theoretical guise of the search for an optimum population level, to be achieved through the interplay of migratory movements, at a time when migration was encountering growing obstacles as the absorptive capacity of the New World was filled. Of greatest concern to the experts was the problem of local over-population, which allegedly had been the direct or indirect cause of large-scale migration and wars in the past. The political tensions which resulted in a world war placed the accent more on the hegemonic ends of expansionist ambition in certain States (Hitler and the need for *Lebensraum*) than on economic issues.

Only after the War, as the decolonization process began, did interest in the population problem extend beyond Europe and America and the question of population in poor countries appear on the world scene. It was then that the inelegant and imprecise phrase "underdeveloped country" was coined, to be replaced towards 1960 by the expression "developing country"—a euphemism invoked to relieve wounded pride and poverty of imagination. The expression "third world", coined by Alfred Sauvy in 1955, has never really been adopted by the United Nations and is now disavowed even by its originator in the sense in which it is customarily understood.

The Population Commission took up the problem of population and development at its first session, held at Lake Success in 1946. One of its first tasks was to organize itself under a mandate from the Economic and Social Council to arrange for studies on the influence of demographic factors, including migratory movements on economic and social conditions; the effects of economic and social conditions on the state of the population and variations in the population; means of altering the state of the population and variations in the population.

With respect to population and development, two General Assembly resolutions have marked the life of the Population Commission and, hence, the work of the Population Division: resolution 1838 (XVII), of 18 December 1962, on population growth and economic development;

and resolution 32/197, of 20 December 1977, on the restructuring of the economic and social sectors of the United Nations system.

In the first of the two resolutions the General Assembly recommended that the Secretariat should "intensify its studies and research on the interrelationship of population growth and economic and social development, with particular reference to the needs of the developing countries for investment in health and educational facilities within the framework of their general development programmes". In paragraph 6, it further directed that "the United Nations should encourage and assist Governments, especially those of the less developed countries, in obtaining basic data and in carrying out essential studies of the demographic aspects, as well as other aspects, of their economic and social development problems".

Paragraph 6 of the original draft had contained a sentence calling on the United Nations to provide Governments, on request, with technical assistance with their national population projects and programmes. The General Assembly decided otherwise and deleted the sentence. Apparently, the United Nations was henceforth not to afford assistance in population matters to the Governments that wanted it.

However, the 1963 Asian Conference on Population, held at New Delhi by what was then called the Economic Commission for Asia and the Far East (ECAFE), endorsed the idea of such assistance and adopted a resolution inviting the United Nations and the specialized agencies to broaden their assistance activities in the fields of statistics, research and the implementation of programmes dealing with population. In the face of the opposition of the Population Commission and the Economic and Social Council, the door was thus opened—or forced open—to United Nations technical assistance in population matters. A review of how that option has been exercised shows that it has indeed permitted the United Nations to provide assistance in respect of data collection, research, the training of demographers and the implementation of family-planning programmes, but that very little has been done on the question of the relationship between population and development, no doubt because of the lack of knowledge and methodology in that field on the part of the experts.

The purpose of the United Nations mission sent to India at the request of the Government of India in February–April 1965 was to study the family-planning programme, not the relationship between population and development. The representatives of France and the Soviet Union raised objections to the mission at the thirteenth session of the Population Commission, in March 1965. The fact is that under the guise of assistance with respect to the problem of population and development, the United Nations began to play a role in the area of family planning.

The following year, in resolution 1084 (XXXIX), the Economic and Social Council ratified the idea of United Nations assistance in the field of population. Between 1962 and 1966, the political and economic panorama had clearly changed within the United Nations system. The Director-General of FAO, B. R. Sen, had drawn attention to what he considered to be a very serious food situation,

and the Secretary-General of the United Nations, U Thant, had shown that he was firmly committed to active United Nations participation in the field of population, in clear contrast to his predecessor, Dag Hammarskjöld. In 1966, the secretariat of the "Population Branch" was elevated to the rank of a Division, and strengthened. The result of the second resolution was that, in the population sector and other sectors within the competence of the Department of International Economic and Social Affairs, matters relating to policy aspects and studies, which were the responsibility of the Population Division, were separated, at the end of 1979, from technical co-operation aspects, with the latter being transferred from the Population Division to a new section within the Department of Technical Co-operation for Development. The separation was between policy and scientific considerations, on the one hand, and the concrete implementation of decisions, on the other hand. That resolution—to my mind regrettable—ran counter to the United Nations philosophy of a close linkage between research, policy decisions and implementation. The proliferation of bodies neither makes for well harmonized activities nor enhances their effectiveness. The resolution is one of the most questionable taken by the Organization, as is now obvious six years later. The research workers are hardly aware of the concrete activities of those entrusted with implementation of population programmes, and vice versa.

THE DEMOGRAPHIC AND ECONOMIC ENVIRONMENT

Astonishing as it might seem, there has not been a clearly recognized relationship between the work of the United Nations in the field of population and development and the analysis of demographic and economic trends, at a time when there have been dramatic changes in the demographic and economic maps of the world over the past 40 years. Although the sharp increase in the rate of population growth in the third world was predictable after the Second World War, many other developments were not, and were thus not the subject of monitoring or forecasts. It is often said that demographers are the social scientists most skilled in making long-term projections, but I wonder whether that reputation is justified and whether, by chance, their foresight is in fact only the result of compensating errors, especially when calculations are made on a world scale. No demographer foresaw before the War the rapidity of the decline in the mortality rate which began in 1950 in the third world. No one, in the United Nations or elsewhere, foresaw in 1965, when the baby boom was ending in Europe, that fertility rates would fall so sharply and synchronously in all the industrialized countries; that there would be an almost concurrent decline in the market-economy countries and in the European socialist countries, as if the societal problems were similar; that the rates would fall in an even more spectacular manner in China (more than 50 per cent between the Bucharest and Mexico City Conferences); or that they would increase south of the Sahara.

The changes in the world economic map have been just as striking, just as unpredictable and just as unrelated to demographic trends. Before the War, Argentina, Uruguay and Venezuela had an average per capita income close to

that of France, Chile's was higher than Italy's and Colombia's comparable to Japan's. In 1950, Peru had a per capita income twice that of the Republic of Korea. The most developed Latin American countries have been surpassed by countries such as Portugal, still regarded as being relatively poor. One of the most striking features of the world economy has been the growing role played by Asia, a continent long regarded as being the most handicapped because of its land mass and population growth. The population of that continent grew by some 900 million during the past two decades, while its per capita income grew significantly. Many of the countries on the Asian continent are rapidly becoming industrialized, without any loss in terms of their value systems, and are gradually overcoming the obstacles to the development of agriculture, regarded as an historically weak sector. In many countries or areas, such as the Republic of Korea, Hong Kong and Singapore, or in the industrialized part of Bombay, productivity is equalling or surpassing that in many industrialized countries. Newly industrialized countries are emerging in Asia. Japan, which many distinguished demographers considered over-populated in 1945-1950 because of its lack of natural resources, had a 40 per cent population increase between 1950 and 1980, and a more than seven-fold increase in per capita income. Japan is breaking record after record and constantly manages to overcome the effects of monetary manipulations aimed at curbing its exports. China has increased its food production by over 50 per cent in less than six years.

By contrast, the striking thing about Africa is its disappointing performance. The increase in food production is so slight that over the past 15 years per capita consumption of local produce has fallen by 1.1 per cent per annum. The example of the Sudan is noteworthy. During a meeting at Khartoum in March 1978, the country was described as having a productive capacity without equal in the modern world, and it was considered reasonable to expect the Sudan to become a net exporter by 1985. In fact, today the Sudan continues to import foodstuffs, and food consumption is below minimum standards. According to FAO, the Sudan is one of six African countries—the others being Angola, Botswana, Cape Verde, Ethiopia and Mozambique—which require emergency food aid this year.

What is most unexpected is that highly industrialized countries, with 3-6 per cent of their active population engaged in agriculture, export agricultural produce, while countries that are more than 80 per cent agricultural are increasingly becoming importers of such produce.

A number of examples of regression show that it is impossible to pose the problem of development in purely economic, demographic or technological terms while ignoring political and ideological factors. However, this is not something upon which the Secretariat can express itself in such blunt terms.

All these developments have not come about by chance; nevertheless, it cannot be said that the population factor has unambiguously favoured or impeded economic change. Our knowledge of the impact of the population factor on development after 40 years of research in the United Nations and elsewhere remains rather slim. All that can be said—and it seems trite—is that the third-

world countries which are undergoing favourable change are taking a four-pronged approach: population growth under control or being brought under control; priority to rural infrastructure in development plans; a quality educational system; and political stability.

THE MAIN WORK OF THE POPULATION DIVISION

It is very clear that the work of the Division has been closely linked to the general trends in demographic research throughout the world, on which it depends to a large degree, and to the progress of which it has always made a substantial contribution. Research in the various areas has advanced at nearly the same rate in the Division as in all the other research centres in the world.

It is interesting to note that one of the first studies which the Population Commission requested from the Division dealt with the demographic aspects of the problem of retired and elderly persons, at a time when the question of the aging of the population was viewed in much less urgent terms than it is today, with the decline in fertility that has occurred. That study was the origin of a work published in 1957 that has been widely accepted, *The Aging of Populations and its Economic and Social Implications*.⁴ It described the aging of population in a scientific manner, a task not done until then, and it presented the main features of the complex effects in the economic and social field. It is regrettable that no serious study by the United Nations has yet updated that interesting publication in a field in which there is growing interest and in which new ideas have recently been put forward.

It appears that progress in the realm of ideas and in their concrete application has been less rapid with regard to questions concerning the relationship between population and development than those concerning fertility. While work on fertility and birth control seems capable of influencing demographic trends in a direct and concrete manner, the practical value of work on population and development emerges only in relation to the approach taken to the interrelationship between those two sets of factors. There was and still is very little known about that interrelationship. Although the subject has certainly attracted a great deal of attention, no real consolidation of our knowledge has been achieved. Since the field is almost boundless, the danger of going astray is great. Limited analyses focusing on certain key areas have been more successful than great overviews or models involving a large number of variables.

There are many reasons for the difficulties. One is that the role of population factors in development cannot be expected to be clearly understood so long as our very knowledge of the development process is so incomplete. Another reason is that the demographic and economic time-scales are different. The implications of demographic trends are generally perceptible only in the very long term, whereas the time-frame of economists rarely exceeds a decade. On the other hand, the effects of resource and environmental trends, like demographic trends, become apparent in the very long term. It took 30 years to discover that DDT had harmful effects for many living creatures, that mosquitoes had an unsuspected abil-

ity to strike back, that pollution was detrimental to forests, etc.

Nevertheless, studies of undeniable value have been carried out by the Population Division on the interrelationship between population and development. In addition to medium-term studies such as those on integrating population into the development planning of developing countries, research has focused on long-term resource and environmental trends. It will be noted that although *The Determinants and Consequences of Population Trends*¹ covered rather well the question of population and resources, it dealt very inadequately with the question of the relationship between population and the environment. It was only after the 1972 United Nations Conference on the Human Environment that this issue was brought up in discussions with demographic experts. In September and October 1973 at Stockholm, the United Nations held the Symposium on Population, Resources and the Environment, the first of its kind, as part of the preparations for the Population Conference in 1974. The quality of the documents prepared by the experts and of the discussions was quite well reflected in the report on the Symposium.⁵

However, it should be noted that the Symposium took place at a time when the advocates of zero-growth had called into question the hitherto accepted concept of what constituted prosperity and growth, an attitude that inevitably permeated the Symposium. There was a transition then from the worship of growth, characteristic of the three preceding decades, to its total rejection as an apocalyptic scourge. Indeed, in 1973 the influence of the famous model of the Club of Rome was still being felt, as was the letter of Sicco Mansholt, Chairman of the Brussels Commission, calling for a halt both to population growth in the poor countries and to industrial growth in the rich countries, for their threat to trees, water sources and the air. The phenomena of pollution, it was said, were only symptoms, the cause of the malady lying within society. Basically, after a century of prosperity with a clear conscience, the rich countries were starting to feel guilty.

The most surprising thing was that certain rich countries themselves felt threatened by population growth. The results of the 1970 census in the United States had indicated a sharp increase in the American population, and President Nixon in his "population message" of 18 July had wondered where the millions of his fellow citizens resulting from the "American population explosion" would be housed. Few demographic experts in the rich countries then had any idea of what was to become of their countries' fertility rates.

The intellectual fashion of those early 1970s was certainly reflected at the Stockholm Symposium. Some experts timidly pointed out that the journey had begun and that there could be no question of the rich countries turning back or halting their agricultural and industrial development; rather they should radically reduce the waste of resources and the uncontrolled increase in the consumption of material goods. Neither pollution nor population growth justified a halt to development because, on the contrary, further resources were necessary in order to feed populations, purify water and so forth. Only the danger of a scarcity of non-renewable resources would legitimize

the objective of a stationary economy and hence a radical transformation of Western societies. A larger number of experts advocated a slow-down in material economic growth in those countries in order to reduce resource consumption and the resultant pressures on the environment. "Per capita income was already so high in those countries that the advantages domestically and internationally, of additional increases in output were no longer greater than disadvantages."⁶

The experts expressed their conviction "that long-term, and lasting solutions to the environment/resources/population/development complex in the rich countries would require a thorough redefinition of societal goals."⁷

In fact, the slow-down in economic growth (and sometimes population growth) in the rich countries was presented more or less openly as the counterpart to the appeal to the poor countries to reduce their population growth by a kind of show of virtue. An increase in the population of the developing countries "would create additional obstacles to economic and social development, problems that could not be surmounted easily, plus many serious rural and urban environmental problems, in both developed and developing countries."⁸ There were few—if any—additional advantages to be obtained from further population growth at the current stage in human history.⁹ There was no time to be lost in reducing the population growth rate of developing countries, for improvised adjustments could be less effective, more costly and perhaps more lethal than those which had been prepared well in advance. That was the position which Robert McNamara was to espouse 10 years later in a brochure distributed at the International Conference on Population.

The Bucharest Conference followed only very partially the conclusions of the Stockholm Symposium, in that the ideology of the New International Economic Order, proclaimed by the developing countries, unreservedly and persistently replaced the ideology of zero growth championed by certain European countries. All that was left was the idea that the rich countries needed to limit their consumer appetites, since Western bourgeois comfort seemed unlikely to become widespread and had to give way to other life-styles. The Conference rather followed the lines of the Cairo Symposium on Population and Development, held a few months earlier, in June 1973, as part of the Conference preparations. The message there, apparently less striking than the one at the Stockholm Symposium, was that it would be unrealistic to expect to solve population problems without dealing with the economic development problems of the most prolific nations. According to the conclusions of the report, "population growth does not always constitute an obstacle to development, and slower demographic growth does not automatically mean faster development. Nevertheless, many countries believe that slower population growth . . . would make it easier to solve of their basic social and economic problems. Moreover, participants in the Symposium agree that very high rates of population growth are usually detrimental to development."¹⁰

That was a very sensible conclusion, which has now been restated by certain American scientists who do not

share the views expressed by the United States delegation to the 1984 Conference in Mexico City.

Another symposium on the theme of the interrelationship between population, resources and the environment was held at Geneva in April 1983 by the Population Division, as part of the preparations for the Mexico City Conference. The tone was very different from that of the 1974 Stockholm Symposium. In the intervening period, both the population crisis of the rich countries and the world economic crisis had left their mark. There was no longer any question of calling on the rich countries further to reduce their rate of population growth and to move towards a stationary economy. Since times were so hard for the developing countries, particularly on the continent of Africa, where population growth had outstripped food production, there was nothing approaching the optimism voiced by the third world at Bucharest, and there was a willingness to undertake a reassessment of the interrelationship between population, resources and the environment. There was also agreement that greater priority should in the future be given to the population factor in such an interrelationship. The Geneva Symposium stated: "It was observed that both population growth and patterns of development contributed to perpetuating the inequalities among nations . . . [and] that high rates of population growth had greatly reduced, and in many instances more than eliminated, the relative gains that developing countries could otherwise have realized from their generally high rates of growth in GDP during the last 20 years. There are a variety of reasons to expect rapid population growth to contribute to increased inequalities within nations as well."¹¹ Although certain empirical studies failed to find "a strong correlation between income distribution and population growth . . . there was general agreement that insofar as population growth was an important cause of widespread poverty it operated through a variety of intermediate variables, which could include unemployment and underemployment of labour, patterns of resource ownership, consumption patterns and international trade and financial relationships."¹²

Thus there was, if not a gradual convergence, at least a narrowing of the gap between rich countries and poor countries, which have long been divided over the effects of demographic factors on socio-economic development and over the approach to such effects. It seemed that both sides had become more aware of the importance of the links between demographic trends and socio-economic development, an awareness reflected in the formulation of appropriate population policies.

Everyone knew that in Mexico City the rich countries would be less eager to urge the poor countries to adopt fertility control measures than they had been in Bucharest. Everyone knew too that the third-world countries were prepared to go further on birth-control policy than set out in the World Population Plan of Action, by laying emphasis on common interests, and that they considered the population factor to be one of the active components of development. It was, after all, the developing countries that had called for the 1984 Conference in the Economic and Social Council (amid a certain amount of indifference

on the part of the industrial countries); such was the importance which they attached to the population factor.

So the journey to Mexico City began on a confident note, the intention being to make progress in the discussion of measures to be taken rather than to reconsider the principles and objectives of action. But then the United States delegation reopened the substantive debate when it made a more or less expected last-minute reversal. In marked contrast to what had been its position for 40 years,¹³ a position that had presumably become second nature, the United States delegation sought to diminish the role of the population factor in development strategy. That approach was essentially one taken by the majority of the socialist countries from the earliest days of the Population Commission, and endorsed at Bucharest by most of the third-world countries. The idea is that the economic and social difficulties of the developing countries are due less to an increase in population, which plays a negligible role, than to excessive planning, which has the effect of disrupting the "natural mechanisms" governing demographic trends and has been extended to cover abortion, more or less forced sterilization, and other coercive birth-control measures. The idea is that the third world is somehow to blame for its own misfortune and that the population factor does not have a larger role than other development factors. This *laissez aller, laissez faire* philosophy marks a return to the most orthodox Malthusianism of the eighteenth century, as against the neo-Malthusianism of the nineteenth century, at a time when in certain parts of the third world, particularly in Africa, the amount of food available is steadily declining, at a time when drought and desertification are becoming more widespread in a number of countries, at a time when underemployment is reaching intolerable limits, and at a time when the borders of the rich countries are being closed to immigrants, which could mean a return to higher mortality rates or, at the very least, a halt in the decline of such rates. It is as if we were back to square one in the population/resources debate, except that the extremists are now in the camp which they were attacking a few years ago.

In the 10 years between the Bucharest Conference and the Mexico City Conference, the rate of increase in the world's population has declined from 2 to 1.7 per cent, which is quite significant in terms of secular trends. On the other hand, the world seems to have shrunk, for the population increased by 23 per cent during that period, which was marked by an unprecedented deterioration in the environment, because of such factors as deforestation, soil degradation and desertification. There are clear signs of such deterioration in Africa, where the population continues to live in dread of tomorrow, anxious about food, shelter, fuel and jobs for every man and woman.

The future holds many questions. To what extent will the reversal in the position of a delegation as important as the United States delegation be confirmed in the years to come? Everyone knows that the new position is far removed from that of most members of the scientific community, which on the whole regrets that rudimentary Malthusian viewpoints have in the past been enunciated by many experts. Have we embarked on another round of conflicting ideas on this fundamentally important ques-

tion? For the time being, judging from recent literature, we cannot say that we are seeing the development of new ideas. On the contrary, the effect of this questioning of standard theories is to delay or even prevent the implementation of activities which appeared well under way, such as the widespread use of population-control methods to which the third world had apparently subscribed almost unanimously for the first time.

After the overstatements of the past based on elementary arguments and in the absence of empirical data, the United Nations is in a good position to reopen the debate on the interrelationship between population and development, given its recognized competence and neutrality. It should be able to do so, bearing in mind that there are local situations where the adjustment between population and resources is poor, that those situations must be analysed as such and that the existence of several similar situations does not necessarily create a world situation. As a precondition for success, it will be essential to avoid research of universal scope that neglects the specifics and the wide variety of situations. Any attempt to draw conclusions that are valid for India, for example, and just as valid for Brazil, would seem to be based on an excessively doctrinaire approach. The question of population growth must be considered on a country-by-country basis, not as a single problem but as a set of more or less interrelated problems. A series of country monographs designed not so much to identify the immense forces governing population growth as to measure the *direct* and *indirect* effects of such growth would be more useful than endless discourse on the basis of *a priori* Malthusian or anti-Malthusian ideas. It is all too easy to abuse the concept of globalism.

CONCLUSION

If one had to sum up in a few words the purposes of the Population Division's activities on the question of the interrelationship between population and development, it might be said that such activities are designed to nurture or develop ideas so as to promote a better understanding of, and reflection on, the future. The Division is performing its functions with neutrality, by posing population problems in clearer and more systematic terms, reviewing and analysing the various factors that affect demographic trends, assessing the implications of those trends by means of a sort of Socratic exercise performed early enough for a timely policy change on the part of decision makers, and, lastly, taking stock of the elements of an action programme.

All the Division's activities are now dealt with in terms of development. The revision of the interpretation of the Malthusian message that was the topic of discussion at the Mexico City Conference should lead the Division to introduce fresh elements into the discussion. In addition to sectoral studies on, for example, fertility/development, mortality/development, migration/development, the Division should undertake a series of country monographs on the *direct* and *indirect* causes and effects of demo-

graphic trends but without harbouring too many illusions, for it is increasingly difficult to have a clear picture of the continuing transition of societies. No one has ever been able to predict the consequences of anything to the very end.

It is regrettable that the resumption of the theoretical debate has led to a delay in action. India, for example, with a population of 760 million in 1985 and an expected population of 1.2 billion in 2025, can do without further doctrinal subtleties. It is better to base decisions on imperfect knowledge than to postpone action pending the availability of inconclusive research results. It should not be forgotten that the key to the success of population policies lies in action taken early enough to prevent countries not yet faced with the difficulties resulting from maladjustment to resources from later finding themselves in the situation of countries in which the saturation point has obviously been passed. After all, the ethics of politics are the ethics of responsibility. The future depends on what we do, and we should not defer action pending the conclusions of futurology

NOTES

¹ United Nations publication, Sales No. 1953.XIII.3.

² Report of the United Nations World Population Conference, Bucharest, 19-30 August 1974 (United Nations publication, Sales No. E.75.XIII.3), chap. I.

³ General Assembly resolutions 3201 (S-VI) and 3202 (S-VI) of 1 May 1974.

⁴ United Nations publication, Sales No. 1958.XIII.2.

⁵ See E/CN.9/307 (E/CONF.60/CBP/3).

⁶ *The Population Debate: Dimensions and Perspectives. Papers of the World Population Conference, Bucharest, 1974* (United Nations publication, Sales No. E.75.XIII.5), vol. II, p. 688, para. 19.

⁷ *Ibid.*, p. 690, para. 22(n).

⁸ *Ibid.*, p. 689, para. 22(f).

⁹ *Ibid.*, p. 688, para. 17.

¹⁰ See E/CN.9/306 (E/CONF.60/CBP/1).

¹¹ *Population, Resources, Environment and Development: Proceedings of the Expert Group on Population, Resources, Environment and Development, Geneva, 25-29 April 1983* (United Nations publication, Sales No. E.84.XIII.12), p. 33.

¹² *Ibid.*, p. 34.

¹³ Since the establishment of the Population Commission, there have indeed been many shifts and variations in the American position on the question of the relationship between population and development, which have often been dictated by domestic political considerations. On 18 December 1962, during the seventeenth session of the General Assembly, after discussion of a draft resolution submitted by the Swedish delegation on the provision of United Nations assistance in population matters to Governments requesting it, the United States delegation abstained in the vote on the key paragraph 6. The explanation then was that the resolution might offend the Catholic segment of the American population. Presumably, similar considerations were partly responsible for the United States position at the Mexico City Conference. There have also been unexpected changes in the position of prominent Americans, the one made by John D. Rockefeller not being the least significant; after being an advocate of family planning for decades, he used the Bucharest forum to diminish considerably the importance of the population factor in development failures or successes. That was a far cry from the statement he had made in the McDougall Memorial Lecture at the 1961 FAO Conference in Rome, to the effect that population growth was second only to the control of atomic weapons as the paramount problem of our day.

POPULATION POLICY

*United Nations Secretariat**

SUMMARY

Work in the area of population policy has mainly been concentrated in the past two decades. Earlier, before the legislative debate on the proper role of the United Nations with respect to population policy had reached a consensus, little research was done in the area.

Policy research began to gain significant momentum during the preparations for the World Population Conference in 1974. It has continued after the Conference, developing its own primary data sources, particularly through the institutionalization of regular population inquiries addressed to all Governments; through the regular reporting of the findings of its analyses, using a variety of formats including the biennial monitoring of population policies; and in the preparation of reports on topics of special concern to the international community.

Policy research carried out by the United Nations Secretariat is characterized in general by its avoidance of advocacy for any specific policy position, a global perspective, and full attention, given to the policy issues associated with each of the major population variables.

Population policy has been a matter of substantive concern for the United Nations throughout the four decades since the Population Commission was established, in 1946. However, in marked contrast to the kind of steady attention given to the traditional analysis of demographic variables, the concern for population policy has not been explicit and direct throughout the 40 years. During much of the first two decades, the concern was expressed in a somewhat uneven and at times rather oblique manner.

In the following remarks, two kinds of activities undertaken by the United Nations on population policy will be reviewed: first, research and analysis of population policies adopted by Governments; and secondly, the provision of a neutral forum where scholars, not necessarily associated with the United Nations system, are able to present their views and the findings of their individual research. Two other kinds of activities—the provision of technical assistance in the area of population to Governments that seek it, and the provision of substantive secretariat services to intergovernmental bodies (such as the World Population Conference held at Bucharest in 1974 and the International Conference on Population held at Mexico City in 1984)—are dealt with in depth in other papers in this *Bulletin* and are not treated here.

WORK IN POPULATION POLICY FROM 1946 UNTIL THE BELGRADE CONFERENCE IN 1965

Population policy has been within the mandate of the Population Commission, and hence of its substantive secretariat, the Population Division of the Department of International Economic and Social Affairs, from the very outset. The Commission was established in one of its earliest resolutions, 3(III), by the Economic and Social Council, on 3 October 1946. Its terms of reference were formalized in the Council's resolution 150(VII) of 10 August 1948. Among other activities, the Commission

was mandated to "arrange for studies and advise the Council on: . . . (c) Policies designed to influence the size and structure of populations and the changes therein . . ."

At its first session, held in 1947, the Population Commission, in setting forth the programme of work of the secretariat, requested that a joint *ad hoc* technical committee, involving the Social Committee and in collaboration with the United Nations Statistical Commission and the International Labour Organisation, prepare documentation for a discussion on migration statistics and policies (1947).

The next time that population policy came up before the Commission and on which agreement was reached and recorded in the Commission's report was at the fifth ses-

* Population Division, Department of International Economic and Social Affairs.

sion, in 1950. (In its early years the Commission held its sessions annually rather than biennially, as it does now.) In a discussion on demographic aspects of technical assistance, the Commission recommended that countries should be helped in analysing their demographic conditions and trends in relation to social and economic change, improvement of demographic statistics, and in the "formulation of legislative and administrative measures" that have an influence on population. Regarding the latter, the Commission said: "Technical assistance would be valuable herein estimating the probable influence of such legislation and administrative action and, in addition, in helping to ascertain the types of action most likely to achieve the objectives of the development programmes of the various under-developed countries" (1950).

Three years later, at its seventh session in 1953, the topic of population policy again was mentioned. The Commission requested that the Secretariat study the possibility of publishing annual digests of demographic legislation. During the discussion, the topics of interests were identified as legislation relating to marriage and divorce, abortion, sterilization, contraception, immigration and emigration, and economic aids to families—an impressive list, even given that internal migration, urbanization and mortality were not mentioned. However, after having been broached at its seventh session, the proposed series of reports was not mentioned again by the Commission (1953a). It was not until after eight years had passed, at the eleventh session, in 1961, that the subject of population policy was mentioned again in a report of the Population Commission. In the context of a discussion of a general review of the objectives and accomplishments of the United Nations in the field of population, and with particular reference to its objectives, the Commission made a very carefully worded statement on population policy. It is useful to quote the paragraph in its entirety.

"It is the responsibility of each Government to decide its own policies and devise its own programmes of action for dealing with the problems of population and economic and social development. In particular, each Government must decide for itself whether or not any measures should be taken for the purpose of modifying the trends of population as an aid to the solution of these problems, taking into account the work of the Population Commission. On the other hand, it is in the interest of the United Nations that decisions on national action programmes should be planned, in the light of knowledge of the relevant facts, and that the programmes should be adequate to assure satisfactory economic and social progress. Among the circumstances which must be considered are the relevant features of national culture and ideals as well as the trend of population, the physical resources and other economic circumstances of each country. It is appropriate that the United Nations should encourage and assist the Governments, especially of the less developed countries, in obtaining basic data and carrying out essential studies of the demographic aspects, as well as other aspects, of their economic and social development problems. It is also considered appropriate for the United Nations to give

technical assistance, as requested by Governments, for national projects of research, experimentation and action for dealing with problems of population (1961).

The statement clearly reflects the effort to formulate a consensus in an area of divergent views. Other articles in this *Bulletin* describe in some detail the debate that took place in the Commission during those years (see especially the articles by Hauser and Macura). What is of particular concern here is the nature of the statement finally agreed to for inclusion in the report and the consequences that the statement would have for the work of the Secretariat on population policy as such. Thus, population policy is placed strictly within the purview of national sovereignty, where it remains to this day but at the same time, it is also legitimate for a Government not to take measures to modify population trends. For a government to exchange knowledge and experience with others and—very importantly—to request technical assistance from the United Nations, is legitimate. The existence of population policy as an issue before the international community is therefore explicitly recognized but carefully circumscribed.

During the next two sessions of the Population Commission, the twelfth and thirteenth, held in 1963 and 1965, the discussion of population policy was somewhat muted, but present in the discussion was the first of the series of population inquiries carried out by the Secretariat to obtain a measure of the policy position of Governments on population issues. At the fifteenth session, in 1969, the Commission decided to request a second inquiry, to keep in view "the rapid change occurring in national policies pertinent to population growth and development" (1970).

It is useful to review the changing positions taken by the Population Commission. The work of the Secretariat is guided by the Commission, and the guidance is especially close where the political concerns of Governments are strongly involved. The arrangement can be highly advantageous to the Secretariat in that it provides a clear and timely indication of the nature of policy issues that are of leading concern to Governments. However, in the rather special situation where the legitimacy of governmental (and, perforce, of intergovernmental) concern is seriously challenged, the Secretariat's ability to carry out research or any other activities is sharply limited. The relationship between the Commission's ability to achieve consensus on the proper role of population policy and the work of the Secretariat in that area is clearly shown in the history of research work undertaken during the two decades preceding the Belgrade Conference in 1965.

In the early years, population policy issues were formulated in terms of the concerns of the original Member States and—in particular—of the developed countries. There appeared to be no question of the legitimacy or appropriateness of dealing with policy issues. On the other hand, the topic did not get a lot of attention, probably chiefly as a reflection of the limited experience most Governments had had, up until that time, with any effective population policies outside the area of international migration.

As requested by the Commission, a report entitled *Elements of Immigration Policy* (1954) was produced,

through a collaborative effort of various secretariats of the United Nations and the concerned specialized agencies. The report restricted its attention largely to migration for permanent resettlement. It drew heavily on the experience of the countries that had experienced large-scale immigration before the Second World War—the United States, Canada, Australia, France, and to a somewhat lesser extent, the countries of immigration of Latin America. No attention was given to refugees, displaced persons, or to labour migration flows as such.

The report took the form of a guidebook or manual for countries that were contemplating the establishment of an immigration policy. It summarized what was known of the demographic and the economic consequences of an immigration flow and went on to discuss how best to manage the health and medical requirements of immigrants, questions of their legal status, and their integration into the labour force, including vocational training. It also proposed reasonable and effective policies for the social and cultural integration of immigrants. The orientation of the report was prescriptive, rather than empirical or analytic. It was intended to be used in connection with programmes of technical assistance by the United Nations to countries that might request such assistance.

In one of the most ambitious and significant works produced by the United Nations during the early period, *The Determinants and Consequences of Population Trends* (1953b), population policy is dealt with, but in a somewhat subordinate role. Basic policy issues are raised in the chapter on the history of population theories, but with population more often being treated as a kind of exogenous independent variable, having consequences for other social and economic policies. In the chapters dealing with mortality and fertility trends, policy interventions are discussed as relevant factors quite briefly; in general, the trends are analysed as the outcome of other social and economic changes rather than as a consequence of any intended policy—not an unreasonable approach given the experience of the time. The most extensive treatment of policies comes in reference to international migration, where the experience with policies of the period before the Second World War is described in some detail. In dealing with internal migration, policy is briefly mentioned but is discounted as a causal factor.

At the World Population Conference held in Rome in 1954, one out of the 30 substantive meetings was explicitly concerned with “legislation, administrative programmes, and services relevant to population, with special attention to the evaluation of their effect”. Nine papers were presented—two dealt with mortality policies and the other seven with fertility and the family. None dealt with migration, but at the two meetings on international migration (with a total of 40 papers between them), policy issues were extensively dealt with. At the meeting on policy as such, one paper dealt with the experience of a developing country (India) while all of the others were concerned with conditions and policies of Western European countries.

At the time of the Rome Conference, the rapid rise in the rate of population growth was already well recognized and being discussed by demographers. Indeed, the subject was discussed in the meetings on fertility, on mortality and on

the social and economic consequences of population growth. What is most notable is that it was not prominently on the agenda of the meeting dealing with population policy as such. The topic did arise in the discussion that took place, although the summary report of the meeting suggests that policies concerned with rapid population growth were dealt with only briefly. Much of the attention was given to policies intended to strengthen the family and to raise fertility in countries where it was low. However, even the short account reported indicates that the subject of policies to deal with rapid population growth was a matter of dispute—and indeed more so than any of the other policy issues discussed. The report states: “This account of the discussion of the bases underlying population policy would not be complete without recording the opinion expressed by delegates from the Communist countries, who believed that present rates of growth were not excessive and could be coped with and who were for that reason opposed to restrictionist policies. . .” (1955).

In some respects, the treatment of population policy at the Rome Conference reflected the tension around the question of population policy that became evident some time in the mid 1950s and was to prevail up until around the time of the Belgrade Conference, 10 years later. Population policy was discussed, even debated vigorously at sessions of the Population Commission. However, it was not possible to reach enough of a consensus for the issue to be formally treated in the reports of the Commission’s sessions. Similarly, research on population policy did not appear in the programme of work or among the publications of the Population Division for the decade following the Rome Conference. It would appear that the dispute over policies concerned with high fertility and population growth stifled for the time not only the discussion of policies directly concerned with these variables but, indeed, with policy in general.

As noted, it was at the eleventh session of the Population Commission, in 1961, that an important agreement on population policy was reached and set forth in the report. At the next session, in 1963, the first Inquiry among Governments on problems resulting from the interaction of economic development and population change was requested; the report of the Inquiry was issued the next year (1964). The Inquiry was carried out and reported precisely within the spirit of the careful agreement of the eleventh session. Notably, although the Inquiry is largely concerned with population policies of Governments, the word “policy” itself does not appear in the title. Rather, the formal focus of the Inquiry was on how Governments viewed their population problems. Not very surprisingly, in the presentation of Governments’ views of their population problems, the policies and measures adopted by Governments to deal with their problems are also described. However, the discussion of policy tends more often to be implicit rather than explicit. The report of the Inquiry carefully accords full recognition to the principle that population policy is the prerogative of Government; there was neither advocacy nor any expression of judgement legitimacy of any policies or measures.

The methodology used for the Inquiry was to send a list of population topics that might be of importance in various

countries to all States Members, inviting the Government to submit a statement "covering those points in the outline which the Government considers pertinent and appropriate in the circumstances of its country".

Responses were received from 53 Governments, just less than half of the States Members at that time. Twenty-seven of the responses were from developing countries. The population variables covered were mortality, fertility, natural increase, international migration, internal migration, and age distribution. The situation with respect to those variables was analysed and discussed in relation to agriculture and food supply, manpower and employment, education, housing, health, capital and investments, industry, and urbanization and population distribution.

The next major event in dealing with population policy at the global level was the World Population Conference held at Belgrade in 1965. It was once again a meeting of population specialists who attended in their personal capacity, organized by the Secretariat with the collaboration of the International Union for the Scientific Study of Population (IUSSP) and the concerned specialized agencies (1967). At Belgrade, however, there were a number of important substantive and organizational changes from the Rome Conference. Most notably, much greater attention was given to population issues in the developing countries, with particular reference to the—by then—well-recognized high rates of population growth and high fertility. Again, though, no session was designated to deal with population policy as such. Population policy issues were discussed in individual papers and there was one session on "studies relevant to family planning". Nevertheless, the element of caution remained quite evident in the published proceedings. The focus in many of the papers was on technical questions of measurement and evaluation in relation to policy, and policy implications were more often left implicit. A visible movement towards more direct concern with policy was under way, but it had not yet gained momentum.

WORK IN POPULATION POLICY FROM THE BELGRADE CONFERENCE UNTIL THE WORLD POPULATION CONFERENCE IN 1974

The increasing concern for high rates of population growth in the developing countries and the declining level of direct opposition to national policies and measures was evident throughout the latter half of the 1960s and was sharply marked at the sixteenth session of the Population Commission, which took place in 1971. There, rather than being given only limited attention and being treated in a cautious and indirect manner, population policy became a matter of explicit central concern. Perhaps even more importantly than the eleventh session, the sixteenth session marked a turning point in the treatment of population policy issues at the global level. Moreover, having achieved its new level of prominence, population policy has continued to receive full attention by the Population Commission at all of its subsequent sessions. The precise nature of the Commission's concern with policy have shifted a little from time to time, but the concern has not diminished.

The increased attention given to population policy at the sixteenth session arose in connection with two related issues: first, the Commission's discussion of the role of population in the International Development Strategy for the Second United Nations Development Decade, and secondly, the planning of activities for the World Population Year, 1974, which had been designated by the General Assembly in resolution 2683 (XXV) of 11 December 1970.

In the early 1970s, there was a great deal of interest in the prospects for what might be achieved through the development of global strategies—both for overall social and economic development and within specific sectors. The Commission recognized the need to give population its proper role in the strategies, and it emphasized that all aspects of population—mortality, migration, structure, as fertility and growth—had to be considered. Further, it hoped to encourage the development of national population policies and measures that were suited to specific country needs and conditions, within the framework of what it referred to as a "global population strategy". The Commission explicitly saw as part of that strategy's goals the slowing down and ultimate stabilization of world population growth (1972). In thus moving beyond the formulation adopted at the Commission's eleventh session, work in this area of policy necessarily acquired much higher priority.

In the time between the sixteenth session and the World Population Conference held at Bucharest in 1974, five major studies directly involving population policy were produced by the Secretariat under the guidance of the Population Commission. They were a report on fertility policies, a second population inquiry among Governments, a completely revised edition of the *The Determinants and Consequences of Population Trends* (1973), a symposium on population and human rights, and the publication of the papers commissioned in connection with the World Population Conference itself. Obviously, the tempo of activities in the area of population policy had greatly accelerated.

The first of the research reports to appear in the period of increased activity was a complete review of policies intended to affect trends and levels of fertility in both developing and developed countries: *Measures, Policies and Programmes Affecting Fertility, with Particular Reference to National Family Planning Programmes* (1972). The thorough and extensive coverage of fertility control policies, including abortion and sterilization, reflects the sharply increased interest in those topics on the part of the international community.

The report was based on a complete review of the literature available up to the time that it was prepared. The approach was to consider, one by one, the various measures, policies and programmes, and to try to assess whether they could be expected to have a generally pro- or anti-natalist effect. Among the measures considered were those relating to the family, including family allowances, systems of taxation, aids to maternity, marriage grants and subsidization of family services, and indirect measures such as laws affecting compulsory education and social security. Detailed attention was given to laws and regulations relating to abortion, sterilization and contraception;

interestingly enough, the general assessment regarding contraception was that restrictions were often comparatively ineffective while liberalization of controls over access to contraceptives had often been found to follow rather than to initiate or accompany a decline in fertility. Consideration was also given to marriage and divorce laws. The overall policy framework into which fertility measures were placed was examined, as were the policy roles of non-governmental organizations, bilateral programmes of technical assistance, and the appropriate roles of the United Nations and the specialized agencies. Finally, the available information on health aspects of programmes and methods of fertility regulation, methods for the evaluation of family planning programmes, communication for motivation in family planning, and social and cultural perspectives in national programmes were reviewed. Throughout the report, there was no advocacy for or against any methods, measures or policies; the focus was on effectiveness to achieve national policies.

As part of the preparations for the World Population Conference of 1974, a second Inquiry among Governments on population and development (1974; 1975a) was carried out. As in the case of the first Inquiry, a questionnaire was sent to all States Members of any of the entities of the United Nations system. The questionnaire was sent in October 1972 and by the end of April 1974, 87 Governments had replied. The increase in the number of respondents came almost entirely from among the developing countries.

The methodology used for the second inquiry was slightly different from that used in the first. Rather than simply a list of topics on which comments were invited, specific questions were asked. On most subjects there were just one or two questions and they tended to be quite all-encompassing. The results of the Inquiry were presented in two publications; one provided a quantitative statistical overview (1975a, vol. II, pp. 583-607), while the other gave a more detailed qualitative discussion based on direct quotations of the responses made by Governments (1974).

Fertility and family planning, internal migration and urbanization, and international migration were among the topics on which specific questions about policies were asked. However, there was no question on mortality, a reflection of the priority concerns of the time.

Governments were also asked to indicate their views of what a population policy was, its appropriate objectives, and its role in the hierarchy of national development policies. Those questions would appear to reflect the widespread feeling at that time that population policy concerns had moved onto new ground, so that some reconceptualizing and rethinking was called for. In line with the interest in seeing population take its proper place in the larger framework of global social and economic development strategies, along with other sectoral strategies at the international level, there was also a set of questions on targets and expectations of future trends in population, development and the environment, and their interrelationships. Again probably reflecting some sensitivity about moving onto new ground, in posing a question on the anticipated ecological implications of long-range demographic and

economic development, the questionnaire stated that the item was optional and could be omitted if the country so desired (although of course no Government could be compelled to answer any question or to respond to the Inquiry at all, for that matter). Finally, a set of questions was asked about needs for technical assistance in the areas of population programmes and of demographic statistics and research.

A second major work in preparation for the World Population Conference was the complete revision of *The Determinants and Consequences of Population Trends* (1973). The new edition provided a review of the literature on all aspects of population trends, as did its predecessor, so that much more than policy was dealt with. However, what was striking was that in the 1973 revision policy, was much more an explicit matter of direct concern rather than being largely implicit, as in the original version issued two decades earlier. Indeed, among the major developments in the field of population since the publication of the first edition was what the revised edition referred to as the new concern for population policy.

The concluding chapter of the 1973 revision is entirely devoted to the subject of population policies. It reviews the literature on the conceptual problems of how to determine what is a population policy, its relationship to other social and economic policies, and ethical and human rights issues related to population policies and programmes. It then goes on to a review of experience with population policy implementation in both developed and developing countries.

What is once again most revealing of the priorities of the time is that in the chapter on population policies as such, attention is mostly given to policies concerned with fertility. In the review of formal definitions of population policies, the relevance of migration and mortality-oriented policies is mentioned, but in the review of experience with policy implementation, it is only fertility that is discussed in detail. Within the chapters dealing with internal and international migration, policy is discussed as one among the various determinant factors. In the case of mortality, the treatment of policy is more implicit than explicit and is mainly concerned with distinguishing the effects of direct medical intervention as a health measure from the effects of other social and economic changes.

Another of the preparatory activities for the World Population Conference was the convening of the Symposium on Population and Human Rights, held at Amsterdam in early 1974 (1975a, vol. II, annex IV). The Symposium was one of four that were convened by the Secretariat as a part of the substantive preparations, and was the one most directly and broadly concerned with policy issues. The participants were 28 specialists from the fields of law and population, attending in their personal capacity but reflecting a wide diversity of geographical and disciplinary backgrounds.

In the process over the years of codifying human rights, some issues of great importance to population had already been taken up; for example, the right of couples to decide on the number and spacing of their children, rights relating to some forms of both internal and international migration, and the relationship between morbidity, mortality

and the basic right to life and well-being. However, the Symposium was the first attempt to review how those agreed-upon rights fitted together within the overall framework of global population concerns, and to see whether there remained any specific unmet needs in the area of population and human rights. Further, the Symposium implicitly raised the question of the relevance of human rights as the basis for going beyond national sovereignty as the sole legitimate framework for population policy.

The Symposium took up human rights issues for all demographic variables. In its review, it considered the need to protect the rights of individuals and couples in population-related areas, with respect to policies having both non-demographic and demographic goals and objectives. In addition, it posed the very new question of the implications of population trends for the formulation and exercise of human rights.

In general, the foundation of research studies on population policy prepared for the intergovernmental World Population Conference of 1974 was far more thorough and extensive than any similar exercise that had ever been carried out before. While the Conference itself and the World Population Plan of Action it adopted did not fulfill everyone's greatest hopes and expectations, scientific research on population had acquired a momentum which has continued and indeed has accelerated during the years that followed.

WORK IN POPULATION POLICY AFTER THE WORLD POPULATION CONFERENCE

After the World Population Conference, building upon the impetus gained during the preparations for it, research in population policy carried out by the Population Division acquired a new and stronger character. Policy research has been institutionalized and has taken its place as an essential part of the Division's continuing programme of work.

To carry out the institutionalization, steps have been taken to ensure that a continuous flow of information is received by the Division, to be available for analysis and reporting. A comparatively stable conceptual system has been worked out, and regular formats for the presentation of findings have been established. Moreover, a set of working principles has been adopted which has proved to be satisfactory to the Population Commission and other users of the research.

In particular, the research is guided by a first principle of non-advocacy. Its adoption at the outset was no doubt in part a reaction to the vigorous debates at the World Population Conference. Experience in subsequent years, including the debates that took place at the International Conference on Population at Mexico City in 1984, strongly indicates that the principle is appropriate and entirely consistent with the role of a United Nations research unit. For a secretariat body to maintain its credibility with the international community in an area such as population policy, visible neutrality is essential.

A second principle is that an attempt must be made to give to each of the demographic variables of policy con-

cern full and complete coverage. It must be admitted that at first this principle was more an ideal than an actual achievement; the conceptualization of population policies in some areas of research—most notably those concerned with internal migration and urbanization—is far more complex than in others, and it took a longer period of experimentation to arrive at a satisfactory coverage of the area. The approach seems well justified by the wide diversity and the continuing evolution of concerns in population policy between countries.

The third principle is that the scope of work is global; no region is omitted from coverage. For practical reasons, the programme continues to give more attention to the developing countries that are least likely to have the institutions needed to carry out policy research and whose experience is therefore least familiar to the international community. However, the research carried out is designed to ensure that an understanding of policy development is available for all countries in all regions at all levels of development.

A fourth guiding principle has been that the United Nations should seek to undertake the type of policy research in which it has some comparative advantage, and should avoid the types that can be more effectively done by other institutions such as universities and national research units. In effect, this means trying to take the best possible advantage of the Secretariat's exposure to political debate relevant to population in the various international forums and of the formal/official relationship that exists between the United Nations and national Governments. It also means, on the other hand, recognizing the Secretariat's limited ability to analyse domestic political and policy-making processes within any given State.

Over the past decade a steady flow of research reports and studies has been issued. The work falls into two broad categories. First, there have been a series of periodic reports that provide a continuously up-to-date overview of population policies of the countries of the world. Secondly, there are from time to time special reports that explore at greater depth specific issues of particular concern.

The preparation of both types of reports is dependent upon the availability of up-to-date information policies of all countries. To assure that availability, information is routinely obtained from three sources:

(a) Population inquiries, since the World Population Conference, the practice of carrying out inquiries has been standardized and put on a fairly regular periodic schedule;

(b) Governmental and intergovernmental agency reports, development plans, reference services and journals, a systematic review is made of a wide range of such relevant information sources from which population policy information is extracted, assembled and stored on a country-by-country basis.

(c) All data gathered for special studies.

Three population inquiries have been held since the World Population Conference, the third in 1976, the fourth in 1978 and the fifth in 1983. A sixth Inquiry is scheduled to take place late in 1986. The questionnaires have been largely standardized, making extensive use of pre-coded

as well as open-ended questions. A core of items is kept the same from inquiry to inquiry, in order to facilitate the analysis of changes in Governments' policies and perceptions over time. Other items are changed from one Inquiry to the next in order to obtain information on topics of special concern.

It can be seen that the interval between the third and the fourth Inquiries was much shorter than that between the fourth and the fifth or the fifth and the sixth. Experience has shown that if Inquiries are done too frequently, the number of Governments responding decreases and so does the amount of new information obtained. On the fifth Inquiry, 120 Governments responded, for a 70 per cent rate of return. All readily available checks on reliability indicate that the quality of data obtained is high; moreover, the usefulness of and confidence in the data increases as successive rounds of the Inquiries permit country-by-country comparisons over time. The data from all of the Inquiries have recently been stored on disks to permit the use of computers for longitudinal analysis.

One of the most important regular uses of the information on population policy is in the preparation of the *Monitoring Reports* (1979; 1980; 1982b and 1985c). They are issued biennially, as called for in the World Population Plan of Action (1975b, para. 107); each report has had one major section devoted to policies.

The reports on the monitoring of population policies have provided information on policies concerned with all of the major population variables: fertility, mortality, and internal and international migration. For each variable, the coverage includes information about:

(a) How each Government perceives each of the variables; whether it is viewed as a significant policy issue, whether prevailing demographic rates are seen as too high, too low or acceptable/satisfactory in relation to other social and economic conditions;

(b) What the Government's goals are with respect to each of the variables; to raise, to lower or to maintain them at their current level; whether the Government has established quantitative or qualitative targets and, if so, what they are;

(c) Whether the Government views intervention on these variables as a legitimate exercise of its authority, actively intervenes to influence the variables and, if so, by what means.

In addition, from time to time the reports provide information on specific topics of interest such as the institutional structures used by Governments to formulate population policies, integrate them into other social and economic development goals, and evaluate their effectiveness.

In order to develop the series of *Monitoring Reports*, it was necessary to create a regular format and a conceptual framework that could be used in the successive reports. In order to be able to make the fullest possible use of the reports, it is essential to be able to compare the policies of individual countries from one report to the next. Since many of the variables dealt with are complex and highly interrelated—consider, for example, policies directed to some aspect of internal migration, geographical distribu-

tion and urbanization—a very intensive effort had to be devoted to that task at the outset. The framework and format have now been established so that it is possible to proceed from one report to the next focusing on those changes in policy during the most recent reporting period.

In addition to the series of *Monitoring Reports*, the information assembled on population policy was used in several other series of reports, issued in different formats. One of the most important of these was the "population policy compendium" series. That series, published jointly by the Population Division of the United Nations Department of International Economic and Social Affairs and the United Nations Fund for Population Activities, consisted of reports on a country-by-country basis for 74 developing countries. They were issued over the years from 1979 to 1986. Each country was described in a separate fascicle, normally six pages in length, with a standard format. The series was designed to provide the most essential population policy information for each country in as succinct and up-to-date as possible a manner. The reports covered all of the population variables and described both how the Government viewed the variables and policies and measures adopted to influence each of the variables. In addition, the history of the country's demographic situation and the Government's overall approach to population problems are outlined and the institutional system designed to gather, analyse and use demographic data in development planning is briefly described.

Also issued on a country-by-country basis were the studies in national experience in the formulation and implementation of population policy (1977-1981). The monographs covered a range of subject matter for each country similar to that dealt with in the "Compendium" series, but the treatment gave far greater historical depth, usually covering in some detail at least two decades, thereby providing a more detailed historically based examination of the very wide range of positions taken by Governments on population policy issues and the extent to which they changed over time. Twenty studies were prepared and issued between 1977 and 1981 (roughly evenly divided between countries of Latin America, Asia and Africa). They demonstrated that the attainment of an international consensus on population policy matters could not be taken as a simple or an inevitable process.

Other formats have been used in the periodic reporting of population policies. For example, a series of "population policy briefs" has been regularly issued, first in an informal working paper series and more recently as a formal non-sales publication (1986a and b). The "Briefs" give a condensed description of population policies for all countries and selected territories (usually devoting less than one page to a country), thereby enabling users to give a rapid reply to the frequent inquiries received from the general public about the policies of individual countries.

Though the *Monitoring Reports* will remain very much the same, it was decided to modify the format used for regular periodic reporting of population policies for all countries. In place of the various country-by-country reports series, a single set of reports for all countries will be issued and updated biennially. The basic conceptual scheme will be retained; however, a slightly broader range

of topics will be regularly covered. Along with policies concerned with the usual population variables, increased attention will be given to issues such as changing age structures and population aspects of the status of women. Each country's policies will be described in a standard four-page report. The reports will begin to be issued in 1987.

Among the special-issue studies that have been produced was *Population Distribution Policies in Development Planning* (1981), which contained the papers prepared by a group of experts and presented at a 1979 workshop at Bangkok, jointly sponsored by the Population Division and the United Nations Fund for Population Activities. The volume reviewed the nature and goals of population distribution policies in the overall context of development planning, mechanisms and instruments available as policy instruments, various kinds of urban-oriented policies, and finally the institutional requirements and data needs for policy formulation, implementation and evaluation.

A second publication, prepared by the Population Division, on a special topic was the *International Migration Policies and Programmes: A World Survey* (1982a). It reviewed all types of governmental policies, measures and institutional arrangements to deal with international migration extent in all regions as of about 1980. The study covered policies concerned with immigration and emigration for permanent resettlement, labour migration to both developed and developing countries, undocumented/illegal migration, and refugees.

The Population Division has also inaugurated a series of reports entitled *Population Growth and Policies in Mega-Cities*. It describes and analyses the policies concerned with population growth in some 20 of the largest cities of the developing regions. Each city is dealt with in a separate monograph. Thus far, studies on Calcutta and Seoul (1986a and b) have been published. The report describes the demographic and economic conditions of the city and presents the broad spatial strategies adopted by the local and—where relevant—the national authorities. Then, in turn, each of the specific major policy issues and sectors is examined. They include the local labour market, urban land and land-use policies, housing, water supply and environmental problems (including sewage), power, health and education, and transport. Finally, financial and other resources, taxation policies, and the institutional arrangements for policy formulation and implementation are described. An important feature of the series is that it is designed to carry the study of population policy a step beyond a concern for the stated goals of Governments that are explicitly directed to demographic rates as such, and takes on a range of policy instruments that are strongly but not exclusively concerned with growth.

In addition to these more recent research activities, the policy aspects of the substantive preparations for the 1984 International Conference on Population held at Mexico City should also be mentioned. One of the early preparatory activities was a second Symposium on Population and Human Rights, held at Vienna in 1981 (1983). The more formal substantive preparations for the Conference were based upon four expert group meetings organized by the

Population Division. The proceedings of the four expert group meetings (1984a, b, c and d) differed conspicuously from the preparatory materials used for the 1974 World Population Conference in that policy issues were far more widely evident. This increased attention to population should not be surprising since the Conference was to make action-oriented recommendations for the further implementation of the World Population Plan of Action.

Thus, the objectives of the International Conference on Population reflected the fact that over the preceding four decades population policy could be said to have become fully established as a matter of legitimate concern for the international community. That consensus continues to be reflected in the deliberations of the Population Commission and in the research work of the Secretariat.

REFERENCES*

- (1947). *Official Records of the Economic and Social Council, Fourth Session, Supplement No. 5* (Lake Success, New York).
- (1950). *Ibid.*, *Eleventh Session, Supplement No. 7* (E/1711-E/CN.9/62).
- (1953a). *Ibid.*, *Fifteenth Session, Supplement No. 3* (E/2359-E/CN.9/110).
- (1953b). *The Determinants and Consequences of Population Trends* (United Nations publication, Sales No. 1953.XIII.3).
- (1954). *Elements of Immigration Policy* (United Nations publication, Sales No. 1954.IV.2).
- (1955). *Proceedings of the World Population Conference, Rome, 31 August-10 September 1954: Summary Report* (United Nations publication, Sales No. 1955.XIII.8).
- (1961). *Official Records of the Economic and Social Council, Thirty-first Session, Supplement No. 3* (E/3451-E/CN.9/165).
- (1964). "Inquiry among Governments on problems resulting from the interaction of economic development and population change: report of the Secretary-General" (E/3895/Rev.1).
- (1967). *Proceedings of the World Population Conference, Belgrade, 30 August-10 September 1965, Vols. I-IV* (United Nations publication, Sales Nos. 66.XIII.5, 6, 7 and 8).
- (1970). *Official Records of the Economic and Social Council, Forty-eighth Session, Supplement No. 3* (E/4768-E/CN.9/235).
- (1972). *Ibid.*, *Fifty-second Session, Supplement No. 3* (E/5090-E/CN.9/263).
- (1972). *Measures, Policies and Programmes Affecting Fertility, with Particular Reference to National Family Planning Programmes* (United Nations publication, Sales No. E.72.XIII.2).
- (1973 and 1978). *The Determinants and Consequences of Population Trends, vol. I: New Summary of Findings on Interaction of Demographic, Economic and Social Factors* (United Nations publication, Sales No. 71.XIII.5); vol. II: *Bibliography* (United Nations publication, Sales No. 71.XIII.6).
- (1974). "Report on the Second Inquiry among Governments: report of the Secretary-General", a background paper for the World Population Conference, Bucharest, Romania, 19-30 August 1974 (E/CONF.60/CBP/32).
- (1975a). *The Population Debate: Dimensions and Perspectives. Papers of the World Population Conference, Bucharest, 1974, vols. I and II* (United Nations publication, Sales Nos. E.75.XIII.4 and 5).
- (1975b). *Report of the United Nations World Population Conference, 1974, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. E.75.XIII.3).
- (1977-1980). "National experience in the formulation and implementation of population policies: "Chad" (ST/ESA/SER.R/23); "Cuba" (SER.R/17); "Ghana" (SER.R/27); "Guinea" (SER.R/30); "Indonesia" (SER.R/32); "Iraq" (SER.R/36); "Madagascar" (SER.R/22); "Malaysia" (SER.R/29); "Mali" (SER.R/24); "Mexico" (SER.R/18); "Mozambique" (SER.R/41); "Nepal" (SER.R/34); "Oman"

* All the works referred to below were issued by the United Nations.

- (SER.R/25); "Panama" (SER.R/19); "Peru" (SER.R/20); "Saudi Arabia" (SER.R/35); "Thailand (SER.R/31); "Trinidad and Tobago" (SER.R/21); "United Republic of Tanzania" (SER.R/28); "Yemen" (SER.R/26).
- (1979). *World Population Trends and Policies: 1977 Monitoring Report*, vol. II: *Population Policies* (United Nations publication, Sales No. E.78.XIII.4).
- (1980). *World Population Trends and Policies: 1979 Monitoring Report*, vol. II: *Population Policies* (United Nations publication, Sales No. E.79.XIII.5).
- (1981). *Population Distribution Policies in Development Planning: Papers of the United Nations/UNFPA Workshop on Population Distribution Policies in Development Planning, Bangkok, 4-13 September 1979* (United Nations publication, Sales No. E.81.XIII.5).
- (1982a). *International Migration Policies and Programmes: A World Survey* (United Nations publication, Sales No. E.82.XIII.4).
- (1982b). *World Population Trends and Policies: 1981 Monitoring Report. Vol. II: Population Policies* (United Nations publication, Sales No. E.82.XIII.3).
- (1983). "Population and human rights" (ST/ESA/SER.R/51).
- (1984a). *Fertility and Family: Proceedings of the Expert Group on Fertility and Family, New Delhi, 5-11 January 1983* (United Nations publication, Sales No. E.84.XIII.7).
- (1984b). *Population Distribution, Migration and Development: Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet (Tunisia), 21-25 March 1983* (United Nations publication, Sales No. E.83.XIII.3).
- (1984c). *Population, Resources, Environment and Development: Proceedings of the Expert Group on Population, Resources, Environment and Development, Geneva, 25-29 April 1983* (United Nations publication, Sales No. E.84.XIII.12).
- (1984d). *Mortality and Health Policy: Proceedings of the Expert Group on Mortality and Health Policy, Rome, 30 May-3 June 1983* (United Nations publication, Sales No. E.84.XIII.4).
- (1985). *World Population Trends, Population and Development Interrelations and Population Policies: 1983 Monitoring Report, Vol. II: Population and Development Interrelations and Population Policies* (United Nations publication, Sales No. E.85.XIII.2).
- (1986a). "Population policy briefs: the current situation in developing countries and selected territories, 1985". Population Policy Paper No. 2 (ST/ESA/SER.R/62).
- (1986b). "Population policy briefs: the current situation in developed countries and selected territories, 1985". Population Policy Paper No. 3 (ST/ESA/SER.R/63).
- United Nations (1986c). "Population growth and policies in mega-cities: Calcutta" (ST/ESA/SER.R/61); "... Seoul" (ST/ESA/SER.R/64).

INTERNATIONAL CO-OPERATION

THE POPULATION COMMISSION AND IUSSP

*International Union for the Scientific Study of Population**

SUMMARY

This paper describes the interactions between the United Nations system and IUSSP since the Second World War, noting that those co-operative efforts have antecedents going back to the last century.

In 1927 an International Population Conference, held at Geneva, established a permanent Population Union, which was to co-operate with the population activities of the League of Nations. However, the two institutions were not able to agree upon a collaborative programme. Their successors, however, IUSSP and the United Nations, were able to develop close and productive linkages.

The Union and the United Nations collaborated to create a *Multilingual Demographic Dictionary* which was published in English, French, Russian and Spanish by the United Nations and in many other languages by IUSSP. Meanwhile the Union, at the request of UNESCO, prepared a pioneering study which attempted to define the cultural factors affecting the fertility of developing countries in the context of the demographic transition.

In 1966 the Union collaborated with the United Nations to develop criteria for internationally comparable studies in fertility and family planning. The resulting monograph served as a reference for many fertility studies, including the World Fertility Survey. That work was followed by collaborative study on the impact of family planning programmes on fertility, which resulted in the organization of expert meetings and the production of a manual and monographs on the evaluation of family planning programmes.

The Union also co-operated with the United Nations in a study on mortality, internal migration and international migration. Among the results of that co-operation were a manual on methods of analysing internal migration and a manual on indirect measures of emigration. The 1954 World Population Conference and the 1965 United Nations World Population Conference were organized by the United Nations in close collaboration with the Union. Furthermore, the Union administered the funds used to bring delegates from developing countries to the Conference.

The subsequent World Population Conferences which took place at Bucharest and Mexico City were political in nature. Nevertheless, the Union was able to contribute to both Conferences a report outlining needs for demographic research. The Union also assisted the United Nations system in organizing a series of regional population conferences.

The Union's Committee on Demographic Instruction prepared a report for UNESCO on the teaching of demography. The Committee also co-operated with the Secretariat in funding United Nations Regional Demographic Training Centres at Bombay and Santiago.

* Prepared by Marc Lebrun, Associate Director of IUSSP, with the assistance of other IUSSP staff, and edited by its President, William Brass.

All these collaborative activities taken together fail to portray the full extent of interrelations between the Union and the United Nations system. Equally important is the participation of the Union's members in United Nations meetings and the participation of members of the Secretariat in the work of the Union.

INTRODUCTION

This paper deals with the relationships between the International Union for the Scientific Study of Population (referred to as the Union) and the United Nations during the past 40 years. It may seem surprising that it has been possible to establish fruitful collaboration between a private organization, which, although rich in individual talents, has only limited resources at its disposal, and the United Nations, which possesses a strong infrastructure of both finance and personnel, supported by Governments.

An account of the relations between the two organizations shows that, in spite of their disparate sizes, they could maintain a dialogue as equals and engage in fruitful common endeavours. The reason is that the two complement each other. The Union is a learned society, consisting of individuals who have been elected by reason of their contributions to the scientific study of population. It will come as no surprise that many of its members have occupied senior positions in the specialized agencies of the United Nations and in its Secretariat. The sense of belonging to a common community through membership in the Union made joint projects between the two organizations possible.

In addition to the human factor, the need, on occasion, to take action urgently and the political aspects of certain projects led the United Nations to confide certain studies to the Union, because it could operate more flexibly and because it was institutionally neutral. Any account of the relations between the Union and the United Nations must form part of the history of international collaboration in demographic research. It will be helpful to go further back than the past 40 years and provide a brief summary of the situation before 1945.

Organized scientific collaboration in demography began during the nineteenth century (more precisely, between 1853 and 1877). That was the period when international statistical congresses were held on the continent of Europe. Demography, at the time, was not an independent discipline but formed one branch, perhaps the principal branch, of statistical science. From the very beginning of the congress era, vigorous attempts were made to collect demographic data and to make them internationally comparable. Suggestions for the production of an international statistical yearbook were put forward. There was a brief interruption in activities after the death of Quetelet, who had been the moving force during the first meetings, but international collaboration revived with the formation, in 1885, of the International Statistical Institute, whose primary purpose was the harmonization of international official statistics, a task in which it achieved a fair measure of success. The Permanent Office of the International Statistical Institute, which was set up in 1913, was also asked to take responsibility for producing an international statistical yearbook. However, when the League of

Nations and its specialized agencies (the Economic and Financial Section, the International Labour Office and the Health Organization) were set up after the First World War, the International Statistical Institute gradually lost its predominant function in the field of international demographic statistics. After the Second World War, the Statistical Office of the United Nations took responsibility for those tasks, which had originally been formulated by statisticians during the nineteenth century. It would be impossible to overemphasize the importance of the part played by the Office in improving methods of collecting demographic statistics and ensuring their international comparability. The results can be seen in the United Nations *Demographic Yearbook*.

The first initiatives which led to international collaboration related to observations and data collection, activities which are the foundation on which all scientific advances must rest. Once those tasks were being successfully tackled, demographers began to feel the need to hold meetings at which the causes and consequences of demographic phenomena could be investigated and discussed. It is in that context that the International Population Union was founded during the period between the two World Wars.

The World Population Conference in 1927, the foundation of the Union and its relations with the League of Nations

In 1927, the League of Nations and its specialized agencies were the key organizations for international collaboration in the field of demography. The President of the American Birth Control League, Margaret Sanger, put forward the idea of holding an international population conference shortly before the opening of the annual General Assembly of the League, with the object of persuading the League to include problems of population and birth control on its agenda and in its work programme. Although Margaret Sanger had wished to use the Conference as a vehicle for publicizing neo-Malthusian views, the World Population Conference, which took place at Geneva from 29 August to 3 September 1927, was a scientific discussion of population problems. In addition to examining those problems, the Conference resolved to set up a permanent Population Union which would co-operate with other scientific organizations, including those connected with the League of Nations. Margaret Sanger's hopes that the League would sponsor the Conference were disappointed: the League was divided in its views on population, as on many other matters. However, many members of its secretariat, including Albert Thomas, the Director of the International Labour Office, participated in the Conference in their personal capacity.

Although the Union, which was officially founded in July 1928, was originally set up in the hope of collaborating with the League of Nations and establishing links with it, the two organizations were unable to agree on concerted

action in the field of demographic studies. That unfortunate inability to co-operate could be ascribed to institutional defects in both organizations, caused by the ideological disagreements that so often prevented international collaboration in those years of turmoil. The disagreements resulted in a degree of immobility. Before its reorganization in 1947, the Union was a federation of autonomous national committees, which were subject to pressure by their own Governments. Also, like the League, it was not a universal organization; it never contained more than 16 national committees, unevenly spread across Europe and America. As far as the League is concerned, it will be recalled that several of the largest world powers never became members. Moreover, because of its desire not to be drawn into ideological disagreements, the League confined its functions in the demographic field to the collection and publication of the principal statistics derived from censuses and vital registration, a narrow activity which did not give a great deal of scope for international collaboration in the analysis or interpretation of population movements. After the Second World War, the League of Nations was replaced by the United Nations, and the IPU's organization was also radically changed at its General Assembly held at Washington, D.C., in 1947. The institutional reforms, together with a more stable international climate, made a fresh start possible.

Following the meeting in Washington, the new objects of the Union were expressed by Liebman Hersch in terms which deserve to be quoted in full, because they have remained in force to the present day.

"1. Encourage the extension and intensification of demographic observation and analysis in all countries.

"2. Contribute to the integration of demographic knowledge dispersed in space and in time and among groups with peripheral interest in demography: health, nutrition, levels of living, social structure, culture, etc.:

"(a) Through establishing more intimate personal contacts among demographers of different countries, languages, and fields of specialization by means of assemblies of the Union, world and regional conferences, etc.;

"(b) Through establishing and maintaining close contact and, in so far as possible, active collaboration with other national and international organizations, both governmental and non-governmental, interested in population problems, most especially the International Statistical Institute and the Population Division of the United Nations;

"(c) Through efforts to determine and to standardize so far as possible demographic terminology in different languages;

"(d) Through propagating bibliographic knowledge encompassing demographic works earnestly selected from different languages, countries, epochs, and special disciplines.

"3. Encourage the diffusion of demographic knowledge through literature and instruction and contribute to the clarification of public opinion and governments with the objective:

"(a) Of developing demographic observation, analysis, and instruction, and

"(b) Of establishing a rational collaboration between action and science relating to population.

"4. Finally and above all, in whatever collaboration there may be with other organizations, to maintain the strictly scientific character of our Union. In its collaboration with political, social, religious, and other organizations, our Union ought to have as its motto: *To serve practical action—yes, to the full measure of its real possibilities; to become subject thereto—no.*

"And even in rendering service to practical action, we must never forget that demography, like all science concerned with man, has as categorical imperative the quest of the welfare of man and of humanity and, as consequence, must never make itself the instrument of an action with contrary aim. In a word: *Never to abandon scientific truth and never to deviate from humanity.*"

During the past 40 years the Union has been successful in pursuing its objectives. An account of the activities which it undertook jointly with the United Nations will illustrate some of the facets of its work.

JOINT SCIENTIFIC ACTIVITIES

International demographic terminology

Following the interruption due to the Second World War, demographers began to feel the need for a multilingual demographic dictionary, which would make for easier collaboration between those with different mother languages. A project for the preparation of such a dictionary was adopted by the Population Commission, at its fourth session. The resolution opened the way for one of the most successful collaborative projects between the Union and the United Nations. At its meeting held in late August 1949, the Union offered to assist the United Nations in the compilation of the dictionary and set up a committee which was given the task of preparing the volume. At the fifth session of the Commission, the Union's offer was accepted and its committee asked to prepare three versions, in English, French and Spanish. Unlike conventional dictionaries in which the entries appear in alphabetical order, the draft dictionary consisted of three monolingual volumes with identical contents, each of which contained a text in which the demographic terms were defined, as well as an alphabetical list of all the terms defined in the text. The terms were given a unique reference number, which was the same in each of the three languages, so that the analogue of a term in one language could be found in the other two. This original treatment served a number of purposes: it was useful to translators who were looking for a glossary, to students who wished to consult a manual, and to experienced demographers who wished to check the exact meaning of a term and verify its definition. The Committee which prepared the draft was chaired by Paul Vincent (France), and its members were Carlos E. Dieulefait (Argentina), Harold F. Dorn (United States), Eugene Grebenik (United Kingdom), Pierpaolo Luzzato-Fegiz (Italy), Marcelino Pascura (Switzerland) and José Ros Jimeno (Spain).

A first draft in the three languages, based on the French text, was published as a "provisory edition" at the World Population Conference in Rome in 1954. The publication aroused considerable interest, and members of the Committee were able to benefit from the advice and criticism of many colleagues. The fact that usages differed somewhat between English and the Romance languages was pointed out, and critics stressed the need to adopt a compromise between those different points of view. The volumes were revised in the light of the criticism received by the three principal editors, (Paul Vincent (French), Eugene Grebenik (English) and José Ros Jimeno (Spanish)) and were submitted to the Population Commission, the Council of the Union and to a number of experts for a final vetting. Publication by the United Nations (Population Studies No. 29) signalled the completion of a complex task which had taken nearly 10 years. In 1964, the United Nations published a Russian version, thus completing the work in the four official languages. However, the Union's committee continued in existence and sponsored the preparation of volumes in other languages as well. The dictionary was published in German, Czech, Swedish, Polish, Portuguese, Serbo-Croat, Italian, Finnish, Arabic, Hebrew and Romanian. The range of those little yellow volumes bears witness to their value for demographers throughout the world.

During the 10 years following the publication of the *Multilingual Demographic Dictionary*, population research expanded at an exceptionally rapid rate, as the importance of the relationship between demographic variables and social and economic development was increasingly recognized. With the availability of substantial research funds, new methods of analysis were devised and hitherto unexplored areas of the subject studied. Moreover, the growing use of computers led to innovations in the collection and analysis of demographic data. Those important changes had an effect both on the concepts and the terminology of demography. In view of those developments, the Union's Council decided at its meeting in April 1969 that the time had come to embark on a revision of the *Dictionary's* first edition.

The task was entrusted to a Committee on International Demographic Terminology, whose work resulted in the publication of a new French version in 1981 (edited by Louis Henry), an English version in 1982 (edited by Etienne van de Walle) and a Spanish version published in 1985 (edited by Guillermo Maccio) under the joint sponsorship of the Union and the Latin American Demographic Centre (CELADE). The revision was accomplished in close consultation with the Population Division in conformity with the resolutions of the Population Commission and paragraph 92 of the World Population Plan of Action.

Fertility and family planning

It was in 1951 that the Union established a Committee on Population Problems of Countries in Process of Industrialization¹ which carried out at the request of UNESCO a study on social and cultural conditions affecting fertility in non-industrial societies. The survey was undertaken under

the auspices of the Committee as part of UNESCO's programme for promoting cross-national and interdisciplinary understanding of population problems. This significant project was supervised for the Committee by Frank Lorimer, who edited the book that was published from the research findings. The book² includes a general theory and a set of case studies (they would now be called micro demographic studies) dealing with African populations. The contribution of Frank Lorimer to the theory of fertility in the less developed countries can be regarded as a pioneering attempt to define the cultural factors affecting human reproduction in the innovative context of demographic transition.

As with the demographic *Dictionary* there has been a long and fruitful collaboration between the Population Commission and the Union in the study of fertility. At its thirteenth session, the Population Commission requested the Secretary-General to include in the Population Division's work programme studies which would facilitate a comparative analysis of the factors that affected family planning and fertility in different countries. The Commission specified that the long-run (1965-1980) objectives of such a study should be to enlarge and deepen knowledge of the factors which affected fertility and, in particular, to forecast its likely future course, taking account of social and economic conditions and of factors which influenced the regulation of numbers of births in developing countries, for as many different cultures as possible. In 1966, the Secretary-General accepted the Union's offer of a joint project designed to establish criteria to be observed in launching internationally comparable studies of fertility and family planning. The topic formed part of the remit of the Union's Committee on Comparative Studies of Fertility and Family Planning³ which had been set up at Belgrade in 1965.

The Secretary-General requested the Union to prepare a document entitled "Variables for comparative fertility studies"⁴ for submission to the fourteenth session of the Population Commission. The document having been favourably received, the Secretary-General was requested to investigate the possibility of other forms of collaboration with the Union which would make it possible to publish reports of the Union's Committee under United Nations auspices. As a first step, the Committee drew up a detailed list of variables and a model questionnaire to serve as a basis for comparative studies of fertility and family planning at an international level. Their efforts resulted in the publication, in 1970, of a monograph in the United Nations series of Population Studies (No. 45) entitled "Variables and questionnaires for comparative fertility surveys". The publication of this valuable reference document was of great help to those who were to conduct the many fertility surveys that were organized during the 1970s, not least those carried out under the auspices of the World Fertility Survey, a global project directed by the International Statistical Institute in association with the Union.

The second phase of collaboration between the Union and the United Nations in this field was concerned with the impact of family planning programmes on fertility. This was in conformity with the wish expressed by the Popula-

tion Commission at its seventeenth session. The Secretary-General organized a meeting of an expert group in Geneva from 20 to 27 April 1976 which was attended by, among others, members of the Union's Committee on the Demographic Aspects of Family Planning⁵. This group agreed to a recommendation by the Population Commission that a manual on methods of evaluating the success of family planning programmes should be prepared. Such a manual would be valuable, because at the time only a small number of experts were familiar with this topic, and it seemed desirable to disseminate the knowledge to a wider circle. The manual, edited by the Population Division in close collaboration with the Union's committee, was published in 1980 and became the ninth in a series which is well known throughout the world.

In addition, the Working Group of Experts which met in 1976 produced a monograph on methods for measuring the impact of family planning programmes on fertility which was published in 1978 as No. 61 in the United Nations series of Population Studies.

The second meeting of the Expert Group took place at Geneva from 19 to 26 March 1979. It was again jointly organized with the Union's Committee on the Demographic Aspects of Family Planning⁶ and was helped financially by the United Nations Fund For Population Activities. The studies begun by the first committee were continued. A list of factors which presented obstacles to the international comparability of results was drawn up, and proposals were put forward to overcome these difficulties. The meeting resulted in the publication of a monograph by the United Nations, entitled "Evaluation of the impact of family planning programmes on fertility" (Population Studies No. 76).

The third meeting of the Expert Group, organized in a similar way, took place from 19 to 23 April 1982. This meeting, too, resulted in a United Nations document, 'Studies to enhance the evaluation of family planning programmes' (Population Studies No. 87). This last meeting marked the provisional end of an exemplary collaboration in which members of the Union's Committee were associated with the work of the United Nations, particularly the Population Division's section on fertility and family planning. The Committee's activity extended over a period of great change in the usage of family planning and in the interpretation and measurement of its consequent impact on fertility. Its work, particularly in the design and analysis of fertility and family planning surveys, made a significant contribution to these advances.

Mortality

Although the study of mortality constituted the main interest of demographers of the past, it must be admitted that research into this subject was relatively neglected by the Union for a long time. The first of the Union's research committees in this field was not set up until 1978. However, during the first 20 years of its existence, the United Nations, too, devoted relatively less attention to mortality as a factor in population change, mainly because of the greater urgency of problems relating to fertility and family planning. Following a joint meeting held in 1968 by the

United Nations and the World Health Organization which was devoted to an analysis of trends and levels of mortality, the two organizations engaged in a series of common activities which culminated in a seminar on Interregional Analysis of Mortality in 1972. As part of this programme, the Union and its Committee on Biological and Social Factors Affecting Mortality and the Length of Life were invited to sponsor international meetings in which the socio-economic correlates of mortality could be examined. The meeting which took place at Mexico City between 19 and 25 June 1979 was organized within the guidelines of the World Population Plan of Action, which stressed the relationships that existed between the reduction of mortality and morbidity, on the one hand, and social and economic development, on the other. The meeting made it possible to identify a number of factors which determined mortality differences and to pinpoint gaps in our knowledge of the social and economic consequences of these differences.

It is also appropriate to mention the first Colloquium on Historical Demography in Developing Countries, which occurred at San José (Costa Rica) in 1984. The Colloquium was organized jointly by the Union and the Latin American Centre for Demographic Studies (CELADE) with the theme "Mortality and orphanhood in populations of the past". It showed the links which exist between understanding some of the problems of population history and those of contemporary developing countries. In particular, the applicability of the same methods to study problems in both these fields was stressed. This association between the Union and CELADE strengthened the capacity to advance knowledge in both aspects of demography.

Internal migration

Following the World Population Conference which met at Belgrade in 1965 under the auspices of the United Nations, the Union decided to set up a Committee on Internal Migration.⁷ This Committee decided to produce a manual dealing with the methods of analysing internal migration, with special reference to the use of census data. The manual was ultimately to be published by the Population Division of the United Nations. One of the Committee's members, K.C. Zachariah was asked to produce a first draft of the chapters which dealt with concepts, definitions, sources and uses of certain census data. The draft was circulated to members of the Committee and of the Secretariat of the United Nations for comments and suggestions. A revised version contained notes on population registers and on methods for using the results of sample surveys. In 1969, the Committee's chairman, assisted by Hope T. Eldridge, produced a final version of the text, *Manual VI*, published in the official languages of the United Nations, beginning in 1970. Since that date the Population Division has been associated with the activities of those specialized committees of the Union which took over the work of the original Committee on Internal Migration. The present Committee in co-operation with the Population Division is preparing a revised version of *Manual VI*.

International migration

This subject, by its very nature, is suitable for international collaboration. The full analysis of the determinants and consequences of migration flows between countries requires that the countries concerned should be prepared to exchange information and to co-ordinate their studies. For the Union and the United Nations two aspects of international migration have been of particular interest—namely, forced migrations during the period following the Second World War and, more recently, the increase in migration flows occasioned by rising demand for labour due to economic growth and including new countries becoming countries of immigration—i.e., the Gulf States. The financial remittances by migrants to their countries of origin can be very important for the economics of some developing countries.

As far back as 1949 UNESCO suggested to the Union that two sessions at its Conference should be devoted to studies on the cultural assimilation of immigrants. The Union willingly agreed to this suggestion, because the topic incorporated a number of problems which were of interest to demographers, both at a practical and a theoretical level. The initiative resulted in the publication of a joint monograph which contained all the papers presented at the meetings, together with an account of the subsequent discussion. The preliminary phase was followed by a second, the outcome of which was a general annotated bibliography which, again, was published with financial assistance from UNESCO.

A more recent initiative was undertaken by the Union's Working Group on the Methodology for the Study of International Migration,⁸ which was set up by the Council in 1978. The Group specified two objectives designed to improve knowledge of international migration.

The first was to develop a programme to persuade Governments to include a question on country of birth in all population censuses, to stimulate national statistical offices to standardize the coding and tabulation of data collected in reply to this question and produce statistical tables relating to individuals resident in the country but born in another, and finally to propose a method for constructing such tables. Suggestions were included in a pamphlet which the Union sent in February 1981 to every national statistical office as well as to the Population Commission and the Statistical Commission of the United Nations. Both the United Nations organizations reacted favourably to the Union's suggestions. The proposals were finally examined by an expert group called together in September 1981 by the Statistical Office. At the Union's suggestion, that Office has, since 1981, accepted responsibility for the exchange of statistical information relating to persons who were born outside their country of residence.

The second objective of the Working Group was to develop methods to estimate the amount of emigration from answers to simple questions included in population censuses or household surveys. Two different kinds of indirect measure were explored in pilot surveys organized by CELADE in Bolivia in 1980 and in Barbados in 1981. This experiment, which was organized jointly by

CELADE and the Union, was followed by a seminar in May 1982, sponsored by the two organizations, in which the results of the Barbados pilot survey were analysed. A number of important publications resulted from the seminar—in particular, a manual on indirect measures of emigration, which was published in 1986.

Population policies

In the programme of the 1954 World Population Conference, only one session was devoted explicitly to population policies—a session which was primarily concerned with the role of research in policy formulation and monitoring.

However, policy issues linked with the interactions between economic and social factors and population growth and distribution were implicitly examined in many other sessions of the Conference, which dealt with mortality trends, food requirements and prospects, economic welfare of the least developed countries and international migration. It seemed desirable to make available to the Conference, a background document, a survey of recent developments in some of the main areas of population policies. This initiative came from UNESCO and the part played by the Union was to appoint a directing committee⁹ and to invite Hope T. Eldridge to carry out the necessary research and write the report.¹⁰

Some of the activities of the Union in the field of demographic policies were implemented in part with the collaboration of the United Nations staff. Among these were the organization at the 1977 IUSSP General Conference of one *ad hoc* formal session to review the implementation in the regions of the World Population Plan of Action adopted in 1974 by the United Nations World Population Conference¹¹ and various specific contributions to scientific committees of the Union undertaking policy-related research.

WORLD AND REGIONAL POPULATION CONFERENCES

The World Population Conference which met in Rome from 31 August to 10 September 1954 was the first United Nations conference to be devoted to the discussion of problems of population. It was organized in close collaboration with the Union. The official history of the Conference, states that the idea of calling a world conference was first mooted by the Director General of UNESCO at the third session of the Population Commission. It should be noted that the then Director General was Julian Huxley, who had been one of the most active participants at the 1927 Conference initiated by Margaret Sanger. The official minutes also show that the Secretary-General of the United Nations presented a similar motion which originated from the Union to the Population Commission. However, although the formal proposal was submitted by the Union's representatives, its terms were drafted jointly by the Director of the Population Division and Frank Lorimer, who was Administrative Director of the Union from 1948 to 1957. He wrote:

"The inside story of arrangements for the first World Conference on Population under United Nations auspices in 1954 was known to only a few persons, none of whom except myself are still living. It began with a

telephone message to me from John Durand when he was the Director of the United Nations Population Division. At that time I was the Union's Administrative Director in Washington, D.C. He reported strictly *confidential* information from a higher United Nations official that the Social and Economic Council at its forthcoming session would welcome a proposal by the Union that it organize a world conference of 'experts' on population questions. (It had rejected a proposal by UNESCO while Julian Huxley was its General Director because they thought that Huxley would promote an active program to which many of the member nations would object.) John Durand suggested that prompt action would be advantageous. Accordingly, I immediately sent letters to all members of the Union's Council to ask whether or not they would favor a proposal for a conference, but I did not consider it proper to report the precise nature of the confidential information that I had received from Durand. Monsieur L. Hersch in Geneva, who was the Union's President, was greatly disturbed. He feared that I was leading the Union into political affairs, and was offended that I had not corresponded with him before writing to the other members of the Union's Council. He sent letters to them in which he urged them to *reject* the proposal. In spite of this the members endorsed the proposal and the United Nations authorized the convocation of a conference 'in close co-operation' with the Union for 'the exchange of ideas and experience'. It stated that the participants should act 'in their individual capacity' as scientists. The commission appointed to organize its program comprised active members of the Union. They ruled that no resolutions should be adopted. The conference was generally considered to have been advantageous by those who participated in it, including Monsieur Hersch who was appointed its President. All's well that ends well!"

The Union's proposals were accepted. Other interested organizations and institutions were consulted and in 1952 the Economic and Social Council adopted a resolution approving the convocation of a World Population Conference in 1954 to be organized under the auspices of the United Nations in co-operation with the specialized agencies and the Union. The Union was invited to nominate representatives to serve on the Conference's Preparatory Committee.

The Conference was attended by 450 experts from 66 countries; unfortunately no representatives came from China. It was characterized by its very wide scope. Some 400 papers were presented, covering almost all aspects of population studies. Nor were the papers confined to narrowly demographic topics. Participants came from many different disciplines and the relationship between population and economic, social, moral and ideological variables was considered.

The innovative aspect of the Conference was that it was designed not merely to increase scientific knowledge. It was also orientated towards practical issues, and the discussions were designed to alert Governments and the general public to the importance of population problems in the current world situation and to clarify the nature of the

practical measures which needed to be taken to deal with those problems. The Conference was a first attempt to consider the relationships between demographic science and population policy on a global scale. Today, after four world population conferences, the conditions necessary for success in this endeavour are better understood. In Rome, some well known participants regretted that the Conference had adjourned without making any recommendations to Governments on population policies. But the Conference was urged to avoid passing such resolutions. According to Liebman Hersch, the Union's views on this matter, after consultation with the United Nations were put forward under four headings:

(a) Scientific truth is not measured by a majority of votes;

(b) Our knowledge of the problems was insufficient to suggest policies which could be scientifically validated, given the complex and varied circumstances in different parts of the world;

(c) Any suggestions for the adoption of practical policies would imply the formulation of objectives and value judgements which, by their very nature, lay outside the scope of science;

(d) Any attempt to adopt resolutions on policy would shift discussion from the scientific to the political arena, and would lead to horse-trading and compromises between different and divergent political interests.

On its side, the Economic and Social Council, after making inquiries among Governments of member States, accepted the suggestion for a conference on condition that the conference should be solely devoted to the exchange of ideas between experts and of experience in the demographic field. Thus, both the Union and the United Nations were agreed that no resolutions were to be put before the Conference, which should be confined to the compilation of scientific documentation.

It is possible to argue that the directives of the Economic and Social Council were interpreted too narrowly. Liebmann Hersch did not attempt to hide his regrets that the directives were interpreted so as to inhibit the Conference from adopting resolutions on such technical subjects as the improvement of demographic data, the comparability of population statistics from different countries and the teaching of demography.

"No Government could take exception to such resolutions, which would have led to an advance in demographic knowledge and drawn the attention of the general public in different countries to the need for concrete action in the field of demographic studies, and thus arouse a greater interest in population phenomena. In deference to the wishes of the Economic and Social Council, the Conference refrained from passing such resolutions and this is to be regretted."

At the end of his critical analysis, Hersch suggested that the Conference also failed to achieve another of its objectives. It was supposed to draw the attention of both Governments and the general public to the national and international importance of population problems, and Hersch believed that it had failed to do so. However, notwithstanding these criticisms, the Conference succeeded

in bringing demographic research workers and policy makers closer together and this *rapprochement* proved of lasting value. Following the experience of Rome, three further population conferences were organized under United Nations auspices. Relations between the Union and the United Nations and its agencies, particularly with the Population Division, remained cordial. The seven fat volumes of *Proceedings* which may be found on the shelves of demographic libraries throughout the world stimulated further researches based on the documentation prepared for the Rome Conference.

Lastly, two important points must be mentioned in any account of the influence of the first World Population Conference on the development of demography. The first is the arrival on the scene of demographers from developing countries, who had rarely participated in international meetings before the War. The world-wide scope of the Rome Conference put an end to the situation, intolerable on purely scientific grounds, which gave only marginal importance to those countries. Secondly, it was reaffirmed that the tensions in international relations which existed at the time should not be permitted to impede collaboration in the demographic field.

The second United Nations World Population Conference took place 11 years later at Belgrade. It was again organized in co-operation with the specialized agencies and the Union. A preparatory committee met on four occasions, and experts nominated by the Union took a prominent part in those meetings. In response to the Union's suggestions, the Secretariat prepared a programme consisting, in addition to the opening and closing sessions, of 23 different sessions devoted to population trends, their determinants and consequences in social and economic terms, measures of population policy and problems of demographic analysis. The Conference was attended by 852 delegates, nearly twice the number at the previous Conference in Rome. The increase was largely accounted for by greater participation of delegates from the developing countries. In accordance with the rules approved by the Economic and Social Council which governed the organization of non-governmental meetings, funds designed to help delegates from developing countries to attend the Conference were collected and administered by the Union.

At the closing session, which was presided over by David Glass, Frank Lorimer gave an address on behalf of the Union. His opening words caused general amusement.

"As you are simultaneously President of the International Union and Chairman of the Conference, it will be difficult for you to report to yourself on behalf of the Union. That is why the honour of delivering this address has fallen to me."

He then proceeded to describe the links which existed between the Union and the United Nations and was pleased to note the existence of a consensus on the urgency and complexity of population problems, which was shared by delegates of different political and religious persuasions.

The first two population conferences were scientific meetings organized in close co-operation with the Union.

When preparations for a third conference began, the Population Commission decided to change its nature, for two reasons. In the first place, they wished to devote particular attention to the efforts of Governments to co-ordinate their demographic policies and to achieve a general consensus. In the second place, they wished to avoid the duplication of effort which would have occurred if a scientific conference had been organized in parallel with the Union's General Conferences which had met regularly and grown to an impressive size. It was, therefore, decided that the next conference should have a political character and be attended by governmental representatives who would be decision makers. Thus, the United Nations World Population Conference, at Bucharest in 1974, and the International Conference on Population, at Mexico City in 1984, differed from those in Rome and Belgrade. The role of the Union, which was recognized by the United Nations as an international non-governmental organization at the later conferences was, therefore, considerably more restricted. However, at the request of the United Nations, the Union drafted a report dealing with demographic research needed and presented it to the Bucharest Conference. A similar review was later prepared and published for the benefit of the International Conference at Mexico City.

In addition to helping with the Population Conferences, the Union has organized a number of regional conferences in Asia and Oceania, Latin America, the Caribbean and Africa. They were planned for two reasons. The first was the similarity of demographic, economic and social problems and their relation with cultural and religious variables in specific regions. The second was the desirability of bringing together larger numbers of research workers who were studying related problems in the region than was possible at a world level.

The first regional conference, held at Sydney in 1967, was concerned with demographic trends in the region served by the Economic Commission for Asia and the Far East (ECAFE, later ESCAP). Some problems specific to the region, which had been discussed in broader terms at Belgrade, were dealt with.

The Latin American Demographic Conference met at Mexico City in August 1970. It was organized by the Union in collaboration with the Economic Commission for Latin America (ECLA) and with CELADE. Some 200 Latin American demographers attended the Conference, the first major meeting entirely devoted to population problems held in Latin America.

A suggestion by the Union to hold a regional population conference for Africa was favourably received by the Economic Commission for Africa (ECA) and by the Conference of African Statisticians in 1967. The Conference, organized jointly by the Union and ECA, met at Accra (Ghana) between 9 and 19 December 1971. It was the first meeting of its kind and some 300 persons attended, most of them research workers from African countries and a variety of different disciplines. The main theme of the Conference was "Population in African development". Technical problems relating to the collection and analysis of demographic data were discussed, but the Conference also considered how a deeper and more comprehensive understanding of population topics could be used effec-

tively in such fields as public health, education, employment, and the geographical distribution of the population. The meeting marked a significant stage in the development of demographic studies on the African continent.

TRAINING

UNESCO has taken an interest in teaching of the social sciences because of their importance in education for citizenship and of their contribution to international understanding. For these reasons the General Conference authorized the Director General to commission a number of surveys dealing with the teaching of different social sciences. A general survey of social science teaching was authorized by the UNESCO General Assembly at its fifth session in May/June 1950.

From 1955 onwards, the general survey was extended to include such disciplines as statistics, criminology, the administrative sciences, and demography. UNESCO invited four non-governmental international organizations to participate in those aspects of the survey which lay within their own field of interest and to assist in drafting a report to be published under the general title "The teaching of the social sciences". In 1955 at its General Assembly in Rio de Janeiro the Union agreed to collaborate in the survey. The Council was authorized to act and set up a Committee on Demographic Instruction. It had already nominated a committee to consider textbooks and demographic documentation. That committee¹² was given the additional task of surveying the teaching of demography as a whole and drafting the report which had been requested by UNESCO. A contract was drawn up in September 1955, and the report was published by UNESCO in 1957. It began with a general summary in which the nature of demography was discussed, the organization of teaching the subject described, and the needs set out. The general summary was complemented by a number of papers which reported on the situation in 29 different countries. After the publication of the monograph, the need for a bibliography of demographic literature was also felt. In response to this demand, the Committee on Demographic Instruction of the Union commissioned Hope T. Eldridge to compile and annotate such a bibliography. Her work, published in 1959 and covering teaching materials in English, was first in a series sponsored by the Union. The second work in the series was devoted to materials available in French, and was prepared by Jean-Claude Chasteland. It was published in 1960, with the assistance of INED.

In addition to the preparation of the monograph, the Committee on the Teaching of Demography also co-operated with the Secretariat of the United Nations following the foundation of the first United Nations regional demographic training centres during the 1950s in Bombay and Santiago. Consultative committees were set up for each of these two centres to provide technical advice on their teaching and research programmes. The Committee on the Teaching of Demography was associated with these consultative committees from their foundation.

As a contribution to the advancement of demography in developing countries, the Union has since 1981 instituted a

training programme for younger demographers in new methods of data collection and population analysis. In co-operation with the Institute for Demographic Training at Yaoundé and the Group on African Demography in Paris, a regional course for francophone practising demographers was held. The first phase of the training was given at Yaoundé in June 1981. Its object was to familiarize some 15 trainees with the use of the principal techniques of demographic analysis and the assessment of limitations by working with actual data. The course also included some of the specialized applications of computers to demography. The second part of the course, given at Bordeaux in November 1982, dealt with problems of demographic observation and data collection.

Between 1982 and 1986, the training programme was organized by the Task Force on the Collection, Estimation and Adjustment of Demographic Data in Developing Countries. It covered both training courses and regional colloquia. For instance, a joint colloquium with CELADE was held in 1984 on the use of generalized stable population methods in the measurement of demographic phenomena. The colloquium was addressed to experienced research workers from the Latin American region. Directed by Jorge Somoza it was considered an extremely successful venture and formed a valuable part of the collaborative efforts of CELADE and the Union.

CONCLUSIONS

The preceding part of the paper has been limited to a description of joint activities in research or the furtherance of demographic knowledge officially organized by the Union and the United Nations, following the guidelines laid down by the Population Commission and the Secretary-General of the United Nations, on the one hand, and the Union's Council, on the other. However, these are only the visible signs of the iceberg.

Considerations of space forbid the description of the many initiatives and activities which occur in the day-to-day collaboration between the two organizations. The relationships are of two kinds. First, there are the contributions which the Union and its specialized scientific committees make to programmes administered by the United Nations: participation in expert groups and on the consultative committees of the regional institutes for demographic training and research. Conversely, members of the Secretariat of the United Nations and its specialized agencies regularly take part in Union activities by serving as officeholders at its meetings, seminars and colloquia and by participating in many capacities in the work of its scientific committees.

The table below is an attempt to illustrate the abundance and the diversity of scientific contributions submitted at recent IUSSP General Conferences by members of the United Nations Secretariat and its specialized agencies. In order to have comparable figures, the account was limited to only published contributions presented at the four last Conferences which were organized along a similar structure. For those four Conferences it is observed that 490 contributions were published in the Proceedings: Liège (1973): 95; Mexico (1977): 120; Manila (1981): 149; and

Florence (1985): 126. Globally, the contribution from United Nations staff members amounts to around 15 per cent.

The account has been mainly concerned with the specific aspects of projects which have been carried out during the past 40 years, but a word must be said about ways and means. An important part of the Union's activities has been made possible through help from the United Nations Fund for Population Activities (UNFPA). Without this generous supply during the past 12 years or so, the Union's function in serving demography throughout the world would have been much more limited.

Over the period the nature and forms of collaboration

between the United Nations and the Union have changed, gradually rather than dramatically. The trends have been inevitable since they arise from the developments in demography and not the accidents of individuals or institutions. Perhaps the most important determinant has been the increasing interlinking of population science with other disciplines: economics, epidemiology, anthropology, politics, history are only a few. As a result many activities now must be pursued through a wide consortium rather than a regular partnership. Nevertheless there is a set of topics which remain the core of demography, where the traditional ties of the United Nations and the Union remain as strong as ever and the need for the closest possible collaboration as pre-eminent.

Published contributions^a by United Nations staff members in the IUSSP Proceedings of General Conferences, from 1973 (Liège) to 1985 (Florence), by topic

Professional affiliation	Fertility and family planning	Mortality	Marriage and family demography	Migration and spatial distribution	Interrelationship between economic and demographic factors	Policies	Data collection, methodology and projections	Roles of women	Teaching
Population Division, United Nations .....	..	1	2	1	..	3 1/2	3	..	..
Statistical Office, United Nations .....	..	..	..	..	..	..	3	..	..
Regional commissions	3	3	..	2	1	..	4	..	..
Regional demographic centres ..	3	2	..	3	..	4	11	..	2
World Bank .....	..	..	..	3	..	..	..	..	..
UNFPA .....	..	1	..	..	..	1 1/2	..	..	..
UNDP .....	..	..	..	1	..	1	..	..	..
FAO .....	..	..	..	..	3	..	..	..	..
ILO .....	..	..	..	2	5	..	..	1	..
WHO	1	1 1/2	..	1	..	..	..	..	..
UNESCO .....	..	..	..	..	..	..	..	1	..
UNICEF .....	..	1	..	..	..	..	..	..	..
Research Institute for Social Development .....	..	..	..	..	..	..	..	1	..
TOTAL	7	1 1/2	2	10	12	10	21	3	2

Sources: From the following International Population Conferences:
Liège, 1973. *Proceedings, 1973*, 3 vols., 1,379 pp.
Mexico City, 1977. *Solicited Papers, 1977*, 3 vols., 1,565 pp.; and *Proceedings, 1978*, 1 vol., 678 p.

Manila, 1981. *Solicited Papers, 1981*, 3 vols., 1,578 pp.; and *Proceedings and Selected Papers, 1983*, 2 vols., 96 pp.
Florence, 1985. *Proceedings, 1985*, 4 vols., 1,550 pp.

^a Publications with two authors, one of whom is a staff member, are included in the figures.

NOTES

¹ Frank W. Notestein (Chairman), Raymond Firth and Alberto Arca Parro (Members).

² Frank Lorimer and others, *Culture and Human Fertility* (Paris, UNESCO, 1954).

³ The Committee consisted of Chidambara Chandrasekaran (India), Chairman; György Acsádi (United States), Ronald Freedman (United States), Carmen A. Miro (Panamá), Jean Morsa (Belgium), Minoru Muramatsu (Japan), Hanna Rizk (United States), and Jean Sutter (France). Associate members were Mercedes B. Concepción (Philippines), Lolagene C. Coombs (United States), David V. Glass (United Kingdom), Gwendolyn Z. Johnson-Acsádi (United States), W. Parker Mauldin (United States), Walter Mertens (Belgium), George W. Roberts (Jamaica), Vasilios F. Valaoras (Greece), S. N. Agarwala (India) and Solomon Huzzayin (Egypt) represented the United Nations Demographic Training Centres.

⁴ Published at Ann Arbor, Michigan in June 1967. The document was also distributed in English, French, Russian and Spanish by the United Nations (E/CN.9/212).

⁵ Chidambara Chandrasekaran (India), Chairman; Albert I. Hermalin (United States), Robert G. Potter (United States), Ismail Sirageldin (Egypt), K. Sivaswamy Srikantan (India), with Gwendolyn Z. Johnson-Acsádi (United States) as an associate member.

⁶ Albert I. Hermalin (United States), Chairman; John A. Ross (United States), Secretary; Robert G. Potter (United States), Maurice Szykman (Belgium), Tan Boon Ann (Malaysia), Erica Taucher (Chile), members.

⁷ The Committee consisted of Dorothy S. Thomas (United States), Chairman; J. Arias (Guatemala), R. Bachi (Israel), Hope T. Eldridge (United States), J. C. Elizaga (Chile), S. Kono (Japan), M. Macura (Yugoslavia), H. S. Shryock (United States), T. van den Brink (Netherlands) and K. C. Zachariah (India).

⁸ Jorge L. Somoza (Argentina), Chairman; Samuel Baum (United States), John Blacker (United Kingdom), Daniel Courgeau (France), Griffith Feeney (United States), Antonio Golini (Italy), Kenneth Hill (United Kingdom), G. M. K. Kpedekpo (Ghana), Altti Majava (Finland), William Seltzer (United States and United Nations) with K. S. Gnanasekaran (India) as associate member.

⁹ Committee on the Investigation of Population Policies: D. V. Glass (Chairman), E. C. Quensel and Alfred Sauvy.

¹⁰ Population Policies: A Survey of Recent Developments (Liège, IUSSP, 1954).

¹¹ Léon Tabah, "La formulation et la mise en oeuvre du plan d'action mondial de la population dans les régions", International Population Conference, Proceedings, Mexico, 1977 (Liège, IUSSP, 1978), pp. 315-321.

¹² David V. Glass (United Kingdom), Chairman; Dudley Kirk (United States), C. E. Dieulefait (Argentina), Alfred Sauvy (France), with N. Sovani (India) as rapporteur.

THE POPULATION COMMISSION AND CICRED

*Jean Bourgeois-Pichat**

SUMMARY

The Committee for International Co-operation in National Research in Demography (CICRED) was formed in 1972 as a result of an initiative taken by the Director of the Population Division of the United Nations Secretariat, and currently holds consultative status with the Economic and Social Council. Among its accomplishments are the organization of seminars on demographic research in relation to population growth targets and on infant mortality in relation to the level of fertility, and demographic research in relation to internal migration. CICRED was also instrumental in gaining the co-operation of national research institutions in a project resulting in the publication of 56 national monographs. In co-operation with the Population Division, CICRED prepared and published two editions of a population multilingual thesaurus. This collaboration also led to the creation of the Population Information Network (POPIN).

In 1977 CICRED launched the Inter-centre Co-operative Research Programme. The various elements of the programme are in different stages of completion. In particular, they involve co-operation with the Population Division in the areas of integration of demographic variables into planning, aging and differential mortality.

CREATION OF CICRED

The Committee for International Co-operation in National Research in Demography—known by its acronym, CICRED—is and always has been closely linked to United Nations activities in the field of population.

CICRED came about as a result of an initiative of Milos Macura, who was at the time Director of the Population Division, and its programme has always reflected the needs of that Division. It has been able to exist only because of the support it has received from the United Nations Fund for Population Activities (UNFPA), which has always given favourable consideration to the Committee's request for financial assistance.¹

It all happened in 1971, during the discussions of the Expert Working Group on Population Research in National Institutions which met at Lyons, France, from 3 to 11 June 1971. The meeting was convened by the Population Division at the recommendation of the Population Commission, in an attempt to:

- (a) Discuss population research, bearing in mind the experience of national institutions;
- (b) Examine the need to develop means of conducting population research on a national scale, particularly in the developing countries;
- (c) Consider how to develop closer co-operation between the national and demographic research institutions;

(d) See to what extent the national institutions could co-operate in the activities of World Population Year, 1974.

At the meeting, 62 directors and representatives of national institutions from 34 countries discussed population research from the national standpoint.

It was the first such meeting ever to be held, and the report² on it contains a good many ideas that remain valid even now, 15 years later. Participants were so pleased with the exchange of views that they sought to prolong the atmosphere of co-operation they had experienced beyond the meeting and, in paragraph 152 of the report, they indicated that:

"To facilitate co-operation and co-ordination of activities of national research institutions at the regional and interregional levels, the Group recommended that the United Nations Secretariat, in consultation with IUSSP, should explore the utility and the means of establishing an organizational arrangement of population research institutions at least on an *ad hoc* basis for the occasion of the World Population Year, if not on a more permanent basis."

That recommendation led to the establishment of CICRED.

Upon his return to United Nations Headquarters, in response to the request, Milos Macura suggested that the members of the bureau of the Lyons meeting (Chairman, Vice-Chairman and Rapporteurs) should form an international association of population research institutions, and proposed that the Chairman of the Lyons meetings, Jean

* Chairman, Committee for International Co-operation in National Research in Demography (CICRED), Paris.

Bourgeois-Pichat, should be elected president of the association.

At the same time, the French Government, which was then very keen on co-operation among national research bodies, made it known that it would be prepared to cover the operating expenses of the secretariat of the proposed association. The Institut national d'études démographiques (INED) offered to house the secretariat and to give it the wherewithal to work.

Finally, the Executive Director of UNFPA, Rafael Salas, announced that he would consider favourably any requests for financial assistance which the association might submit to him on specific topics.

The officers of the Lyons meeting agreed to the various proposals. All the conditions were ripe for creating CICRED. Less than a year after the Lyons meeting, the Committee was established by a decree of the Ministry of the Interior of the French Government, dated 30 May 1972, under the Act of 1901 governing associations in France.

At the same time (May 1972) the Population Division proposed to the Economic and Social Council that CICRED should be included on the list of non-governmental organizations in consultative status with the Council. CICRED was therefore officially born in May 1972, although, in fact, it had started work immediately following the Lyons meeting.

THE THREE SEMINARS HELD IN THE EARLY DAYS OF CICRED

The report of the Lyons meeting was submitted to the Population Commission at its sixteenth session, which was held at Geneva from 1 to 12 November 1972. The Commission warmly approved the proposal to establish CICRED and indicated the areas in which the Committee could help the Population Division, particularly in the preparations for the World Population Year, 1974.³ It went on to cite two specific areas: the study of demographic, economic and social relationships⁴ and studies on the relationship between infant and childhood mortality and fertility.⁵ Those two recommendations led to the organization of two CICRED seminars. The seminar on demographic research in relation to population growth targets was held from 3 to 9 April 1973 at the University of the West Indies, at St. Augustine, Trinidad and Tobago; the seminar on infant mortality in relation to the level of fertility was held from 6 to 12 May 1975 at the Economic and Social Commission for Asia and the Pacific, at Bangkok, Thailand.

The study of international migrations is another area in which the Committee collaborated with the Population Division. The Population Commission had repeatedly expressed concern over the lack of studies on international migration.⁶ When the decision was taken to hold a World Population Conference in 1974, the Commission, acting as Preparatory Committee for the Conference, pointed out that the problems raised by international migration should be discussed at the Conference. Since there was very little time, the Population Division could not undertake studies in that area without jeopardizing its already lengthy programme of work. It was therefore decided that CICRED

should be asked to organize a seminar on the subject and to submit the report of the seminar to participants at the Conference.

Accordingly, CICRED, in co-operation with the Population Division and the Intergovernmental Committee for European Migration,⁷ organized a seminar on demographic research in relation to international migration at Buenos Aires, Argentina, from 5 to 11 March 1974. The report of the seminar was issued as an official document of the 1974 World Population Conference.

NATIONAL MONOGRAPHS

The preparation of national monographs on the past and future evolution of the population is another example of co-operation with the Population Division. The idea for the monographs came from the recommendations of the Lyons meeting; the Population Division had selected it as a target for the World Population Year, 1974. The first thing that had to be done was to prepare an outline for a standard monograph and to persuade a national research institution in each country to draft one. It would have been a difficult task for the Population Division since it required talking directly to the national institutions. However, it was a relatively easy task for CICRED, which had been established precisely to facilitate dialogue with research institutions. The Committee was therefore given responsibility for the matter. In the end, 56 national monographs were published.

It should be emphasized that the three seminars and the 56 monographs involved considerable expenditure; that is where UNFPA came in. It approved the budgets for these four operations and entrusted their execution to CICRED. Without UNFPA, nothing could have been done.

THE POPULATION MULTILINGUAL THESAURUS AND POPIN

Another area of co-operation began in August 1973 when the International Union for the Scientific Study of Population (IUSSP) held its Congress at Liège. CICRED had also convened a General Assembly of its centres which was held from 28 to 30 August 1973. Mr. Macura, who had just been designated by the Union to represent it at the International Committee for Social Science Information and Documentation, was struck by the fact that many organizations which were members of the Committee had undertaken separate studies on the classification of population documents. There was clearly a need to co-ordinate efforts in order to develop a terminology, classification plans, lexicons and so forth. Many demographers who attended the Congress heard the word "thesaurus" for the first time and discovered what a population thesaurus could do. The General Assembly asked CICRED to consider how co-ordination in that field could be achieved.

In November 1973, during the seventeenth session of the Population Commission, interest was expressed in the possibility of computerizing demographic information, and it was recommended that the Population Division should collaborate with CICRED in that project.⁸ Since little time remained before the World Population Confer-

ence at Bucharest, the Division was unable to react immediately to the recommendation, but CICRED started to reflect on the thesaurus.

Between October 1973 and July 1974 there were three meetings of demographers and documentation experts at CICRED headquarters in Paris. They paved the way for the meeting organized by the Population Division, the International Labour Organisation and the International Committee for Social Science Information and Documentation from 10 to 12 September 1975 at the Colegio de México at Mexico City, to discuss the population thesaurus and the possibility of establishing a network for storing and retrieving population data. At the meeting it was decided that CICRED would prepare a population multilingual thesaurus in English, French and Spanish, and that the Population Division, in co-operation with CICRED, would undertake a feasibility study on the establishment of a population information network. A report on the study would be submitted to the Commission, which would decide whether or not to set up the network. It was proposed that the network should be called POPIN (Population Information Network). That was the start of a lengthy collaboration between CICRED and the Population Division. It was marked by the publication, in August 1979, of the first edition of the *Population Multilingual Thesaurus*, and in March 1985, of a second edition with a slightly different title: *POPIN Thesaurus: Population Multilingual Thesaurus*.

Meanwhile work had progressed on the establishment of POPIN. The Population Division played a central role in the feasibility study and in the discussions on the subject in the Population Commission. Finally, in 1981, the Economic and Social Council adopted a resolution announcing the creation of POPIN.

Preparing and publishing the two editions of the *Thesaurus* was a very costly operation, and it should be pointed out, once again, that in agreeing to finance those operations—which were only just within the scope of its terms of reference—UNFPA was very broadminded.

Rarely has collaboration between bodies such as the Population Division, UNFPA and CICRED been so fruitful.

THE INTER-CENTRE CO-OPERATIVE RESEARCH PROGRAMME

The three seminars, 56 monographs, the *Thesaurus* and the establishment of POPIN, which made up the bulk of CICRED's work in the beginning, all stemmed from ideas generated by the Population Division or the Population Commission. At the General Assembly of CICRED held at Mexico City from 10 to 12 April 1977, on the occasion of the IUSSP Congress in that city, it was deemed vital to give the floor once again to the centres that were members of the Committee; it was at the Assembly that the Inter-centre Co-operative Research Programme was launched. The Programme operates as follows:

(a) The General Assembly of CICRED decides what topics to include in the programme;

(b) For any given topic, a survey is made of the centres to determine what interest they have in the topic;

(c) A leading figure is selected from the international community of demographers to co-ordinate the programme on the chosen topic. His or her task is to plan how the research is to be undertaken;

(d) Those centres which have expressed interest in the topic are invited to send representatives to a "start-up" meeting during which the Co-ordinator's plan is discussed. Finally an amended plan is drafted;

(e) The amended plan is sent to interested institutes, regardless of whether or not they were represented at the start-up meeting. They choose that part of the plan which suits them;

(f) Three years later, a "concluding" meeting is organized to consider the results of the research undertaken and to see what lessons can be drawn.

The collaboration of the Population Division is less direct in the Inter-centre Programme than in the case of the operations mentioned above. It intervenes only if the topic selected by the General Assembly is on its programme of work. Below is a list of topics chosen at the General Assemblies of CICRED held at Mexico City (1977), Manila (1981) and Florence (1985):

Infant and child mortality in the third world;

Demography of the family;

The integration of population variables in the socio-economic planning process;

Impact of international migration on third world development;

Demographic and socio-economic aspects of population aging;

Socio-economic differential mortality in the industrialized societies;

Impact of international migration in the receiving countries;

Population distribution and urbanization;

Utilization of family planning records for the analysis of population dynamics in developing countries

The effects of social and environmental organization on the decline of mortality in developing countries;

Evaluation of current demographic research capacity.

These various projects are at different stages of preparation. The last four have only just started; the first two have been completed; the five others are under way. The third topic—the integration of population variables in the socio-economic planning process—is being dealt with by both the Population Division and CICRED. A joint meeting will be held at Rabat, Morocco, from 3 to 12 March 1987 in order to draw up a research plan; it should take into account the applications of the handbook on the subject prepared by the Division.

The Division is also collaborating actively on research into aging. The Project on socio-economic differential mortality is, in fact, a joint project of WHO, the Population Division and CICRED. It was requested by WHO and the Population Division, following the meeting on the subject organized by WHO at Mexico City in 1979.

UNFPA has given substantial aid to the first two projects only. At that time the aim was to launch the Programme.

Now it confines its assistance to projects which have priority according to its own terms of reference. Accordingly, it has selected the project concerning the integration of population variables in planning; the forthcoming meeting at Rabat is a joint meeting of CICRED not only with the Population Division but also with UNFPA. In connection with the topic on aging and the two topics on international migration, UNFPA is giving financial assistance to representatives of third world institutions to participate in the start-up and concluding meetings.

The Inter-centre Research Programme also receives financial assistance from other sources, specifically WHO and ICM. The centres which host the meetings also contribute.

REVIEW OF POPULATION REVIEWS

One CICRED activity that does not require any technical support from the United Nations does not require substantial financial assistance. It concerns the publication of the periodical, *Review of Population Reviews*, which summarizes on a quarterly basis, articles which have appeared in the 80-odd demographic reviews published throughout the world. There are two editions—one in English, the other in French—and the *Review* is issued under the imprint of CICRED and UNFPA. UNFPA finances the preparation of the manuscript, the printing of the English version and its distribution.

CONCLUSION

For nearly 15 years, CICRED has shown what collaboration between organizations should be. The Population Division, UNFPA, WHO, ICM and CICRED have joined hands to develop a spirit of co-operation among the 300-odd demographic research centres scattered throughout the world. Mention should also be made of the collaboration of the French Government—without which the secretariat could not function—and also the material and sometimes financial assistance provided by INED. Finally, there are the member centres themselves, for none of CICRED's projects are free. The centres are requested to contribute and they have always done so most generously.

NOTES

¹ We must also mention the financial contribution of the French Government and the facilities made available by the Institut National d'Etudes Démographiques (INED) to the CICRED secretariat. This is an important aspect of the Committee's life but it is beyond the scope of this article.

² E/CN.9/242.

³ E/5090, para. 96.

⁴ *Ibid.*, para. 112.

⁵ *Ibid.*, para. 114.

⁶ *Ibid.*, paras. 151 and 152.

⁷ Now the Intergovernmental Committee for Migration (ICM).

⁸ E/5444, paras. 255 and 361(d).

TECHNICAL ASSISTANCE

POPULATION ASSISTANCE TO GOVERNMENTS

*Halvor Gille**

SUMMARY

This paper notes that the Population Commission was originally charged with the responsibility of providing information and advice to the Economic and Social Council on population trends and issues. It was not asked to provide direct technical assistance to Governments because the needed factual basis was lacking and because technical assistance was not yet a major activity of the United Nations.

By the 1950s a programme of technical assistance focusing on data collection and analytical studies had been adopted by the Population Commission. Family planning was not explicitly mentioned.

The first request for assistance in the field of population policy and action programmes came from the Government of India in 1952. Requests followed from Indonesia, Thailand and Brazil. And in 1957 the first two United Nations-supported regional demographic centres were founded.

As a result of information gained from the 1960 round of censuses, the emphasis of United Nations technical assistance in the field of population gradually shifted from statistical activities and training to developing methods for dealing with population problems. Hence, the early 1960s was a turbulent period of confrontation on whether or not technical co-operation should be provided by the United Nations for action programmes in the field of population.

In 1965, a high level United Nations Expert Group was sent to India to make recommendations on how to strengthen the national family planning programme. At about the same time, an *ad hoc* commission of experts recommended to the Population Commission that the United Nations respond to requests for assistance on all aspects of population problems, including family planning.

In 1966, the General Assembly unanimously adopted a resolution calling upon the United Nations and its specialized agencies to provide technical assistance in the field of population, and in 1967 the Population Commission voted to give high priority to research and technical assistance in the area of fertility.

To finance this expanded role, the Secretary-General established in July 1967 a special United Nations Trust Fund for Population Activities, to be managed by the United Nations Secretariat. A Population Programme and Projects Office was established in the Population Division and by 1969 Population Programme Officers were stationed in various developing countries to assess governmental needs and assist in formulating requests for population assistance.

During that period, demand for assistance had grown rapidly and therefore the terms of reference of the Fund were expanded and the responsibility for its administration was transferred to the United Nations Development Programme, thus emphasizing that population activities should be considered an integral part of economic and social development.

* Former Deputy Executive Director, United Nations Fund for Population Activities (UNFPA).

With the passage of time, the Fund took over from the Population Division the responsibility for substantive analysis of requests and took over from UNDP responsibilities for personnel matters, finances and administration, and the head of the organization was designated as Executive Director at the level of Under-Secretary-General.

In the beginning, the Population Commission established the policies and principles for the technical assistance to be provided by the Fund. As the Fund gained strength and experience, however, the Population Commission made fewer recommendations concerning the policies and management of the Fund and dealt only with technical co-operation activities within the mandate of the United Nations proper.

The next major reorganization of technical co-operation occurred in 1978 when the Population Programmes and Projects Office was transferred from the Population Division to the newly created Department of Technical Co-operation for Development (DTCD). From that time forward, DTCD was responsible for assessment of requests, provision of experts, support and training and the monitoring and evaluation of those activities. Subsequently, the responsibility for technical co-operation at the regional level was decentralized to the regional commissions, leaving DTCD with responsibility for global and interregional centres and programmes.

During the 1970s, the activities of the newly re-organized UNFPA expanded rapidly. Its role and responsibilities were greatly enhanced by the World Population Plan of Action, adopted in 1974. By 1981 the main focus of the Fund's activities was to develop national capacities for self-reliance in population matters. Increasing attention was also given to new activities such as the provision of computer software packages and promoting the participation of women in development. The importance of providing technical co-operation in those and other areas was given added impetus by the International Conference on Population, held at Mexico City in 1984.

INTRODUCTION

The role of the United Nations in assisting Governments in dealing with population issues and programmes developed only slowly and was subject to considerable debate over nearly 20 years. The Population Commission was established by the General Assembly in October 1946 with the main objective of undertaking studies and providing the best technical knowledge and advice to the Economic and Social Council on population trends and issues. Direct assistance to Governments was not envisaged initially as a major responsibility, mainly for the following two reasons: first, the Population Commission felt that a sound basis of factual information and an understanding of the causes and impact of demographic phenomena were needed before any advice and assistance could be provided to Governments; secondly, provisions for technical assistance, in general, as a major activity in the United Nations were not made until 1949 within its regular budget,¹ or the so-called Expanded Programme of Technical Assistance financed by voluntary contributions.² In May 1950, the Commission at its third session noted that the Secretary-General was prepared to arrange for international teams of experts for the purpose of providing advice in connection with economic development programmes. It recommended that such international teams, upon request of the Governments concerned, should include provision for technical assistance to ensure adequate consideration of the demographic aspects of development.

At the same time, in response to an invitation from the Economic and Social Council to all its subsidiary functional bodies, the Commission recommended as a high priority item for future activities a programme of work in technical assistance in the field of population. The pro-

gramme, endorsed by the Council a few months later, provided the basis for the Commission's and the Secretariat's technical assistance responsibilities in the following years. However, it was repeatedly challenged and questioned in so far as action programmes and population policies were concerned. The issues were settled only by a decision made in the General Assembly in 1966 which paved the way for a wider role of the United Nations proper, the involvement of the specialized agencies within their respective fields of competence and the creation of the United Nations Fund for Population Activities as the main source of funding of multilateral population assistance.³

THE CONTROVERSY OVER TECHNICAL ASSISTANCE ON POPULATION IN THE 1950s AND 1960s

The programme of technical assistance adopted by the Population Commission in 1950 included, in principle, all the major substantive fields within the responsibility of the Commission. The following four areas were given as examples of technical assistance in demographic matters which would be of help to developing countries: surveys of the demographic situation; specific analytical studies; improvement in demographic statistics; and formulation of legislative and administrative measures. Among policy measures which might have an important influence upon populations were included public health, education, social welfare, housing, aids to the family, marriage and divorce, status of women and international migration, but family planning was not specifically mentioned.

In spite of the readiness of the Secretariat and the availability of funds, few requests for assistance were received from Governments of developing countries during the

1950s. Most requests were in the fields of population census-taking and vital statistics, topics to a large extent within the responsibility of the Statistical Commission and the Statistical Office. The slow growth in technical assistance activities other than data collection and a modest fellowship programme is understandable in view of the fact that few Governments had as yet recognized and taken a position with regard to their population problems, if any, and hardly any developing countries had adopted population policy measures.

The Population Commission and the Secretariat concentrated their efforts on carrying out studies which would provide the technical and substantial foundation for future assistance to Governments. The work included a comprehensive review of the existing scientific knowledge on determinants and consequences of population trends,⁴ an experimental in-depth sample survey in obtaining data in a developing country and analysing the results on the inter-relationships between population trends and socio-economic conditions, including such topics as contraceptive knowledge, attitudes and practice⁵ and population projections for countries, regions and the world.⁶

The first request for assistance in the field of population policies and action programmes came from the Government of India in 1952 for an adviser for a couple of months to evaluate the demographic impact of a trial application of the rhythm method of family planning, a small pilot project which WHO had advised on. Short-term advisory services were provided to the Government of Barbados in 1953 on the establishment of service records in the family planning clinics and in 1953 and 1957 on population policies to deal with the problems of rapid population growth. Demographic experts were made available from 1953 through 1960 at the request of the Government of Indonesia to assist its State Planning Bureau on research and programmes concerning rapid urbanization and transmigration from Java to the outer islands. An adviser was sent to Egypt at the Government's request to assess the demographic situation in relation to development and the need for policy measures. Furthermore, a demographer was sent to Thailand in 1957 to assist the Central Statistical Office in analysing data from a national economic and demographic sample survey. Preparations were made in the Secretariat to meet requests for assistance for one year in support of innovative policy-oriented research for a proposed survey to determine the magnitude and causes of induced abortions in Brazil and for organizing a survey designed to measure under-employment in the densely populated island of Java, but in the absence of formal confirmation through official channels, neither was implemented.

More important and of greater magnitude in the 1950s was the assistance provided to Governments in the uncontroversial field of training of personnel. The Population Commission recognized the great shortage of trained demographers in most developing countries and recommended a programme of fellowships on demographic techniques and analysis. Furthermore, it requested that regional seminars on population be held with participants nominated by Governments.

In late 1955 a seminar on population was convened for

Asia and the Far East at Bandung, Indonesia, and another for Latin America at Rio de Janeiro, Brazil. The two seminars contributed considerably to improving understanding of population issues and to promoting demographic training and research in the regions concerned, and they led to the establishment of the first two United Nations-supported regional demographic training and research centres, in 1957. A regional seminar on population problems in Africa, convened in 1962, recommended United Nations support for demographic studies and training in view of the importance of demographic information as a basis for making economic and social policy and development planning.

A number of individual fellowships had been provided in the field of demography, but it was recognized that the choice of appropriate institutions for study was very limited and almost all of them were located in a few industrialized countries and usually not geared to meet the needs of students from developing countries. The Population Commission had already in 1955 requested that the possibilities be explored for establishing "relations with qualified institutions in each of the major underdeveloped regions of the world which could serve as centres for studies on population problems in the region and for training of personnel".⁷ The request was made in the spirit of the overall policies of the Secretary-General at that time to reduce the Secretariat's responsibilities, *inter alia*, by "farming out" research activities in so far as possible to universities and research institutions in the countries and reducing the Population Division's manpower strength and status in the Secretariat.

In Asia the Government of India had, about the same time, decided to establish a demographic centre and, with the encouragement and support of the Rockefeller Foundation and the Population Council, had begun exploration of choices of location. The Government of India and the United Nations agreed to establish a demographic training and research centre at Chembur near Bombay as a joint venture. The Government would provide the local facilities, two Indian teachers, and fellowships for a number of Indian students. The United Nations' responsibility would be to provide as technical assistance three international advisers, fellowships for a number of students from other countries in Asia and the Far East, and some equipment and teaching materials. A similar centre was established by the United Nations alone for the Latin American region located at Santiago, Chile. It took a longer time to make similar arrangements for the benefit of other developing regions, but in 1962 a United Nations centre was established, mainly for the Arab States, at Cairo, Egypt, and in 1971 two centres for Africa, at Accra, Ghana for anglophone countries and at Yaoundé, Cameroon, for francophone countries.⁸

As the United Nations technical assistance on population proceeded, concentrating on training and statistical activities, its scope came increasingly under debate. The issue was mainly whether the organization could and should respond to requests, if any, from Governments for technical assistance in the formulation and implementation of population policies—particularly, family planning. The declining rates of mortality and sustained high

levels of fertility in most parts of the developing world had led to population growth during the 1950s of an unprecedented magnitude. The results of the population censuses taken around 1960 revealed much higher rates of population increase than had been estimated, and in many cases above the high assumption estimates of the United Nations.⁹ A growing interest in and concern about ways and means of dealing with the population problems materialized in many countries and were voiced increasingly in international fora.

The Government of Sweden took the initiative to raise the issue of population problems and the need for expanded international activities in the General Assembly in late 1960. At about the same time, the Secretary-General circulated a "statement of conviction" signed by a large number of scientists and Nobel Prize winners urging the United Nations to take the lead in establishing "a policy to limit population the world over". That was the prelude to a period of confrontation on international population policy centering on whether or not technical assistance should be provided by the United Nations for action programmes on population.

In 1961 the Population Commission, in reviewing its own role and that of the United Nations in the field of population, agreed that it would be appropriate to respond to requests of Governments for assistance for "research, experimentation and action for dealing with problems of population".¹⁰ This seemed to indicate that the Commission was of the view that the United Nations should provide technical assistance for operational activities connected with family planning and other population programmes. But the General Assembly did not fully endorse the Commission's recommendations. After a dramatic debate in a committee of the whole (Second Committee), by a narrow margin of votes the United Nations was called upon to give "technical assistance as requested by Governments for national projects and programmes dealing with problems of population". In the following plenary session, however, the technical assistance provision was rejected by vote, which clearly demonstrated how controversial the issue was: 34 countries voted in favour, 34 against and 32 abstained, after it had been decided, also after vote, that the issue was an "important" one and therefore required two thirds majority for adoption. The endorsement of the views of the Population Commission only went so far as to "encourage and assist Governments . . . in obtaining basic data and in carrying out essential studies of the demographic aspects, as well as other aspects, of their economic and social development problems".¹¹

This was clearly not the end of the debate. The Assembly had in its resolution called for an inquiry to be made worldwide among Governments and international organizations concerning the particular problems they were facing relating to the interrelationships between population change and economic development. The findings of the inquiry would provide the basis for a detailed review and a better understanding of the problems and the attitudes of Governments.

Furthermore, at the invitation of the Economic Commission for Asia and the Far East (ECAFE; later,

ESCAP), an Asian Population Conference was convened late in 1963, attended by Governments and experts from within and outside the region in order to seek practical solutions to population problems in the region. The Conference urged the United Nations organizations concerned to expand the scope of technical assistance to Governments and to include action programmes related to population. ECAFE unanimously endorsed the conference recommendations and in submitting them to the United Nations bodies concerned, as requested by the Conference, it invited them to expand the scope of their technical assistance activities as indicated.¹² The Economic and Social Council, in mid 1964, considered the conference recommendations and unanimously adopted a resolution drawing the General Assembly's attention to the action taken by ECAFE, specifically with regard to expanding the scope of technical assistance. It did not, however, directly endorse the action, as had been proposed in a draft resolution.¹³

The breakthrough came in 1965. First, in response to a Government request, a high-level United Nations expert group was sent to India for two months to review its national family planning programme and make recommendations about how to strengthen it. It was the first time that a major technical assistance project on population policy had been launched by the United Nations. The action was met with criticism by several members of the Population Commission at its meeting held while the mission was still in India. But the Secretariat strongly defended the legality of the action taken by referring to the general provisions made for providing technical assistance in all economic and social fields and, more specifically, to the recent resolutions adopted by ECAFE and ECOSOC, and not the least to the Population Commission's own above-mentioned recommendations made four years before.

The Commission had before it a report of an *Ad Hoc* Committee of Experts which identified major areas of activity required for the next 15 years. The Committee had identified technical assistance as one of the priority areas and recommended that the United Nations should respond to requests for assistance on all aspects of population problems, "including the formulation and execution of family planning programmes and other population policy measures".¹⁴ The Commission endorsed the recommendation only after considerable debate and several votes, but made it subject to the condition that such technical assistance would not contravene provisions laid down by the United Nations, thereby referring the issue to the Economic and Social Council and the General Assembly. When the report of the Commission was considered by the Economic and Social Council, a few months later, the delegate of India—no doubt in defense of the action taken by the United Nations with regard to the family planning mission to his country—proposed an amendment requesting the Secretary-General to provide "advisory services and training on action programmes in the field of population at the request of Governments desiring assistance in this field". The amendment was adopted with some opposition in a committee of the whole. Later, in the plenary of the Council, it was approved. According to the record,

approval was unanimous, but as a matter of fact, the draft resolution was not tabled for approval or voting, as is usually done; the Chairman merely asked for speakers, and none asked for the floor.¹⁵

Also in 1965 the findings of the above-mentioned inquiry became available, and the Population Commission, as well as the Economic and Social Council, recognized that they clearly indicated the concern of many Governments of developing countries about the problems of development associated with population growth and structure. Furthermore, the United Nations Population Conference that took place in September 1965 reflected the widespread concern about population policy issues and the need for increased assistance to developing countries in the field of population.

But the endorsement of the General Assembly was not to come immediately. At the session held in the fall of 1965, Catholic member States took a last strong stand against enlarging the United Nations mandate for technical assistance to include operational activities such as family planning, and once again the issue was postponed. Finally in the 1966 General Assembly, the matter was settled, after various compromises were agreed upon. A resolution was unanimously adopted which called upon the United Nations and its specialized agencies concerned to assist in developing and strengthening national and regional facilities for training, research, information and advisory services. The Assembly "recalled" rather than endorsed the Economic and Social Council resolution, but it requested the Secretary-General to implement the work programme on population, including advisory services as recommended by the Population Commission and endorsed by the Council, bearing in mind the different character of population problems in each country and region. In doing so, the Assembly recognized "the sovereignty of nations in formulating and promoting their own population policies with due regard to the principle that the size of the family should be according to the free choice of each individual family". It also "noted with satisfaction" the decision of the WHO Assembly to provide advisory services on health aspects of human reproduction.¹⁶

In spite of the unanimous decision of the General Assembly on the expanded mandate of the United Nations, the general issue of technical assistance on family planning was not brought entirely to rest in United Nations fora. In considering its future work programme in November 1967, the Population Commission decided, only after a vote was taken, to include, among high priority activities, fertility research and technical assistance within this field. Cautiously, the Commission merely "recalled" a suggestion of another United Nations body (Committee for Programme and Co-ordination) that the United Nations system should be prepared to respond to requests for the establishment of pilot projects in family planning. In the Economic and Social Council in July 1968, over one third of the voting members opposed a recommendation that UNDP give due consideration to financing assistance to developing countries dealing with population problems.¹⁷

INSTITUTIONAL ARRANGEMENTS IN RESPONSE TO THE EXPANDED MANDATE OF THE UNITED NATIONS

United Nations Trust Fund for Population Activities

The expansion in the responsibilities of the United Nations was adopted by the General Assembly with the proviso that it was to be pursued within the limits of available resources. It was obvious that the regular budget and available technical assistance funds would be insufficient to meet the needs, considering the many other needs for development assistance. In July 1967, in order to overcome the problem, the Secretary-General established a special United Nations Trust Fund for Population Activities, to finance the expanded activities of the United Nations proper. The main objectives were to strengthen the Secretariat at Headquarters and in the regions, to intensify training activities, to provide research and information services for policy formulation by Governments, to expand advisory services to developing countries and to undertake some experimental projects. The requirements for the first five-year period were estimated to be \$5.5 million, and Governments were called upon to make voluntary contributions.

It soon became clear that the willingness of Governments to contribute to the Fund by far exceeded the established target. A consultant appointed by the Secretary-General to advise on the use of the Trust Fund recommended that it be given a mandate to support expanded population activities, not only in the United Nations itself but also in the specialized agencies concerned and, in addition to technical assistance, to finance research, equipment and local costs in the developing countries concerned. Such an expansion would require a substantial larger fund, growing from around \$5 million in the first year of operation to \$20 million in the third year.¹⁸ At about the same time, a panel of prominent persons appointed by the United Nations Association of the USA made similar recommendations but estimated that the expansion of the Trust Fund should be to a level of \$100 million per year.¹⁹

Initially the Trust Fund was managed by the United Nations Secretariat—mainly, by the Population Division. In order to strengthen the United Nations programming and backstopping functions concerning technical co-operation on population, the Population Programme and Projects Office was established in the Division. A United Nations field staff concerned with population assistance was considered to be of crucial importance for programming and implementing the expanded activities in the developing countries. After a considerable delay in recruitment, Population Programme Officers were appointed, trained and stationed in various developing countries and sub-regions in early 1969. It was their task to assist Governments in studying their population situation and the socio-economic implications, to identify the countries' needs for assistance in the field of population and to facilitate submission of requests to the United Nations and its specialized agencies concerned. Initially, 10 Officers were appointed and within the first two years, they visited 84 developing countries, made preliminary assessment of

needs, and assisted in formulating requests for population assistance.

Transfer of the Fund to UNDP

As the need for and the resources of the Fund increased, it became clear that the organizational arrangements had to be changed. A contributing factor was the fact that the responsibilities of the Fund had been considerably broadened in 1968 when it was decided that projects undertaken by UNICEF and the specialized agencies might also be eligible for support. Initially, several of the agencies were not too anxious to utilize the opportunity or even to know about it, partly because of the possibility that at least one important donor Government might make direct contributions in support of their population activities.

In May 1969 the Secretary-General decided to transfer the responsibility of the Fund from the United Nations proper to UNDP. That decision clearly underlined that population activities should be considered as an integral part of economic and social development. It ensured that the Fund would benefit from the financial and managerial experience of UNDP. Furthermore, it made it possible for the new programme to associate directly with the UNDP's world-wide programming machinery by involving the Resident Representatives, who had in 1967 been instructed to assist Governments in identifying population assistance projects and preparing requests, but with limited results.

Little happened, however, for several months in the way of actual implementation of the decision. In an *aide-mémoire* issued in August the terms of reference of the Fund, now called the United Nations Fund for Population Activities (UNFPA), were broadened from the traditional forms of technical assistance, such as advisory services, fellowships and seminars, to include also costs of training, education, information and communication activities, research and development activities, pilot projects, construction of facilities and supplies and equipment. Early in September the Secretary-General called a meeting with top officials from the two organizations concerned to expedite the transition. Among the issues dealt with and agreed upon were the terms of reference of the Fund, responsibilities for assessing requests and making funding commitments, the Fund's relations with the United Nations and the specialized agencies, the establishment of a post of a Director, to be appointed by the Administrator of UNDP, and the designation by the Secretary-General of an advisory body to guide the Fund.²⁰

The role of the Population Division was maintained in so far as substantive analysis and assessment of requests were concerned. The Division would, in collaboration with the specialized agencies concerned, submit recommendations to UNDP about funding, but the Administrator would make the final approval, allocate funds and monitor implementation. The head of the Fund was not to be higher than the head of the Population Division and was designated as Director, rather than Executive Director, reflecting to some extent the view at the time that it was for the United Nations and the agencies—and not the Fund—to execute the projects supported by it. The Resident Rep-

resentatives became the Fund's official representatives in the field, but the Population Programme Officers continued to be appointed by and responsible to the United Nations.

As the Fund expanded its activities and grew in strength and status, many of those decisions were changed. The character of the Fund was changed from a trust of the Secretary-General to an organ under the authority of the General Assembly. It obtained full responsibility for assessing requests and for approving and monitoring projects; it took over from UNDP step-by-step most of the tasks on personnel matters, finance and administration; the head of the organization was designated as Executive Director at the level of Under-Secretary-General; and the Population Programme Officers were taken over by UNFPA and designated as Deputy Representatives of UNFPA and Senior Population Advisers. The advisory body was abolished and the UNDP Governing Council became the governing body without prejudice to the overall responsibilities and functions of the Economic and Social Council. In actual fact the Council—and thereby the Population Commission—has played only a minor role.

The Fund and the Population Commission

Most members of the Population Commission welcomed the establishment of UNFPA and the role of UNDP. They generally stressed that the Fund should not limit its financing to family planning projects but should also be concerned with broader issues of population such as data collection, research on demographic aspects of economic and social development, and measures of social policy designed to affect population trends. But some members expressed concern about weakening the role of the Population Commission as the appropriate subsidiary organ in the United Nations concerned with population matters, the proliferation of earmarked funds of voluntary contributions to the United Nations, and the undue influence of a small number of donors diluting the activities that should be truly international.

The Commission agreed to recommend that the following principles and policies be applied to the United Nations technical co-operation activities:

(a) The population programme within the United Nations mandate should continue to be under the purview of the Population Commission, the regional commissions, the Economic and Social Council, and the General Assembly, while the programmes of the specialized agencies concerned should be guided by their respective policy-making bodies;

(b) The activities should continue to be implemented in accordance with General Assembly resolution 2211 (XXI) and Economic and Social Council resolution 1347 (XLV), which confirm the sovereignty of nations in establishing their own population policies;

(c) UNFPA should be a truly international fund with a broad base of contributors, and the organizations concerned in the United Nations system should work closely together as a team in implementing projects;

(d) UNFPA should be administered efficiently without

any avoidable delays in execution, and it should provide assistance in all the forms required to meet the needs of developing countries, including the financing of action programmes and the improvement of demographic statistics and the research required for such programmes.

As the Fund grew in strength and gained experience, the Commission refrained in later sessions from making recommendations about its policies and management, and limited itself to dealing with technical co-operation aspects and areas of assistance within the mandate of the United Nations proper.

Proposal for a World Population Institute

For some time the international population community was preoccupied with the possibility of another major institutional development. Following a request of the Population Commission in 1969 to explore the feasibility of establishing international training and research facilities at a high level in support of interdisciplinary approaches to population and family planning programmes, a joint United Nations/UNESCO/WHO mission chaired by a former Director-General of ILO was set up. The mission considered the existing training facilities and their development potential as inadequate and recommended that a World Population Institute be established. The proposal was extensively reviewed by the organizations concerned in the United Nations system and submitted in revised form to the Population Commission. In the Commission the plans for an Institute received some support but were also considerably criticized. In the absence of any consensus the Commission requested that a committee be established to study the matter further, taking into account the experience to be gained from a high-level training programme which the Commission at the same time recommended be initiated on an experimental basis as soon as possible.

The committee was set up under the chairmanship of the Executive Director of UNFPA, with the participation of a number of interested agencies within and outside the United Nations system and with the Population Division providing the secretariat facilities. The committee made plans for a one-year interdisciplinary course on aspects of population policy, including family planning, to be established in an Asian country, but the plans were not realized, partly due to some opposition from existing training facilities. However, a short-term course on family planning with emphasis on administrative aspects was established at a public health school in a Latin American country, and a survey was initiated of existing training institutions and training needs in the developing world. In 1973 the Population Commission reviewed extensively and, to some extent, critically the work of the committee, but subsequently the committee's activities gradually diminished and it ceased to function after 1975.

The proposal for a World Population Institute was never revived, to a large extent because of increasing concern about the creation of another international institution, taking into account the growth of UNFPA and the fact that several internationally sponsored training facilities had in the meantime been established—two regional demographic centres in Africa and an interregional centre on population and development in Romania.

Responsibility for technical co-operation at United Nations Headquarters

As a part of a major reorganization of the economic and social sector of the Secretariat in 1978, the Population Programmes and Projects Office was transferred from the Population Division to a new Department of Technical Co-operation for Development. In that Department, the technical co-operation activities in the field of population became the responsibility of a Population Programmes and Projects Branch of the Development Administration Division. The activities consist mainly of substantive support for the assessment of requests, provision of technical experts in the formulation and implementation of country and intercountry programmes and projects, support of training, development of training materials, management monitoring, and evaluation of such activities. Although the Department was made responsible for United Nations technical co-operation activities in most economic and social fields, an exception was made in so far as data collection was concerned. The management of programmes and projects in population statistics and other areas of statistics is with the Department, but their substantive assessment and backstopping were not transferred there but have remained the responsibility of the Statistical Office.

A further reorganization took place a few years later (1980) when, in the process of decentralization of the United Nations technical co-operation activities from Headquarters to the regional level, the responsibility for the regional and sub-regional projects, including demographic training and research centres, was transferred to the respective regional commission. The substantive support for global and interregional centres and programmes continues to be provided by the Population Programmes and Projects Branch of the Department of Technical Co-operation for Development.

In recent years the Department has prepared several useful publications in support of its technical co-operation activities on population and of the efforts of Governments to take population factors into account. A report on technical co-operation aspects of the United Nations Population Training Programme was published in 1983, outlining the various origins, historical developments and main characteristics of the training programmes at the United Nations demographic training centres, the international fellowship programmes in population and the support provided to Governments for establishing their own training facilities, and attempting to evaluate the usefulness and impact of fellowships.²¹

A report published in 1985 provides guidelines for training courses on population and development aimed, in particular, at development planners and those responsible for implementing plans and programmes in developing countries.²² A report analysing the main characteristics of all the recipients of fellowships awarded by the United Nations for training in population since the beginning of the programme in the 1950s will be published soon.

The scope of the United Nations technical co-operation activities in the fields of population and development and the topics covered in assisting developing countries in dealing with population aspects of development planning

and population policy formulation are the subjects of a report published in 1980.²³ In the same year a report was issued illustrating the evaluation and analysis of some census results and indicating the type of technical co-operation the United Nations can offer.²⁴ To facilitate the demographic analysis of population data in developing countries, a study was undertaken in 1983 of available software package computer programs for demographic studies, and three major packages covering the widest range of techniques for demographic analysis and population projections were evaluated.²⁵

THE WIDENING SCOPE OF UNITED NATIONS TECHNICAL CO-OPERATION ACTIVITIES

In resolution 2211 (XXI) the General Assembly clarified the mandate of the United Nations in relation to population assistance to Governments, and the establishment of an international fund for the financing of population programmes paved the way for a considerable expansion of technical co-operation activities. In 1967 the Population Commission determined that the areas in which Governments were to be offered assistance should include the following: demographic statistics; demographic analysis; formulation of national population programmes within the framework of economic and social development policy; advisory services on various aspects of family planning activities; training of demographic personnel; and the preparation of various kinds of population projections.

One of the first projects financed by the Trust Fund was a United Nations six-person mission visiting 12 African countries to assess the requirements at the regional and country levels for demographic and related training, research, and operational activities. It resulted in a strengthening of the population activities of the Economic Commission for Africa and the establishment of two regional demographic training and research centres south of the Sahara. A mission was also sent to Central America to assess training needs on population and the means of meeting them. Requests came from the Government of India for advisers on the social and demographic aspects of family planning programmes and the development of bibliographical information services on population and from the Government of Pakistan for a multidisciplinary advisory mission on family planning. But technical co-operation expanded only slowly in the beginning. A more rapid expansion took place when the Trust Fund on Population Activities was reorganized as UNFPA and its programming capability increased.

In view of the increased financial resources for population assistance, and in accordance with its long-term programme of work, the Population Commission urged in 1969 that technical co-operation be rapidly expanded and its scope broadened. Among the areas of special importance mentioned were promotion of population censuses and vital statistics, analysis of demographic data required for economic and social development planning, and population policies, training of national personnel, and advisory missions on population policies, including family planning programmes. Recommendations of the World Population Conference, held in 1974, and of the World Population Plan of Action further widened the role and

responsibilities of the United Nations in providing within its mandate technical co-operation activities. The Population Commission urged that particular attention should be given to the following substantive areas:

(a) Population aspects of national and regional development planning, including establishment of national population commissions and networks of population services;

(b) Focal points in national planning units and branches in various sectors of governmental administrations and integrated country and regional programming exercises;

(c) Settlement of international and internal migrants within a population programme framework;

(d) Strengthening the management of family planning programmes and the establishment or improvement of the evaluation of family planning services;

(e) Intensified research in the fields identified by the Conference and the Plan of Action, including support for existing research centres and promotion of co-operative institutional arrangements;

(f) Support for population activities that have a direct bearing upon the achievement of the aims set out in the Plan, such as rural development, status of women and general development.

In 1977 the Population Commission was informed by the Secretariat that the technical co-operation activities undertaken by the United Nations earlier in the decade with funds mainly provided by UNFPA had been as follows: over half of the total expenditure (54 per cent) for collection and appraisal of population statistics; over one quarter (27 per cent) for training; about 6 per cent for population dynamics; and 6 per cent for family planning; considerably less, each, for population policies, communication, education, and information.

A few years later, at the Commission session held in 1981, it was noted, in particular, that the main focus of United Nations technical co-operation activities was to develop national capacities for becoming self-reliant in dealing with population matters, by promoting institutional development at the national level in training in demography and population, in evaluation and analysis of basic population data, and in population policy and development planning. Increasing attention was given to "new dimensions" activities such as the provision of computer software to developing countries for use in the analysis of census data and preparation of population projections, programmes promoting the participation of women in development activities, integration of population issues in rural development schemes and technical co-operation between the developing countries in promoting population activities.

The International Conference on Population, held in 1984, reiterated the importance of technical co-operation in the field of population. Besides urging the international community to give greater attention to population planning, education, training, research and action programmes in population, it called for specific attention to the need for "improving the status and strengthening the role of women and providing appropriate financial and

technical support for this purpose in population programmes".²⁶ After taking into account the proceedings of the Conference, the Population Commission and the Economic and Social Council requested the United Nations to continue technical co-operation activities, in particular, in the following three main fields of population:

(a) Training in demography and population matters, emphasizing, especially, an interdisciplinary approach;

(b) Evaluation and analysis of basic population and demographic data, using computer programmes for demographic analysis;

(c) Population policy and development planning, in particular, through strengthening of appropriate national institutional mechanisms.²⁷

CONCLUSION

During the early years of the United Nations, assistance to Governments in the field of population developed only slowly and was mainly limited to statistics and training in demographic techniques. Many member States felt that population problems were country-specific, involving sensitive cultural, religious and other issues, and governmental intervention was often not considered necessary or appropriate. In the relatively few instances where some action was thought desirable, it was considered the prerogative of the Government concerned and not of other Governments or international organizations.

Only after the Population Commission had been in existence for about two decades and after several years of intense and heated debate in international fora, the role of the United Nations in technical co-operation in the field of population was agreed upon by member States by consensus. Technical co-operation activities were expanded substantially and made available for all types of population programmes. Contributing to this development was the improved knowledge and understanding at national and international levels of current and prospective population trends and interrelationships between population factors and economic and social development. An increasing number of developing countries came to recognize that population growth and structure affected their development planning and programmes and might threaten their prospects for economic development.

This consensus marked the beginning of spectacular growth in one particular United Nations programme: UNFPA. It quickly became the largest multilateral organization in the field of population, supporting a wide scope of activities through the United Nations and other organizations in the system, non-governmental organizations and, to an increasing extent, by direct execution by recipient Governments.

Technical co-operation on population provided by the United Nations proper has expanded over the years in scope, as well as in size and coverage of countries. In data collection, analysis and evaluation, increasing emphasis is given to assisting Governments in the development and utilization of computer facilities and the provisions of appropriate software. In the fields of research and formu-

lation and implementation of population policies, technical co-operation activities are concentrated on promoting national capabilities for attaining self-reliance through assistance in building up and strengthening national institutional arrangements. The establishment of population units in planning offices or other departments of government concerned with development has been supported in at least 30 developing countries. The annual budget of these activities amounts to around \$25 million, most of it provided by UNFPA.

Approximately 150 projects on population are implemented through the United Nations proper annually in nearly 100 developing countries.²⁸ About 150 experts and consultants are in the field at any given time. Priority is given to the training of demographers and population experts through in-country activities and country projects. About 500 fellowships are provided annually, of which around 180 are for studies at one of the United Nations-sponsored regional or interregional centres on programmes. The total complement of nationals trained through the various technical co-operation activities including counterpart training, *ad hoc* in-service and group training, seminars and workshops, study tours, and regular training at universities and institutions is naturally much higher, and could be estimated at over 5,500 per year.

NOTES

¹ General Assembly resolution 200 (III) of 4 December 1948.

² General Assembly resolution 304 (IV) of 16 November 1949.

³ A comprehensive account of the early history of population activities in the United Nations system is given in R. Symonds and M. Carder, *The United Nations and the Population Question* (London, Chatto and Windus, 1973).

⁴ See, the article on the early years of the Population Commission by Philip Hauser in this issue of the *Population Bulletin*.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Official Records of the Economic and Social Council, Nineteenth Session, Supplement No. 5* (E/2707 and Add. 1).

⁸ The development of the demographic training and research centres and other regional technical assistance programmes under the responsibility of the regional commissions concerned are covered by P. Sankar Menon in this issue of the *Population Bulletin*.

⁹ H. Gille, "What the Asian censuses reveal", *Far Eastern Economic Review* (29 June 1961).

¹⁰ *Official Records of the Economic and Social Council, Thirty-first Session, Supplement No. 3* (E/3451 and Corr. 1).

¹¹ General Assembly resolution 1838 (XVII), of 18 December 1962.

¹² Economic Commission for Asia and the Far East, resolution 54 (XX), of 17 March 1964.

¹³ Economic and Social Council resolution 1048 (XXXVII), of 15 August 1964.

¹⁴ "Report of the *Ad Hoc* Committee of Experts on the Long-Range Programme of Work in the field of Population" (E/CN.9/182).

¹⁵ Economic and Social Council resolution 1084 (XXXIX), of 30 July 1965.

¹⁶ General Assembly resolution 2211 (XXI), of 17 December 1966.

¹⁷ Economic and Social Council resolution 1347 (XLV).

¹⁸ R. Symonds, "Report on the United Nations Trust Fund for Population Activities and the role of the United Nations in population action programmes" (ST/SOA/SER.R/10).

¹⁹ United Nations Associations of the USA, *World Population—A Challenge to the United Nations and its System of Agencies* (New York, 1969).

²⁰ Only one issue had not been dealt with in the meeting, namely, to

confirm the change in the name of the new organization. This omission was immediately recognized by the United Nations team, and briefly discussed on their way out. Agreement was easily reached among the team members, simply to leave out the third word from the original title, United Nations Trust Fund for Population Activities. A comment which concluded this discussion illustrated their feelings at that time: "After all we don't trust them; do we?"

²¹ "The United Nations Population Training Programme: aspects of technical co-operation" (ST/ESA/SER.E/28).

²² *Courses on Population and Development: Aspects of Technical Co-operation* (United Nations publication, Sales No. 85.II.A.1).

²³ *Population Policy and Development Planning: Aspects of Technical Co-operation* (United Nations publication, Sales No. 81.II.A.1)

²⁴ *Demographic Evaluation and Analysis of Population Census Data: Aspects of Technical Co-operation* (United Nations publication, Sales No. 80.XIII.3).

²⁵ *Computer Software Programmes for Demographic Analysis: Aspects of Technical Co-operation* (United Nations publication, Sales No. 83.II.A.5).

²⁶ *Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984* (United Nations publication, Sales No. E.84.XIII.8 and Corr. 1 and 3), chap. I.B, recommendation 81.

²⁷ *Official Records of the Economic and Social Council, 1985, Supplement No.5* (E/1985/25) and Economic and Social Council resolution 1985/4.

²⁸ "Review and appraisal of the World Population Plan of Action" (E/CONF.76/PC/10), para. 477.

OTHER ISSUES

THE REGIONAL POPULATION PROGRAMMES OF THE UNITED NATIONS

*P. Sankar Menon**

SUMMARY

In the mid fifties, under the guidance of the Population Commission, specific population programmes were developed at the regional level. Introduced progressively in the four developing regions—Asia and the Pacific, Latin America and the Caribbean, Africa, and Western Asia—they involved two main approaches. First was the staffing of the regional commission secretariats with demographers to carry out research on demographic problems relevant to the respective region. The second was the development of regional training centres to build up over a period of years technical personnel to assist Governments and institutions in the analysis of demographic aspects of development problems in the countries of each region.

The regional secretariats have played a significant role in the incorporation of population questions into studies and research carried out on development issues, both at the regional and country levels, through its own regional studies, the organization of seminars and workshops and by emphasizing the importance of the population element in policy formulation and development. Over the years, each secretariat has concentrated, under the guidance of its governing body (the regional commission) on those population problems considered crucial to the region. Thus, while the Economic Commission for Africa has placed emphasis on data collection and analysis as its principal area of work, the concerns of the Asia and Pacific region have been largely in the area of population policy formulation. The Latin American and the Caribbean regional programme stresses the provision of technical assistance in demographic training, research and dissemination of information, whereas programme for Western Asia stresses the collection and analysis of demographic data. The depth and scope of these regional programmes has largely depended on the changing state of demographic development in the countries covered within each region.

United Nations regional training centres have gradually been established in the developing regions: the International Institute for Population Sciences (IIPS) at Bombay, India (1951); the Latin American Demographic Centre (CELADE) at Santiago, Chile (1958); the Cairo Demographic Centre (1962); the Regional Institute for Population Studies at Accra, Ghana, and the Institut de formation de recherche démographique (IFORD) at Yaounde, Cameroon (1971). Taken together, these institutions provide intensive one-year training programmes in population and have over the years built up in the developing countries nearly 2,000 specialists. In recent years there has been greater emphasis on the interrelationship of population and development, and therefore training and research at those centres has moved in that direction.

INTRODUCTION

It was recognized very early by the United Nations that its economic and social activities would demand different

approaches in the various countries of the developed and developing regions of the world. That recognition led to the establishment of the regional economic commissions, which were to serve as the focal points for discussion of common economic and social issues and to help promote intra-regional co-operation among regional member Gov-

* Former Director, Population Division, Department of International Economic and Social Affairs, United Nations Secretariat.

ernments.¹ Regional secretariats were established at the same time to provide the substantive studies and reports need for the commissions in considering and recommending action on issues relevant to their member countries. The work programme of the United Nations at the regional level has been, therefore, the outcome of the annual sessions of the commissions and has highlighted not only their regional concerns in the economic and social fields but also the related issues of a global nature which have a specific regional impact.

In the early years, population issues were raised only in the general debates of the regional commissions. It took some years before population activities became a distinct part of their work programmes and secretariats. The initial impetus for the study of population issues at the regional level came from the discussions of the Population Commission, which drew attention to the divergencies in demographic conditions in the various regions and emphasized the importance of considering demographic questions in the economic and social studies which were then being undertaken by the regional commissions. The Population Commission also emphasized the importance of providing assistance to member States in training personnel in demographic techniques and in the analysis of population problems through seminars, courses and internships.² The lack of population data and analyses and scarcity of technical personnel for that work was also highlighted in the discussion of the first World Population Conference, held in Rome in 1954. At its eighth session, held in March 1955, the Population Commission recommended that "adequate provision should be made (at the regional level) for the treatment of demographic questions and for co-ordination of the work of the regional commissions in this field with that of the Secretariat at Headquarters". These recommendations of the Population Commission were implemented by the provision of demographic posts in the budgets of ECLA, ECAFE and of the Beirut Office by the General Assembly in 1956.

The Population Commission's recommendations for United Nations activities at the regional level were directed in the main towards the following two approaches:

(a) The establishment of a focal point for United Nations assistance to countries in the region through the incorporation of population staff in the secretariat of the regional economic commission;

(b) The provision of demographic training through regional facilities established under the aegis of the United Nations, in co-operation with member States of the region concerned. The main aim of this approach was to develop the technical personnel needed to assist Governments and institutions in the analysis of demographic aspects of their development problems.

The activities of the regional commissions and the regional training and research centres in demography are described below. They complement the globally oriented activities carried out at United Nations Headquarters and at the same time support the programmes and projects carried out by individual countries.

THE GROWTH OF POPULATION ACTIVITIES IN REGIONAL SECRETARIATS

Early stages of programme development

Prior to 1956, when demographic staff became available in the secretariats of the regional commissions, only two major studies had been undertaken by the United Nations focusing on regional population questions. The Population Division had collaborated with the ECAFE secretariat on a study of population growth and economic development in Asia and the Far East and with the secretariat of ECLA on a study of the relationships between economic development and immigration in Latin America. On the recommendation of the Population Commission a demographer was stationed in each of the four developing regions in the latter half of the 1950s.³

In the early years the paucity of demographic personnel in the regional secretariats necessarily restricted the scope of activities of the commissions. Their secretariats had to draw considerably on the support provided by the Population and Statistical Divisions at Headquarters in meeting regional demographic needs. The following activities were undertaken; they established the basis for major programme activities in the past two decades:

(a) The organization of seminars and other meetings convened to exchange information among persons working in the population field;

(b) The consideration of population issues in the studies and research carried out in other related areas, by the regional secretariats;

(c) The carrying out in each region of a limited number of demographic studies, broadly outlining the levels and trends of population and its components.

The Commission secretariats placed emphasis in the early years of their work on the exchange and dissemination of population data and analysis among the countries of the regions. For that purpose, seminars, workshops and conferences were organized with representation from member countries. The United Nations and ECAFE (ESCAP) organized a seminar on population for Asia and the Far East at Bandung, Indonesia, in November 1955.⁴ A similar seminar dealing with the major demographic problems of the Latin American region was organized under the sponsorship of ECLA and headquarters offices at Rio de Janeiro, Brazil, in December 1955.⁵ Following the establishment of ECA, a seminar on population problems in Africa was organized by the ECA secretariat in collaboration with headquarters at Cairo, in November 1962.⁶

The first few seminars were of a general character, intended to cover a wide range of population issues of particular importance to each region. A multidisciplinary approach was adopted in each seminar, in order that regional population problems may not be dealt with in isolation but in terms of interaction with social and economic problems.⁷

Apart from the general seminars mentioned above, several seminars and workshops aimed at promoting the exchange of technical and methodological information for improving the quality and quantity of demographic data and analyses were undertaken by the regional secretariats

in collaboration with Headquarters. For example, in the area of data collection, a number of training workshops on the problems confronted in connection with the 1950 and 1960 census rounds and methods for tackling them were carried out.⁸ The assistance provided by the workshops was further supplemented in the 1960 round by the establishment of regional advisory teams at the secretariats of ESCAP and ECLA for the provision of assistance to member Governments in connection with their on-going census operations. The workshops helped to develop a basic list of comparable items for enumeration by each country and improve intercountry comparisons of census data.

The evaluation and the utilization of census data for building up the knowledge base for understanding the levels and trends of demographic phenomena and their applications to development issues were also given attention. Seminars were held in Asia and the Far East and in Latin America to promote an exchange of methodological and technical knowledge on the subject among participants working in governmental organizations directly engaged in the utilization of census data.⁹ Further, a series of case studies, illustrating the arrangements that needed to be made and the type of population research that could be undertaken for fuller utilization of census results, with particular reference to the demographic situation in individual countries, was also undertaken in a number of countries in collaboration with the Population Division and the Governments concerned.¹⁰

Expansion of the regional secretariats

In the mid 1960s the staffs and activities of the population units of the regional secretariats expanded. That change was brought about by the increasing recognition of the important role that population played in development. The first intergovernmental conference on population, the Asian Population Conference organized by ECAFE at New Delhi in 1963, expressed deep concern over the rapid growth of population in the Asian region and asked the United Nations to provide advisory services for family welfare programmes in population to countries seeking such assistance.¹¹ The importance of population to development was also stressed at about that time by the Council of Ministers of the Economic Commission for Africa and by resolutions on research and training adopted by that Commission.

In order to help develop an expanded programme of work in population, in July 1967, the Secretary-General established the United Nations Trust Fund for Population Activities.¹² The first programme of work to be financed through the Fund sought to strengthen the activities of the United Nations itself and, in particular, the secretariats of the regional commissions, where it was recognized that, due to inadequacy of staff and resources, population work had until then been limited. The availability of funding through the Trust Fund made it possible to broaden the scope of population activities in the four developing regions where population issues were becoming a matter of serious concern to Governments.

The ECAFE secretariat submitted an expanded programme of work to its Commission at its annual session in

1968 entitled, "The Asian population programme", which was endorsed unanimously. The focus of the programme was on the provision of information and analyses and the promotion of exchange of knowledge on population and development issues, with particular emphasis on family planning programmes—an area of activity receiving almost universal interest in ECAFE countries.

In the African region, a programming mission which visited 12 countries was organized in 1968 by ECA and the Population Division, with financial support from the Trust Fund.¹³ Based upon the mission recommendations, the secretariat of ECA drew up a detailed programme geared to data collection, research and analysis of African population problems to be implemented through the strengthening of the core staff dealing with population at the secretariat.

In the middle East region, where UNESOB had initiated some preliminary activities, the resources of the Trust Fund were utilized to set up a section on population. The purpose of the section, which consisted of a small core of demographers, was to carry out support activities to assist Middle Eastern Governments in building up a technical infrastructure in the area of data collection and demographic analysis so that a clearer understanding of demographic problems could be obtained. UNESOB carried out regional studies by holding expert group meetings and making available its technical personnel for demographic projects.

The developments in the Latin American region differed to some extent from those of the other developing regions. The Latin American Demographic Centre (CELADE) under the support of the United Nations Development Programme was utilized from an early date as the *de facto* demographic research arm of the Economic Commission for Latin America.¹⁴ In order to develop additional projects geared to new and innovative areas of activity, the resources of the Trust Fund were channelled to CELADE.

The growth of population studies as a distinct activity of the Economic Commission for Europe (ECE) did not begin until the mid 1970s when a population unit was created within the Economic Analysis Division. Apart from the fact that United Nations assistance was largely concentrated on problems of developing countries, it was felt that the considerable progress which had been made in demographic research and analysis in the European countries rendered international population activities in that region less urgent.

Since the late 1960s the bulk of the resources for expanding the population activities of the regional commissions has been made available by UNFPA. Thus, the regional commissions have relied on funds pledged voluntarily and annually by member Governments, while headquarters population units were largely financed from the United Nations regular budgets.¹⁵ This difference could prove to be a constraint for adopting a long-term approach for dealing with regional population problems.

The work programmes of the population units of the regional secretariats tend to reflect the priority concerns of the Governments of the region, as reflected in the general reviews made annually at meetings of their governing

bodies and, in some Commissions, through special bodies established to permit more intensive reviews. ESCAP has a Population Committee which meets every three years to review progress made and to advise on further activities to be undertaken. Similar arrangements exist at ECLAC through a Committee of High-Level Experts on Population and at ECA through a Committee of Planners, Statisticians and Demographers, both bodies meeting biennially. Since no formal arrangements exist in ECWA and ECE, the views of Governments are sought through periodic meetings of experts nominated by the regional membership.

Substantive aspects of programmes

Since the priority concerns of the various regions differ, the substantive aspects of their work programmes are quite varied. Even so, it is possible to generalize on the type of substantive activities undertaken by the regional secretariats. Their work programmes are oriented towards:

(a) The provision of background information and analysis for their governing bodies through periodic reports on the demographic situation and trends and by special research projects on various components of population;

(b) The promotion of the exchange of research and analysis among countries of the region through seminars, workshops and by exchanging of population information;

(c) The provision of direct assistance, upon the request of Governments, in dealing with population issues.

In each of these types of activities, the primary concerns of the regional secretariats are those pertaining to the problems confronting the countries covered in their respective regions.

ECA has emphasized data collection and analysis in its work programme. In the area of data collection, it has assisted a large number of countries in carrying out population censuses—some of which were the first ever undertaken—through a major programme financed by UNFPA.¹⁶ In respect of analyses the focus of activity has been comparative studies of demographic variables and reviews of population policies of the countries of the region. ECA has been involved in evaluating specific population policies, particularly family planning and rural/urban movement. Apart from its role as the executing agent for regional training centres—to be discussed below—it carries out *ad hoc* training programmes at the regional and national levels on specific aspects of population. Under ECA auspices, the Second African Population Conference, held at Arusha in 1984, adopted the Kilimanjaro Declaration on Population, which provides guidelines for population activities of the countries of the African region for the next decade.¹⁷

ESCAP has concentrated its activities on assisting Governments of the region in the implementation of their population policies by providing direct technical assistance and advisory services, conducting intercountry studies, organizing training activities and promoting the exchange of information through a clearinghouse and information centre.¹⁸ The concern of member Governments over the

question of population growth and its implications for national development has led to a concentration on policy implementation, and as a consequence, the secretariat's studies and research have been largely oriented in that direction.¹⁹ The ESCAP governing body decided that a regional population conference should be held every 10 years, and the most recent one, the Third Asian and Pacific Population Conference, held in 1982 at Colombo, Sri Lanka, adopted a series of recommendations in the Asia-Pacific Call for Action on Population and Development.²⁰ The Call reaffirmed that an integrated approach should be used in regard to population and development and set several targets for various population indicators by the year 2000.

The population programme of ECLAC is carried out by CELADE, which has played a crucial role in Latin American demographic development by providing technical assistance through demographic training and research and dissemination of information. In recent years CELADE has been providing advisory services to Governments in the formulation and implementation of population policies and their integration into development plans and programmes. In the area of data collection, it has assisted Governments in carrying out fertility surveys and national sample censuses with the aim of improving the quality of information obtained at the regional level. It continues to support national training institutions, apart from its normal training programme which offers annually a masters degree course, and to carry out *ad hoc* training programmes on specialized topics. Data processing activities of the Centre are being strengthened by the expansion of the population data base at the regional level through the Latin American System on Population (CELADE/DOC-PAL) and at the national level through technical assistance. A forward-looking plan to provide guidelines for population work in the region for the next decade was drawn up at the regional population meeting held at Havana in 1983.²¹

ECWA has been providing technical assistance in the area of collection and analysis of demographic data. Its research programme is directed towards understanding the major areas of concern of the region—*viz.*, mortality, migration and the interrelationships of population and development. The Commission has carried out several intra-regional seminars and workshops and promotes the exchange and dissemination of population information among countries. The Amman Declaration on Population in the Arab World, adopted at the Regional Population Conference in the Arab World, held in March 1984, under the auspices of ECWA, outlines the recommendations for action by countries in the population field.²²

ECE carries out its population work within the context of its programmes on development issues and policy. Three areas given special emphasis in the secretariat's work programme are fertility survey and analyses, international migration, and aging. A number of studies in those areas are being undertaken. The ECE meeting on population, held at Sofia in October 1983, led to a consensus on regional population issues and the adoption of a declaration emphasizing the priorities for work in the population area.

The regional commissions have played a significant role in raising governmental awareness of population and its relationship to development issues. That role has changed as governmental involvement in population matters has increased, and regional programmes will undoubtedly continue to change with national changes in the perception of population problems. However, whatever form the programmes take, they will continue to be a source of support and assistance to the countries in each region.

REGIONAL TRAINING CENTRES

Objectives of United Nations-sponsored training centres

As noted above, the lack of technical personnel capable of carrying out demographic research and analysis in the developing countries was emphasized at the World Population Conference held in 1954 and at regional population seminars held in the 1950s. In 1955, the Economic and Social Council asked the Secretary-General to explore, with member Governments, the possibility of establishing regional centres for population training in collaboration with member Governments.

The main direction of the training programmes that evolved under United Nations sponsorship was the development of institutional training arrangements at the regional level, with the support of interested Governments. It was hoped that the regional institutions would train a nucleus of professionals in the various countries of each region who would be able to partake directly in the socio-economic programmatic activities of Governments and help provide the demographic studies and analyses needed for population policy formulation and implementation. It was also hoped that trained personnel from the institutions would, in the course of time, provide staff capable of university-level teaching in demography and specialized research in population-oriented disciplines. Thus, the United Nations-sponsored facilities were expected to generate the introduction of population studies as part and parcel of the higher educational system in the countries themselves.

It was recognized early that population training sponsored by the United Nations would have to take a variety of forms in respect of the length and nature of training, since population as a discipline would need to be interpreted in the broadest possible fashion ranging from its statistical and methodological aspects to the wide area of interrelationships that come to play in the examination of development issues. Practical issues such as the language of instruction, the extent and level of training needed in related subject areas such as sociology, statistics, economics etc., had also to be taken into account. It was considered essential that the main concentration of the programme should be to provide the trainees with the necessary levels of skills for specialization in demography and the essential related disciplines so that upon finishing the programme they should be ready to contribute their expertise either within or outside the governmental structure.

The establishment of training and research centres

The United Nations, in co-operation with certain Governments, established five demographic training and research centres at the regional level.²³ The centres, taken together, are intended to provide and promote demographic training and research in all countries of the developing world, and to provide technical assistance, when requested. The students were to be drawn from the countries of the region. A brief description of the arrangements establishing the centres and of their growth is given below.

International Institute of Population Sciences (Bombay)

The first centre established by the United Nations was for the Asian countries; it was located at Chembur in Bombay, India. In 1956, under an agreement between the United Nations and the Government of India, the United Nations undertook to strengthen the facilities of a national centre being established by the Government of India, so as to serve the needs of the other countries of the Asia and Pacific region. A regional training programme was initiated in July 1957. The Institute enrolls 15-20 international student trainees annually in its programme. The language of instruction is English. The students are exposed to a range of regional problems, and in-training research covers the population issues of a wide range of countries, mostly those of the region. However, in view of the pressing needs of the host country itself, the major emphasis of the Institute research programme has been the demographic problems of India, to which the Institute makes a useful contribution.

Latin American Demographic Centre (CELADE) (Santiago)

CELADE was established in 1957, a joint effort of the United Nations and the Government of Chile. The United Nations provided long-term advisers, short-term consultants, equipment and books, while the physical facilities and support staff assistance were made available by the University of Chile at Santiago. The language of instruction is Spanish, the language of the majority of countries of the region. The Centre has annually trained between 25 and 35 students. Due to its location in Santiago and its proximity to ECLAC, it was called upon to play a dual role in demographic development in the region. It carries out a regular training programme as well as research into the population problems of the region. Because of its close relationship to the policy-making body, it has had far greater outreach than other such centres in respect of dealing with the population problems of individual Latin American countries. It has been particularly effective in three areas:

- (a) The exchange of population information, including methodology, among the countries of the region through seminars and workshops;
- (b) Assisting in the establishment of training and research institutions at the national level;
- (c) The development of intra-regional programmes for the exchange of population information.

Cairo Demographic Centre (Cairo)

The third centre established in 1962 under United Nations auspices was the Cairo Demographic Centre, set up in co-operation with the Government of Egypt. The Centre was designed to meet the demographic training and research needs of the Arabic-speaking countries of the Middle East and North Africa. Although it originally functioned in Arabic both in its instruction and its day-to-day activities, it was very soon converted to an English language centre, in order to allow for a wider interchange of both staff and trainees.²⁴ Its programme is carried out in close collaboration with the University of Cairo. The number of students annually admitted to the Centre has steadily risen from about 20 in the early 1970s to around 40 in recent years.

In spite of consistent demands from African countries south of the Sahara for the establishment of a similar centre to meet the special geographical and socio-economic needs of that region, it was only in the early 1970s that resources could be found for the establishment of two centres specifically for the sub-region.²⁵

Institut de formation et de recherche démographiques (IFORD) (Yaoundé)

In November 1971, an agreement between the Government of Cameroon and the United Nations was signed, establishing a demographic training and research centre for French-speaking African countries. Whereas all other centres select candidates for training on the basis of government nominations, IFORD has an annual entrance examination. Around 35 candidates are selected each year for training.

Regional Institute for Population Studies (Accra)

Soon after the establishment of IFORD, an agreement between the United Nations and the Government of Ghana brought into being the Regional Institute for Population Studies at Accra. Located on the campus of the University of Ghana at Legon, the Institute draws on the technical resources of that University. It primarily meets the training needs of the English-speaking countries of the region, and has trained since its inception an average of 30 candidates per year from countries south of the Sahara.

Some aspects of the training programmes

Many similarities exist among the Centres with respect to the criteria for selection of candidates, the length of study, the diplomas granted and the curriculum. The completion of a first degree at the university level is considered a basic requirement for admission at all the Centres.²⁶

All centres except IFORD have as their principal course a 12-month training programme which leads to a first diploma. IFORD requires a 24-month period of study for its main diploma (Diplôme d'études démographiques). A more advanced level of diploma is offered by IIPS, CELADE and CDC. IIPS has advanced training programmes which, after a total of 21 months of study, make the candidate eligible for an M.A. degree at the University of Accra.²⁷

Although the curriculum concentrates on technical and formal demography, provision is made to cover related subjects such as statistics, sociology, economic development planning etc. There is wide variation in the amount of time devoted to these subjects, from about an eighth of the total time in CDC to nearly a third in IFORD.

Specialized training programmes

Two additional training programmes developed by the United Nations with emphasis on the broader issues of population and development have contributed to strengthening the nature and quality of population activities around the world. The demand for an integrated approach to population problems within the context of development processes was emphasized at the World Population Conference at Bucharest. That led to the establishment, by the United Nations, in co-operation with the Government of Romania, of a French-language United Nations/Romania Demographic Centre (CEDOR) at Bucharest in 1974.²⁸ That was followed by the setting up, under agreement with the Government of the Soviet Union, of a joint United Nations/USSR English-language programme. Both facilities concentrate on training in population and development and on trainees from developing countries.

CONCLUSIONS

The contributions made by the United Nations through its regional initiative have been significant. The regional secretariats have promoted interregional co-operation through discussion of policy and programme issues, and by generating population policy-oriented research, both at the regional and country level. The training centres have helped in creating a nucleus of trained personnel—over 2,000 specialists—most of whom are contributing to national development efforts. They have also stimulated the development of national demographic training institutions and the strengthening of demography as a field of study in many universities.

While the role of the regional commissions is not questioned, except, perhaps, with regard to such adjustments as may be needed in response to demographic developments, many questions continue to be raised in respect of the United Nations role in training. The questions relate to their support role in relation to the growth of national demographic centres, the choice between training in specific areas and training of more generalized scope, the competing types of training needs for various disciplines etc. The manner in which these questions are dealt with and the extent to which the answers meet the needs and desires of countries will determine the future course of training under United Nations auspices. For the present, perhaps, it can usefully be noted that the consensus of the countries at the International Conference on Population, held at Mexico City in 1984, was in favour of strengthening international co-operation at the regional level, with particular emphasis on increased effort in policy development and training.

NOTES

¹ In 1948, three regional economic commissions were established: the Economic Commission for Europe (ECE); the Economic Commission for Asia and the Far East (ECAFE), later changed to Economic and Social Commission for Asia and the Pacific (ESCAP), and the Economic Commission for Latin America (ECLA), later changed to Economic Commission for Latin America and the Caribbean (ECLAC). Ten years later, the Economic Commission for Africa (ECA) was established. Although a United Nations Economic and Social Office in Beirut (UNESOB) had been established in the early 1960s to serve the countries of the Middle East, a regional commission for those countries, known as the Economic Commission for Western Asia (ECWA), later changed to Economic and Social Commission for Western Asia (ESCWA) came into being only in 1974.

² *Official Records of the Economic and Social Council, Thirteenth Session, Supplement No. 11* (E/1989), paras. 22–27.

³ Population staff was included in the various regional offices as follows: ECAFE, Bangkok: 1956; ECLA, Santiago: 1957; UNESOB: 1958 and ECA: 1959. No effort was made to establish a similar position in ECE as it was considered that demographic research and analysis were fairly well developed in the countries covered by that Commission.

⁴ "Report of the seminar on population, held at Bandung, 21 November–3 December 1955" (ST/SOA/SER.C/26).

⁵ "Report of the Latin American Seminar on Population, held at Rio de Janeiro, Brazil, 5–16 December 1955" (ST/SOA/36).

⁶ "Report of the Seminar on Population Problems in Africa, held at Cairo, 29 October–10 November 1962" (E/CN.14/186; E/CN.9/CONF.3/1).

⁷ The participants nominated by Governments were drawn from such varied fields as economic planning, census and vital statistics, public health housing, agricultural economics and social welfare, as well as population.

⁸ In connection with the censuses held around 1950, four regional training workshops were held at Mexico City, Paris, Cairo and New Delhi. Three workshops on census methods and procedures were held for the countries of the Middle East, Asia and the Far East and Latin America at Cairo, Tokyo and Lima, respectively, in connection with the 1960 round of censuses.

⁹ See the reports on the seminars on the evaluation and utilization of population census data for Asia and the Far East, at Bombay, India, 20 June–8 July 1960 (ST/TAO/SER.C/47; E/CN.9/CONF.2/1); and for Latin America, at Santiago, Chile (ST/TAO/SER.C/46; E/CN.9/CONF.1/1.Rev.1).

¹⁰ Case studies undertaken at the regional level in Ecuador, Guatemala, Iran, Japan and the Sudan formed the basis for the publication of a report entitled, "Suggestions for national programmes of analysis of population census results as an aid to planning and policy making" (ST/SOA/SER.R/6).

¹¹ By the mid 1960s, 38 countries had enunciated population policies designed to modify population growth within the context of their development plans. That initiative led to the adoption of Economic and Social Council resolution 1084 (XXXVII) of 30 July 1965 and General Assembly resolution 2211 (XXI) of 17 December 1966, which provided the authority

for United Nations involvement in "action programmes" in the field of population.

¹² In 1969 the Trust Fund was placed under the administration and management of the United Nations Development Programme (UNDP) and renamed as the United Nations Fund for Population Activities (UNFPA).

¹³ "Report of the United Nations Population Programming Mission" (ST/SOA/SER.R/8).

¹⁴ In 1974 CELADE was incorporated as a constituent part of the Economic Commission for Latin America (ECLA), later renamed Economic Commission for Latin America and the Caribbean (ECLAC).

¹⁵ The provision of a limited number of posts financed through the regular budget by the General Assembly in 1984 in each of the secretariats of the regional commissions may have somewhat alleviated this imbalance.

¹⁶ Periodic publication of a handbook on African population statistics, prepared by the ECA secretariat, has considerably facilitated demographic work in the region.

¹⁷ See E/ECA/PSD.4/41.

¹⁸ A unique feature of most ESCAP studies has been the utilization of national agencies and institutions in the research projects—a practice made possible by the growing involvement of most Asian countries in population research in their development activities.

¹⁹ ESCAP was the first United Nations body to carry out projects on family planning programmes, even before a comprehensive policy for such assistance had been enunciated.

²⁰ See *Report of the Third Asian and Pacific Population Conference, Colombo, 20–30 September 1982*. Asian Population Series, No. 55 (Bangkok, ESCAP), annex.

²¹ See "Report of the Latin American Regional Preparatory Meeting for the International Conference on Population" (E/CEPAL/G.1284).

²² See E/ECWA/POP/CONF.5/14 and 15.

²³ The establishment of these centres had to be gradual because of financial limitations that existed in respect of population work in the 1950s and the 1960s, and a lack of awareness of the importance of population for development issues at that time.

²⁴ The Centre, largely because of the late establishment of similar centres for Africa south of the Sahara, had to cater to the training needs of that subregion as well for several years.

²⁵ The Council of Ministers of the Economic Commission for Africa had stressed the need for such centres for the region, and similar recommendations had been made at several sessions of the Population Commission and by the African Programming Mission in its report in 1968.

²⁶ Whereas a B.A. and M.A. degree in a broad range of related subjects is the prime requirement at IIPS, CELADE, CDC and IFORD, the requirement at IFORD is the *diplôme d'Ingénieur des travaux statistiques*, or a *licence* in geography, sociology, biology, economics, mathematics or physics.

²⁷ By contrast, 34 months and 48 months are required in CELADE and CDC, respectively, to obtain the M.A. degrees at the co-operating universities of Chile and Cairo.

²⁸ The CEDOR programme functioned for 10 years until 1984. A review of arrangements for training in population and development is now under way at the United Nations.

FORTY YEARS OF POPULATION STATISTICS AT THE UNITED NATIONS

*United Nations Secretariat**

SUMMARY

The work of the United Nations Secretariat in the area of population statistics is carried out under the direction of the Statistical Commission and the Population Commission. The work includes publishing the *Demographic Yearbook*, improving methods and standards, and helping to provide technical co-operation to developing countries by, *inter alia*, increasing national cadres trained in demographic statistics.

The proposal for a United Nations *Demographic Yearbook* was made at the first session of the Population Commission. With the passage of time the *Yearbook* has come to serve an ever wider variety of users. Most of the data comes from an annual questionnaire sent to national statistical services in over 200 countries or areas around the world.

The quality and reliability of the data improved significantly with each decennial round of population censuses. Their usefulness and international comparability are promoted by the use of standardized definitions and methods of classification, detailed footnoting, and the use of estimates to complement missing or incomplete data from official national sources.

Between 1955 and 1974, increased attention was given to promoting the integration of demographic and related economic and social statistics. In part, this was achieved by attempts, through various forms of technical co-operation, to improve national statistical services; in part, by methodological work, including the publication of a wide variety of handbooks, manuals and technical reports.

During those two decades, the Statistical Office, under the guidance of the Statistical Commission, promoted the use of sampling techniques for obtaining demographic and related information and for evaluating censuses and civil registration systems. The United Nations also promoted a variety of efforts to improve civil registration and the accuracy of data on vital events. Those efforts included revising recommendations and handbooks and preparing the World Programme for the Improvement of Vital Statistics. Every decade, the United Nations has issued a set of principles and recommendations for population and housing censuses and in many other ways has contributed to the gradual improvement of national efforts. In recent decades it has contributed to the development of regional variants of the World Population and Housing Censuses recommendations. That effort placed special emphasis on meeting the needs of developing countries and promoting the use of electronic data processing throughout the world. Partially as a result of assistance provided by the Statistical Office, 193 countries, representing 95 per cent of the world's population, conducted a census between 1975 and 1984. Now, increasing attention is being given to producing demographic data at the small-area level.

During the late 1970s, the United Nations, in co-operation with the regional commissions and specialized agencies, launched the National Household Survey Capability Programme. The surveys should provide data on population and related demographic characteristics which are linked with other social and economic variables.

Taken together, these activities have produced a rapid increase in the quantity and quality of demographic data available at national and international levels. The data have contributed significantly to the awareness and analysis of population problems and to the design of population policies.

* Statistical Office, Department of International Economic and Social Affairs.

INTRODUCTION

Owing to the global nature of the work of the Economic and Social Council, two intergovernmental bodies were established in 1946 to advise it on matters related to statistics and population. They were the Statistical Commission and the Population Commission. The former was to deal with all types of statistics, including population statistics, and the latter with the broad field of population, including demographic statistics. Thus, both Commissions provided guidance to the United Nations Secretariat in the ongoing work of the United Nations in population statistics.

Responsibility for the collection, compilation and dissemination of demographic statistics and related work on improving the statistical methods used by Member States in collecting and compiling statistics and in promoting improved national capability in that area was assigned to the Statistical Office of the United Nations Department of Economic Affairs (now the Department of International Economic and Social Affairs). The initial terms of reference of the Statistical Commission gave it, in conjunction with the Statistical Office and under the direction of the Economic and Social Council, a central role in promoting a world-wide system of statistics, including the statistical activities of Governments, governmental organizations, non-governmental organizations, the specialized agencies and others.

This review of the past 40 years of work in the field recounts steps leading to the almost universal availability of at least the basic elements of demographic statistics at the present time, although the accuracy, coverage and comparability of demographic statistics are not yet fully satisfactory.

There remain important differences in rural/urban classifications among countries. A similar lack of comparability is found in statistics on international migrants, marriages and divorces. Differences in concepts, definitions and classifications are the main causes of the lack of comparability.

Developing methods, concepts, definitions and classifications for every source of demographic data and periodically updating them have been important parts of the work of the Statistical Office, which has produced a substantial body of literature on population censuses, sample surveys and civil registration systems for the guidance of countries throughout the world. International recommendations, drafted by the Statistical Office and adopted by the Statistical Commission for the census rounds of 1950, 1960, 1970 and 1980 aided countries in organizing and conducting their census programmes, so that the data would be more accurate, comparable and responsive to user needs. Developments in sampling techniques and standards for civil registration and vital statistics made similar contributions. Parallel to these activities, the United Nations organized seminars and workshops to promote the exchange of knowledge and the dissemination of guidelines related to censuses, surveys, civil registration and vital statistics.

The work of the Statistical Office would not have been possible without the close co-operation of the national statistical services. Conversely, publishing demographic data at international level has also led to the strengthening

of the national statistical services, many of which were, at the beginning, non-existent and very weak. The United Nations system also provided countries with direct and indirect technical advice and other forms of technical co-operation, including financial support for project development. While building up countries' capabilities to produce improved demographic statistics, the United Nations also embarked on training programmes for demographers, statisticians and middle-level personnel.

The changing emphases that the United Nations has given to each source of demographic data and the emphases given to specific topics parallels the changing perception of population problems by the international community over the past four decades. After the Second World War there was a fear of a global decrease in population growth, especially among countries that had suffered the effects of the war and were experiencing net reproduction rates well below the level of replacement. In the remaining countries, high mortality rates were prevalent. When population census data were published in the early 1960s, concern about the possibility of an over-populated world emerged and continued well beyond the middle of the 1970s. In order to deal with that new perception of rapid population growth, many nations responded with family planning programmes established within the framework of multidimensional approaches towards social and economic development and policies. More recently, as international concerns about high levels of fertility have abated somewhat, there has been increased emphasis on improving statistics of international migration, infant and child mortality and special population groups.

STATISTICAL CONCERNS OF THE UNITED NATIONS, 1945-1954

The Statistical Office took part in four major activities in the field of international demographic statistics immediately after the Second World War. First, the groundwork was laid for the collection, compilation and dissemination of official demographic statistics on a world-wide basis. This included the careful planning and design of the *Demographic Yearbook*, which was to become the most important publication in the field.

The second major activity was the development of methods for the collection, compilation and tabulation of statistics; it included the development of standard concepts, classifications and definitions. The development of methods and standards focused mainly on population census and civil registration. Without uniform data collection methods and the use of standards, international comparability could not be achieved, although national needs were given the highest priority.

The third major activity was technical co-operation provided to the developing countries aimed at improving the quality, coverage and comparability of demographic statistics.

The fourth activity comprised endeavours to enlarge national human capabilities. They were intended not only to improve the quality of statistics but also to foster a better understanding among governmental officers of the roles

their offices should play in the emerging world statistical system.

The early days of international demographic statistics

The statistical activities entrusted to the League of Nations had been discontinued before the United Nations was created; hence, there was no longer a central file of world-wide demographic statistics. The Statistical Office of the United Nations thus inherited the formidable task of assembling international population statistics in as accurate and comparable a form as possible. The ultimate goal was to provide an accurate estimation of the world population and the process of population change in all countries and regions of the world, in terms of size, characteristics and geographical distribution.

The earliest effort of the Statistical Office to meet that goal was the production of the 1948 issue of the *Demographic Yearbook*. The Statistical Office worked in collaboration with the Population Division to prepare a world-wide series of basic demographic statistics and relevant rates. The work derived from an Economic and Social Council resolution which, in turn, stemmed from the report of the Statistical Commission at its first session in which the Commission had recommended that "demographic data concerning the different countries of the world be assembled and published by the United Nations".¹ The original proposal came from the Population Commission, which stated at its first session that "the regular provision of accurate, comparable and comprehensive statistical and other data concerning population and population movements is of the greatest importance to the United Nations and to the specialized agencies" and recommended that they be authorized "...in addition to any inclusion of population statistics in general annual or other periodic publications of the United Nations, the publication by the Secretary-General of a demographic yearbook".² The Population Commission not only made that recommendation but also went further by suggesting 48 general topics for inclusion in the *Demographic Yearbook*, and preparing the corresponding outline. The topics were divided into seven categories: area and population, economically active population, international migration; natality; mortality; morbidity; and marriage and divorce.

After the publication of the first issue of the *Yearbook*, it became apparent that not all 48 subjects could be covered in the needed detail in each issue. Starting from the second issue of the *Yearbook* a plan for rotation of subjects was therefore adopted.³ The plan made it possible to present a particular subject of interest in a more detailed manner while other basic data, once revised and updated, were to be repeated from issue to issue. The cycle could then be repeated at five-year intervals. Certain data could never be published but nevertheless they could be entered in the United Nations statistical files for use upon request.

The scope, contents and limitation of available or published data

An appraisal of the scope, contents and limitations of the demographic data collected, compiled and disseminated during the first 10 years of the issues of the *Demo-*

graphic Yearbook, from 1948 to 1954, attests to the sound beginning made by the United Nations in building up of international demographic data files. The data also provide a solid foundation for all the subsequent issues of the *Yearbook*. The earliest issues of the *Yearbook* not only set up the outlines which implemented the plan for rotation of main subjects but also established the standards for presentation of the data, table design, item classifications, codes on quality and reliability, technical notes, geographical units for data presentation and so on.

Scope

The *Demographic Yearbook* was designed to serve a wide variety of users. First, it was to meet the needs of the United Nations and its specialized agencies. Secondly, it was to provide population data to the general user, the researcher, Governments and institutions. Those users were persistently demanding basic demographic data in order to estimate the size, growth and distribution of the world population.

Subjects and topics published

Twenty-nine out of 48 recommended topics for inclusion in the *Yearbook* were covered in the first issue. They included population totals, estimates of total population, sex and age distributions, marital status, illiterate population, annual percentage rate of the population change, population of major cities, urban and rural population, economically active population, and statistics on births, deaths, infant deaths, marriage statistics and international migration statistics.

Most of the tables had limited geographical coverage. Except for a table that gave mid-year estimated population for 245 areas, many important demographic variables data were not available for large segments of the world population. Population by sex and age was given only for one third of the countries or areas covering approximately 65 per cent of the world total.

Most statistics on population size, characteristics and distribution included in the 1948 *Demographic Yearbook* were based on censuses between 1900 and 1948. In most of the countries at that time, population censuses were taken every 10 years; however, numerous areas in the world had never had a census. Many other areas had partial censuses covering only a small segment of the population. That was a common situation in most African countries or colonies and also in some Asian countries.

The other major source of data for the *Yearbook* came from civil registration records. Although in most reporting countries, registration of births and deaths was compulsory, statistics derived from registration were defective and incomplete even in some developed countries and therefore, were of little use for the making of population estimates.

The original population files at the Statistical Office included the files of the League of Nations and the files of the Inter American Statistical Institute. The most important source of data, however, was the *Demographic Yearbook* questionnaires, designed and sent out by the United

Nations. In fact, data collection for the 1948 *Demographic Yearbook* was made through specially designed questionnaires, with the exception of data on international migration, which were furnished by the International Labour Office. For the first issue, the questionnaires were sent to 250 statistical services of countries or areas. They requested information on definitions, accuracy of data, special groups included or excluded from the figures and any other facts needed to properly interpret the data.

The questionnaire method of collecting demographic statistics at the international level has been adopted for all subsequent issues of the *Yearbook*. Questionnaires are sent on a yearly basis to national statistical services. To avoid duplication of requests, the Statistical Office shares its population data with the specialized agencies. It has thus contributed to co-ordinating the dissemination of population statistics throughout the world. Since the response to the questionnaires had never been complete, the information made available has had to be supplemented with data from official national publications.

The second *Yearbook* (1949-1950) focused on marriage and fertility, and included a report on world population trends over the period 1920-1949 and a tentative summary of vital rates and age characteristics of the world by region. In the third issue (1951) mortality statistics were given priority and the geographical coverage of the basic tables was expanded.

The 1952 issue was concerned with data on geographical distribution of the population derived from the available tabulations of the 1950 and 1951 population censuses. The growing amount of population census figures made it possible to enlarge population census data in the 1953 issue. The 1954 *Yearbook* featured natality as the main subject.

There was a steadily increasing volume of data made available in the population censuses undertaken around 1950 and progress was made in national tabulations. Both the quantity and the reliability of statistics had improved. However, the task of assessing world population trends remained a difficult one, due to the fact that a number of countries did not conduct a census at that time.

Limitations of the data

Except for estimates of population totals provided in the first issue of the *Yearbook*, which gave an indirect appraisal of census totals, no other effort to assess the quality of data was made. However, footnotes and general warnings given in the tables constituted a first step towards a more thorough evaluation. In some countries no enumeration of the population had ever been undertaken. In others, the results were believed to be incorrect or the census figures were very outdated or referred to a segment of the country or area. There was an under-registration of births and deaths in most parts of the world, and therefore, statistics on them were of little use. Data on international migration were even more unreliable.

Comparability was greatly diminished by differences in concepts, definitions and methods of classification. Footnotes in the tables reproduced national definitions when they were available. At that time, the United Nations rec-

ommendations had not yet been adopted. The first steps taken towards improving quality and comparability were found in the 1949-1950 *Yearbook*. Census figures that did not represent the results of reasonably comprehensive enumeration of populations were eliminated.

Moreover, estimates of population totals which lacked sufficient foundation were also eliminated. About 39 per cent of the world population inhabited regions for which the data were classified as "poor", while about 37 per cent inhabited regions for which "fair" data were available. Another effort in the same direction was to classify the population estimates in accordance with the method used in their preparation. However, there were many estimates for which the method of computation could not be determined. It was emphasized that the figures relating to the size, distribution and density of world population and the figures on births and deaths were little more than rough approximations. Moreover, the tables did not include any official evidence of under-enumeration or under-registration. For some figures there were annotations concerning the coverage of particular groups and the definitions used.

Using the new data collected in the censuses around 1950 and 1951, it became possible to present somewhat more reliable data on population censuses. The classification of population estimates first presented in the 1949-1950 issue was revised and elaborated upon and appeared in the form of a code. A similar code was developed for the classification of coverage of the total births, deaths, infant deaths, marriages and divorces. The codes made it possible to know which one of a series of figures was officially considered to be "complete" or "virtually complete" as regards coverage, which was admittedly incomplete and which was of undetermined reliability. However, the classification was too broad and too subjective for the purposes of a refined analysis.

Further progress in the appraisal of the quality of statistics was introduced in the 1951 *Yearbook*. A test of accuracy of distributions of the population by age and sex was developed. The classification of population estimates by types and the reliability code for vital statistics were continued.

In general, by 1954 comparability was still limited by differences in concepts, definitions and classifications. Definitions or classifications made by the United Nations for both population censuses and civil registration systems were adopted as general standards for the generation of tables. Any departure from those definitions were explained in a footnote to the tables. For those tables containing data for which no international standards had been established, all known definitions were given in the footnotes.

TOWARDS NATIONAL PROGRAMMES OF CONTINUOUS DEMOGRAPHIC DATA COLLECTION, 1955-1974

The provision of better and more useful basic demographic data in countries or areas for which data were limited and/or unreliable was an immediate goal given high priority by the United Nations system. This involved an improvement in national capabilities for census-taking and collecting vital statistics. It also involved the promo-

tion of programmes of continuous demographic data collection in all countries and, ultimately, the integration of statistical demographic series with social and economic statistical series. In order to achieve those goals, it was essential to co-ordinate the efforts of the Statistical Office, the specialized agencies, the regional commissions and the Member States. Efforts in this direction are described below.

*Integration of the systems of demographic,
social and economic statistics*

The integration of different statistical series—i.e., demographic, economic and social—and the reconciliation of data on related aggregates were matters of concern for the Statistical Commission as early as 1958.⁴ Under the new approach, statistical series were not viewed in isolation but as part of an integrated system.

Early in the 1960s and coinciding with concern for the interrelatedness of statistical series, the role of population censuses changed from an isolated data collection activity to one linked with a continuous programme of data collection which could provide intercensal estimates of demographic variables.⁵ It was also recognized that a population census could support or provide information for other types of inquiries.

In order to implement this new concept of statistical series, advisory services were established in co-operation with the regional commissions. Interregional advisers assisted individual countries, especially the least developed, in creating national statistical services which could respond effectively to governmental needs for data related to economic and social development planning. Equipment was provided to national statistical services to assist them in meeting those special needs. Interregional and regional advisers were involved, *inter alia*, in training national officials, preparing projects for submission to the United Nations, helping with the various aspects of census preparations and implementation, organizing vital registration systems and designing sample surveys.

Parallel to these activities, the United Nations supported international statistical training centres for middle- and intermediate-level personnel, as well as statistical institutes and demographic centres for the training of professional statisticians and demographers.

By 1962, there were considerable increases in regional statistical activities. These were due in part to recommendations of the Economic and Social Council on the decentralization of statistical activities,⁶ General Assembly resolutions calling for increased training activities,⁷ and from the strategies underlying the United Nations Development Decade.⁸ The increase in statistical activities was also due to improvements in statistical standards, the recommendations of specialized meetings and conferences and programmes of technical co-operation carried out by the United Nations and other international agencies.

By 1970, actions were undertaken to improve social and demographic statistics. At the time there were serious gaps in the social statistics of most countries and the available data were often too inconsistent in regard to definitions or classifications to be used for detecting, describing

and dealing with social problems. Therefore, an integrated system of demographic, manpower and social statistics was endorsed by the Statistical Commission at its sixteenth session⁹ and the development of international guidelines for such a system was entrusted to the Statistical Office.

In the 1980s, the study of specific population groups such as the elderly, the poor, and the disabled became an important facet of creating an integrated social and demographic system of statistics.

*Promoting sample surveys to fill gaps in
demographic statistics, 1955-1975*

As early as 1947, the Statistical Commission had suggested statistical sampling for filling gaps in the information needed by international bodies, national Governments and non-governmental organizations.¹⁰ Statistical sampling was considered useful for checking the reliability of enumerations and the accuracy of population census data. It was also considered useful for results obtained during various stages of data processing. Compared to census enumeration, sampling methods offered improvements in reliability, speed and cost.¹¹

These efforts led the Statistical Office to prepare a set of recommendations for the preparation of reports on sampling surveys and to propose standard terminology for use in the sampling surveys. Volume I of a manual illustrating the operational and mathematical aspects of sampling techniques was issued in 1961; later, volume II was published.¹² It dealt with the practical aspects of conducting sample surveys and ensuring the validity of the results. A periodical entitled "Sample surveys of current interest", was also issued,¹³ and the *Handbook of Household Surveys: A Practical Guide for Inquiries on Levels of Living* was published in 1964.¹⁴ It was designed to assist developing countries in obtaining information on their living conditions.

The 1960 cycle of population censuses included more countries, and the problem of attaining census data of high quality became both more important and more difficult. Therefore, countries were advised to carry out a sample survey to measure errors in complete population census enumerations.

Sample surveys were also promoted as an alternative whenever funds, physical facilities or personnel were not adequate to attempt a complete population census enumeration. Furthermore, the Statistical Office suggested that the same samples be used for producing different types of statistics and that a series of repeated sample surveys be carried out at short intervals along with, or instead of, complete censuses.

Given the difficulties some developing countries faced in conducting population censuses around 1950, it was suggested that the census schedules be limited to a small number of items to ensure a sufficient degree of accuracy and that sample surveys be used, simultaneously, for other items.¹⁵ A major step in promoting statistical sampling was the support given by the United Nations to the activities of the World Fertility Survey programme.¹⁶

The World Population Census and Vital Statistics Programmes

The 1970 World Programme for the Improvement of Vital Statistics

Experimental work was promoted by the United Nations for assessing the quality and improving the accuracy of vital statistics. Countries were encouraged to work in that direction as part of the regular work of collecting and publishing demographic statistics. Various approaches to the collection of data on births and deaths had been tested during 1955-1974. One was the matching of vital events from two independent sources (dual records system). Other methods included the multiround survey approach, the retrospective survey and the addition of special questions on fertility and mortality in full-scale population censuses. A number of pilot projects were also carried out to demonstrate the importance of evaluating the quality of vital records and statistics and the methods for doing so.¹⁷

The deficiencies in the coverage and quality of vital statistics in developing countries were so great that they represented a serious gap in the demographic knowledge required for analysing world trends in population size and characteristics. Methodological developments in the field of vital registration and statistics in the Statistical Office led to the revision of the 1953 *Principles and Recommendations for a Vital Statistics System* in 1968.¹⁸ Methods other than the civil registration were proposed.

Vigorous and sustained efforts were made by the United Nations, the specialized agencies, the regional commissions and Member States to improve vital statistics in the context of an integrated system of statistics. The United Nations designed the 1970 World Programme for the Improvement of Vital Statistics which had as its goal "the establishment within the Second United Nations Development Decade (1970-1979) . . . of a vital statistical system capable of [producing] reliable measures of population growth, the statistics needed for demographic research, and the information required for legal purposes, for the provision of health and social services and in governmental assistance".¹⁹

Attention was given to this source of data at every session of the Statistical Commission held between 1955 and 1974. This concern led, *inter alia*, to the Programme for the Improvement of Vital Statistics, technical assistance under the United Nations Development Programme and financial support by the United Nations Fund for Population Activities to a number of countries that had requested such assistance.

The 1960 World Population and Housing Census Programme

The Statistical Office facilitated the exchange of information on the various phases of a population census by using standards and manuals. They were particularly valuable to countries where statistical systems were at an early stage of development. As soon as the 1945-1954 census decade had reached its completion, new recommendations and handbooks were in preparation.²⁰ This involved assembling, analysing and evaluating all census materials provided by the countries to the United Nations.

The scope of technical documentation broadened between the 1950 and 1960 census cycles. In *Principles and Recommendations*, for the 1955-1964 Population Census Programme, all phases of national census activities were given attention. The *Principles* also stressed the need for a careful evaluation of the completeness and accuracy of census data by using post-enumeration field checks or comparisons of data from different sources.

It took years to build up adequate national systems of census-taking. A programme of technical assistance that included training and expert advice contributed to the success of the 1960 population censuses. The programme also provided for the granting of fellowships, establishing census training centres,²¹ furnishing expert advice and supplying services and facilities for the processing and publication of data.

The success achieved in developing a new world-wide census programme was evidenced by the number of countries which had taken a census of population between 1955 and 1964. Two hundred and one countries participated in the programme and 2,200 million people, accounting for about 68 per cent of the world's population, were enumerated.²² However, in terms of the proportion of the world's population enumerated, the 1955-1964 round fell short of the 1945-1954 census programme. China, whose population was estimated to account for about 21 per cent of the total world population, did not release official figures on its 1964 population census and was not included. Further, a number of African countries did not participate in the programme although significant progress was made in census-taking: 37 countries took a census.

The results of population censuses taken around 1960 were disseminated in detail in the *Demographic Yearbook* and in a more general way in the United Nations *Monthly Bulletin of Statistics*, and the quarterly *Population and Vital Statistics Report*. The 1962, 1963 and 1964 issues of the *Demographic Yearbook*²³ focused on population census results, and they constitute the world census volumes for the results of the 1960 round of censuses of population. This was a major contribution of the Statistical Office to demographic research and to the support of studies on the interrelationship of demographic and socio-economic development. Nowhere else were census data for 201 countries brought together in comparative tables in one bilingual English/French publication.

At the beginning of the 1960 decade little progress had been made at the international level in evaluating the accuracy and completeness of census results. From 1958 to 1964 efforts were made by the Statistical Office to evaluate the effectiveness of post-censal field checks. The exchange of ideas and experiences in evaluating and utilizing population census data were promoted and developed in various regions of the world with United Nations support, in co-operation with the regional commissions and national Governments.²⁴

In preparing for the 1970 census cycle, the Statistical Office promoted the exchange of national experience in the use of electronic data processing, with a view to the elimination of punch-cards. The Office also stressed the importance of early publication of census results and the

need to develop an appreciation of the uses of census data for economic and social planning.

The 1970 World Population and Housing Census Programme

A critical review of the experience of countries in conducting census of population and housing in the period 1955-1964 prompted the formulation of recommendations for the 1970 world census programme.²⁵ However, the need for establishing new international standards was not as great as in the past. The preparation of methodological publications for population and housing censuses was already a well-established activity and routinely done by the Statistical Office. In 1966, the Statistical Commission approved the 1970 World Population and Housing Census Programme, urging countries, *inter alia*, to hold a population and housing census during 1965-1974.²⁶

In preparing for the 1970 world population and housing censuses, increased attention was given to those regions in which countries were not yet able to take full advantage of the technical developments in census methodology but where the need for current census data was apparent. Accordingly, actions were taken to simplify the world recommendations for the 1970 cycle²⁷ and adapt them to the needs of such regions. The development of regional variants of the world Population and Housing Censuses recommendations²⁸ was the result of close co-operation with the regional commissions and the Inter American Statistical Institute.

Considerable efforts were made by Member States of the United Nations in all regions to carry out population and housing censuses as part of the 1970 world population and census programme. Notable progress was achieved by the African Census Programme²⁹. The Programme had been organized to overcome the numerous difficulties which countries had encountered in previous census decades. The problems included a lack of technical cadre, little or no experience in census-taking and a lack of administrative and financial resources. The fact that only 62 per cent of the African population was covered by a regular census taken between 1955-1964 encouraged the United Nations to design a special programme for that region.³⁰ Otherwise, a significant number of African countries would not have participated in the 1970 census cycle.

Of the African States that participated in the 1970 population and housing census programmes, about one third had little or no census experience. Up to then, the total population of Africa, its distribution and main individual characteristics were largely estimates. Therefore, the population census data obtained from the Programme was a fundamental contribution to the development of demographic statistics both in the region and world-wide.

Censuses taken between 1965 and 1974 made extensive use of electronic data processing despite the cost of equipment, the problems of transportation and servicing in remote areas, and the difficulties of securing adequately trained personnel. This was particularly important in the African region where electronic data processing made a great contribution towards the development of demographic statistics.

In all, 188 countries participated in the 1970 world population and housing census programme. Their combined population was 3,693 million, approximately 72 per cent of the world's population. The results of the population censuses taken during 1965-1974 were featured in the 1971, 1972 and 1973 issues of the *Demographic Yearbook*.³¹

Growing volume and complexity of available demographic statistics

Over the years there was an increase in the volume and complexity of available series of international demographic statistics and steps were taken to evaluate their completeness and accuracy. The 1959 issue of the *Demographic Yearbook*,³² for instance, attempted to differentiate data according to their degree of accuracy by setting in italics those data considered to be of questionable reliability. This use of type not only assisted the users but also encouraged countries to improve their demographic statistics.

The 1965 issue of the *Demographic Yearbook*³³ published estimates compiled by the Population Division of mid-year population when official figures were either lacking or out of line with confirmed census results. This new procedure provided an internationally consistent and standard time-series of population for every country of the world. It also made it possible to compute vital rates for countries and years where a population basis was lacking.

The *Demographic Yearbook* continued to be planned in such a way as to provide detailed coverage of each major demographic topic—i.e., natality, mortality, nuptiality or population census results—at appropriate five-year intervals, and migration statistics bi-annually, while each issue carried time trends, age/sex distributions, death by cause, expectation of life and area. By 1968, however, it became clear that the policy did not adequately meet the needs of users. The cycle which was more or less adequate for population census data as they were available every 10 years was not satisfactory for vital statistics which became available annually.

It was then suggested that additional and more complex data be incorporated in the *Demographic Yearbook* or that another solution should be implemented, such as fully computerizing the data files so as to make information available to users on a subscription basis.³⁴ In such a scheme, print-outs of the more recent data and trends on selected subjects could be provided periodically to accredited institutions and persons on a subscription or *ad hoc* basis.

Work on the computerization of demographic statistics in the United Nations began in the mid 1960s. This was done to provide speedier and more accurate methods of retrieval, reproduction and dissemination of demographic data. Computerization of official demographic statistics for every country and territory in the world began in 1966. Soon after, the annual *Demographic Yearbook* questionnaires were revised to facilitate computer processing and, by 1967, arrangements were made to store the answers on magnetic tape.³⁵

From 1948 to 1968, demographic statistics in the *Demographic Yearbook* and the *Monthly Bulletin of Statistics*

were printed by letterpress from manuscript. A major improvement was made in response to a recommendation of the Statistical Commission for "updating of stored information, retrieval, reproduction, adjustment, calculations and print-out by computer and reproduction by photo-offset."³⁶ A special issue of the *Population and Vital Statistics Report* published in 1974 was prepared by computer and printed by the photo-offset method. The method was gradually expanded to the *Demographic Yearbook* and to other Statistical Office publications.

RECENT DEVELOPMENTS IN DEMOGRAPHIC STATISTICS, 1975-1985

The 1980 World Population and Housing Census Programme

The 1980 World Population and Housing Census Programme of the United Nations assisted Member States in the preparation and implementation of improved population and housing censuses.³⁷

As in the 1970 census round, regional commissions prepared detailed recommendations on the content of the censuses, while the Statistical Office reviewed past experience in census-taking, including the organization, timing, staffing and costs, with a view to preparing the global recommendations for the census of 1975-1984 decade. The recommendations complemented the regional recommendations but did not supersede them.

Unlike the 1970 recommendations, which included separate volumes for population and housing, the 1980 recommendations comprised a single publication since there were clear advantages in carrying out population and housing censuses simultaneously.³⁸ Furthermore, the title of the publication made no reference to a specific census year, reflecting a de-emphasis of international simultaneity in census-taking. The treatment of the operational aspects of the census was substantially expanded by describing the use of modern technology and methods for census taking. A large number of revisions were introduced to orient those chapters towards the needs of developing countries. The provision also contained detailed guidance on data processing since that was crucial for ensuring the full and timely production of census results. The revisions stressed the confidential nature of the individual data so that countries could take it into account in their census legislation.

The principles and recommendations for the 1980 census programme were released in 1981 (later than in previous decades). However, they were published in English, French, Spanish, Russian and Arabic for the first time. Because of a scarcity of resources, the *Handbook of Population and Housing Census Methods* was not made available at the time of the census round. Nevertheless, the United Nations system assisted developing countries to participate in the 1980 world population and housing census programme through the provision of technical assistance in various forms, such as expert advice, training, funding, technical documents and training workshops.

The Statistical Office facilitated the transfer of knowledge between countries concerning the application of modern data-processing technology to the various phases

of the census programme. It also assisted in the development of census-oriented software packages for use in developing countries—i.e., TALLY and UNEDIT. The packages did much to improve international comparability of the census data.

During the latest census programme, close co-ordination was achieved between international and bilateral programmes of technical assistance, thereby harmonizing their efforts and avoiding duplication. This was particularly important due to the reduction of resources at the international level. The role of the United Nations Fund for Population Activities and of the United Nations Development Programme in providing assistance was crucial and was expanded during the 1980 census round.

The 1980 census programme was the most successful census programme sponsored by the United Nations. Between 1975 and 1984, 193 countries or areas of the world carried out at least one population census. About 95 per cent of the world's population was counted, using modern procedures of census-taking. The participation of China and most of the African countries greatly contributed to the successful outcome. Only 33 countries or areas did not participate in the 1980 census round. The results of the 1980 census programme have been widely disseminated at the international level in the 1983 and 1984 issues of the *Demographic Yearbook*.

Countries used electronic data processing extensively for their 1980 censuses. This has made possible new options for storage and retrieval of the data. Most countries maintain population census data bases and computerized data files organized in such a way as to allow easy retrieval and tabulation for small areas, in order to meet the need for local planning of economic and social development. Making population data available at the level of small areas is a new direction in the field of population statistics in the world and is in line with the latest United Nations recommendations.³⁹

The United Nations has attached considerable importance to new emerging issues from the 1975-1984 population and housing censuses—namely, confidentiality, privacy, imputation, editing, and the use of population registers instead of a full-scale census enumeration by few countries.⁴⁰ This has influenced preparatory work for the 1990 population and housing census programme, which has begun at the United Nations. In taking up the subject, the Statistical Commission at its twenty-third session, endorsed the 1980 recommendations since they were found largely valid.⁴¹ However, due to recent work by the International Labour Organisation on international standards for statistics on the economically active population,⁴² the Commission urged the Secretariat to prepare supplementary principles and recommendations for population and housing censuses. As a follow-up to an Expert Group Meeting held in 1985,⁴³ supplementary recommendations were prepared by the Statistical Office and circulated for comments and suggestions.

Developments in connection with the International Programme for the Improvement of Vital Statistics

The United Nations system has assigned great importance to improving civil registration systems because they

play a very important role within national statistical systems. Along with population censuses and household surveys, they constitute the foundation of national systems of demographic statistics. None of these sources can be viewed as a substitute for the others. Their complementarity is an essential principle of a system of continuous demographic data collection.

By the beginning of the 1970s, it was already clear that a long period of time was needed for the development and consolidation of the civil registration and vital statistics systems in most of the developing countries. To move forward in that direction, the United Nations initiated in 1970 the International Programme for the Improvement of Vital Statistics. Within the framework of the Programme, a large number of country projects to improve or to establish civil registration and vital statistics were sponsored by the Statistical Office in close co-operation with the United Nations Fund for Population Activities, the United Nations Development Programme, the specialized agencies, the regional commissions and other international organizations. Under the projects, expert advice, funding, training facilities, specialized documentation, regional meetings and other kinds of assistance were provided.

Solving the many problems in vital registration systems involved the development and organization of training programmes for the staff of national offices, particularly on techniques for preparing and keeping vital records, techniques for compiling vital statistics from statistical reports and the uses of vital records and statistics. It also involved the revision of the civil registration laws in the participating countries.

The Statistical Office also revised the *Handbook of Vital Statistics Methods*. Volume II of the *Handbook* has been published⁴⁴ and contains current national practices in vital registration and statistics based on an international survey. Volume I, which contains detailed guidelines for the implementation of the 1973 *Principles and Recommendations for a Vital Statistics System*,⁴⁵ is in preparation.

National committees on vital and health statistics were promoted in every country of the world, an activity which had been strongly supported by the United Nations since the early 1950s. Countries were also encouraged to implement short-term methods to improve vital statistics. That was done through the wide dissemination of the *Principles and Recommendations*. . . , through the development of country projects involving sample surveys of various types and by promoting census schedules that included improved questions on fertility and mortality issues. Data derived from those sources significantly improved vital statistics and, in turn, facilitated the appraisal of the system of civil registration and vital statistics in participating countries. As a result, by 1985, almost every country or area of the world had established a civil registration and vital statistics system, and policy makers were aware, of the necessity of having the system function well. The importance of such a system will also grow as a result of recent shifts in needs for demographic data, from aggregates at the national and regional levels to data for small areas. The population census and the civil registration and vital statistics system will play a key role in meeting the growing demand for local-area data that sample surveys

cannot provide. The importance of the system will grow as the public, policy makers and researchers learn that in the computer era, vital records offer a great potential for linkage with other sources of data, thus enlarging the possibilities for more comprehensive analyses.

Methodological developments for integrating social and demographic systems of statistics

The United Nations system has developed a framework for the integration of the demographic and social statistical systems and other related economic data, and a number of methodological publications have been issued by the Statistical Office to guide international work in that direction.⁴⁶ Work has evolved from a theoretical construction of the system towards specifying methods for its implementation. Sample surveys have been the preferred means for obtaining multidisciplinary data of acceptable reliability at an affordable cost, and electronic data processing techniques have greatly facilitated the production of those statistics.

The National Household Survey Capability Programme

The African Household Survey Capability Programme, as mentioned earlier, was initiated as a follow-up activity of the 1970 African Census Programme by the Economic Commission for Africa.⁴⁷ The programme succeeded in building up the ability of the participating African countries to conduct sample surveys on a routine basis within the framework of a continuous and integrated programme of data collection, thus making available reliable data of a multidisciplinary nature.

The success achieved by the African regional programme encouraged the United Nations to launch a similar programme for other regions and countries of the world, especially developing countries. The new programme, the National Household Survey Capability Programme (NHSCP),⁴⁸ is designed to meet country needs in various fields of statistics and is oriented towards the development of an integrated system of data collection within each country.

Due to the multisubject nature of the Programme, it has been necessary to seek the support of donor agencies outside the United Nations system for its gradual implementation. To keep it moving forward, the Statistical Office has prepared a revised edition of the *Handbook of Household Surveys*, which was first published in 1964.⁴⁹ A co-ordinating unit for the NHSCP has already been set up in the Statistical Office. The unit has made important contributions in methodology, which have been disseminated in a number of publications.⁵⁰ The statistical divisions of the regional commissions deal with the operational part of the Programme and provide supporting services to participating countries through regional teams of experts.

The Programme is being implemented in stages, initially covering a limited number of countries and progressively extending to other countries. There has been an enthusiastic response to the Programme from both developing and developed countries.

Growing capability of the Statistical Office to disseminate improved international demographic statistics

The efforts made over the years by the Statistical Office in collecting, compiling and disseminating world-wide comparable demographic statistics is reflected in the improvement of its publications devoted to demographic statistics. The 36 issues of the *Demographic Yearbook*, from 1948 to 1984, attest to the continuous progress made. They have included larger amounts of data as more countries have participated in the census rounds sponsored by the United Nations and more nations provide better data from their civil registration systems, population registers or other sources. The quality of data has improved, and a great deal of progress has also been achieved in terms of international comparability, although not all the items have had the same rate of success. The improvements in comparability and quality are due to progress made in census and sampling techniques, improvements in civil registration and vital statistics systems, the development of national statistical services, and the expansion of electronic data processing capabilities. But most important has been the long tradition of mutual co-operation between the United Nations and national statistical services.

Notwithstanding the progress already made, improving the quality and comparability of the data remains a long-term goal for the United Nations and the countries themselves. Many problems originate in the social and cultural backgrounds of people and/or in the administrative and political structures of countries. Moreover, even when demographic data are believed to be of good quality, a permanent system of assessment is needed to maintain the quality.

Availability of international demographic statistics in 1985

The demographic data base at the Statistical Office reflects the high priority assigned to the design and implementation of an integrated and flexible computer system, an activity which was initiated in the late 1960s. By now, the storage of a much greater volume of demographic data for every country of the world is a reality. The data can be quickly retrieved both for publication and for various special needs, such as analysis and projections.

The enlarged capability of the New York Computing Service⁵¹ together with the considerable progress made in computer programming have contributed to a sustained improvement in the quantity and quality of world-wide demographic statistics. The United Nations has extended computer techniques, *inter alia*, to the reproduction of the *Demographic Yearbook* and the *Population and Vital Statistics Report*. Reproduction by computer techniques had contributed to the timeliness and accuracy of those publications.

Broad subject-area data covering the years 1937-1984 on population census, mortality, natality, marriage and divorce and their attributes are available at the Statistical Office. International migration statistics, the weakest of all population statistics, were published in the *Demographic Yearbook* from 1948 until 1977. Though the 1977 issue featured international migration as its special topic,⁵²

publication of data on that subject was discontinued thereafter due to serious problems in quality. However, the 1985 issue will include two tables on international migration statistics based on information derived from the population census round of 1980s.

The 1984 *Demographic Yearbook*, published in May of 1986,⁵³ focuses on the economically active population. It includes results from 139 population censuses (in 119 countries or areas) carried out from 1974 to 1984. There are tables on the economically active population by age, sex, industry, occupation and status in employment. Though the economically active population by sex is available from 139 censuses, other characteristics have much lower coverage. Similar data from censuses between 1962 and 1972 were published in the 1972 issue and covered only 111 censuses (in 97 countries). Although there has been a significant improvement in both coverage and quality, the data continues to present problems of intercountry comparability due to differences in concepts, definitions, and age limits for measuring the economically active population and the use of different periods when the labour force concept is used.

In general, there has been a continuity in the outline and topics featured in the *Demographic Yearbook*, and the cycle for highlighting specific topics has been maintained through the 36 issues.

At the beginning of the Statistical Office's work on demographic statistics, it was believed that, with the passing of time, international comparability would improve to the point where technical notes would be needed only for those few concepts, definitions and classifications that departed from internationally recommended standards. Contrary to what was expected, technical notes on the statistical tables have grown in volume and specificity.

The *Demographic Yearbook* also has incorporated the indicators countries have provided on the quality of their own estimates on total population. Since the 1958 issue, a code indicating the reliability of the latest official population estimates has been used. According to the code, the data are classified as "reliable" or "less reliable" by the Statistical Office. The latter are set in italics, and the former are set in roman type.

Though significant improvements have been achieved, there remain problems of comparability and quality in almost all age distributions. Reliability of age data remains an important problem in international demographic statistics. Since the 1955 issue, the *Demographic Yearbook* has used the Whipple index to indicate the quality of the single years of age distributions.

The practice of civil registration and vital statistics is by now universal. But the 1984 *Yearbook* reveals that only 96 countries or areas, accounting for about 28 per cent of the world's population, have virtually complete birth registers (inclusion of at least 90 per cent of the events occurring each year). A similar situation exists in the case of death registration: 94 countries or areas, accounting for only about 29 per cent of the world's population, have virtually complete death registers.

NOTES

¹ *Official Records of the Economic and Social Council, Fourth Session, Supplement No. 6 (E/624)*, p.17.

² *Ibid.*, Fourth Session, Supplement No. 5 (E/267 and Add.1), p.8.

³ *United Nations Demographic Yearbook, 1948* (United Nations publication, Sales No. 1949.XIII.1), pp.8-9; and *Official Records of the Economic and Social Council, Sixth Session, Supplement No. 4 (E/571 and Corr.1)*, annex I, p.1.

⁴ *Ibid.*, Twenty-sixth Session, Supplement No. 10 (E/3126).

⁵ *Ibid.*, Thirty-fourth Session, Supplement No. 13 (E/3633), para. 71.

⁶ Resolution 823 (XXXII) of 20 July 1961.

⁷ General Assembly resolution 1709 (XVI) of 19 December 1961.

⁸ General Assembly resolution 1710 (XVI) of 19 December 1961 on the United Nations Development Decade.

⁹ *Ibid.*, Fiftieth Session, Supplement No. 2 (E/4938).

¹⁰ In accordance with the authorization given to the Commission by the Economic and Social Council. See *Official Records of the Economic and Social Council, Second Session, Supplement No. 3 (E/577)*, p. 399.

¹¹ *Ibid.*, para. 46.

¹² *A Short Manual on Sampling* (United Nations publications, Sales No. F.61.XVII.3 and E.73.XVII.8).

¹³ United Nations publications, Statistical Papers, Series C.

¹⁴ United Nations publication, Sales No. 64.XVII.13.

¹⁵ *Official Records of the Economic and Social Council, Twenty-second Session, Supplement No. 7 (E/2876)*, para. 95.

¹⁶ *Ibid.*, Fifty-fourth Session, Supplement No. 2 (E/5236).

¹⁷ Action aimed at developing improved demographic statistics was initiated in Kenya in 1961 and in Latin America in 1962.

¹⁸ See *Official Records of the Economic and Social Council, Fiftieth Session, Supplement No. 2 (E/4938)*, paras. 100-106; and *Principles and Recommendations for a Vital Statistics System* (United Nations publication, Sales No. E.73.XVII.9).

¹⁹ *Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 10 (E/4471)*, paras. 132-134.

²⁰ In resolution 9 (x) the Statistical Commission gave endorsement to the new world-wide *Principles and Recommendations for the 1960 World Programme of Population Censuses* and to the three-volume *Handbook of Population Census Methods*. See also *Principles and Recommendations for National Population Censuses*. Series M, No. 27 (United Nations publication, Sales No. 58.XVII.5) and *Handbook of Population Census Methods* (United Nations publication, Sales No. 58.XVII.6), vol. I-III.

²¹ Regional Census Training Centre for Asia and the Far East (Tokyo, Japan, 1 September-13 December 1958); Regional Census Training Centre for Latin America (Lima, Peru, 11 August-21 November 1958); Western African Training Centre in Population Census Techniques (Accra, Ghana, 15 March-14 June 1961).

²² *Official Records of the Economic and Social Council, Thirty-ninth Session, Supplement No. 13 (E/4045)*.

²³ *Demographic Yearbook, 1962*. Special topic: Population census statistics (United Nations publication, Sales No. 63.XIII.1); *Demographic Yearbook, 1963*. Special topic: Population census statistics (United Nations publication, Sales No. 64.XIII.1); *Demographic Yearbook, 1964*. Special topic: Population census statistics (United Nations publication, Sales No. 65.XIII.1).

²⁴ See "Report of the Seminar on Population Problems in Africa" (E/CN.14/186-E/CN.9 CONF.3/1); "Report of the Seminar on Population Studies in Southern European Countries" (ST/TAA/SER.C/36-ST/SOA/38); "Report of the Seminar on the Evaluation and Utilization of Population Census Data in Latin America" (ST/TAO.SER.C; E/CN.9/CONF.1/1/Rev.1) and "Report of the Seminar on the Evaluation and Utilization of Population Census Data in Asia and the Far East" (ST/TAO.SER.C/47; and E/CN.9/CONF.2/1).

²⁵ *Official Records of the Economic and Social Council, Thirty-fourth Session, Supplement No. 13 (E/3633)*.

²⁶ *Ibid.*, Forty-second Session, Supplement No. 3 (E/4283), para. 86.

²⁷ The world-wide principles were approved by the Statistical Commission at its fourteenth session (10-20 October 1966). See *Official Records of the Economic and Social Council, Forty-second Session, Supplement No. 3 (E/4283)*, para. 85. See also *Principles and Recommendations for the 1970 Population Censuses* (United Nations publication, Sales No. 67.XVII.6) and *Principles and Recommendations for the 1970 Housing Censuses* (United Nations publication, Sales No. 67.XVII.4).

²⁸ See, for instance, *Asian Recommendations for the 1970 Population Censuses* (United Nations publication, Sales No. 67.II.F.3) and *Asian Recommendations for the 1970 Housing Censuses* (United Nations publication, Sales No. 67.II.F.9).

²⁹ *Official Records of the Economic and Social Council, Fifty-eighth Session, Supplement No. 2 (E/5603)*.

³⁰ See "Demographic data available in Africa and planning requirements" (E/CN.14/POP/2) and "Report on the 1960 World Population and Housing Census Programmes" (E/CN.3/329), para. 15.

³¹ *Demographic Yearbook, 1971* (United Nations publication, Sales No. E/F.72.XIII.1); *Demographic Yearbook, 1972* (United Nations publication, Sales No. E/F.73.XIII.1); *Demographic Yearbook, 1973* (United Nations publication, Sales No. E/F.74.XIII.1).

³² *Demographic Yearbook, 1958* (United Nations publication, Sales No. 59.XIII.1).

³³ *Demographic Yearbook, 1964* (United Nations publication, Sales No. 65.XIII.1).

³⁴ See "Progress report on improvement in demographic statistics" (E/CN.3/377), para. 55.

³⁵ "Progress report on computerization of demographic statistics" (E/CN.3/380).

³⁶ *Ibid.*, para. 35.

³⁷ Endorsed by the Statistical Commission at its eighteenth session. See *Official Records of the Economic and Social Council, 1979, Supplement No. 3 (E/1979/23)*.

³⁸ See *Principles and Recommendations for Population and Housing Censuses* (United Nations publication, Sales No. E.80.XVII.8) and *Official Records of the Economic and Social Council, 1979, Supplement No. 3 (E/1979/23)*.

³⁹ See *Principles and Recommendations for Population and Housing Censuses* (United Nations publication, Sales No. E.80.XVII.8).

⁴⁰ "African Household Survey Capability Programme: report of the Secretary General" (E/CN.3/1983/16).

⁴¹ *Official Records of the Economic and Social Council, 1985, Supplement No. 6 (E/1985/26)*.

⁴² See resolution 1, concerning statistics of the economically active population, employment, unemployment and under-employment, adopted at the Thirteenth International Conference of Labour Statisticians (ICLS/13 D.11). (Geneva 1983).

⁴³ See "Report of the Expert Group on the 1990 World Population and Housing Censuses" (ESA/STAT/AC/24/15).

⁴⁴ United Nations publication, Sales No. E.84/XVII.11. A first edition was published in 1955 (United Nations publication, Sales No. E.55.XVII.1).

⁴⁵ *Principles and Recommendations for a Vital Statistics System* (United Nations publication, Sales No. E.73.XVII.9).

⁴⁶ See *Towards a System of Social and Demographic Statistics* (United Nations publication, Sales No. E.74.XVII.8); *Social Indicators: Preliminary Guidelines and Illustrative Series*. Statistical Papers, Series M, No. 63 (United Nations publication, Sales No. E.78.XVII.8); *Improvement of Social Statistics in Developing Countries: Conceptual Frame and Methods*. Methodological Studies, Series F, No. 25 (United Nations publication, Sales No. 79.XVII.12); *Studies on the Integration of Social and Demographic Statistics*; Series F, No. 24 (United Nations publication, Sales No. E.79.XVII.14); *The Development of Integrated Data Bases for Social, Economic and Demographic Statistics* (United Nations publication, Sales No. E.79.XVII.14).

⁴⁷ See "Progress report of the Secretary-General on national experiences and emerging issues in population and housing censuses" (E/CN.3/473).

⁴⁸ Endorsed by the Statistical Commission at its nineteenth session. See *Official Records of the Economic and Social Council, Sixty-second Session, Supplement No. 2 (E/5910)*.

⁴⁹ United Nations publication, Sales No. 64.XVII.13.

⁵⁰ See, for instance, *Handbook of Household Surveys* (Revised edition). Studies in Methods, Series F, No. 31 (United Nations publication, Sales No. E.83.XVII.13); "National Household Survey Capability Programme: survey data processing: a review of issues and procedures" (DP/UN/INT-81-041/1); "National Household Survey Capability Programme. Non-sampling errors in household surveys: sources, assessment and control" (DP/UN/INT-81-041/2); "National Household Survey Capability

Programme: the role of the NHSCP in providing health information in developing countries" (DP/UN/INT-81-041/3); "National Household Survey Capability Programme. Development and design of survey questionnaires" (DP/UN/INT-84-041/4).

⁵¹ Department of Administration and Management; host computer: IBM 3081/K MVS/XA, IBM 4381 Group 3 MBS/XA DBMS.

⁵² United Nations publication, Sales No. E/F.78.XIII.1.

⁵³ United Nations publication, Sales No. E/F.85.XIII.1.

THE FUTURE OF THE COMMISSION

SOME SPECULATION ON THE CHALLENGES OF THE NEXT DECADES FOR THE POPULATION COMMISSION

*Jean Bourgeois-Pichat**

SUMMARY

After briefly summarizing the development of the terms of reference of the Population Commission over the past 40 years, the author projects its future activities for the near, mid and long term.

In the near term the Population Commission may find itself preparing for another world population conference in 1994, and increasing its oversight of population programmes not only within the United Nations system but outside as well. The Population Commission may also augment its role in reviewing all of the population activities within the United Nations system, requesting that an overview be prepared, not merely as a series of reports on individual activities but as an analysis of the entire work of the system, organized by demographic subject area. In addition to reviewing reports on multilateral population assistance and the population activities of the United Nations family, the Commission may also review a report on international bodies outside the United Nations.

Although the Population Commission has become the best informed world body concerning the world demographic situation, more must be done to put that information at the disposal of Governments. One way of doing that would be to develop and maintain a permanent demographic encyclopaedia utilizing experts throughout the world, working under the direction of the Population Commission. The encyclopaedia should be available in the world's major languages and accessible by computer.

A second means of utilizing the Commission's knowledge would be for it to direct the preparation of a biennial document which would provide an authoritative description of the state of the world's population. The document would address major concerns and present its findings in a form that would be accessible to all.

Those tasks could well be the major elements of the work of the Population Commission during the first quarter of the next century. Projections beyond that time must be extremely tentative. Nevertheless, it would seem reasonable to expect that someday the Population Commission may have to wrestle with the problem of shrinking national populations, composed of individuals with active lifespans that are longer than those prevalent today. Gazing still farther into the future, the Commission may ultimately be concerned with the demography of human population living outside the bounds of the planet earth. In fact, it is not unthinkable that in some distant future the concept of population, and thus the interest of the Commission, may be applied to beings presently unknown to mankind.

INTRODUCTION

An issue of the *Population Bulletin of the United Nations* devoted to the Organization's past activities in the

field of population had no alternative but to end with a projection: demographers have invented, if not the word, then at least one meaning attached to it: a description of a society's future; and it was tempting to describe what the future of the United Nations might be in world demography.

* Chairman, CICRED, Paris.

The undertaking is not without danger, for few projections are proved true. There are some famous precedents. In his work on the life span of the human race,¹ Roy L. Walford recalls that in 1937 the President of the United States, Franklin D. Roosevelt, asked a group of the most eminent experts of the time to describe to him what technologies would be developed. In their report they overlooked nuclear energy, jet propulsion in mass air transport, and the transistor—all things which, 15 years later, were part of our everyday life and had radically changed our way of living. More recently, at the beginning of the 1950s, faced with the development of electronic computers, American experts were predicting that in 1970 there would be 100 big computers in the United States. In fact, there were more than 200,000. Aware, then, of the difficulties of making accurate projections and at the risk of ruining our posthumous reputation (especially since our predecessors are often better known today for their mistakes than for their perceptiveness), I am going to try to see what direction the population activities of the United Nations might take in the future. The description will focus on the Population Commission.

In such an exercise the short term must be distinguished from the long, although it is not possible to establish a precise demarcation between the two periods. In the short term the expert has a clear advantage over the man in the street. For what the world's population will be in a few years' time is already determined in part by what it is today. The expert, who knows the situation well is therefore in a better position to make predictions. But this does not last very long. As he advances further into the future, the expert is increasingly less able to rely on the present, and he soon finds himself as helpless as any ordinary mortal. The next meeting of the Population Commission will be held at the beginning of 1987, and we know that it meets every two years. It is possible to detect in the evolution of its work over the past 10 years what its role and activities might be at its next four or five sessions. This brings us to 1993. Beyond that point the future is much more uncertain.

THE EVOLUTION OF THE POPULATION COMMISSION

In resolution 150 (VII) of 10 August 1948, the Economic and Social Council set the terms of reference for the newly formed Population Commission. Those terms of reference were supplemented after the World Population Conference, held at Bucharest in 1974.² In Council decision 87 (LVIII) of 6 May 1975, the Commission was asked to examine on a biennial basis the results of the continuous process of monitoring the World Population Plan of Action³ and to contribute advice for the comprehensive review and appraisal of the progress made towards achieving the goals and recommendations of the Plan.

Therefore, every two years the Population Commission considers a report by the Secretary-General, prepared by the Population Division, on population trends and policies, and every five years it carries out a review and appraisal of the World Population Plan of Action. As planned, the first review took place in 1979⁴ and the next one in 1984.⁵ In order to give the latter review greater impact, the Commission proposed to the Economic and Social Council that it should be carried out within the

framework of a world conference. As a result, the International Conference on Population was held at Mexico City in August 1984. The next exercise will take place in 1989, probably in the Population Commission, as in 1979. The following one, in 1994, might again take the form of a world congress.⁶

The definition of the terms of reference of the Population Commission came up again at the twenty-third session, with regard to recommendation 88 of the International Conference on Population, which states that the monitoring of population trends and policies should be supplemented by monitoring of "multilateral population programmes of the United Nations system".⁷ After a long debate on the matter, the Commission finally recommended that the Economic and Social Council should adopt a resolution in which the Council requests the Secretary-General to prepare reports on the substantive and technical aspects of the monitoring of population trends and policies, and of multilateral population assistance.

The request for a report on the monitoring of population trends and policies is a recurrent one, but the one for a report dealing with programme is new.

The Economic and Social Council endorsed the proposal of the Commission in its resolution 1985/4 of 28 May 1985. The resolution does not state that the report on multilateral population assistance should be submitted every two years, like the one on trends and policies. But it is probable that at its next session (twenty-fourth, 1986), the Commission will request that the programmes report should be considered every two years as well.

The preparation of such a report is not a simple operation. Trends and policies can be studied without requesting anything from Governments. Trends emerge from the observation of changes in demographic variables which are in the public domain; likewise, policies are stated in laws and decrees which, too, are in the public domain. The status of programmes whose implementation lies within the exclusive competence of Governments is quite another matter. In principle, the Population Commission has no right of access to the details of government activities. That is certainly true for the part of programmes financed from national budgets, but the situation is less certain for the part financed by international organizations. They have not only the right but also the duty to know how their money is being used.

But there is a difficulty even in the case of international organizations which have their own governmental organs of control. For example, it is hard to see how the World Bank could be obliged to present the programmes it finances in a report to the Population Commission. If it agreed to do so, it would be for information only, and its report could not be discussed by the Commission. There is also the even more difficult case of international governmental organizations which finance programmes but are not part of the United Nations family. The most obvious case is that of the Organization for Economic Co-operation and Development (OECD) but there are also the Council of Europe, the European Economic Community and the Council for Mutual Economic Assistance (CMEA) and the list is far from exhaustive. There is

clearly no means of forcing them to appear in a report on programmes submitted to the Population Commission.

However, these arguments must be qualified in the light of the importance of the various programmes. At the latest session of the Population Commission (twenty-third session, 1985) the Assistant Executive Director of UNFPA stated that the programmes financed by the Fund accounted for more than 90 per cent of all multilateral assistance programmes in the field of population carried out by the United Nations system, apart from the World Bank.⁸ Moreover, UNFPA already prepares an annual report, on the programmes it finances. It would be easy to extract from that record every two years a report adapted to the format of the documents discussed by the Commission. Given the usefulness of such a report, it might be thought that the other 10 per cent of the existing programmes would join in over the course of time and that the international governmental organizations that are not part of the United Nations system would also agree to appear in the report.

However, it must be realized that the programme report will be difficult for the Commission to use, except as a mere compilation of information. Any criticism might be badly received, and it is difficult to envisage a discussion limited to praise. The Commission's terms of reference will have to be extended on this point and the provisions of the extension carefully weighed.

AN OVERVIEW OF POPULATION ACTIVITIES WITHIN THE UNITED NATIONS SYSTEM

In addition to the report on multilateral population assistance, the Commission—and, subsequently, the Council—also requested an overview of population activities within the United Nations system.

It was not the first time that the Commission had complained of not having an overall picture of the population activities of the United Nations family. It is difficult to judge the work of the Population Division or of the Department of Technical Co-operation for Development in the field of population if information is not available about what the other United Nations bodies are doing in that field. It can even be said that over the course of time the Population Commission has become increasingly less well informed. The establishment of UNFPA enabled the specialized agencies to develop their own population activities, and the decentralization exercise has given the regional commissions powers which formerly fell within the competence of the Commission. For some time the Commission has had the feeling that its supply of information was diminishing. A reaction was only to be expected. Thus, the "overview" requested at the twenty-third session.

The Commission was not entirely unaware of what was happening in the population field in addition to the activities of the Population Division and the Department of Technical Co-operation for Development. Indeed, representatives of the specialized agencies and the regional commissions are often present at the Commission's sessions. They make oral statements about what their agencies or commissions are doing. However, the lack of

written documents prevents discussion from taking place and, moreover, not all the agencies and commissions are represented. Finally, the uninterrupted succession of statements does not provide an overall picture. The requested "overview" will not be merely a series of reports on activities. The document will be organized by subject area. To take mortality as an example, the Commission needs to know what is being done by the Population Division, the Department of Technical Co-operation for Development, WHO, UNICEF, UNESCO (health education,) FAO (nutrition), the regional commissions, the regional demographic training and research centres, and possibly the World Bank, the regional banks, UNFPA etc. The Population Division will therefore have to synthesize the material to obtain the requested "overview", an additional task in an already very heavy work programme.

Moreover, the utilization of the overview by the Population Commission may give rise to problems. Take a specialized agency such as UNESCO as an example. It is possible that a member of the Population Commission, on reading the report, might have some criticism of the UNESCO population activities to offer. As was mentioned above, UNESCO has its own governmental organ of control, which approves its programme of work. The UNESCO Secretariat would not be able to accept criticism from a member of the Population Commission, and even if it did accept such criticism, it could only reply that the activity in question had been approved and in many cases even requested by its governing body—i.e., by Governments that are also members of the Population Commission. The overview would therefore have to be presented as an information document only; it could not be discussed. This would produce a very awkward situation for the chairman of the session. The only remedy would be to change the Commission's terms of reference.

TOWARDS A MODIFICATION OF THE COMMISSION'S TERMS OF REFERENCE

The Economic and Social Council may discuss reports submitted to it by the specialized agencies and regional commissions. But any criticism is of a very general nature and deals with all the activities of those bodies, which extend well beyond population matters. The representatives of Governments in the Council would have to be true polymaths for the discussion to be constructive. So what actually happens is that there is virtually no discussion. The remedy, as far as population activities are concerned, would be for the Council to request the Population Commission to take its place with respect to such matters. But that would mean amending the Commission's terms of reference, and the last paragraph of resolution 150 (VII) of 10 August 1948 indicates that this would be no easy task. That paragraph reads as follows: The Commission may advise on "any other demographic questions on which either the principal or the subsidiary organs of the United Nations or the specialized agencies *may seek advice*".

That could not be clearer. The organs other than the Population Division and the Department of Technical Co-operation for Development wished to make it known through this wording that they would not stand any interference in their affairs and that their relationship to the

Population Commission operated in only one direction. This is particularly true for the specialized agencies. The initiative is with the agencies, and not the other way round. After nearly 40 years of application of this principle, the time seems to have come to adopt different rules. But amendment of the Commission's terms of reference, which would make it possible for the "overview" of population activities to be something more than an information document, will not be an easy task.

INTERNATIONAL POPULATION ACTIVITIES OUTSIDE THE UNITED NATIONS

Furthermore, the overview will not live up to its name. For it will omit the population activities of international non-governmental organizations and of intergovernmental organs that are not part of the United Nations.

The second category includes:

(a) The work of OECD at its development centre and in its system for permanent monitoring of migrations (SOPEMI), which is without doubt the best work done on migrations in Europe;

(b) The activities of the Council of Europe, in particular of its Committee for Demographic Questions, which organizes seminars, convenes groups of experts on selected topics and has already organized three European population conferences. For the Committee of Ministers of the Council of Europe the Demographic Committee is the equivalent of the Population Commission for the Economic and Social Council;

(c) The activities of the Intergovernmental Committee for Migrations (ICM);

(d) The activities of the European Economic Community, which is beginning to take an interest in population matters.

This list, limited to European bodies, is far from exhaustive. Other regions of the world have similar bodies carrying out population activities.

There are many organizations in the first category. Fortunately, UNFPA has already made a list of those which it thinks warrant its financial aid, and the part of their activities financed by the Fund will appear in the report on multilateral assistance mentioned above. All the rest will be lost to the Commission.

To be logical, in the quest for information initiated at its twenty-third session, the Commission ought to ask the Secretary-General to submit to it a report on the population activities of intergovernmental bodies that are not part of the United Nations and of the non-governmental organizations receiving financial aid from UNFPA. Such a report would clearly depend on the willingness of the bodies consulted to give information. It is conceivable that they would be flattered to be approached by the United Nations, and an overabundance of replies rather than a shortage might be expected. Of course the report would be for purely informational purposes; there would be no critical discussion.

I predict that the three new reports—on multilateral population assistance, on the population activities of the United Nations family, and on the population activities of

international bodies outside the United Nations—will prove so useful to the Population Commission that it will request them at each of its sessions. And this brings us to the end of the short-term period which was set at the start of this projection—i.e., the Commission's next four or five sessions, up until 1993. Meanwhile, in 1989 the Commission will have carried out the third review and appraisal of the World Population Plan of Action and it will also no doubt have initiated the process leading to a third world conference on population in 1994. (It was at its twentieth session, in 1979, that the Population Commission first discussed the possibility of holding a world conference in 1984 to carry out the second review and appraisal of the World Population Plan of Action.)

Looking beyond 1993, the expert is as helpless as the man in the street: the past, which he knows well, is too distant to help him in his predictions. And if he reins back on his imagination, he even risks becoming a handicap. Let me try nevertheless to move forward in time.

FOR IMPROVED UTILIZATION OF DEMOGRAPHIC INFORMATION

As the Commission prepares to open the third world conference on population in 1994, it will certainly note that, thanks to the initiatives which it had taken in preceding years, it has become the best-informed body on the world demographic situation. But it ought also to observe that all the demographic information produced at its request by the Secretary-General remains very badly utilized.

The report on the monitoring of trends and policies alone accounts for 1,400 pages in standard format⁹ and appears every two years. With the addition of the other publications of the Population Division and the three additional reports discussed above, the total easily reaches 3,000 pages. It would thus be necessary for a person to read from seven to eight pages per working day for two years merely to take note of the published information, and a single reading does not allow the memory to retain everything. This is a crucial difficulty of our times—one that is not confined to demography: the growth in information has been so great that our brains are incapable of registering all of it. Therefore, two goals come to mind. First, means must be devised of storing the information in such a way that it can be easily found when needed — and, secondly, a way must be found of extracting from the mass of data the essential ideas which any person interested in the future of the planet ought to know about world population and of presenting them to the world in a convincing message. The Population Commission ought to ask itself these two questions towards the end of the century:

A demographic encyclopaedia? Why not?

The first goal, of storing information in an accessible form, could no doubt be attained if a permanent demographic encyclopaedia were prepared. A work of that kind requires the collaboration, usually free of charge, of several hundred experts. But an overseer is vital, and that might be the role of the Population Commission. Such an activity would be perfectly consistent with its original

terms of reference. It would be a permanent activity, in the sense that at each session the Commission would devote a few days to this work. Each entry made in the encyclopaedia at the previous session would be brought up to date, and the Commission would examine the material which the multitude of voluntary collaborators had prepared for it. At each session the Commission would also draw up a list of new entries. Presentation of data in the encyclopaedic mode does not mean duplication of the subject indexes of various other works. For example, the encyclopaedia would include a constantly updated article entitled "Decline in fertility in India". At present, by using subject indexes, information on a topic can be found, but it is scattered among several works.

An encyclopaedia would be of enormous use to researchers. Think for a moment of what the two editions of the monumental work published by the Population Division under the title *The Determinants and Consequences of Population Trends*¹⁰ would represent today if they had been issued in the form of an encyclopaedia. The first edition has 1,200 pages, and the second edition, 2,100 pages. The text was drafted in English, but it was translated into Spanish and French and in part into other languages. Behind the two volumes stands a mass of worthy work of the kind required for the composition of an encyclopaedia; and it is a pity that the encyclopaedic mode was not used. Updating would then have been easy, whereas now it has become impossible. Those who took part in the drafting of the second edition are categorical: "never again" is their theme. Yet, presentation in the form of an encyclopaedia would have made it possible to use, as needed, the totality of the information contained in the two works. As things are, it is to be feared that they sleep on library shelves and are rarely consulted.

The message on the world population situation

The second goal, of composing a message for the world public, is easier to attain. The need for such a message already exists today, as the Executive Director of UNFPA, well knows. Every year he distributes to the press a report entitled "State of the world population, 19..", which reproduces his statement to the Governing Council of the United Nations Development Programme when he presents the Fund's programme of work. But this report bears its author's stamp: it is the opinion of the Executive Director. The impact of a report submitted by the Population Commission on behalf of the Governments of member States would be quite different. It is conceivable that it might even be adopted by the General Assembly.

Of course the Commission could not draft the message itself. It could only take note of a report prepared for it, to which it would put the final touches. The best way of preparing such a report would be to call in a group of experts who would first work by correspondence and then meet shortly before the Commission to draft the final version. The experts would have to come from very different backgrounds. The facets of the world population situation are so varied that demographers alone are incapable of discerning its contours. Therefore, a sociologist—probably even several—would be required if account is to be taken

of the various currents of thought in sociology. Then there would be an economist of the capitalist school and another of the Marxists. They would be accompanied by a specialist in social law, a historian, a geographer, a doctor, a biologist, an agronomist, an education specialist, a gerontologist, a genetics, and finally a handful of demographers. The group's chairman would be chosen from among the demographers.

The Population Division, in liaison with the other United Nations bodies that carry out population activities, would provide the secretariat services for the group of experts. First, it would draw up a list of the salient points in the world population situation about which the public might be asking questions. The list would be communicated to the experts, who would be free to add to it. They would be asked to prepare a brief comment on each of the points affecting their respective fields. This would be the phase of work by correspondence. The Population Division would have the task of synthesizing the comments and producing a preliminary draft of about 30 pages—the format of Council documents—which would be discussed and finalized at the meeting of the group of experts. The final document would be the one discussed, amended and in the end adopted by the Population Commission.

The list of points to be communicated to the experts would of course depend on the world population situation and would evolve over time. But it is not necessary to have an in-depth knowledge of that situation in order to draw up the list. Today, for example, the questions that the public is asking are well known. Here are some of them:

(a) Fertility has declined recently in a number of developing countries. Is that decline continuing? And if so, is it at the same rate?

(b) Fertility in the industrial countries has fallen below the replacement threshold. Are there any signs of stabilization or of recovery? Or is the downward movement continuing?

(c) The marriage rate has collapsed in the industrial countries. Is this the end of marriage or rather its transformation into what is known as "cohabitation"?

(d) In the industrialized countries, marriages—and even more so, cohabitation arrangements—are increasingly unstable, and this is producing an unprecedented increase in single-parent families. Single-person households are also increasing sharply. Can these two phenomena be quantified? What are the social and cultural consequences of these changes?

(e) What are the legal consequences?

(f) Mortality, which had ceased to decline in the industrialized countries, has resumed its downward movement. But the movement is not yet found in Eastern Europe and the Soviet Union. What is its magnitude? What are the implications for the aging of the population?

(g) In some developing countries (Cuba and Costa Rica, for example) the campaign against mortality has made spectacular progress. The progress is relatively independent of economic development, and this is a new phenomenon: social measures bringing down the mortality rate without economic progress. What are these measures?

(h) The participation of women in employment is increasing. What are the social and cultural consequences, in particular for the make-up and life of the family?

(i) The industrial countries have succeeded in greatly improving the situation of the elderly. This is probably the population group which has seen its standard of living increase the most over the past 20 years. The results obtained appear precarious. At the beginning of the twenty-first century, will they be jeopardized by demographic developments?

(j) Gerontologists promise us large increases in longevity in the next 50 years. A life expectancy at birth of 100 years is no longer in the realm of scientific fiction; in fact the limits of human life might be pushed beyond 150 years. If these hopes are realized, we will have to invent a new society, with ways of life, and especially of work, very different from those of today. What will and/or should that society be like?

(k) Discoveries that have been given the name of "genetic engineering" are beginning to emerge from the laboratories. They will present problems, some of them of a demographic kind. Here are a few: the choice by the mother of the sex of the child she is going to conceive may disrupt the age-old balance of men and women in the human population; *in vitro* fertilization and the prolonged conservation of embryos by freezing them in liquid nitrogen will result in the birth of children whose parents are long dead, and this will cause chaos in all matters of filiation and inheritance. What is more, the frozen embryos might be subjected to genetic manipulation. In the longer term, ought not consideration be given to the possibility of cloning in the human race?

(l) The manufacture of proteins by micro-organisms is also beginning to emerge from the laboratories. There are now factories which manufacture hundreds of thousands of tons of proteins every year using the "work" of a mushroom. The energy yield of these processes is now of the same order of magnitude as that of modern farmers, and the time is not far off when from the energy standpoint it will be more economical to have microbes working than farmers. The hurdle of the availability of arable land will be jumped and replaced by the availability of energy. It seems limitless, however little success physicists are having in domesticating the fusion of hydrogen. The problem of hunger in the world will be solved but at the cost of a thorough upheaval in our society. What will become of the rural world? The land will still be there, and perhaps it will be necessary to introduce "land wardens", just as there are forest wardens.

(m) Migration is a worrying topic. The host countries, which were tolerant in the period of economic growth, have proved intransigent in the present crisis. They reject racial groups too foreign to their culture, and the closing of their frontiers has produced illegal migrants who sometimes outnumber legal ones. Refugees constitute another migrant flow fraught with problems.

(n) In the developing countries urbanization continues to create difficulties which Governments cannot solve. The example of the industrial countries shows that a town

can function properly only if it consumes 5,000 kilogrammes of coal-equivalent per inhabitant. The majority of the towns in the third world consume far below that amount. In Latin America, for example, the best case achieves 2,500 kilogrammes. This means that, despite appearances, these are not true towns; as they aspire to become true towns, they will not stop until they reach the necessary 5,000 kilogrammes per inhabitant. These towns will thus be swallows of energy, energy which would no doubt be better used elsewhere.

TABLE 1. THE DEVELOPMENT OF WORLD EXPORTS, 1938-1982

Year	Market economies		Planned economies divided by market economies ^b	Quantum index for all countries	
	Quantum Index ^a (1963 = 100)	Quantum index (1980 = 100)		(1977 = 100)	(1982 = 100)
1938...	40	14	..	16	15
1948...	39	14	..	16	15
1953...	55	19	..	22	20
1958...	71	25	..	29	27
1960...	..	30 ^c	0.0142	34	31
1963...	100	35	..	40	37
1964...	110	38	..	43	40
1965...	118	41 ^c	0.0136	47	44
1966...	127	44	0.0133	50	46
1967...	134	47	0.0130	53	49
1968...	152	53	0.0127	60	56
1969...	169	59	0.0124	66	61
1970...	..	61 ^c	0.0120	68	63
1971...	..	..	..	..	..
1972...	..	..	..	..	..
1973...	..	..	0.0108	..	..
1974...	..	..	0.0096	..	..
1975...	..	77 ^c	0.0110	84	78
1976...	..	86 ^c	0.0104	95	88
1977...	..	90 ^c	0.0106	100	93
1978...	..	94 ^c	0.0106	104	96
1979...	..	100 ^c	0.0101	110	102
1980...	..	100 ^c	0.0097	110	102
1981...	..	100 ^c	0.0102	110	102
1982...	..	97 ^c	0.0115	108	100

^a Statistical Yearbook of the United Nations, 1970, p. 71.

^b Statistical Yearbook of the United Nations, 1982, p. 49.

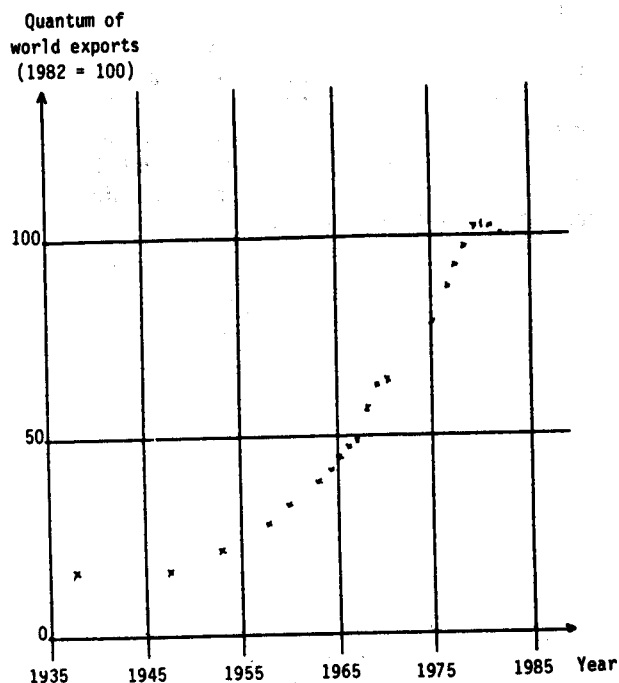
^c Ratio calculated on the basis of table 167, p. 875, of the Statistical Yearbook of the United Nations, 1982.

These are questions that the public would like to see dealt with today in a message on the state of the world population, and other questions will arise from future developments in the world. Of course there would be no attempt to deal with all the questions in each message. A choice would have to be made, but it would be good for the reader to know that the Population Commission was concerned with all the questions and that it was deliberately limiting its messages to a few of them and would take up the others in subsequent messages.

Topics neglected by demographers

There are also questions which do not occur to the public but for which room must be found in the report. Practically any change in no matter what area has demographic importance. All the insight of a demographer is needed to identify the significance. Here is an example which takes as its point of departure the increase in world trade over the past 50 years. This is a topic which has never aroused much curiosity among demographers, and yet it is possible

Figure 1. The development of world exports, 1938-1982.



to give a demographer's view which illumines some of the present difficulties of the world economy.

Table 1 and figure I show the increase in world exports since 1938. The quantum index moved from 15 in 1938 to 100 in 1982. Only partial statistics are available for the period before 1938, but they do not indicate that world trade had not changed much since the end of the nineteenth century. Growth by a factor of 6.7 is therefore a new phenomenon in the world's economic development.

When a country exports goods or services, it trades a part of its active population, the part which works for export, for an active population situated in other countries and having a very special characteristic: its economic activity is not predetermined and depends on the use which the exporting country makes of the foreign exchange received in the international market for its exports. This arrangement has great advantages: the exporting countries find the goods and services which they seek in exchange for their exports mainly in the highly industrialized countries. Tables 2 and 3 show the gross domestic product of seven highly industrialized countries in 1960 and 1980. The tables also show the active populations which contributed to the product. Take 1960: the 164,027 million workers produced \$768,950 million. Therefore each worker produced \$4,688. In 1980, 226,525 million workers produced \$5,249,410 million—i.e., \$23,174 per worker. Between 1960 and 1980 production-per-worker increased by a factor of five for two reasons: inflation and increased productivity. In 1960 world exports amounted to \$129,691 million.¹¹ With the foreign exchange yielded by those exports it was possible to "buy" the work of:

$$\frac{129,691}{4,688} = 27.66 \text{ million}$$

workers in the seven highly industrialized countries under consideration—i.e., 16.9 per cent of the active population of those countries in 1960.

In 1982 exports had reached \$1,851,057 million.¹² It was therefore possible to "buy" with the foreign exchange the work of:

$$\frac{1,851,057}{23,174} = 79.88$$

workers in the seven countries—i.e., 35.3 per cent of the active population. Figures of 16.9 per cent in 1960 and 35.3 per cent in 1982 mean almost a doubling over 20 years. It is conceivable that from 1960 to 1980 the same doubling rate was operating. Thus the development of international trade had the effect of multiplying by four the proportion of the active population of the highly industrialized countries involved in the trade. That part of the active population is not completely free; it is subject to the constraints of demand from the exporting countries, and the fact that it has grown from 8 to 35 per cent in 40 years has certainly had an effect on the functioning of the economies of the highly industrialized countries. The identification of the workers concealed behind the millions of dollars in the statistics of production and international trade—i.e., the presentation of a demographic interpretation—had contributed to a better understanding of the phenomena.

Let us analyse along the same lines the international trade of a country such as Saudi Arabia. In 1980 it received \$109,111 million,¹³ mainly from oil exports. With those dollars it could "buy" the work of:

$$\frac{109,111}{23,174} = 4.7 \text{ million}$$

workers in the seven highly industrialized countries of tables 2 and 3. It did not do so. Imports increased to \$30,211 million, which represents:

$$\frac{30,211}{23,174} = 1.3 \text{ million workers}$$

Thus there remained 4.7 million minus 1.3 million, or 3.4 million, workers. With those 3.4 million it paid salaries to 1 million foreign workers present in its territory in 1980, foreigners who had to be paid at a higher rate, in the order of magnitude of the production of a worker in the highly industrialized countries. But after that it still had the option of "buying" the work of 3.4 million—1.0 million, or 2.4 million, workers. It loaned that option to other countries through the banks, in return for interest payments. A bank would then go to, for example, the President of Mexico and say to him, "I will give you, say, 500,000 workers from the highly industrialized countries who will work for your country for a year. This is not a free gift, for I will deduct on the way the work of 50,000 workers. The contract is still very attractive, because you still have 450,000 workers from whom you can request any work you like. But beware: I advise you to choose work that is of use to your country, for one day you will have to repay this annual production of 500,000 workers, including of course the 50,000 that I deducted. By the way, I wish to make it clear that until you repay me you will have to give me every year the product of 50,000 workers. So do be careful, and good luck".

There we have, in terms of workers, the entire third world debt. Table 4 shows how the debt evolved from 1970 to 1982 for a number of countries. The percentages given in the table can be interpreted as indicating the percentage of the active population used for payment of the interest on the debt. The increase over 12 years is considerable, and since 1982 the percentages have gone even higher.¹²

These thoughts on a demographic interpretation of a major phenomenon of our times, the development of international trade, give an idea of the various phenomena demographers could interpret to illustrate the usefulness of their science.

To sum up, I am proposing to the Population Commission two areas for action after the third world population conference, in 1994, in order to ensure better dissemination of the information which it collects for its sessions.

TABLE 2. GROSS DOMESTIC PRODUCT IN 1980 AND ACTIVE POPULATION IN ABOUT 1980 IN SEVEN HIGHLY INDUSTRIALIZED COUNTRIES

Country	GDP millions of US\$ ^a	Active population	
		Year	Number thousands ^b
France	537 260	1982	23 518
Federal Republic of Germany	662 990	1982	28 335
Netherlands	136 520	1982	7 082
Belgium	85 240	1980	4 820
United Kingdom	473 220	1980	27 291
Italy	344 580	1982	22 981
United States of America	3 009 600	1982	112 498
TOTAL	5 249 410		226 525

^a Report on World Development, 1984 (Washington, D.C., World Bank), table 3, p. 223.

^b Yearbook of the International Labour Office.

TABLE 3. GROSS DOMESTIC PRODUCT IN 1960 AND ACTIVE POPULATION IN ABOUT 1960 IN SEVEN HIGHLY INDUSTRIALIZED COUNTRIES

Country	GDP millions of US\$ ^a	Active population	
		Year	Number thousands ^b
France	60 060	1962	19 712
Federal Republic of Germany	72 100	1960	22 871
Netherlands	11 580	1960	4 138
Belgium	11 280	1961	3 492
United Kingdom	71 440	1961	24 478
Italy	37 190	1961	19 729
United States of America	505 300	1960	69 607
TOTAL	768 950		164 027

^a Report on World Development, 1984 (Washington, D.C., World Bank), table 3, p. 223.

^b Economic activity of the world population 1950-1970, (Tokyo, Institute of Developing Economies, 1976).

It should, first of all, in the production of a demographic encyclopaedia based on the information collected for its debates. This might even prove a profitable operation for the United Nations. An encyclopaedia is always thought of as a series of beautifully bound volumes, with annually updated volumes and periodic new editions. This format should no doubt still be retained, but in the era of information technology it is possible to go further and computerize the encyclopaedia, so that it could be consulted just like any normal data bank. The POPIN project would find here a more exalted purpose than its present one of coordinating existing networks of demographic data. It

could take charge of the logistics of the encyclopaedia project and be strengthened accordingly.

Secondly, the Commission should compose, every two years, a message on the world population situation, drafted in terms accessible to all and not exceeding 30 pages. The first quarter of the twenty-first century, at least, will be needed for the attainment of these two goals.

BEYOND 2025

And afterwards? In principle a projection has no end, unless it leads to an indefinitely stable situation. This is clearly not true of the activities of bodies such as the Population Commission. There will always be an "afterwards". It is unlikely that the human race will disappear one day as for example, the smallpox virus and several other animal and vegetable species have done. It is true that the human being is the only species that can decide to commit suicide, and the present behaviour of the populations of the industrialized countries with regard to procreation would indeed be suicidal if maintained indefinitely. The possibility cannot be ruled out that this behaviour will be adopted by all peoples. Must we then conceived of a Population Commission whose main aim would be to prevent the disappearance of men and women, when up until now its concern has been with their excessive numbers?

It is indeed difficult to imagine what the human rate of reproduction will be in a century's time. As was mentioned above, gerontologists tell us that the limit of life will by then have been pushed ahead to 150 years and even beyond. It would be sufficient for biologists to enable women to conceive and give birth under good conditions—i.e., without risk of deformities—up to an advanced age for the present suicidal behaviour of the industrial countries to cease to be fatal. Several successive unions would then be possible, and while a single union with an average of 1.3 children (as in the Federal Republic of Germany) leads to the disappearance of the species, two unions each producing 1.3 children far exceeds the replacement threshold of the population. The Commission might have to start worrying about overpopulation again.

It is true that the time will also come to populate outer space. This is certainly not an easy operation, but it does seem to be inscribed in the history of life on earth. Thinking cannot be limited to planet Earth alone. The reconstitution of life similar to the life we know would require water, carbons and energy. It is not easy to provide water in places where there is none, but on the other hand it is easy to supply energy. There are very many places in the universe where water and the components of carbon exist: these are the nuclei of comets. By supplying energy to those places it would no doubt be possible in a century or two to reconstitute there an environment which would enable a human population to settle and carry on a normal life. The comets are relatively easy to reach. They pass periodically close to Earth and their speed at certain moments is of the same order of magnitude as that of 1985 jet aircraft. The idea of a Population Commission discussing the census of human settlements scattered throughout the universe on the nuclei of comets is not therefore totally absurd.

But there is something more worrying. Astronomers tell us that in solar systems other than our own there are definitely planets with the same environment as Earth. Life will necessarily have begun there and the process of evolution will be under way, leading to the succession of species that we know on Earth. Therefore, there exist in the universe other "mankinds" similar to our own, but with the difference that they were born at different times.

TABLE 4. INTEREST PAYMENTS ON EXTERNAL PUBLIC DEBT
(Percentages of GNP)

Country	1970	1982
Panama	3.1	15.4
Ivory Coast	2.8	14.9
Congo	3.3	13.4
Nicaragua	3.2	10.2
Algeria	0.9	9.8
Ecuador	1.4	9.7
Morocco	1.5	9.4
Israel	0.7	9.2
Jamaica	1.1	8.0
Portugal	1.5	7.8
Peru	2.1	7.4
Niger	0.6	7.3
Egypt	4.1	6.4
Costa Rica	2.9	6.2
Tunisia	4.5	5.9
Mexico	2.0	5.5
Mauritania	1.7	5.8
Honduras	0.8	5.7
Sierra Leone	1.8	5.4
Republic of Korea	3.0	5.2

Source: *Report on World Development, 1984* (Washington, D.C. World Bank), table 16, p. 249.

Homo sapiens on Earth is 20,000 years old, but there are planets on which he is tens of millions of years old. On such a planet "man" will long ago have passed the stage of populating the cosmos and he ought to have the means today of making contact with us. Research teams are listening—so far in vain. For the signal telling us that life exists elsewhere than on our globe. Is the necessary conclusion that this other life does not exist or that it no longer exists? The evolution of life might contain in itself a self-destructive factor which would bring it to an end and entail

the disappearance of human beings at the moment when they were on the point of being able to communicate with other beings in the universe. Or again, are we to think that at the moment when the means to communicate exist "man" no longer wishes to do so?

"Behold, the man is become as one of us, to know good and evil; and now, lest he put forth his hand and take also of the tree of life and eat and live for ever. So he drove out the man and he placed at the east of the Garden of Eden cherubim and a flaming sword which turned every way, to keep the way of the tree of life". These are the words of God in Genesis. It is perhaps time to put God back into science in order to understand Man.

NOTES

¹ Walford, Roy L., *The Maximum Life Span* (New York, W. N. Norton, 1984), p. 162.

² *Report of the United Nations World Population Conference, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. E.75.XIII.3).

³ *Ibid.*, chap. 1.

⁴ *Review and Appraisal of the World Population Plan of Action* (United Nations publication, Sales No. E.79.XIII.7).

⁵ United Nations publication, Sales No. E.86.XIII.2.

⁶ The Executive Director of the United Nations Fund for Population Activities (UNFPA) expressed his hope for such a pattern in his statement at the opening of the twenty-third session of the Population Commission. See *Official Records of the Economic and Social Council, 1985, Supplement No. 5* (E/1985/25).

⁷ See *Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984* (United Nations publication, Sales No. E.84.XIII.8).

⁸ *Official Records of the Economic and Social Council, 1985, Supplement No. 5* (E/1985/25), para. 67.

⁹ Standard format is 15 cm x 22 cm. The format of United Nations publications is 21 cm x 28 cm. One page of United Nations format corresponds to three pages of standard format.

¹⁰ United Nations publication, Sales Nos. 1953.XIII.3 and 71.XIII.5. The second edition was supplemented by a volume of 450 pages, in English only, containing the author and subject indexes (Sales No. E.71.XIII.6).

¹¹ United Nations publication, Sales No. EF.84.XVII.1).

¹² Table 4 includes only countries in which more than 5 per cent of the active population worked for the debt in 1982. It is perhaps surprising not to find there many Latin American countries, which the press presents as heavily indebted. In fact, the majority are not far from 5 per cent: Brazil at 3.5; Chile at 4.7; Argentina at 4.4; Venezuela at 4.6; and Colombia at 2.2.

كيفية الحصول على منشورات الأمم المتحدة

يمكن الحصول على منشورات الأمم المتحدة من المكتبات ودور التوزيع في جميع أنحاء العالم. استعلم عنها من المكتبة التي تتعامل معها أو اكتب إلى : الأمم المتحدة، قسم البيع في نيويورك أو في جنيف.

如何购取联合国出版物

联合国出版物在全世界各地的书店和经售处均有发售。请向书店询问或写信到纽约或日内瓦的联合国销售组。

HOW TO OBTAIN UNITED NATIONS PUBLICATIONS

United Nations publications may be obtained from bookstores and distributors throughout the world. Consult your bookstore or write to: United Nations, Sales Section, New York or Geneva.

COMMENT SE PROCURER LES PUBLICATIONS DES NATIONS UNIES

Les publications des Nations Unies sont en vente dans les librairies et les agences dépositaires du monde entier. Informez-vous auprès de votre libraire ou adressez-vous à : Nations Unies, Section des ventes, New York ou Genève.

КАК ПОЛУЧИТЬ ИЗДАНИЯ ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ

Издания Организации Объединенных Наций можно купить в книжных магазинах и агентствах во всех районах мира. Наводите справки об изданиях в вашем книжном магазине или пишите по адресу: Организация Объединенных Наций, Секция по продаже изданий, Нью-Йорк или Женева.

COMO CONSEGUIR PUBLICACIONES DE LAS NACIONES UNIDAS

Las publicaciones de las Naciones Unidas están en venta en librerías y casas distribuidoras en todas partes del mundo. Consulte a su librero o diríjase a: Naciones Unidas, Sección de Ventas, Nueva York o Ginebra.

