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MOBILIZATION AND INTEGRATION OF WOMEN IN DEVELOPMENTImplementation of resolution 2, entitled "Women, science
and technology", adopted by the United Nations Conference
on Science and Technology for DevelopmentReport of the Secretary-General

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I. INTRODUCTION

1. This report has been prepared pursuant to paragraph 2 of General Assembly resolution 34/204 of 19 December 1979, in which the Assembly, welcoming resolution 2 entitled "Women, science and technology", adopted by the United Nations Conference on Science and Technology for Development, held at Vienna from 20 to 31 August 1979, 1/ requested the Secretary-General to proceed with the implementation of that resolution and to report thereon to the General Assembly at its thirty-sixth session.

2. The operative part of resolution 2 adopted by the Conference reads as follows:

"1. Invites Member States to facilitate:

"(a) The equal distribution of the benefits of scientific and technological development and its application to men and women in society;

"(b) The participation of women in the decision-making process related to science and technology, including planning and setting priorities for research and development and in the choice, acquisition, adaptation, innovation, and application of science and technology for development;

"(c) The equal access for women and men to scientific and technological training and to the respective professional careers;

"2. Recommends that all organs, organizations and other bodies of the United Nations system related to science and technology should:

"(a) Continually review the impact of their programmes and activities on women;

"(b) Promote the full participation of women in the planning and implementation of programmes;

"3. Invites the proposed Intergovernmental Committee on Science and Technology for Development;

"(a) To give due regard to the perspectives and interests of women in all its recommendations, programmes and actions;

"(b) To include in its annual reports a review on the progress made concerning the implementation of the tenets of the present resolution;

1/ See Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. 79.1.21 and corrigenda); chap. VI, sect. A.

"4. Recommends to the forthcoming World Conference of the United Nations Decade for Women: Equality, Development and Peace, to be held in 1980, to give due consideration to the relationships between women, science, technology and development."

3. The present report has been prepared in implementation of resolution 2 of the Conference and includes information provided by organizations of the United Nations system.

II. ACTIVITIES OF ORGANIZATIONS OF THE UNITED NATIONS SYSTEM

A. United Nations

4. The Secretariat has undertaken efforts to evolve and encourage, both within and outside the United Nations, the adoption of a more comprehensive and integrated approach to women's issues. Consequently, the question of "women, science and technology" has been treated from both sectoral and cross-sectoral perspectives, and various development issues have been isolated and synthesized in this regard.

5. During the period under review, data were collected on "women, science and technology" through the integrated reporting system initiated by the General Assembly in its resolution 33/168. In this context, a data bank on the advancement of women was set up, using governmental, non-governmental and intergovernmental sources, and classifying information by geographical, functional and organizational categories. Research on "women, science and technology" is therefore being carried out on a multidisciplinary basis.

6. A working paper on the subject prepared recently is one of several papers to be reviewed by an expert group meeting on women and the new international development strategy, which will be held in Vienna in December 1981. A study on the "Influence of the mass communication media on attitudes towards the role of women and men in present-day society" (A/CONF.94/BP/11) contained many recommendations on the need for women to participate more directly in the formulation, management and evaluation of this aspect of science and technology. Two expert group meetings were organized during the current biennium on topics related to women, science and technology: "Women and the new international development strategy" and "Women and the mass media". The interagency programme for the United Nations Decade for Women which is intended to bring about more effective collaboration and mutual support among the many parts of the United Nations system of organizations with respect to a wide range of activities, includes projects in the field of science and technology. Under the Convention on the Elimination of All Forms of Discrimination against Women, General Assembly resolution 34/180 which came into force on 3 September 1981, the Committee on the Elimination of Discrimination against Women will consider the progress made in implementing the articles of the Convention that concern women and science and technology.

7. A review of more than 200 projects supported by the Voluntary Fund for the United Nations Decade for Women shows a heavy concentration of activity in areas involving access by women to scientific knowledge and to technologies. This concentration results from the mandate and guidelines of the Fund, which stipulate that its resources be used as a supplement to financing from other United Nations development co-operation funds and not as a substitute for it. Projects financed by the Fund include 46 in the fields of technologies including income-raising activities, and 10 involving energy resources.

8. Examples of such projects are described below. In Africa, a series of training workshops were held for trainers and planners of village technology for rural families, with participants from 10 countries. In the United Republic of Tanzania, a project in salt processing will provide technical advice and technologies to families of a lakeside village where women and their families traditionally extract salt in exchange for food. In Asia and the Pacific, a workshop on the participation of women in dairy co-operatives for five most seriously affected countries - Bangladesh, India, Nepal, Pakistan and Sri Lanka - emphasized the transfer of technology for co-operative milk production. This activity will be duplicated in a subregional workshop on women's participation in paddy production, to be held in Malaysia. In the Pacific Islands, a subregional symposium on women and appropriate technology particularly to women related to manufacturing and construction will consider the applicability of opportunities in industrial development with appropriate technology. In Western Asia, a project in Yemen on improving animal and poultry stock and on processing food products by utilizing modern production methods is expected to make up for that country's lack of manpower. The project is in support of the priority given in the five-year development plan to improvement of the role of women in agricultural and rural development through the provision of modern agricultural skills.

9. Technical co-operation projects in the fields of public administration and finance, natural resources and energy, statistics and integrated rural development offer particular opportunities to impart to developing countries the necessary technological know-how and skills to meet development goals.

10. To encourage and facilitate the inclusion of women and women's concerns throughout its programmes, the United Nations Secretariat has carried out a special review to identify actions that can be taken within projects it normally implements. This review also covered projects with a potential for the participation of women in decision-making processes related to technology, and for the acquisition, adaptation and application of technology for development, as well as for the equal access of women to training in that area.

11. On the basis of the results of this substantive review, and of various organizational efforts (including the establishment of focal points, the issuance of guidelines, and the institution of a monitoring system), attention to the participation of women in all projects, including those related to science and technology is gradually increasing. In the fields of public administration, finance and statistics, for example, which often include the introduction or expansion of electronic data processing and information systems, attempts are being made to increase the number of women participants in project-related training. Where the Secretariat is assisting in energy planning and policies - projects which often cover most aspects of the production and consumption of virtually all possible energy sources - efforts are being made to widen the scope of the projects so that the possible implications for women of various technical possibilities may not be overlooked. This is relevant particularly in connexion with the planning for, and establishment of, rural energy centres in isolated communities. In water projects involving the introduction of new equipment, additions to projects are under discussion for the training of women in the maintenance of equipment. Within

mineral projects, women are being trained as laboratory technicians. Work in integrated rural development offers special opportunities to introduce new or adapted technologies in order to ease domestic workloads and promote community self-help efforts, including income-generating activities.

12. As of mid-1981, various project additions based on the approaches outlined above were under way to promote the participation of women in technological change and in the benefits to be derived from it. In cases where other funding has been unavailable, these project additions have been financed from the regular programme.

13. In order to encourage the training of women in decision-making within this area and in general, letters of invitation to developing countries in connexion with the organization of workshops and seminars now routinely request that consideration be given to nominating women participants.

14. Proposals for a detailed operational plan, organized into eight programme areas, for the implementation of the Vienna Programme of Action on Science and Technology for Development ^{2/} were submitted by the Secretariat to the Intergovernmental Committee for Science and Technology for Development at its third session. The recommendations of the Committee in this regard are given in chapter III, below. The proposals included, under programme area IV on "Development of human resources for science and technology", a section on "Women in scientific and technological development", relating to measures to remove obstacles and provide incentives for the integration of women in scientific and technological education and careers with a view to "effecting a significant increase in the stock of scientists, engineers, managers and technicians in developing countries".

15. To support government actions in that respect, it was proposed in that section that international studies be carried out, within the framework of the United Nations Decade for Women, on policy measures specifically directed towards increasing the number of qualified women and increasing the general scientific and technological literacy of women, particularly in rural areas.

16. In the same section it was also proposed that efforts be made to promote the implementation of legislative reforms and of other policy measures relating to the increased participation of women in scientific and technological activities (A/CN.11/12, paras. 211-214).

17. The Economic Commission for Europe (ECE) published a study in 1980 on: "The economic role of women in the ECE region", which was initially undertaken for the preparatory seminar on this topic organized by ECE and held in Paris at the invitation of the Government of France in July 1979. The study was subsequently revised at the seminar and drew the conclusions, inter alia, that the service section was the dominant employer of women in the market economies. A summary report prepared for the World Conference of the United Nations Decade for Women

^{2/} Ibid., chap. VII

contained pertinent findings on women, science and technology in the ECE region (A/CONF.94/14, para. 56).

18. The Economic and Social Commission for Asia and the Pacific (ESCAP) has recently commented that since the extremely high number of women employed gainfully or otherwise in the agricultural sector of the Asian and Pacific region is extremely high, the Commission's efforts have been directed particularly to women, science and technology in this context. For example, a workshop was organized in India (1979) on "Women's participation in dairy co-operatives", one of its objectives of which was to enhance the participation of women in dairy co-operatives in member countries and to develop appropriate technology for carrying out such work. In addition, round-table discussion on the participation of women and their emancipation through the application of science and technology to development was held in Bangalore, India, in 1979 by the Asian and Pacific Centre for Women and Development and the ESCAP Regional Centre for Technology Transfer (ESCAP Division of Industry, Human Settlements and Technology). ESCAP has participated in discussions with concerned officers in the ECA, ECLA and ECWA regions regarding an interregional project for the initiation and development of appropriate technology for women in three countries of each region. Such appropriate technology would be geared to increasing the productivity of women in specific fields and to reducing their burden of work in areas where they are primarily engaged. In this regard, ESCAP has contacted the Governments of India and Indonesia to participate in such an activity inasmuch as they have shown an interest in developing appropriate technology. ESCAP has expressed the hope that by 1982 or early 1983 it will be possible to initiate an interregional project that would lead to the development of appropriate technology in the various regions on an experimental basis and that would also serve as a demonstration project. On the basis of this experience, it is envisaged that a major funding organization could be motivated to carry out research with the primary purpose of developing appropriate technology for women in the field of agriculture in particular and in other fields in general.

19. The Economic Commission for Latin American (ECLA) recently reported that in that area it has been concentrating on two main activities. The first was research and studies on the impact of technological changes on the status of women and their role in society, and the implications of the agricultural modernization process for the role of rural women and their families. An analysis has been made of technological changes and their introduction into various areas, technologies relating to production and marketing, organizational changes and their effects on the participation of women in the development process. The second activity to which priority has been accorded is the provision of training within the framework of action-oriented projects at the national, subregional and regional levels. Various activities have been carried out in this regard, including workshops for the exchange of experiences with a view to preparing preliminary projects on issues affecting women, training seminars in handicrafts and agro-industry, and training workshops for the identification, planning, execution and evaluation of national, subregional and regional programmes and projects. An effort has been made to stress the training of women in non-traditional areas so as to enable them to participate more effectively in the development process. Another aspect which has

received priority attention is the promotion of horizontal technical co-operation, organizational programmes for producers and consumers co-operatives and marketing techniques.

20. The Economic Commission for Africa (ECA) has undertaken a number of activities especially related to women, science and technology. Socio-economic studies are being made of existing projects with a view to introducing new technologies in villages and of the role of women and technology in agriculture (Ethiopia, Sierra Leone, Ghana and Nigeria). Surveys are being made of traditional and existing technologies with a view to providing data as a basis for recommendations for future courses of action (Sierra Leone, Ethiopia, Nigeria, Zambia, Sudan and Egypt). Pilot projects are being carried out with a view to introducing improved technologies for women into selected villages and to studying their acceptability and usefulness (Upper Volta, Sierra Leone, Gambia, Niger and Kenya).

21. Through workshops and study tours extension workers and government officials are making an effort to increase their understanding of technologies for women and are being trained in specialized aspects of improved technologies (1979 workshop for Sierra Leone, Ghana, Gambia and Nigeria, and 1980 workshop for Benin, Guinea-Bissau, Guinea-Conakry; Mali, Mauritania, Niger and Senegal; study tour from Somalia and Zambia to visit Kenya; training workshop in Somalia). Information is being collected and disseminated on village technology for women (eight publications). Scholarships have been provided for specialized training for African women engineers (two grants). The ATRCW is now giving priority attention to workshops for the training of extension workers in improved methods of storing and preserving food; in low-cost building techniques, and in improved soap- and candle-making. Other plans include two joint programmes with the Science and Technology Unit of the ECA Natural Resources Division (a TCDC project with the Government of India and another TCDC project of ECA on appropriate rural technologies, with special attention to women).

22. As regards the Economic Commission for Western Asia (ECWA), the Regional Programme of Action for Western Asia for the Second Half of the United Nations Decade for Women, 1981-1985, adopted by States members of ECWA in Damascus in 1979, emphasizes the importance of women, science and technology, and sets out project and activity proposals to be implemented by member States in such fields as legislation, employment and education. In this regard, ECWA has submitted to the Consultative Committee for the Voluntary Fund of the United Nations Decade for Women a funding project entitled "Maintenance skills for household appliances and related electronic equipment" (Jordan). ECWA has stated that one of its long-term objectives is to create an awareness on the part of women and planners of new and innovative technical fields for women and to increase the participation of women in the skilled labour market. This project can be replicated in other countries of the ECWA region. In 1980, ECWA held a seminar on the Arab brain drain question: the papers and proceedings of the seminar have been published in book form in Arabic and English. A number of papers discussed the structure and the limitation of the education system in the Arab world and shed light on the situation of women in the scientific and technological fields.

23. The United Nations Conference on Trade and Development (UNCTAD) reported that its Technology Division had included in its work programme for the biennium 1982-1983 a report on the role of women in technological transportation.

24. Financial and staff constraints have hindered the United Nations Industrial Organization (UNIDO) from embarking on a review of the effect of all its programmes and activities on women. However, the Interdivisional Working Group on the Integration of Women in Industrial Development recently recommended that officers in charge of evaluating technical assistance projects should be instructed to assess the impact of the projects on women. UNIDO has also carried out a preliminary study on the impact on women of the redeployment of the manufacturing industry to developing countries. The UNIDO secretariat intends to undertake studies with a view to accelerating the effective integration of women in the development of two industrial sectors, namely, the food processing and textile industries. These studies will also assess the impact of existing technologies on the contribution of women to these industries in developing countries.

25. The UNIDO secretariat reported recently that the adaptation of projects specifically towards women was, in some cases, well justified, but that, in general, that approach ought to be the exception. 3/ UNIDO has certain "women's programmes", such as one on the upgrading of the technologies used by women potters in Bolivia, and a seminar on the role of women in the development of industrial branches traditionally employing female labour, to be held in Bulgaria in 1981. Many women are involved in both the planning and the implementation of these activities. However, the UNIDO secretariat considers the recent approach by UNIDO to be more effective namely, promotion of the participation of women in the planning and implementation of technical assistance activities through special instruction related to the formulation of projects, addressed both to UNIDO field and UNIDO headquarters staff. 4/

26. The activities of the United Nations Centre for Human Settlements (HABITAT) in the field of human settlements, science and technology are being undertaken within the context of the operational plan for the implementation of the Vienna Programme of Action on Science and Technology for Development 2/ and in response to government requests for technical assistance. In the course of 1980, an analysis was made of the national reports submitted to the United Nations Conference on Science and Technology for Development in order to identify the areas in which human settlements, science and technology projects could be developed for possible funding from the United Nations Interim Fund for Science and Technology for Development, with particular attention to the promotion of the full participation of women in the planning and implementation of the human settlement projects.

3/ For a more detailed explanation of this view, see ID/B/256, annex II, para. 6 (a) and (b).

4/ See ID/B/256, annex I, paras. 19 (a) and 20 (a); and annex II, para. 6 (b).

27. The important role of women in promoting national economic growth and in the development of settlements through use of the tools of science and technology has been widely recognized; HABITAT, for its part, has focused attention particularly on the utilization of human settlements technologies by men and women equally in accordance with the conditions and needs of the region. As regards appropriate infrastructure for low-income settlements, the objective has been to promote the development of appropriate standards and technologies for the provision of economically efficient infrastructure, bearing in mind the needs of women.

28. Programme components such as the development of appropriate building technologies for squatter and rural settlements, the choice of appropriate building technologies and the improvement of the construction industry, the organization of training programmes for the provision of skilled labour for the construction industry, demonstration projects on the transfer of appropriate building technologies from construction industries to the informal construction sector and on the development of indigenous construction industries in urban and rural areas will, among other things, promote the full participation of women in the planning and implementation of the programmes.

29. In addition, the work programme for 1981-1982 and the draft medium-term plan for 1984-1989 envisage full integration of women in the development of human settlements and in particular the following:

(a) The potential contribution of women to construction and housing; and the extension, renovation and maintenance of existing dwellings;

(b) The inclusion of women in the decision-making process as equals, in order to provide incentives for the development and implementation of appropriate building technologies in all aspects of building construction;

(c) Full participation of women in research, studies and demonstration projects and the linking of such projects with bodies responsible for the execution of national building programmes.

30. The year 1980 was a period of stock-taking and re-direction for programmes of the United Nations Children's Fund (UNICEF), especially those of benefit to women and girls. As all country offices had reviewed their activities for women intensively in 1979 in preparation for the report to the 1980 Board session on "women, children and development" (E/ICEF/L.1409), they were in a better position both to improve existing programmes and to set new directions. Focusing on women as total persons and not only as mothers, as active agents of development and not merely as passive recipients of services was seen to be an essential strategy for improving the situation of children and the family.

31. The Women's Revolutionary Socialist Movement of Guyana has been working on an appropriate technology project with assistance from UNICEF. This project, under which women are engaged in surveys, workshops, training and production programmes, serves as a model for the development of similar programmes in the region. There are four projects within the country programmes of the region that emphasize the adaptation of technology to the roles and responsibilities of women.

32. Studies of the roles, tasks and needs of women, as mothers, agricultural producers, water carriers and so on are being carried out as a first step to the planning of relevant programmes. In 1981 UNICEF assisted Ethiopia and Swaziland to do their own surveys on the situation for women. As few data exist in this area, UNICEF will continue to support such studies.

33. In Senegal, under an administrative reform designed to decentralize powers and to transfer decision-making to the community level, over 50 per cent of UNICEF funds, or approximately \$600,000 is devoted to women's activities. These include measures to make the work of women by providing appropriate appliances (such as grinders and millet huskers) and simple pumping equipment (hand-pumps). Such operation are taking place in six of the country's eight regions, and in some cases the time gained thereby can be advantageously used for non-formal education. UNICEF has provided assistance to 10 women's co-operatives in such areas as the easing of household tasks (through the provision of grain grinders), the carrying of water, wood and agricultural produce (through the provision of carts) and the irrigation of food crops (through the provision of pumps). In Bangladesh a seminar on appropriate technology was held for 120 women members of co-operatives.

34. The standard basic services programmes of UNICEF involving women are now fully in keeping with the programmes of action developed for the United Nations Decade for Women. UNICEF continues to be a major force for the advancement of women in developing countries: its current programme thrust on their behalf reflects trends identified as critical to the full recognition of women in society.

35. The United Nations Development Programme (UNDP) has recently reported that the interests of women in UNDP-supported projects related to science and technology are being considered as an integral part of an established policy to take account of the role of women in technical co-operation activities, whether as participants or as beneficiaries, in all project proposals.

36. The role of women in science and technology is of special relevance to the operation of the Interim Fund for Science and Technology for Development, which is administered by UNDP. The Fund was established by General Assembly resolution 34/218 for a period of two years, 1980 and 1981, pending the establishment of long-term financing arrangements for science and technology for development. It became operational in May 1980. The primary objectives of the Fund are to strengthen the endogenous scientific and technological capabilities of the developing countries; to promote international co-operation in the field of science and technology for development; and to support, promote and initiate the activities necessary to prepare for future efforts to strengthen the scientific and technological capacities of the developing countries.

37. To date, more than 800 requests have been submitted to the Fund. They cover a wide range of activities, such as science and technology planning; the strengthening of institutions; the choice, acquisition and transfer of technology; scientific and technological information; the development of human resources; and the strengthening of research and development and their linkage with the productive sector. The requests reflect an increasing interest in building self-reliance in

science and technology and in adapting, available technologies to the social, cultural, economic and environmental conditions of each developing country.

38. In the 43 projects approved so far, care has been taken to include those designed to meet the urgent problems of the least developed, land-locked, island and most seriously affected developing countries. Special attention has been given to the interests of women in the evaluation of project requests. Several of the approved projects concern the promotion of appropriate rural technologies; the implementation of programmes designed to improve the nutritional and health standards of rural communities; and more efficient use of natural resources, such as wood, water, animal and agricultural waste, and solar and wind energy. The greatest beneficiaries of these programmes are very often women, and the Interim Fund has taken special care to ensure that the work plan for every project should include, at all stages of implement, the participation of women. Arrangements are being made to involve women's organizations in project activities. The staff of the Interim Fund includes a full-time woman consultant.

39. In order to ensure that specific situations as well as the needs of women should be taken into account in the preparation and appraisal of all its supported projects, in May 1980, the United Nations Fund for Population Activities prepared guidelines for its policies and programmes in the field of women, population and development. The document was sent to all UNDP resident representatives, field co-ordinators of the Fund, participating and executing agencies, and other relevant organizations, with the recommendation that the suggestions made therein be considered in the development of project requests for support of the Fund. The guidelines specifically emphasize the need for increased participation by women in the research, training and communication components of population-related programmes. The Fund has also provided considerable support to research activities at the national and international levels to identify the most effective and acceptable methods of delivery of mother and child health care and family planning services, through community-based approaches involving women's groups, institutional or educational and training programmes appropriate within the various socio-economic, cultural and political situations.

40. Assistance has also been given to research with a view to identifying or improving simple methods and the most appropriate contraceptive techniques to be used by women in developing countries. Support has also been provided to a number of research programmes, the purpose of which is to utilize services of auxiliaries, extension workers and lay persons in the delivery of information and services related to family planning, child care, basic health of the family and the like.

41. Another area of programme assistance has been related to formulating effective policies and programmes to deal with various population-related issues such as population redistribution, growth, size, the magnitude and types of these issues, their interrelationships with socio-economic factors and their effects on the responsibilities, roles and reproductive behaviour of women.

42. In the course of recent years, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) has increased the opportunities for

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women and girls among the Palestine Arab refugee community to obtain appropriate training to enable them to follow technical careers. The seven UNRWA centres that offer vocational and technical training courses had an enrolment of 585 women or girls in the 1980/81 school year, or 17 per cent of the total enrolment. In addition, 20 refugee girls were sponsored by UNRWA for vocational training in a private college. Some 45 were enrolled, at the Damascus training centre and 41 girls at the Wadi Seer training centre which, until 1976 at Damascus and 1979 at Wadi Seer, were open only to men. Courses in which girls are now enrolled at these centres are: construction technician, architectural draughtsman, quantity surveyors, land surveyors, laboratory technicians and assistant pharmacists. Plans are under way to include girls in the vocational training courses at the Siblin training centre in Lebanon. In addition to vocational training, UNRWA provides approximately 350 university scholarships annually to Palestine Arab refugees. For the academic year 1981/82, 51 of the UNRWA university scholarships were awarded to women and girls, 47 of whom were following university courses in science and technology.

43. In an effort to diminish any adverse effects of technology on women and to promote equal participation by women in the decision-making processes related to science and technology, the United Nations Institute for Training and Research (UNITAR) promotes the full participation of women in the planning and implementation of its science and technology-related activities. The Institute included as an integral component in its work, the examination of the situation and role of women in connexion with the subject under study in its programme and projects, including those on science and technology. The UNITAR project on "science and technology for development: responses to an implementation of the Vienna Programme of Action" includes the recent production of a series of studies which inter alia address scientific-technological change and the role of women in development. ^{5/} These studies, written by women, document the ways in which women suffer from technological development and examine the way in which technological development perpetuates inequalities between nations, regions, classes and the sexes. They discuss the introduction of modern technology into agriculture and its effects on rural women, examine the position of women in the basic and applied sciences and in science policy-making, and analyse the place of women in selected technology-based industries. A UNITAR seminar on "Creative women in changing societies", held in Oslo, Norway, in July 1980 addressed inter alia the role of women in scientific-technological and medical change. Nineteen recommendations were made, including the suggestion that the national research councils being established as a follow-up to the United Nations Conference on Science and Technology for Development should be specifically mandated to serve the needs of women and that international organizations should formulate programmes to arrange exchanges of women scientists from different regions.

^{5/} Pamela D'Onofrio-Flores and Sheila A. Pfafflin, eds., Science and Technology in a Changing International Order, vol. II; Scientific-Technological Change and the Role of Women in Development (Boulder, Colorado, Westview Press, 1981) (in press).

44. The United Nations Research Institute for Social Development (UNRISD) reports that its work does not have as its main emphasis the issue of "women, science and technology", although the choice and access to technological improvements enter the over-all analysis of the role and status of African women.

45. The International Research and Training Institute for the Advancement of Women listed in its inventory of United Nations-sponsored activities several research projects that have sections relating to women, science and technology.

B. Specialized agencies

1. International Labour Organisation

46. During the period under review the International Labour Organisation (ILO) considered the effect of technological change on the position of rural women. It carried out three studies, in which it sought to provide an analytical framework for the question. One study 6/ gives an analysis of the adequacy of traditional macro-economic theories concerned with the impact of technological change in class distribution of income by a formulation which measures the welfare of rural women in terms of two indices concerning income and the use of their time. The second 7/ deals with an institutional analysis of the impact of technological change on rural women. The third 8/ provides empirical evidence from Africa on this question. As a sequel to this preliminary (investigative) research phase, the ILO is launching a regional project in Africa on technological change, basic needs and the condition of rural women. 8/ Under this project, a multidisciplinary team of professionals will work together to determine how technological change can improve the condition of rural women by providing sources of income and employment and reducing the strain, drudgery and burden of household and other types of non-remunerated and unpaid domestic work. Two case studies are planned for Ghana and Sierra Leone.

2. Food and Agriculture Organization of the United Nations

47. The Food and Agriculture Organization of the United Nations (FAO) reports that the "promotion of the full participation of women in the planning and implementation of its programmes" is not always easy. The participation of women

6/ Iftikhar Ahmed, "Technology for Women", Women at Work Special issue: After Copenhagen. Geneva, International Labour Organisation, 1980, vol. 2. The study referred to is: Amit Bhaduri, "Technological change and rural women: a conceptual analysis" (Geneva, ILO, 1979).

7/ Anne Whitehead, "A conceptual framework for the analysis of the effects of technological change on rural women" Women at work (Geneva, ILO) (to be issued).

8/ Marilyn Carr, "Technology and rural women in Africa", Women at Work, (Geneva, ILO, 1980).

in field planning and in implementation is a national prerogative over which FAO has no control and it therefore falls within the area covered by operative paragraph 1 of resolution 2 of the United Nations Conference on Science and Technology for Development. 1/ However, there is a noticeable (and probably steady but small) increase in the number of women scientists employed in both the national and the international agricultural research services with which FAO has dealings, and in some national government services at the planning and executive levels.

48. While it is impossible to review the impact of an agricultural research project on women, qua women, FAO is currently evaluating the impact of a world-wide sample of such projects on farmers. Inasmuch as untold millions of the world's farmers are women, then FAO must indeed be said to be reviewing the impact of its programmes and activities on women.

49. There are, however, FAO programme activities which are focused specifically on women. These aim at bringing opportunities of improved training to women especially in agricultural techniques. For example, since the inception of the FAO Prevention of Food Losses Programme (PFL), efforts have been made to ensure that the concerns of rural women and their responsibilities for the storage and processing of food shall be considered in the planning of PFL training programmes. FAO is conducting a series of studies on socio-economic effects of PFL projects and one of the indicators being studied is the division of labour within the rural family regarding processing and storage of food kept for family consumption or for marketing.

50. Furthermore, a certain number of women have participated in FAO training courses on such subjects as dairy, food hygiene, fertilizers and organic recycling for agriculture, water management at the farm level, small-scale biogas production, monitoring for salinity and sodicity, soil conservation, radio installation and maintenance, seed technology, and control of environmental contamination of food.

3. United Nations Educational, Scientific and Cultural Organization

51. Moreover, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has recently stated that several programmes within its education sector contribute to the promotion of equality for women in terms of access to, and participation in, technical, vocational, scientific and technological education, training and associated careers.

52. Within the framework of its normative action, UNESCO adopted in 1974 the Revised Recommendation concerning Technical and Vocational Education, wherein special provisions (for example, provisions regarding educational and vocational guidance) were made with a view to ensuring equal educational opportunities for women, and to encouraging them to enter technical, vocational, scientific and technological streams. The guide for a self-evaluation regarding the implementation of the Revised Recommendation specifies that special attention should be devoted to the question of women.

53. In compliance with resolution C/13 adopted by the twentieth General Conference of UNESCO, 9/ a series of country studies on the access of women to science education and training and associated careers was initiated in 1979 and three international meetings were convened to consider the problems of women's participation in technical and vocational education and training, and in employment.

54. The series of studies involved the National Commissions for UNESCO of Czechoslovakia, France, Malaysia, Senegal and Venezuela, which entrusted their respective studies to research teams comprising both men and women members. These teams reviewed the situation in their countries regarding the opportunities open to girls and women in terms of participation in science and technology education and training and associated careers, so as to identify obstacles and problems which girls and women face in this area, and to work out remedial and preventive programmes and measures. To assist the national teams in gathering relevant documentation, the American Association for the Advancement of Science was contracted to prepare a short, selected bibliography on the same subject. The Czechoslovak study has been completed, published and widely distributed, and as a follow-up to the study UNESCO is now co-operating with Czechoslovakia within the framework of an in-depth study on life-long programmes and structures relating to the participation of women in science and technology education and training. The reports on the other four studies will be published and widely distributed, and the possibilities for follow-up programmes in these four countries will be examined in consultation with the national authorities concerned.

55. Thanks to the generous financial voluntary contribution of the Government of the Federal Republic of Germany, it was possible to convene in 1980 the International Congress on the Situation of Women in Technical and Vocational Education in Bonn, and the International Seminar on the Opening Up to Women of Vocational Training and Jobs Traditionally Occupied by Men, in Frankfurt. During the International Congress, the problems and obstacles faced by girls and women with regard to their participation in technical and vocational education were examined and the possible programmes and measures that might contribute towards ensuring equal educational opportunities for girls and women in this field were discussed. The final document produced by this Congress, referred to as the "Charter of the Bonn Congress on the Situation of Women in Technical and Vocational Education", calls for a number of national and international actions. The International Seminar examined the problem of the opening up to girls and women of vocational training and jobs generally or exclusively reserved for boys and men. The third international meeting, namely the International Seminar on Women's

9/ In this regard, see Report of the World Conference of the United Nations Decade for Women: Equality, Development and Peace, Copenhagen, 14-30 July 1980 (United Nations publication, Sales No. E.80.IV.3 and Corrigendum), chap. I A. (Programme of Action for the Second Half of the United Nations Decade for Women), para. 265. See also Records of the UNESCO General Conference, 20th Session, Paris, 24 October-28 November 1978, vol. I: Programme, Res. C/13: "UNESCO's contribution towards improving the status of women".

Education, Training and Employment in Industrialized Countries, was held in 1980 in Japan, at the invitation of the Government of Japan, which offered a number of significant facilities, including financial participation. During this seminar, attention was focused on the question of recycling professional women whose careers had been interrupted, to enable them to resume work in the best conditions. The results of these three international meetings, which were organized in close co-operation with ILO, were widely distributed throughout the world.

56. In the field of general science and technology education, continuous efforts have been made to involve women fully in the planning and implementation of UNESCO programmes. Thus women two science educators were commissioned to edit two UNESCO publications, namely "New Trends in Integrated Science Education", Volume V, and "New Trends in Primary Science Education", and women chaired two experts' meetings convened by UNESCO in 1980. In devising new curricula and materials in various fields of science and technology education, the needs and interests of boys and girls are given equal consideration. The programmes in home economics, which are still generally viewed as addressed to girls only, are now being opened to boys as well.

57. In the field of technical and vocational education, a number of cases studies are being planned, and a publication on the changes and trends regarding girls' and womens' participation in such education is being completed. This publication will be issued in many languages and widely distributed.

58. Within the framework of its co-operation with non-governmental organizations, UNESCO has assisted six organizations for the organizing and holding of seminars, workshops and a training course. This co-operation will continue farther.

59. As regards its activities in the field of natural sciences, UNESCO reports that the UNESCO publication Impact of Science on Society came out with a special issue on "Women technicians in small countries". 10/ Copies of the publication were distributed in English and French at the World Conference of the United Nations Decade for Women held in Conjunction in July 1980. 11/

60. Strong efforts are being made to achieve a 50 per cent participation of women in other meetings organized in the field of science and society. In order to increase the participation of women in post graduate courses in water sciences and earth sciences, the National Commission of UNESCO and all courses sponsored by UNESCO, have been reminded by circular letter of the text of General Conference resolution 20/C13 "UNESCO's contribution towards improving the status of women".

10/ Vol. 30, No.1 (January-March 1980).

11/ Report of the World Conference of the United Nations Decade for Women: Equality, Development and Peace. Copenhagen, 14-30 July 1981 (United Nations publication, Sales No. E.80.IV. 3 and corrigendum).

4. World Bank

61. Within the World Bank Group, the objectives set forth in paragraph 2(a) of resolution 2 by the United Nations Conference on Science and Technology for Development entitled "Women, science and technology", relating to review procedures, are fully met under stringent World Bank Group guidelines for the implementation and supervision of all projects.

62. With respect to paragraph 2(b) of the same resolution, which calls for the full participation of women in the planning and implementation of their programmes, increasing attention is being paid to the special concerns of the local population, including women in the design and implementation of Bank-assisted projects; in addition, Bank assistance for the education and training of women lays the ground work for greater participation of women in project planning and implementation. At the organizational level of the Bank, the advisers on women in development and on science and technology work in close collaboration under the same central Projects Department.

5. World Health Organization

63. All of the programmes of the World Health Organization (WHO) includes elements of science and technology; however, for the purposes of this report, the WHO Special Programmes of Research especially oriented to technological development are highlighted here.

64. The WHO Special Programme of Research, Development and Research Training in Human Reproduction studies the safety and effectiveness of current methods of birth control, the development of new techniques, and the psychosocial and service aspects of family planning and infertility. The programme emphasizes contraceptive methods used by women. A large number of scientists with whom it is collaborating are obstetricians and gynecologists and, in many developing countries, they are primarily women. Similarly, many of the leading family planning administrators with whom the Programme works are women. There is one woman on the 12-member Advisory Group; on the steering committees of the individual task forces dealing with specific subjects within the Programme, there are 26 women out of a total of 160 members.

65. The WHO Special Programme in Tropical Disease Research recognizes that women's economic and domestic responsibilities put them in contact with the disease vectors, especially water-borne vectors: washing, clothes, bathing, fetching water and farming lead to greater risk. The Tropical Disease Research Programme develops study capabilities and management strategies for controlling such diseases and for evaluating their social and economic causes and consequences. There are 8 women of a total of 50 on the Joint Co-ordinating Board, and the steering committees have 5 women among 139 members.

III. ACTIONS OF THE INTERGOVERNMENTAL COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

66. The United Nations Conference on Science and Technology for Development, in its resolution 2, specifically invited "the proposed Intergovernmental Committee on Science and Technology for Development: (a) to give due regard to the perspectives and interests of women in all its recommendations, programmes and actions; (b) to include in its annual reports a review on the progress made concerning the implementation of the tenets of the present resolution. 12/

67. The Committee was established by General Assembly resolution 34/218 of 19 December 1979. At its first organizational session held at United Nations Headquarters from 28 January to 1 February 1980, the chairman pointed out that the Committee's main task was to ensure early implementation of the Vienna Programme of Action adopted by the Conference on Science and Technology for Development Conference 13/ and to prepare an operational plan to that effect. 14/ Of special importance in the context of this paper are paragraphs 5, 23 (g) and 99 (g) of the Vienna Programme of Action, which read:

"5. The ultimate goal of science and technology is to serve national development and to improve the well being of humanity as a whole. Men and women in all groups of society can contribute positively to enhance the impact of science and technology on the development process. However, modern technological developments do not automatically benefit all groups of society equally. Such developments, depending on the given economic, social and cultural context in which they take place, are often seen to affect various groups in society differently. They may have a negative impact on the conditions of women and their bases for economic, social and cultural contributions to the development process. This is seen to happen in industrialized as well as in developing countries. Therefore, steps should be taken to ensure that all members of society be given real and equal access to and influence upon the choice of technology."

...

"23. Each developing country, as may be required, should establish one or more bodies for science and technology policy-making ... Their functions should cover, inter alia, the following:

12/ Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. 79.I.21 and corrigenda), chap VI, Section A, resolution 2, para. 3.

13/ Ibid., chap. VII.

14/ See Official Records of the General Assembly, Thirty-fifth session, Supplement No. 37 (A/35/37), part one, para. 17.

...

"(g) To ensure the full participation of women in the science and technology development process".

...

"99. The organs, organizations and bodies of the United Nations system should:

...

"(g) Strengthen support for national efforts to promote the full participation of women in the mobilization of all groups for the application of science and technology for development".

68. In connexion with the implementation of the Programme of Action adopted by the United Nations Conference on Science and Technology for Development, the Committee, at its second session, held at United Nations Headquarters, from 22 May to 4 June 1980, asked for the Director-General for Development and International Economic Co-operation, assisted by the head of the Centre for Science and Technology for Development of the United Nations Secretariat to submit in time for its third session proposals for a detailed operational plan. The proposals would cover the following major programme areas:

1. Scientific and technological policies and plans for development
2. The creation and strengthening of scientific and technological infrastructure
3. The choice, acquisition and transfer of technology
4. The development of human resources for science and technology
5. The financing of science and technology for development
6. Scientific and technological information
7. The strengthening of research and development in and for developing countries and their linkage to the productive system
8. The strengthening of co-operation in the field of science and technology among developing countries and between developing and developed countries. 15/

15/ Ibid., part two, annex, resolution 1 (II), annex.

69. Such proposals were submitted to the Intergovernmental Committee at its third session. As mentioned in paragraph 14, they contained, in the programme area pertaining to the development of human resources for science and technology, a section on "Women in scientific and technological development". By resolution 2(III), the Committee approved the operational plan, as a "framework for further actions to be decided by the Intergovernmental Committee" (A/CN.11/12 and Corr. 1). Among other things, it entrusted the Director-General, assisted by the Executive Director of the Centre, with the promotion and co-ordination of the operational plan, including certain "activities and areas of concentration" specified in that resolution. It further requested that the Director-General, with the assistance of the Executive Director of the Centre and after consultations with the relevant organizations of the United Nations system and with the advice of the Advisory Committee on Science and Technology for Development, prepare concrete and specific proposals, for discussion and adoption by the Intergovernmental Committee at its fourth session, for optimizing, in an evolving situation, the activities of the organs, organizations and bodies of the United Nations system, stressing particularly the strengthening of the scientific and technical infrastructures of developing countries.

70. The relevant paragraph of resolution 2 adopted by the United Nations Conference on Science and Technology for Development, entitled "Women, science and technology", and the General Assembly's full support of it, as expressed in paragraph 6 of its resolution 34/218 I, were brought to the attention of the Intergovernmental Committee at its third session held from 26 May to 5 June 1981.

71. The Committee, in its resolution 3(III), section IV, paragraph 6, invited the Advisory Committee on Science and Technology for Development "to give due regard in its deliberations to the effective implementation of resolution 2 of the United Nations Conference on Science and Technology for Development. 16/

72. The provisional agenda of the Intergovernmental Committee's third session also included an item "Science and technology and the future", for which the Secretary-General had prepared a brief note (A/CN.11/15). The note referred to the text adopted by the United Nations Conference on Science and Technology for Development which contained, inter alia, specific references to the need for involving both men and women in activities relating to science and technology and the future. 17/ Following consideration of this item, the Intergovernmental

16/ Ibid., Thirty-sixth Session, Supplement No. 37 (A/36/37), part two, annex.

17/ Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-30 August 1979 (United Nations publication, Sales No. 79.I.21 and corrigenda), annex IV, paras. 21, 22, 33 and 36.

Committee decided to refer the item to the Advisory Committee for its consideration. 18/

73. The Committee at its third session also decided to invite as observers at its future sessions those intergovernmental, non-governmental and other concerned organizations that had been invited to participate in the Vienna Conference and its Preparatory Committee. 19/ Such organizations would include the group of international non-governmental organizations in consultative status with the Economic and Social Council which had made recommendations regarding "Women, science and technology" to the Conference. 20/

74. With a view to facilitating the participation of non-governmental organizations in its work as observer, the Intergovernmental Committee adopted provisional procedures, which included oral presentations before the Committee and the circulation of written statements. It also requested the Secretary-General to submit to it at its fourth session a paper on criteria and arrangements for the participation of non-governmental organizations in its activities. 21/

18/ Official Records of the General Assembly, Thirty-sixth Session, Supplement No. 37 (A/36/37), part two, annex, resolution 3 (III), section IV, para. 7.

19/ Ibid., annex, decision 1 (III). A similar invitation had been extended to these organizations by the Committee in respect of the second session.

20/ See background paper A/CONF.81/NGO/18 prepared for the United Nations Conference on Science and Technology for Development, and paragraphs 87-99 of paper A/CONF.94/19, prepared for the World Conference of the United Nations Decade for Women, which give an indication of the role of these non-governmental organizations in the preparations for and negotiations at the United Nations Conference on Science and Technology for Development, which led to resolution 2 on "Women, science and technology".

21/ Official Records of the General Assembly, Thirty-sixth Session, Supplement No. 37 (A/36/37, part two, annex, resolution I (III)).

IV. ACTION OF THE WORLD CONFERENCE OF THE UNITED NATIONS DECADE FOR WOMEN

75. In accordance with the recommendation of the United Nations Conference on Science and Technology for Development that the World Conference of the United Nations Decade for Women: Equality, Development and Peace, should give due consideration to the relationship between women, science, technology and development, 22/ the World Conference of the United Nations Decade for Women, meeting at Copenhagen, from 14 to 30 July 1980, considered that question, among others, in the context of the review and evaluation of progress made in implementing the recommendations of the World Conference of the International Women's Year, held in 1975, the readjustment of programmes for the second half of the Decade in the light of new data and research, and as one aspect of the over-all review and appraisal of the New International Development Strategy for the Third United Nations Development Decade. 23/

76. Regarding employment, for example, the World Conference cited as the objective: "to increase and promote employment opportunities for women as part of national efforts to bring about a more just international economic order ... (and) to promote technology that will improve the labour productivity of women while decreasing their work time and to guarantee that women workers are the ones who benefit from such an improvement". 24/ The priority areas for action in the employment sector included "... measures ... to ensure that women are introduced, on the same footing as men, to new types of training in the advanced technologies which are now being widely developed" and "measures (to) ... guarantee that, when transfers of technology take place, account is taken of the factors of production available in the country to which the transfers are made in order to avoid any labour force disruptions, which usually affect women more severely". 25/

77. In the health field, the Conference called, among other proposals, for the establishment of educational programmes through vocational schools and community agencies to improve the quality, availability, preparation, preservation, national use and distribution of food, especially locally grown food ... and for the protection of the health and safety of women and their families from contamination,

22/ Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No E.79.1.21 and corrigenda), chap. VI, section A, resolution 2, para. 4.

23/ See Report of the World Conference of the United Nations Decade for Women: Equality, Development and Peace (United Nations publication, Sales No. E.80.IV.3 and corrigendum).

24/ Ibid., paras. 110 and 118.

25/ Ibid., paras. 131 and 134.

spoilage and adulteration of foods, harmful additives and preservatives, mislabelling, deceptive packaging and irresponsible promotion of foods of low nutritional values and of breast milk substitutes. 26/

78. In the field of education and training, the Conference cited as an objective "to increase the opportunities and facilities which promote participation of women in science and technology through education and training in these fields and ... to devise means of encouraging girls to stay at school longer and to ensure that courses chosen by girls are in a range of fields including the professions, management, economics and the sciences which will enable them to achieve positions of influence in the decision-making process". 27/ It specified the following as one of the national priority areas for action to "increase the enrolment of female students in education courses and, in particular, in science, mathematics and technical course, and in management training courses ... in the areas of science and technology, especially by encouraging them to enrol in such courses" 28/ ... "ensuring equal job opportunities after completion of vocational education or training for both entry and re-entry, after a period of absence, into occupational activities". 29/

79. Moreover, the Conference called upon "the United Nations and its organizations, in co-operation with national Governments, to develop strategies for ... ensuring full and effective participation of women in all sectors and at all levels of the development process, including planning, decision-making and implementation, and, in keeping with these objectives, seeking to: (a) Reduce the burden on women of tasks traditionally performed by them in the home and in food production and child care through appropriate technology and a fair division of labour between women and men; ... (f) Recognize the vital role of women in agriculture and guarantee them equitable access to land, technology, water, other natural resources, inputs and services and equal opportunities to develop their skills; (g) Promote equal participation of women in the industrialization process, counteract possible negative effects of industrialization, and ensure that scientific and technological development will benefit both women and men; (h) Ensure women's active participation in and access to primary health care, in the light of their specific health needs". 30/

80. Regarding technical co-operation, training and advisory services, the Conference stated that: "Measures should be taken to reinforce efforts of Member

26/ Ibid., paras. 152 and 153.

27/ Ibid., paras. 172 and 173.

28/ Ibid., para. 180.

29/ Ibid., para. 181.

30/ Ibid., para. 229.

States (especially developing ones) to develop and strengthen endogenous capabilities for the elaboration of policies for science and technology and for their application to the solution of problems of development, with special emphasis on the disparities in the access of women to scientific and technological education and training and on the need to elaborate and review international standards. 31/

81. The Conference, furthermore, recommended that "measures should be taken by bodies and organizations in the United Nations system ... to include specific provisions relating to women in the international codes of conduct for transnational corporations and on the transfer of technology aimed at diminishing any adverse effects of redeployment of industry and technology". 32/

82. Finally, among the resolutions adopted by the World Conference of the United Nations Decade for Women, were the following:

(a) Resolution 41 ("Women and nutritional self-sufficiency"), in which the World Conference invited "Governments to ... (c) Provide rural women with the necessary means and access to resources for agricultural production: instruction in appropriate technologies, highly specialized marketing and transformation techniques and practices ensuring optimum utilization of resources." 33/

(b) Resolution 44 ("Women in agriculture and rural areas"), in which it requests Governments to ensure that rural women "(a) are provided with education, technology and training suitable to their basic needs, as identified by them in order to improve employment opportunities in rural areas"; and urged the United Nations and organizations in the United Nations system, particularly the Food and Agriculture Organization of the United Nations and the International Labour Organisation, to assist Governments to train women at the paraprofessional level in basic agricultural techniques as field workers so that they can travel and exchange appropriate technology as well as remain in their own environment and become direct links of communication with rural women in their fields and homes. 33/

31/ Ibid., para. 240.

32/ Ibid., para. 256.

33/ Ibid., chap. I, section B.