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A SYSTEMATIC AND COMPREHENSIVE APPROACH TO INFORMATION
FOR HUMAN SETTLEMENTS

Report of the Executive Director

SUMMARY

The present report is prepared in response to resolution 5/16, in which the Commission on Human Settlements decided that one of the special themes for its seventh session would be "a systematic and comprehensive approach to information for human settlements". It is concerned with the acquisition and utilization of information related to human settlements for the purpose of improving the formulation, implementation, and review of human settlement policies and programmes, with particular emphasis on developing countries. The report reviews the nature, purpose, and utilization of information in human settlements policy formulation and implementation, and the technological, financial, and institutional support mechanisms needed to arrive at a systematic and comprehensive approach to information for human settlements.

Information needs for human settlements are reviewed. Four main areas are identified where action is particularly needed: statistical data; scientific and technological knowledge; "popular", or indigenous, knowledge; and information communication techniques. Policy formulation, implementation and review in the area of human settlements are essentially a governmental task. Therefore, appropriate institutional mechanisms must be established and existing arrangements and systems improved in order to enhance the capability of public bodies to collect, process, and use information. The report deals with measures that need to be undertaken to integrate information activities into a coherent system. Finally, opportunities and recommendations for action at the national and international levels are suggested. A list of human settlements data requirements and a summary of UNCHS information activities are given in annexes I and II, respectively.

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BACKGROUND AND DEFINITIONS

1. The vital role of information in human settlements development was recognized by the General Assembly in resolution 32/162, in which it, inter alia, directed the United Nations Centre for Human Settlements (Habitat) to provide the focal point for a global exchange of information about human settlements. 1/ The Commission on Human Settlements, at its second session, in resolution 2/4, confirmed the need for effective dissemination of information in human settlements development 2/ and at its fifth session, in resolution 5/16, the Commission designated "training and information as part of overall human settlements policy" as the special themes for discussion at its seventh session, and requested the Executive Director of UNCHS (Habitat) to prepare reports accordingly. 3/ Subsequently, the views of member States of the Commission, the regional commissions, other United Nations bodies, and intergovernmental and non-governmental organizations were solicited, and a report on the status of the preparation of the theme paper was submitted to the Commission at its sixth session (HS/C/6/9 and Corr.1).

2. At the invitation of, and in collaboration with, the Netherlands Ministry of Housing, Physical Planning and Environment, a meeting of experts was held in the Hague, from 5 to 9 September 1983, to review information needs and approaches in human settlements development. Fifteen experts, reflecting a wide range of developmental, geographical, and institutional experience and expertise, participated.

3. For ease of reference, a few of the terms used at the Expert Group Meeting and in the present report are defined below.

4. "Data" are recorded facts, measurements, or, even, assumptions about reality, from which associations, inferences, or extrapolations can be made. For any kind of application, however, data must be converted into functional information. A "data bank" is a collection of data relevant to specific topics without regard to the format or source of the data. In other words, a data bank can exist in a variety of forms. A "data base", however, is a group of specific data elements which have been organized for, and stored in, a computer.

5. An "information system" is the organized sequence of activities that orders the flow of data from collection to conversion to information to specific applications. An information system may include numerical, bibliographical and factual information.

6. "Communication" is the total social-psychological process through which people interact by interpersonal, mechanical or electronic means and in that sense may be defined as social information processing. By its very nature, communication is an omni-directional process. A one-way transfer from a sender to a receiver is not communication but dissemination. To recognize the omni-directional principle is of fundamental importance in planning and decision-making. Moreover, communication is not simply the processing by which information is transferred between people. It is, in addition, a process by which new information is created and new decision alternatives generated, thereby continuously decreasing the uncertainty of the planning process.

7. "Mass communication media" is taken here to mean primarily radio and television, although audio-visual materials such as slides and films, and printed materials such as books, newspapers, pamphlets or posters, distributed in large quantities, are also considered mass communication media.

8. "Mass communication" is the term most often used for the transfer of information from a sender to a target audience by mechanical or electronic media such as printed materials, radio broadcasts or television transmissions. Mass communication in this sense is equivalent to mass dissemination of information. However, mass (or group) communication may also be undertaken by interpersonal means such as extension services, adult education programmes or theatre performances which reach large numbers of people simultaneously. Communication specialists increasingly recognize that the use of mass media does not necessarily preclude omni-directional flows. In other words, the unilateral flow of information customarily associated with the mass media is not inherent in the technology but results from the way it is used. "Participatory communication" represents a new approach to communication in that it provides access to mass media technology and systems for minority and disadvantaged groups, usually at the community level.

9. "Project support communication (PSC)", may be defined as all information and communication activities designed, planned and implemented so as to enhance the development process, primarily at the project level.

I. INFORMATION FOR HUMAN SETTLEMENTS

A. The current situation

10. Human settlements are extremely complex interacting systems which confront planners and decision makers with great uncertainty. In such a situation information becomes a means of improving significantly the quality and precision of planning and decision-making.

11. A recent study of housing, land and settlement policies in developing countries 4/ reveals that only a few of them have given serious attention to the recommendations for national action adopted at Habitat: United Nations Conference on Human Settlements, in Vancouver in 1976. Despite a decade of effort in virtually all countries, national housing programmes, for instance, fall far short of needs, especially for the poor. In developing countries, private, often unauthorised, construction vastly outpaces public-sector housing programmes, to the extent that, in many cases, nine out of 10 new dwellings added to a country's housing stock each year are privately or informally built. 5/

12. Most Governments have fragments of a policy for settlements, housing or infrastructure, but in fact very few Governments are at present developing, much less implementing, a coherent and comprehensive national human settlements policy as it was envisaged in the recommendations adopted at the Conference. Lack of comprehensive information and communication systems for human settlements has been an impediment to national action.

13. Although many Governments are trying to move beyond the concentration on economic growth and sectoral development plans that characterized the First United Nations Development Decade and while new institutions for settlement planning and implementation are emerging, governmental action in general remains inadequate. Formulation, implementation and assessment of governmental policies are generally hampered by deficient research and data collection, inadequate data management and information processing, and lack of communication within and between the executing agencies and between agencies and the local communities.

14. In many developing countries census data are of limited use to human settlements researchers and planners. In general, census data do not meet the specific needs of the settlement planner, the housing, health, or infrastructure specialist, or even the student of socio-economic processes, much less those of the professional researcher, who require disaggregated data relating to specific problems and issues which can only be approached at an urban, district, or localized level. Census data on squatter settlements and other informal dwelling types are practically non-existent. There are case studies of particular slums and squatter settlements, 6/ but such studies can not substitute for current comprehensive data.

15. In developing countries the common deficiencies in the area of data acquisition and utilization can be summarized as follows:

(a) There is a lack of standardized concepts and definitions;

(b) The data do not have the required degree of area disaggregation - i.e., can not be related to specific provinces, districts, municipalities or communities. Peripheral regions and marginal populations are inadequately covered;

(c) Although a variety of governmental agencies and private organizations are involved in data collection, often those data are inaccessible, or even unknown, to potential users. The resulting lack of coherence and frequent discrepancies are a serious constraint to effective policy formulation and implementation;

(d) There are no consistently applied social indicators which allow researchers and planners to describe human settlements situations and trends in a comparable way.

B. Communication in human settlements projects

16. A recent analysis suggests that most human settlements programmes and projects are in a very early stage of information use, 7/ and that even that limited use is not documented.

17. There is an extensive literature on human settlements issues. However, although bibliographical references can be found for information systems, or community participation, reports and case studies on information and communication components in the context of human settlements projects are few. Even where they are reported, they are usually a marginal item. Notable exceptions are the

Lusaka sites-and-services project financed by the World Bank in collaboration with the United Nations Children's Fund beginning in 1974, which has been extensively documented, 8,9/ and the Sri Lanka demonstration project on the development of low-income shelter programmes and the integration of training and information components, jointly undertaken by the Governments of Sri Lanka and of the Netherlands and UNCHS.

18. From among the myriad causes of failure in housing or upgrading programmes, two major causes continually emerge. Both derive from lack of an effective information communication component.

19. The first cause is the fact that programme planners rarely take into account the needs, desires, preferences and capabilities of the people who are envisioned as being served by the programme. Too often, low-income housing projects end up as middle-class suburbs deserted by the low-income people, who return to the inner city. That happens because planners, architects and other professionals often work in a technical and professional context only, seeking to meet the housing needs of people about whom they know little, and often viewing slum and squatter communities as disorganized, chaotic agglomerations of people who are poor, uneducated and unskilled. In fact, many of those communities are dynamic and active, and possess well-developed networks for political and social activity, such as self-help associations and voluntary organizations. In many cases, residents of squatter communities would like to retain their current homes, gain legal tenure, and upgrade the quality of their neighbourhoods. Low-income housing projects that break up the community, that are located far from employment opportunities and cheap, efficient transportation, and that place heavy economic burdens on marginal income are - not surprisingly - deserted by low-income residents, who quickly realize that such schemes do not serve their best interests. One report on urbanization, housing and development concludes: "It is crucial that communications be improved between policy makers, administrators and the urban poor. Mutual misunderstanding has been a frequent cause of failure." 10/

20. The second major cause of failure in programmes and projects is the lack of interagency co-operation and co-ordination. "Housing projects need access to employment, adequate transportation, sanitation and health services, recreational and educational activities, access to shopping areas, power, water, and other utilities. These services are provided by many different agencies. An effective government information service must inform and involve all service-providing agencies." 11/ It is self-evident that adequate and continuous communication between all parties involved is a prerequisite for co-ordination.

II. INFORMATION POLICY OPTIONS

A. Information as a strategic resource in achieving national socio-economic objectives

21. The issues raised above point to the need for Governments to reorganize and improve their information sources, systems and strategies, recognizing them as an important component of their human settlements policies. In order to achieve this, societies must first define the essential purposes and functions of their information resources and those of the institutions designed to utilize them. Such

definition implies, inter alia, a judgement, implicit or explicit, on the part of society, as to the degree to which information resources are to be planned and the form that such a planning function will take. The fundamental question addressed is "What kind of society do we want and how do we want to achieve it?" The answer will be decisive in defining the nature and role of the information component of human settlements policies.

22. Treated as a national resource, information can become a vital force in the economic, social and cultural development of a country. 12/ There are many examples of how Governments, recognizing information as a national resource, have established institutions in order to, for example, retain and reinforce cultural values.

23. A recognition of the value of information leads inevitably to the question of the structure of the national information system. In the current technological environment, with transnational telecommunications systems and burgeoning computer networks, issues relating to trans-border data flow, centralization versus decentralization, security, confidentiality, access to satellite technology and cultural integrity are all immensely complex issues requiring informed public debate. For developing countries, the key issue will be that of determining which arrangements are adequate from the perspective of their own priorities and objectives. Again, the basic criterion is the national interest, including respect for the culture of minorities and the right of the individual to be informed and to inform.

24. It is clear that information activities related to human settlements policy formulation and implementation should be co-ordinated with information activities in other areas of development: productive activities; health; education; employment etc. 13/

25. It is also clear that information/communication options for human settlements can vary broadly in purpose and effectiveness, depending upon the attitude policy-makers will adopt in two key areas: the overall governmental strategy towards human settlements development, and the approach chosen to information communication. Those two aspects are briefly discussed in the paragraphs below.

B. The role of government: provider or enabler?

26. Traditionally, and particularly in the low-income housing policy area, Governments have attempted to provide a direct answer to the problem through the implementation of shelter projects based on rigid, pre-determined, and often unrealistic designs and standards. More recently, and particularly in many developing countries, a tendency has emerged to take into account the ability of low-income residents to shape and build their own settlements in a way better suited to their needs, aspirations and means. The two approaches, taken to the extreme, have been defined, respectively, as "government-provider" and "government-enabler". 14/

27. In assuming the role of provider, Governments have adopted approaches that usually involve sophisticated discussions among experts of technical issues before any real analysis is undertaken of the actual needs, desires, and resources of the community. In contrast, as enablers, they begin with an appreciation of the

ingenuity and resourcefulness manifest in self-built housing, an awareness of the human aspirations and social values it represents and the survival knowledge it demonstrates.

28. Such appreciation and awareness can come about only through a process of information exchange, communication and community participation leading to more realistic settlement programmes in so far as they derive from the felt needs and concerns of the inhabitants themselves.

C. Modes of communication and decision-making

29. The provider/enabler paradigm has a corollary in two different modes of communication in a society - the synchronic and the diachronic. The synchronic mode presupposes a distance between the parties in the process - as in a sender/receiver model. The sender is the specialist who is presumed to possess the right knowledge and who therefore is entitled to select and distribute the messages. The messages are "prescribed" to the passive receiver, who is expected to change attitudes and act accordingly. In the synchronic mode, there is no dialogue or other means by which the receiver can become an active participant in the process or question the validity of the message. In general, the approaches taken by Governments in the application of information and communication techniques in the development process have been synchronic.

30. In the diachronic mode of social information processing, the distance between the parties is reduced to a minimum. Messages from all participants in the process are pooled so that they can come to grips with reality jointly. The diachronic mode has a number of characteristics:

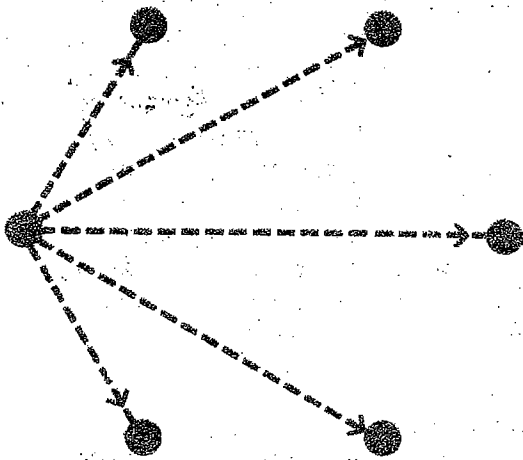
(a) The communication process is organized in such a way as to make the structural relations of reality visible;

(b) The information exchanged is directly linked to - and indeed derives from - the real life situation of the participants;

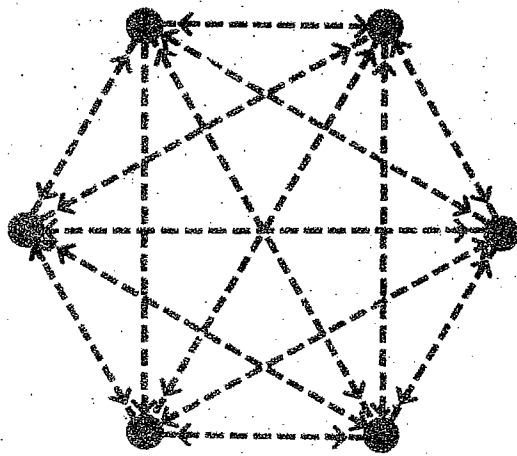
(c) All participants have access to the means of input and correction;

(d) Information and social action are integrally linked.

/...



Synchronic



Diachronic

MODES OF COMMUNICATION

31. The relative inadequacy of the synchronic mode of social information processing and the greater effectiveness of the diachronic mode are documented to a considerable extent in communication research.
32. The opinion-leader theory, which is representative of the synchronic way of thinking has played a dominant role in communication thinking in the past 30 years, maintained that information was transferred from the interested and knowledgeable to the less knowledgeable or ignorant. 15/ That theory is now seen by many as a misconception. 16/ The flow of information is in fact from interested people to people of equal or perhaps very slightly lower interest. Shared interests, in short, appear to be the channel through which information flows. Communication research confirms the efficiency of the diachronic mode and explains to some extent the neighbourhood and community phenomena of our societies. People live and communicate not as autonomous individuals but as members in networks of shared interests. The same phenomenon is observable in large hierarchical formations such as private corporations or public agencies. In spite of rigidly structured lines of command intended to control the flow of information, decision-making and effective action often depend on utilizing informal channels of interests.
33. It is particularly dangerous, in a development context, to assume that knowledge and information can only be acquired and administered by a scientific and academic élite who are often, by virtue of their training, culturally isolated. In the field of communication and sociological research, the concept of participatory research is receiving increasing attention. 17/
34. Participatory research postulates that knowledge required for self-reliant development is generated through analysis of reality by popular groups or communities. It is increasingly recognized that such "unschooled" or unconventional knowledge constitutes an authentic and accurate reflection of society and is precisely the knowledge needed to change, rather than reinforce, the status quo.
35. Experienced development workers recognize that people are "ignorant" only vis-a-vis other cultural milieux. The competence and significance of indigenous or popular knowledge systems are well documented in literature. 18/ A growing body of evidence in fields such as agriculture, forestry, fisheries, ecology, environment and social organization indicates that people's knowledge of their local situation, capacity for information communication and quality of decision-making are often superior to those of the outside "expert".

36. That evidence is often ignored in dealing with human settlements. Except for traditional architecture, there is little research on indigenous or popular knowledge in the field.

37. It is not suggested that there is no need for modern scientific information. On the contrary, the point is that optimal utilization of such information comes about best through its integration into the existing knowledge of the people who are the ultimate beneficiaries of human settlements development. Information needs are not solved merely by the establishment of a national computerized data base of scientific information. The solution is more likely to be found in the creation of a national information system which ensures the integration of technical and scientific expertise with indigenous or popular experiential knowledge and skills.

38. The concepts of synchronic and diachronic communication are of fundamental significance in terms of the ways in which a society chooses to use information as part of an overall human settlements policy. Both modes exist and will continue to co-exist in human society in a continuously shifting and dynamic relationship. In the final analysis, information communication can help achieve participation, horizontally and vertically, within and between governmental agencies, and between governments and communities.

III. ESTABLISHING A SYSTEMATIC AND COMPREHENSIVE APPROACH TO INFORMATION: OPPORTUNITIES FOR NATIONAL ACTION

A. Human settlements data requirements

39. The range of data needed for the formulation of human settlements policies transcends the traditional areas of housing and basic infrastructure. Human settlement policy makers should make full use of all existing information on physical, social, financial and economic conditions and trends.

40. While specific indices may vary with the different socio-economic objectives of each country, a basic set of standard indices on human settlements at the national, regional and local levels should be developed and established as a firm basis for the formulation of human settlement policies, programmes and projects. A suggested list of basic data categories is offered in annex I.

41. The fundamental and most comprehensive means for collecting data is the national census on population, housing, and economic activities. Governments should ensure:

- (a) Regularity of census-taking efforts;
- (b) Co-ordination, in content and timing, of sectoral census activities;
- (c) Establishment of adequate census data processing capabilities;

(d) The adaptation of questionnaires, other techniques of data gathering, analysis, and processing of data, to meet the specialized needs of human settlements researchers and project designers;

(e) Presentation of effectively summarized data for policy makers at the national level.

42. Various means are available for the collection of human settlements data. Research institutions, universities, local authorities, and communities themselves can be utilized to collect, process and analyse relevant data, particularly at the local level.

43. Data are particularly lacking with respect to the informal or unauthorized settlements in urban and rural areas. Efforts must be made to mobilize all available resources to provide, on a regular basis, reliable data on basic human settlements conditions and trends in such marginal settlements.

44. As mentioned above, the collection of relevant and adequate data is only one step in improving the overall information capability for human settlements. Data collection and utilization should be conceived in the framework of an overall human settlements information system. Opportunities, as well as constraints, are outlined below.

B. Starting an information system

45. The primary prerequisite for any information system is that the cost be proportionate to the benefits envisaged and/or realized. The application of cost/benefit analysis, however rudimentary, will increase the probability of rational incremental growth and continued relevance to user-needs. Cost/benefit analysis requires a definition of objectives, scope, standards, organizational structure and procedures, which requires, in turn, a clear policy framework. The cost/benefit ratio of an information system, no matter what techniques or technologies are adopted, will be questionable if there is no increase in the utilization of information in decision-making, planning and implementation. One method of quantifying benefits is the application of zero-base budgeting which, in effect, forces the users to define the priorities they place on specific types of information and how much they are willing to pay for it.

46. There may be instances in which expenditures on information systems or technology are not justified, particularly in the short term. However, any system can be improved to some degree at relatively little or, perhaps, no cost, through in-house analysis of its relevance to the specialized needs of human settlements planners and professionals.

47. A feasibility study should be undertaken. Initially, as a minimum, the study should cover:

(a) Existing and potential users, and their specific needs;

(b) Existing sources and resources, deficiencies, and costs of acquisition of supplementary data;

/...

(c) Specific proposals for achieving optimal use, for human settlements needs, of existing data resources and information systems from the national to the local level.

1. Data inventory

48. The establishment of a data inventory involves identifying all the relevant data within the governmental data field and gaining access to those data to form a data bank. The completed inventory should be made available to all prime users, so that deficiencies can be identified and plans for acquisition of new data can be agreed upon.

49. The governmental data field is not necessarily a coherent, rational and organized entity. 19/ Data may be located in and controlled by a variety of governmental agencies - such as geological survey, housing, census, transportation, economic planning - and collected and stored at various levels, local and national.

50. In order to be useful for policy-making and planning, data must be collected and processed with the following objectives in mind:

- (a) Disaggregation at the regional, state, district, and local levels;
- (b) Uniformity over time, in order to be able to document trends and formulate sensible projections;
- (c) Standardization, in order to compare conditions and trends in various subdivisions of the national territory.

51. Data often exist within governmental ministries, departments and agencies but are not readily available to human settlements policy makers. Efforts in administrative and institutional co-ordination must start with the co-ordination of data collection efforts and the harmonization of data processing methodologies.

52. Local authorities, as a rule, possess or have access to a wealth of data on all aspects of development within their administrative jurisdictions. Efforts should be made to strengthen their data-collection and data-processing capabilities, and to standardize basic indicators to provide comparable information at the regional and national levels.

2. National documentation services (NDS)

53. Bibliographical data, accessible through a national documentation service, are of immediate practical importance in many developing countries. There is more human settlements information and documentation available in developing countries than is generally assumed. For example, studies undertaken in several countries in East Africa reveal the existence of thousands of reports by national and foreign experts of high relevance for human settlements development. 20/ Access to that literature would be greatly facilitated by the publication and dissemination of annotated bibliographies with abstracts. One of the functions of a national documentation service would be to provide material on request, either in hard copy or on microfiche. A NDS can also provide access to basic reference works and other fundamental human settlements literature in collaboration with existing libraries or educational institutions.

3. Related studies

54. To the extent possible, studies should also be undertaken on:

(a) Governmental policies relating to national socio-economic development, to determine their impact on, or relevance to, human settlement issues and programmes;

(b) Institutional facilities and information programmes in related fields - e.g., the construction industry, infrastructure and transportation networks;

(c) The existence of trained information personnel and facilities for personnel development;

(d) Information technology available in the country and mechanisms for technology applications;

(e) Sources of finance for information activities;

(f) Regional and international institutions and activities in the field of human settlements information.

55. All such activities should have the greatest possible degree of participation by users and there should be broad consensual agreement on conclusions and recommendations before resulting reports or recommendations are presented to the decision makers. The establishment of an ad hoc board to review the proposals can be a useful mechanism in the process.

56. Users of information systems sometimes become disillusioned because the system is unable to respond to their precise information needs. On the other hand, users are not always capable of defining their needs. An information system must often be designed to respond to a variety of users but cannot deliver everything to everybody. It is essential that information system specialists keep users' needs uppermost in their minds, and work closely with users to elicit their requirements and educate them about the opportunities made possible by an information system. Above all, an information system is there to meet policy and implementation needs and should not become an end in itself.

4. A human settlements information systems unit

57. Ideally, a human settlements information systems unit should be established within the relevant substantive ministry, so that there can be close liaison between the substantive information providers, the information systems unit, and the users. Failing that, the unit could be located in the central statistical office. Such a unit will in practice function as a focal point for co-ordination of all pertinent activities, such as development of expertise and effectiveness, ensuring compatibility of data, excluding redundancy, and ensuring a consistent level of quality.

58. Data for the purposes of planning and policy-making must be factual and accurate. In the area of economic and social data collection, facts are often difficult to accept from a political point of view. Obviously policy or planning based on distorted information is bound to become problematic at best and in the long run is likely to fail. Therefore, the mandate, authority, responsibilities and modus operandi of a human settlements information systems unit must be clearly defined and delineated. If such a unit is to be effective, it must be provided with adequate financial resources and be equipped with competent personnel.

59. The operations and effectiveness of an information systems unit should be monitored and guided by an independent steering committee in which the various user groups play a prominent role. 21/

5. Training

60. Any information system, no matter how technologically sophisticated, is only as effective as the personnel who staff it. Trained and competent staff are a fundamental necessity. Human settlements information systems managers should have extensive **substantive** knowledge. In many developing countries, it should be noted, the fundamentals of document acquisition, storage and retrieval, or basic librarianship are more urgently needed than recruitment or training of electronic data processing specialists, or the acquisition of electronic data processing.

C. Advanced technological applications

61. Two advancing technological areas can contribute significantly to the improvement of information systems: remote sensing and microcomputers.

1. Remote sensing

62. Aerial photography is well known to settlement planners but frequent use is relatively costly. With the introduction of space-borne sensors, a regular monitoring capability becomes available with exciting potential for human settlements planning. Some applications of remote sensing are the following:

- (a) Land cover mapping and classification at small or medium scales;
- (b) Monitoring of dynamic land use parameters for regional and urban planning;
- (c) Monitoring of rural settlements and settlement impact on the environment;
- (d) Monitoring of arid/semi-arid settlement development in relation to desertification;
- (e) Monitoring of disaster-prone areas - for example, in assessment of flood-plain delimitation. (Several developing countries now use remote sensing information for assessment of flood **damage** and studies of flood hazard.) 22/

63. It is anticipated that, as remote-sensing technology evolves, access to it will become more practicable and affordable for developing countries.

2. Microcomputers

64. Recent innovations in micro-electronics have made the application of small, relatively inexpensive and easy-to-handle computers an attractive asset in certain instances. The following functions, in particular, are of special relevance to human settlements:

(a) To provide low-cost solutions to the acute problems of planning and management faced by human settlements organizations in developing countries, particularly in the area of data processing;

(b) To be used as an aid in training programmes for human settlements professionals and technical staff;

(c) To facilitate transfer of microcomputer technology to developing countries, for in many instances it is the most appropriate technology for the processing of human settlements data;

(d) To improve access to, and dissemination of, scientific and technical information.

65. For developing countries many factors make microcomputer-based data processing an attractive alternative to large, centralized main-frame computer systems. Microcomputers offer the following advantages:

(a) They do not require the sophisticated and costly support and maintenance systems required by larger computers;

(b) Software for microcomputer systems is less expensive than software for larger systems;

(c) The cost of repair is comparatively low and often consists of replacing a plug-in module or board, which can be done by a user with some training and experience.

(d) Perhaps most important in a development context, the microcomputer user has direct and almost total control over the entire system, free of the many intervening levels of administration and control which characterize centralized main-frame computer systems. The microcomputer user can literally move the system around with him.

66. Details of advanced technological information processing by UNCHS may be found in annex II to the present report.

D. Methods of information communication

1. Public information services

67. Most developing nations have extensive governmental public information services responsible for the production and distribution of printed materials as well as films, radio and television programmes. Too often public information services are limited to publicizing policy pronouncements, laws, regulations or reports of governmental activities.
68. Information communication techniques can be more than a tool for the implementation of governmental policy. They can be, given the right priority, a powerful instrument in the conception, development and definition of policy. Information communication can play as important a role in policy development and implementation as other instruments of a legal, legislative, financial or administrative nature.
69. Human settlements activities inevitably generate dynamic information communication processes, which are in reality omni-directional. Government information policies should be designed so as to encourage feedback from the population as well as information dissemination to the same population. Government public information services, as a policy instrument, can therefore have two major functions: to improve policy formulation by facilitating the participation of citizens and organizations; and by the same means to gain public support for approved policy.
70. In one analysis, governmental public information services are seen to evolve through four stages. 23/ In the first and most rudimentary stage the services work on an ad hoc basis and there is little attempt at a systematic approach. A second stage evolves as Governments become involved with an increasing number of policy areas and there is a general recognition that the public has the right to be fully informed, but budgets are restricted and there is little attempt at measuring effectiveness. In the third stage, information communication is recognized as a fundamental instrument of policy implementation, in particular by the executive agencies. Information professionals are involved early in the planning of policy implementation; plans and budgets incorporate information communication components; research is undertaken to acquire knowledge of the affected communities. However, the real impact of information communication as a policy instrument comes at the fourth stage, when information professionals participate in the initial phases of policy formulation. This has its parallel in large corporations where specialists from fields such as advertising, marketing or public relations have a major say in the design of the product. In terms of government, policy is the product to be designed. At the fourth stage, information and communication factors become an integral part of governmental policy, together with economic, technical, and social factors. Social science methods are used to analyse the characteristics of the affected communities in relation to knowledge, attitude and behaviour, and to monitor the communities' response to policy implementation. A full range of media can be utilized for effective information communication, including interpersonal media such as school teachers, adult educators, social workers, extension workers and local administrators.

2. Mass communication media

71. It is generally assumed that mass communication media have a unique capacity for persuasion and can be used in a direct manner to influence people's behaviour. A considerable body of research indicates that reality is more complicated. 24/

72. Mass communication media are most effective when they are used in conjunction and co-ordination with interpersonal communication and group work. Used in that manner they can be powerful instruments for eliciting community participation and, ultimately, attitudinal and behavioural change in the population. Such approaches have already been experimented with successfully in such diverse countries as Canada, 25/ Ghana, India and Zambia.

73. Similarly, when printed materials, such as booklets or posters, are used by extension workers in conjunction with interpersonal communication in group situations, they have greater effect than when distributed to individuals in an isolated manner.

74. The co-ordinated participatory approach can equally well be applied in housing, sites-and-services or squatter upgrading programmes to encourage community participation and increase group and individual motivation. The approach does not exclude use of radio, television, films or printed material for the more general purpose of disseminating information to people and increasing their level of knowledge about specific issues.

3. Project support communication

75. Project support communication (PSC) is the application of communication techniques in support of specific project implementation. The methods used can involve modern mass or "group" media such as radio, television, slideshows, tapes, booklets and posters as well as traditional media such as theatre, story-telling, town criers or meetings of elders. In PSC, interpersonal communication involving extension workers or animators in group work, workshops, and other forms of community organization and participation will generally play a predominant role. PSC will also often emphasize training of project staff at various levels, as well as training within the community itself - for example, in self-help construction or production of local building materials.

76. Project support communication should be viewed as an instrument to increase the effectiveness of project activities, by achieving a higher degree of mobilization of the community and a greater empathy with project objectives. In the case of a low-income shelter project, for instance, PSC can serve the function of streamlining the delivery process by informing the parties concerned of the implications (legal, financial, technical) inherent in every step of the project (e.g., land transfer, plot allocation, provision of services, loan disbursements etc.) and of the institutional arrangements that are going to be established. By definition, PSC activities involve all the actors engaged in a given project - the residents, community organizations, social workers, NGOs, and the field officers of the implementing agency.

77. In project support communication, activities are tailored to a specific programme or project, with a focus on attitudinal or behavioural change. It is not merely a question of diffusing an innovation. For example, it is the change in a family's attitude and behaviour related to human waste disposal that will induce it to construct, use and maintain a pit latrine, not the mere provision of the cement slab.

78. The ultimate purpose of PSC activities is to induce and facilitate community participation in the implementation of the project. PSC is thus not simply a question of methods and techniques of communication, but of mobilizing participation, by encouraging and releasing social and psychological processes inherent in self-reliant development.

79. As a first step, a thorough field study should be made of the population groups affected by the project. The study should assess the demographic, socio-economic and cultural characteristics of the population vis-a-vis the assumptions, purpose, and impact of the project. Of particular importance are the identification of indigenous communication channels, types of leadership and community organization, and the formal as well as informal processes of decision-making within the community.

80. Training programmes in communication skills for project management and technical staff and field supervisors should also be developed.

81. Effective project support communication also requires a study of specific information communication needs in order to:

(a) Assess the communications needs of the project and outline primary research tasks;

(b) Specify the equipment and staff requirements;

(c) Specify training requirements in communication skills;

(d) Define the status and modus operandi of the information communication team and its relation to project management and national executive authority;

(e) Estimate costs in terms of initial investment as well as the recurrent operational costs over the project period.

82. It is of utmost importance that the PSC component be considered from the inception of the project so that it is included in the project design and adequate provision is made in the budget.

83. A second range of activities, falling under PSC, consists of feed-back from the field to the policy-making level. Target groups will include politicians, staff of planning and executing agencies, city councils and municipal authorities, and the public at large. The objective of this category of PSC activities is to incorporate into future human settlements programmes operational insights gathered during project implementation.

IV. RECOMMENDATIONS FOR ACTION

84. The establishment of regional and global information exchange systems is an important aspect of international co-operation but can not be achieved in the absence of sound national information capabilities. Therefore, recommendations for action have been formulated within two subdivisions: strengthening national information systems; and co-operation at the international level.

A. Strengthening national information systems

85. International efforts in this area should focus on:

(a) Making Governments aware of the need for more effective utilization of information and the advantages of establishing a mechanism for systematizing the collection, processing and dissemination of human settlements information;

(b) Making technical support available to countries requesting assistance in establishing human settlements information systems;

(c) Developing compatible standards and common methods of information processing and data management consistent with the technological policies of developing countries;

(d) Encouraging municipal governments to concentrate their efforts on basic data collection, such as cadastral surveys;

(e) Providing Governments with advice, assistance and training on appropriate computerized techniques to achieve increased capability for the storage, processing, retrieval and use of data for human settlements planning and management;

(f) Assisting national Governments in the integration of human settlements information with national human settlements policies, or in the absence of such policies, with national development policies and programmes.

B. Co-operation at the international level

86. Efforts in this area should focus on:

(a) Promoting technical co-operation in information exchange, especially in terms of training qualified staff for documentation and information services;

(b) Increased dissemination of the results of research and development and of technical co-operation projects through publications and bibliographical data bases;

(c) Including information communications components in technical co-operation projects;

(d) Increased monitoring, evaluation and documentation of information activities in human settlements projects;

(e) Developing a monitoring and reporting capability in on-going research and projects in the field of human settlements, to avoid duplication of effort.

87. The new opportunities that have emerged for a comprehensive and systematic approach to information for human settlements necessitate not only a new conceptual approach to information and communication based on a correct and adequate understanding of their role in human settlements development, but also requires the establishment of suitable mechanisms that would enable the perceptions, the needs, and the aspirations of the people to find effective channels of expression and eventually be translated into concrete policies, programmes and projects. This goal can only be achieved through an intensification of current efforts in that direction at the national and international levels within countries and between countries and within regions and between regions.

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Annex I

BASIC HUMAN SETTLEMENTS DATA REQUIREMENTS

Listed below are the basic kinds of data required in order to assess and monitor human settlements conditions and trends and to formulate human settlements policies and programmes. Some of the data are already collected by many Governments in censuses. Others are available with, or can be easily collected by, local authorities. It should be stressed that in order to be of any significance, data should be collected on a regular basis and presented at the maximum possible level of disaggregation.

Population

Nationality (national, temporary legal residents, displaced foreign nationals)

Age

Sex

Households, total; average household size and distribution by size, class

Natality and mortality rates

Morbidity rates

Migration patterns (i.e., to and from regions and individual settlements, and by settlement size, class)

Employment (total employed, by place of work, by industrial, agricultural, and sub-categories; self-employed, salaried, other; total unemployed by major sector, age, sex, and duration of unemployment)

Land use

Land uses by main category

Population density (by region or state, municipality and rural districts)

Ownership patterns (public, by category; private; other)

Physical resources

Climate

Geology

Hydrography

Infrastructure and communications facilities

Energy; mining; agriculture; wildlife and ecological preserves

Manpower and training

Skilled manpower by category; employed, unemployed, underemployed

Semiskilled, unskilled manpower

Professionals, by category; employed, unemployed, underemployed

Major educational and research institutions

Rate of literacy

Regional and local specialized manpower training centres

Financial resources

Breakdown of public revenue sources, expenditures, and indebtedness, by level of government

Lending policies of public and private financial institutions; with particular regard to the financing of housing, infrastructure, and community services

Housing

Housing stock

Total number of dwellings; occupied, unoccupied; built with durable materials

Total number and percentage of dwellings lacking piped water; electricity; telephone

Number of dwellings considered as safe and permanent

Number of dwellings built through a regular building permit

Residential building permits requested, issued each year

Number of conventional dwellings needing major repairs, beyond repair

Percentage of existing housing stock built by public bodies, co-operatives, private contractors, self help

Housing conditions

Total and percentage of population living in unhealthy and/or uninhabitable dwellings

Percentage of population, if any, which is definitely homeless, according to national and local standards

Occupancy ratio by type of dwellings shared by more than one household

Number of owner-occupied households

Housing costs

Cost of an average permanent dwelling with basic utilities, per unit and square metre, average rental costs

Prevailing conditions for housing loans and minimum income required to afford a loan to purchase a dwelling such as described above

Average cost of a unit of serviced land in a legal subdivision per square metre; same in an illegal subdivision or in marginal land

Percentage of monthly income spent on rent by different categories of income groups

Infrastructure and community services

Water supply

Supply, consumption, and cost of piped water in various parts of the city/settlement, by type of use (residential, industrial, other); and numbers with no/difficult access to safe water supply

Electricity

Cost and percentage consumption of electricity in various parts of the city/settlement, by type of use (residential, industrial, other)

Transportation

Prevailing modes of transportation for travel to work, and average public transport fares per km.

Sewerage and solid waste disposal

Waste disposal services

Communications

Number of telephones, radios, and television sets per 1,000 inhabitants

Health

Hospital beds per 1,000 inhabitants, public and private; number of doctors, nurses, paramedical personnel per 1,000 inhabitants

Education

Percentage of school-age children attending kindergarten, primary and secondary school; number of registered and employed teachers per 1,000 school-age children; percentage of residents of the city, settlement and/or district attending university

Human settlements institutions and management

Land use legislation

Land acquisition procedures

Status of local physical planning

Application of zoning regulations and building codes

Annex II

UNCHS INFORMATION ACTIVITIES

1. The General Assembly, in resolution 32/162, instructed the United Nations Centre for Human Settlements (Habitat), inter alia, to provide the focal point for a global exchange of information about human settlements. Subsequently, the Commission on Human Settlements, at its third session, requested the Executive Director to assist, in collaboration with non-governmental organizations, in the establishment of information networks at the national and regional level. The various activities undertaken in response to those requests are described below.

A. Information systems

2. In the field of scientific and technical information, UNCHS is concentrating its efforts on developing standardized tools for handling human settlements information. For example;

(a) In 1980 a draft thesaurus with specific criteria, giving priority to those subject areas for which UNCHS has a particular mandate, was produced. The first trilingual edition will be coming out in late 1984;

(b) UNCHS Guidelines for Bibliographic Description and Abstracting, published in English, French and Spanish, is another important step towards standardization and compatibility of data in human settlements information management;

(c) A bibliographical data base (HABIDOC) has been developed with about 5,000 entries, including UNCHS unpublished reports and documents. Four annotated bibliographies with indexes have been published. Emphasis has been placed on entries of particular interest to developing countries. The data base is stored on a microcomputer through a pilot project undertaken in co-operation with the United Nations Educational, Scientific, and Cultural Organization (UNESCO). A document delivery service is coupled to the data base so that most documents can be provided either in microform or in photocopy, or its location identified;

(d) UNCHS is developing a data base of on-going research and projects (HANIRES). The service will help avoid duplication of efforts by governmental agencies and consultant firms planning or implementing similar types of projects;

(e) UNCHS has also published seven international directories on institutions and organizations involved in various aspects of human settlement development and three specialized information guides;

(f) The UNCHS library is processing an increasing number of reference questions received by mail from all over the world. An experiment with selective dissemination of information from the library has been in operation since 1982;

(g) UNCHS has developed a model training programme and a basic manual in library management.

B. General dissemination of information

3. Habitat News in English is distributed three times a year to an international readership of 6,000 human settlements professionals and decision makers. French and Arabic supplements are regularly included, and a Spanish supplement was initiated in early 1984. Bibliographic and Technical Notes, and an NGO News supplement are also regular features.
4. UNCHS has to date published more than 60 reports, studies, occasional papers, technical guidelines, information guides, and bibliographies, many of which are available free of charge.
5. With respect to audio-visual media, UNCHS continues world-wide distribution of more than 100 films on human settlement issues, and maintains an on-going programme of film, video, television and radio production and dissemination. In 1982-1983 there were nearly 2,000 viewings of UNCHS films by academic institutions, ministries, national agencies and television stations. In 1983, 50 radio programmes, nine television programmes and 10 photographic displays were produced and distributed.

C. Participatory communication

6. A training programme for community participation in human settlements improvement, financed by the Danish International Development Agency and executed by UNCHS, is developing, inter alia, practical guidelines for, and will undertake training in, the application of project support communication in mobilizing community participation.

D. Advanced technological application

7. UNCHS has pursued two technological aspects of information processing which are of particular importance for human settlements planning: remote sensing and the application of microcomputer technology.
 1. Remote sensing
8. In a report to the Second United Nations Conference on the Exploration and Peaceful Use of Outer Space - UNISPACE 82, UNCHS described the capabilities of satellite remote sensing in physical and regional planning, cartography, flood-plain management and assessment of natural disasters.
 2. Application of microcomputer technology
9. Since 1980, UNCHS has been using microcomputers as a means of assisting Governments, particularly those of developing countries, in the development of advanced planning and data management tools. The project has focused on the solution of two key problems which inhibit wider use of microcomputer technology: lack of appropriate software; and lack of trained personnel. UNCHS is assisting Governments by developing core software packages for human settlements planning and management and by conducting workshops designed to teach planners and managers interactive computing methods.

10. UNCHS has developed two software packages: Urban Data Management Software (UDMS) and Housing Finance Software (HFS).
11. UDMS was developed primarily as an educational tool for training local, regional and national planners in the concepts, techniques, and technology of urban data management. It has been successfully demonstrated in six workshops UNCHS organized in Argentina, Brazil, Colombia, Finland, India and Yugoslavia, and is proving itself in an operational context in Colombia, Jamaica and Sri Lanka.
12. Housing Finance Software (HFS) is an operational programme to support financial management of housing organizations in developing countries. The first installation is in the Housing Development Corporation in Mahe, Seychelles.
13. The main features of UNCHS software are portability and expandability. It can be utilized in a wide range of countries and on a wide variety of hardware. It is easily expandable and adaptable to particular national and local needs.
14. UNCHS is now collaborating with UNESCO on the testing of a new software package for the processing of bibliographical information.
15. The establishment of operating microcomputer systems in developing countries is not a short-term process. However, applications are likely to accelerate as the hardware enters the planning agencies, thereby intensifying the need for further development of software.