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THE DISABLED IN HUMAN SETTLEMENTS

International Year of Disabled Persons

SUMMARY

The theme for the International Year of Disabled Persons is full participation and equality, and it has been recognized that the greatest obstacles preventing the realization of this dual objective involve physical barriers and discriminatory attitudes. This report focuses on ways in which human settlements can be organized in order to remove physical barriers and provide the disabled with access to infrastructure and services within a built environment. The situation of disabled persons and the strategies adopted for remedial action vary in accordance with living conditions. Decisions concerning the design and adaptation of the built environment have to be made on a national basis and should cover, inter alia, proper land-use planning, the appropriate allocation of facilities and the conscious design of structures to meet the needs of the disabled. The report highlights mechanisms required for the implementation of projects for the disabled in the built environment, pointing out that activities based on public participation can supplement government efforts and that the disabled themselves can organize and further promote beneficial actions. The expanded exchange and dissemination of information concerning physical barriers that affect the disabled will lead to increased awareness and knowledge and to a greater willingness to tackle the specific problems of the disabled.

INTRODUCTION

A. International Year of Disabled Persons

1. The theme for the 1981 International Year of Disabled Persons is "full participation and equality", and, according to General Assembly resolution 34/154, one of the fundamental aims of the Year is the realization of the right of disabled persons to participate fully in the social life and development of the societies in which they live and their enjoyment of living conditions equal to those of other citizens, as well as an equal share in the improvements in living conditions resulting from social and economic development. In this connection, it has been recognized that the greatest obstacles to full participation in society by the disabled are physical barriers, prejudices and discriminatory attitudes and that measures must be taken to have these obstacles removed.

2. The relative disadvantages of being disabled vary from society to society, as does the importance of the physical environment as a barrier to the leading of a normal life. These differences are due partly to the economic, social and cultural situation of each society and to the differing characteristics of human settlements. They are also dependent on the availability of resources and means for the implementation of activities on a short-term and long-term basis. The existence of such differences means that ideas derived from one country's experience cannot necessarily be transferred to another country. It also means that, within each country, the measures required to eliminate the disadvantages of the disabled vis-à-vis other members of society will vary in accordance with conditions in each human settlement. The situation of the disabled can be improved by effective human settlements policies and programmes, and this report contains a set of guidelines for action, guidelines which have relevance for both developed and developing countries.

B. United Nations Centre for Human Settlements (Habitat) and the International Year

3. The Vancouver Declaration on Human Settlements states that the improvement of the quality of life of human beings is the first and most important objective of every human settlements policy. Human settlements policies must facilitate the rapid and continuous improvement in the quality of life of all people, and in striving to achieve this objective, priority must be given to the needs of the most disadvantaged people.^{1/}

4. This report focuses on the ways in which human settlements can be organized to accommodate disabled persons by avoiding the creation of new physical barriers, by removing existing ones and by supplying the disabled with the infrastructure and services they need. It examines human settlements as a complex of diverse activities within which disabilities prevent the individual from using the built environment to the fullest extent.

^{1/} Report of Habitat: United Nations Conference on Human Settlements, Vancouver, 31 May - 11 June 1976 (United Nations publication, Sales No.E.76.IV.7 and corrigendum), Chap.1.

5. In the Centre's work programme, the problems of the disabled in the built environment are addressed in several subprogrammes, particularly subprogramme 3 (Shelter, infrastructure and services) and subprogramme 5 (Public participation). Research is currently being undertaken into standards and building technologies, and a series of technical-assistance demonstration projects is being formulated in which the problems of removing physical barriers will be considered. Audio-visual material is also being prepared as part of the Centre's contribution to the International Year.

6. To complement measures for the removal of physical barriers, it is recommended that relevant organizations within the United Nations system undertake the compilation of a catalogue of types of devices which people have invented and developed for themselves. This would be a useful aid for designers and planners when they come to consider design criteria for, among other things, surface treatments, levels and pathways.

7. It is worth noting that much has been written on how to adapt the physical environment to the needs of the disabled. However, most of the information thus made available relates to developed countries, and since there seems to be an immense need for practical advice on how to approach the problems of the disabled in countries where resources are scarce, UNCHS (Habitat) intends, in co-operation with the Swedish International Development Agency (SIDA), to produce an educational package on barrier-free design in developing countries, a package including a handbook and audio-visual material.

I. THE SITUATION OF THE DISABLED IN HUMAN SETTLEMENTS

1. Disabilities

8. There are approximately 450 million disabled persons in the world today, and unless extensive preventive measures are taken, the number will be considerably greater by the end of the century. The vast majority of disabled persons live in developing countries.

9. The lack of detailed statistics about the disabled, especially in developing countries, prevents a truly analytical approach being taken to this vast problem. Accordingly, simple methods of collecting information at the community level on prevailing disabilities must be established as a first step in the formulation of rehabilitation policies and the development of human settlements planning that takes account of disabilities.

10. To be able to "use" human settlements means being able to take part in activities within buildings and in the outdoor environment. Mobility is therefore a crucial factor, and in fact the built environment is normally planned in such a way as to require extraordinary mobility on the part of users. However, in some societies where the disabled cannot afford items such as wheelchairs, they are forced to move around on wheeled boards, crawl on their hands and knees or not to move around at all. At the same time, measures to ensure increased mobility for the disabled often involve complicated and costly additions to existing structures to improve accessibility.

11. Impaired vision and deafness create problems of orientation, and the more complex the environment, the worse the problems. Risks to the individual are increased and accidents become more frequent. The deaf are bothered by echoes, noisy environments and the loss of directional sound warnings. Complex environments also affect the mentally disabled, causing stress and acute disorientation.

12. The modern built environment may contribute to the incidence of a type of disability caused by reactions to certain materials, substances, air pollution and noise levels. Different species of plants or vegetation may also create problems for people with allergies. An environment that induces allergic reactions becomes disabling to those people affected by allergens within it.

B. Social aspects of disability

13. Human settlements are the result and expression of the social, cultural and economic characteristics of a given society. They also reflect the ways in which different societies regard the disabled.

14. It was stated earlier that discriminatory attitudes constitute one of the main obstacles preventing the integration of the disabled into society. It should be borne in mind that attitudes towards the disabled vary greatly from society to society and are strongly linked to social and cultural factors. In some societies, the disabled are expelled or abandoned, and in some, the disabled person's family is condemned as well.

15. In some situations, the disabled can contribute to the economic situation of their families, and in such cases they tend to be integrated into society more easily. In some countries, the disabled are the only persons permitted to beg, and incidents have been reported of people being purposely maimed in order to contribute to the income of the family by begging. These examples illustrate some extreme attitudes towards disabilities and the disabled, but such attitudes are now undergoing change, and more useful and innovative measures are being adopted to ensure the integration of the disabled into normal social and living patterns.

16. In countries where organizations have been formed to promote the interests of the disabled, prejudices affecting the disabled seem to have diminished. However, to change attitudes and eliminate prejudices is no easy task and cannot be achieved by means of improved human settlements planning alone. For example, if attitudes are such that an employer would never hire a disabled person, a barrier-free building will not necessarily improve matters. Nevertheless, it is safe to say that as long as human settlements and their design prevent the disabled from taking part in daily activities and social events, discriminatory attitudes are likely to continue.

17. It is important to emphasize, of course, that problems related to the physical environment can sometimes be overcome through the provision of appropriate social services. For example, a person incapable of transporting himself to work can be provided with transport by a social welfare organization, the family or someone paid to do the job. However, the urbanization process has disrupted traditional social networks, and the resulting decrease in daily help and rehabilitation services must be offset through the creation of more formal systems of social services. This, combined with the alteration of the built environment, will facilitate the participation of the disabled in the normal activities of society.

18. It must be borne in mind that the implications of the provision of services and help by institutions and individuals differ from society to society. In societies with a more individualistic approach to life where people are used to helping themselves, the disabled will tend to reject being dependent on other people. They will expect the built environment to be planned and built in a way that enables them to use it independently as much as possible. In other societies where mutual assistance is culturally and socially accepted, social services are just as important to the disabled as a barrier-free built environment.

C. The disabled in selected types of settlements

1. Contemporary urban environments

19. In large urban settlements, the disabled, irrespective of economic status, are rendered dependent upon society (family, institutions, Government) in respect of their participation in normal urban activities, since urban facilities such as shopping centres, medical facilities, work places, recreational facilities, religious centres, educational facilities and cultural centres are dispersed over a very large area.

20. Another problem for the disabled in the built environment is caused by physical barriers; narrow passageways, swing doors, steep stairways, moving walkways, escalators and rapidly operating elevators all create difficulties for the disabled, while one of the most severe problems concerns the difficulties encountered in using public transportation facilities. The constant changes in urban form disorient the disabled, and the continual construction of new buildings, the rerouting of walkways and streets and the reorganization of traffic patterns further impede mobility.

21. The phenomenon of urban sprawl and people's resulting dependency on the automobile particularly affect the disabled. The latter rarely own automobiles, and since urban transport is usually inadequate, they are very often cut off from the very activities and infrastructure that they need. The dependency created by physical conditions thus prevents the disabled from realizing their maximum potential as citizens, with the result that they are regarded as a social and economic liability.

22. In many developing countries, half the population is below 18 years of age, with the greatest concentration of young people to be found in the low-income areas of major cities. Many of these young people are disabled and do not get the training they need to enable them to improve their situation. This state of affairs is aggravated by the fact that human settlements infrastructure is financed on the basis of rates and taxes, and if large numbers of the population are immobilised or underemployed, Governments cannot install and maintain even basic infrastructure. In such circumstances, community programmes and projects for special groups such as the disabled usually suffer first.

23. In urban settings, the prevalence of individualistic lifestyles and the nuclear family means that the disabled cannot be cared for by family members as may be the case in extended families. This has resulted in an increase in the need for institutional care, which represents an increasing burden for families and society at large. The institutionalization of the disabled also decreases their potential for personal development and adversely affects the quality of their lives. There is still a "custodial" attitude towards the

disabled, and this attitude has resulted in an economic loss to society, a loss due to several factors such as higher rates of insurance payments, wage losses, production losses, disability compensation and the direct cost of institutional care. However, it should be borne in mind that institutions may be the best solution for severely disabled persons requiring 24-hour care, special medical treatment and rehabilitation.

2. low-income areas

24. In low-income areas in the major cities of almost all countries, the disabled are faced with additional problems which include lack of security, deteriorating structures, inadequate services and poorly maintained neighbourhoods. The disabled in these areas are totally dependent upon welfare services or charitable organizations and lack adequate medical and rehabilitation facilities.

25. Low-income settlements account for the major share of urban expansion in the developing countries. Their inhabitants are overwhelmingly poor, and the urban facilities and services prescribed for major cities do not reach them. The static regulatory framework of traditional and inherited codes and regulations is at variance with the dynamics of low-income settlements and acts as an impediment to the installation and extension of the infrastructure that would alleviate the poor conditions.

26. The inner-city slums of major cities in developed and developing countries, though dilapidated, usually have access to infrastructure, services, transportation and utilities. In squatter settlements, however, conditions are quite different. Transportation is poor, health, educational and recreational facilities are lacking and residents have to depend on the informal sector for even minimal shopping requirements. The disabled are further handicapped by the lack of pathways and feeder roads, and movement may be made even more difficult by ruts, holes and trash heaps. The illegal status of many squatter settlements discourages the inhabitants from investing in improved facilities and inhibits Governments from providing the necessary services and infrastructure.

27. In the squatter settlements of rapidly urbanizing cities, where there is an overwhelming need for improvement and new development, there is a real opportunity to introduce innovative techniques and strategies for responding to the needs of the disabled. If traditional upgrading techniques geared to the provision of infrastructure are used, the disabled will inevitably benefit to some degree along with the rest of the community, but the appropriate community services must be established to provide the disabled with additional direct assistance. Employment opportunities can be generated at the community level by involving the disabled in economic activities that make use of their collective skills and by providing appropriate training programmes.

28. As far as improvements in the major cities of developed countries are concerned, studies regarding barrier-free design have been published and offer some solutions. However, data on the types and extent of disabilities prevalent in each country need to be carefully analyzed before the recommendations contained in these studies are implemented. In fact, structural improvements to the built environment in developed countries have proven to be

prohibitively costly in many instances, and this is due to the fact that current strategies to create a barrier-free environment generally involve the addition of structures (ramps, lifts) and devices (colour-coding and ultrasonic systems) to existing facilities to accommodate the disabled rather than a rational reorganisation of facilities requiring minimal structural change (e.g. the location of services on the ground floor of buildings). One possible approach that deserves consideration involves clustering services and facilities for the disabled in accessible locations, thus making it easier to organise special transportation.

29. Future developments will depend on changes in attitude to the diverse needs of the disabled, but even now successful efforts are being made to increase the independence of the disabled. For example, accommodation for the disabled is being provided at ground-floor level in housing developments, and community services are being established in easily accessible places. Programmes concerned with the design of new towns and the rehabilitation of existing ones, incorporate features that promote the full participation of the disabled in the built environment.

30. In setting their priorities, municipalities must make provision for projects which address the problems faced by the disabled. As an initial measure, "barrier-free zones" could be declared in central areas and appropriate facilities located there, with facilities for different types of disabilities grouped at particular locations. In some instances, all that is required may be the addition of certain services within the framework of existing facilities. In other instances, there may be an opportunity to embark upon a new civic enterprise that would benefit and be accessible to all.

3. Rural settlements

31. The situation of the disabled in rural settlements is different from that of the disabled in urban settlements. Systems of village organisation and extended kinship tend to provide the disabled with greater security and more assistance within the community, and immobility is not a particular handicap in the performance of certain traditional tasks carried out in close proximity to the dwelling. However, many features of domestic life create hazards for the disabled (open cooking areas, open wells), and additional dangers can arise from untethered livestock. The disabled are generally confined to the settlement since there are few pathways and even fewer roads. Although the general lack of infrastructure affects all rural inhabitants, the rural disabled are further handicapped by the lack of any modern rehabilitation and health-care facilities. Education and training facilities are virtually non-existent.

32. In rural settlements, community extension services can provide greater access to opportunities for rehabilitation. Simple modifications to living spaces (e.g. the construction of fences around open wells, the erection of screens around cooking and foundry areas and the construction of wider pathways clear of obstructions) can ensure a safer environment. The provision of access to water facilities for personal hygiene also improves the immediate environment of the disabled.

33. Opportunities for the rural disabled in terms of cultural and recreational activities are limited. Occasional cultural excursions can be organised in co-operation with larger settlements, and organisations or agencies concerned with the disabled can provide funds and meet transportation costs.

4. Barriers in the built environment

34. The extent to which a certain physical environment constitutes a barrier differs according to the physical abilities of the people using that environment. People with impaired mobility often find that differences in levels are a problem; to a person in a wheelchair even a single step is an obstacle, and someone using crutches finds steep ramps difficult to negotiate. Some people need places where they can rest after walking short distances. For people with impaired vision, sudden steps, flights of stairs or unexpected obstacles can often cause accidents. There are several solutions to such problems; for instance, handrails can help a person with reduced mobility to use stairs if they are designed in such a way that they clearly indicate the beginning and end of the flight of stairs.

35. The use of a wheelchair requires that certain conditions be met in the built environment. For example, there must be means of vertical transportation, turning space, relatively smooth surfaces and sufficiently wide corridors and paths. Switches and emergency equipment in elevators, as well as in offices and rooms within the home, should be within the reach of a person in a wheelchair.

36. To persons with impaired vision or mental disabilities, simple and logical physical layouts are essential, as are easily understood signs in public buildings, the outdoor environment and public transportation systems. It is important to ensure that there are no unexpected obstacles such as telephone poles along footpaths or obstructions within buildings. Such problems can be tackled by means of simple measures such as the introduction of different materials indicating a change in use or the placing of stones along main routes to act as a "warning" of obstacles.

37. The way in which surfaces are used is also of importance for people with certain disabilities. A very smooth floor surface is hazardous to people with impaired mobility, since crutches can slip. In addition, shiny floor and wall surfaces reflect light in a way that may be very confusing for a person with impaired sight. In that connection, the use of different materials and different colours to indicate the location of a door or the end of a flight of stairs is a simple but effective way of helping people with impaired vision. The tendency in modern urban architecture to use glass walls and doors, as well as mirrored finishes on columns and walls, is extremely disturbing for people with impaired vision. In some cases, accidents have occurred even to people with normal sight, and especially to children. It is important to have outdoor surfaces that are hard, flat, durable and unaffected by different weather conditions, one particular aim being to reduce slippery surfaces in wet weather.

38. People who are hard of hearing often have problems with echoes, for instance in conference rooms, school rooms and restaurants. This is a problem that can be remedied quite easily through the right choice of materials for surfaces and furniture. In some industrialized countries, wall-to-wall carpets and textile wall finishes have become quite popular, and one of the advantages of this is that unwanted echoes are reduced.

39. As far as the outdoor environment is concerned, the separation of pedestrian and vehicular traffic is one way of avoiding the risk of accidents to most groups of the disabled. Simple lay-outs, places to rest, ease of transition between levels and good lighting are also factors that can help provide the disabled, and others, with a good environment. The use of simple and traditional building technologies often means that alterations are easier to carry out and can be done by the people themselves. Of course, the use of some traditional techniques, for example the construction of houses on stilts, makes conditions more difficult for the handicapped, but generally speaking, the more urbanised, complex and technologically advanced a settlement is, the greater the problems for the disabled: traffic increases, buildings may be taller and activities are often dispersed over a larger area.

40. Technical solutions have been developed for most of the "barrier" problems. These solutions often involve simplifying the design of an area, locating activities in a practical manner and ensuring that buildings are designed sensibly and appropriately. In such cases, the extra cost of adapting the physical environment to the needs of the disabled will be minimal or non-existent. However, the adaptation of the physical environment to the requirements of the wheel-chair does involve greater extra cost, especially in cases where a lift has to be installed. Of course, when new areas are being planned and new buildings designed, most of the problems connected with extra costs can be avoided, but this is not the case when the existing physical environment has to be modified.

41. Some of the barriers that affect the disabled in the physical environment can be avoided by appropriate land-use planning that takes account, for instance, of topography, the location of services, the siting of public buildings and recreational spaces and the layout of traffic systems. As plans develop, a more thorough appraisal can be made of the extent to which access to buildings by car or public transportation can be improved through the provision of parking lots close to the buildings.

II. OPTIONS FOR IMPROVEMENT

42. The overall objective of organizing the various elements that make up human settlements and adapting the built environment to meet the needs of the disabled must be translated into an operational concept. This concept must entail an appreciation of the maximum extent to which the built environment can be adapted to the needs of the disabled, and this maximum will be found at some point on a continuum from laissez-faire policies to an extreme point where the built environment is totally adapted to each different kind of disability. In deciding the optimal attainable point on this continuum, each country has to take into account factors such as the extent of prevailing disabilities, the characteristics of the traditional (unadapted) environment, the possibility of providing supplementary social services, the availability of human, economic and technical resources, and potential costs and benefits over time within the prevailing social and cultural context. The decision on this matter must be made on a national basis.

43. Some general ideas on how to handle some of the above-mentioned factors are set out below.

4. Housing

44. The disabled tend to spend a relatively large part of their lifetime in their homes because of the lack of employment opportunities and the existence of physical and other barriers in the public environment. The home thus provides the basis for the social life of the disabled and for the fulfilment of the need for love, affection and a sense of community which is felt so keenly by the disabled. Accordingly, the disabled must be able to stay with their families, and the latter should not be forced to leave their neighbourhoods.

45. In a home, people have to perform different functions that include washing, cleaning, sleeping and interacting with family and friends. This diversity of activities within the living unit requires abilities of varying degrees, and housing units must be designed in such a way as to accommodate the curtailed abilities of the disabled.

46. Because of social, cultural and economic factors, different societies have different ways of approaching the provision of housing for the disabled. In a few countries, new dwellings have to fulfil certain requirements aimed at adapting the housing stock to the more common disabilities and thereby obviating the need for more expensive adjustments later. In other countries, special flats and institutions are built to serve people with certain disabilities.

47. For disabled people who cannot live a decent life alone and require constant help and support from family members, special serviced flats could be provided to help the disabled enjoy a lifestyle closer to that of the able-bodied members of society.

48. The adaptation of dwellings in this way may seem ambitious to developing countries which are still trying to meet people's most basic housing needs. However, the specific needs of the disabled can be met, for instance, by locating living units for the disabled on the ground floors of multi-storey buildings or

simply by allowing for flexibility in the arrangement of space. Nevertheless, in existing residential areas, the only realistic solution might well be either to upgrade existing dwelling units inhabited by disabled persons or to build new units adapted to the needs of the disabled within the neighbourhood.

B. Places of work

49. Being employed is an important way for the disabled to take part in society, to attain a degree of independence or to provide the family with additional income. However, any attempt to adapt the working environment to the needs of the disabled must take account of considerations of cost-effectiveness. Specialized work units must be designed to suit persons with specific disabilities, (e.g. the blind or mentally disabled), while the ordinary working environment must be rationally designed to accommodate the disabled within a simple and easily understood environment, with enough space being provided to operate a wheelchair.

C. The outdoor environment

50. In order to facilitate the full participation of the disabled in social and economic life, it is essential that the outdoor environment be adapted in appropriate ways. As mentioned earlier, the simple and appropriate organization of spatial relationships, including the provision of pathways with suitable surfaces and the separation of different kinds of traffic, allows the disabled to make maximum use of the outdoor environment. This adaptation of the outdoor environment would appear to be a major problem in countries where most journeys are made by foot, but measures to minimize differences in levels and to provide benches, "rest places", pathways and devices for persons with impaired sight will all contribute to a better outdoor environment for various groups of disabled people.

D. Public and commercial buildings

51. Such buildings should serve the population as a whole and must therefore be designed to meet the needs of the disabled. Many developing countries may be fortunate in the sense that a large proportion of their public and commercial buildings has yet to be built. Opportunities therefore exist for the incorporation of barrier-free designs and the avoidance of the high cost of modification now faced by many developed countries.

52. Public buildings must be designed to accommodate the wheelchair and must therefore be provided with lifts or other means of vertical locomotion. The cheapest and simplest way of reducing costs in this connection is of course to avoid the construction of multi-storey buildings, particularly where land is available and inexpensive. If the construction of multi-storey buildings is unavoidable and if funds are not available for the installation of lifts, provision must be made at the design stage for the installation of lifts at a later date. This implies that the needs of the disabled must be taken into account at an early stage of the design process.

E. Public transportation

53. One of the most significant ways of giving the disabled greater access to places and facilities involves the adaptation of public transportation systems. Most disabled people are not in a position to own or drive a private automobile and are therefore completely dependent upon public transportation or someone else's private automobile for mobility. Special transportation is sometimes provided for disabled people, but such transportation may be costly and limits the freedom of choice of its users.

54. However, innovative measures can be introduced to ensure that different modes of public transport support and supplement each other. The urban and suburban reorganization that has become necessary as a result of energy considerations will require the clustering of work places, homes and commercial and recreational areas in order to create more balanced communities. This will tend to promote the development of inexpensive modes of transportation and more adaptable vehicles.

F. Communication system

55. It is important to consider the ways in which modern communication systems can be organized to assist the disabled by diminishing the handicap of immobility. The importance of communications is a phenomenon associated with today's technology-conscious era, and the promotion of public-service applications for new communications technologies is being considered by several Governments as a means of spreading the benefits of information and knowledge to a broader segment of society.

56. Information technologies are rapidly becoming key components of national technical infrastructure, and an increasing number of workers is engaged in the production, processing, transmission and distribution of information. This "industry" offers a real opportunity for the disabled, firstly as employees and secondly as recipients of services. Cable systems have proved to be quite inexpensive for educational, cultural and informational programmes, and home communications systems or home terminals are being used increasingly to provide the handicapped with vocational training and general education and to enable them, for example, to order groceries, call for assistance and communicate with government and community officers.

57. While it should be recognized that these systems are more commonly found in developed countries, the rapidity with which telecommunications are expanding on a global basis will give more and more developing countries access to similar programmes aimed at all segments of society.

III. POLICY IMPLICATIONS

a. Costs

58. In many countries, the situation of the disabled and of the society at large can be improved only on the basis of an increase in available resources. The establishment of the new international economic order would lead to better living conditions for the disabled, but there is no guarantee that the disabled

will benefit equitably from the proposed development patterns. This means that Governments have a heavy responsibility to bear in terms of ensuring a fair distribution of benefits.

59. One of the major arguments against creating a built environment that does not further handicap the disabled concerns the cost involved, the usual approach being to consider the capital investment costs of a physical structure without considering the long-term social and economic benefits. However, expenditure has to be viewed in a broader context, since any failure to attend to the problems of the disabled involves a cost to society as a whole. The economic benefits of resolving the problems of the disabled vary from society to society depending on, *inter alia*, the social welfare system and the labour market situation, but by making it possible for the disabled to take part in the national production process, society will clearly gain in terms of the goods and services produced. Welfare recipients will become contributing members of society, and their dependency on others will thus be reduced.

60. The application of design criteria that cater to the specific needs of the disabled, if introduced at an early stage in human settlements development, may not entail any appreciable extra expense. The additional cost of adapting the built environment to the needs of the disabled depends upon the characteristics of the natural environment, the types of structures favoured and the materials used in construction. Adaptation may sometimes entail only the simplification of the components of the built environment, and this need not be costly.

61. The identification of simple and easily applied solutions aimed at reducing costs is a matter for further research and development. Sometimes it is a matter of common sense, and involving the people concerned in the planning and construction processes is therefore essential. In some cases, ideas and solutions adopted by one country might be suitable for countries where building techniques and traditions are similar. In other cases, special approaches may have to be developed in the light of specific local building techniques and traditions.

B. Mechanisms

62. The degree to which the physical barriers of the built environment can be eliminated depends on the mechanisms available for programme implementation. Governments must enact appropriate building legislation, codes and regulations, but government intervention is not the only way to solve the problems of the disabled. For example, public participation in the decision-making process can enhance the effectiveness of measures to improve the situation of the disabled. In addition, in some countries the disabled have organized themselves into pressure groups, and government at every level must encourage the organization of such groups. In that connection, the Declaration on the Rights of Disabled Persons (contained in General Assembly resolution 3447 (XXX)) states that organizations of disabled persons may be usefully consulted in all matters regarding the rights of disabled persons.

63. In developing countries marked by the growth of squatter settlements, there is a lack of mechanisms through which controls can be organized in order to ensure that the needs of the disabled are taken into account. Governments must therefore take steps to establish such mechanisms in order to improve the situation of the disabled in squatter settlements. It should be emphasized that even though a

country might have national building codes and regulations appropriate to the needs of the disabled, there is no guarantee that the built environment will fully adapt to those needs. This is partly due to the fact that the codes and regulations in question are often formulated as performance criteria which require that technical solutions must be found in each project in accordance with resources at hand, building traditions and available construction materials and techniques. Flexibility is of course essential in enforcing codes and regulations to permit the phased implementation of improvements and the removal of physical barriers.

IV. CONCLUSIONS AND RECOMMENDATIONS

64. It is recognized that the disabled suffer from disadvantages vis-à-vis other members of society and that the uncontrolled growth of urban areas and the impoverished conditions found in rural settlements present more problems for the disabled than for other inhabitants. Continuing urban development, marked as it is by the dispersal of facilities, the increasing use of advanced technology and continual change in urban form, presents particular problems for the disabled. In low-income settlements, the disabled are doubly disadvantaged as a result of deteriorating physical conditions and the inadequate social infrastructure. The following recommendations present actions that Governments and the international community can take, as resources permit, to integrate the disabled into society and improve their overall living conditions:

(a) The full participation of the disabled in society is often hindered by prejudice and discriminatory attitudes; national settlements policies and strategies should aim at promoting a more equitable distribution of the benefits of development by making such benefits and public services accessible to disabled groups;

(b) There is a need for the disabled to organize themselves with a view to promoting their own participation in the decision-making processes; particular attention should be paid to the adoption of procedures that facilitate the active participation of the disabled, and public participation should encompass groups such as the disabled who have traditionally not taken part in either the planning or the decision-making process;

(c) In countries where the urbanization process has disrupted traditional social services, gaps must be filled through the establishment of more formal systems of social services;

(d) The renewal and rehabilitation of existing settlements must be aimed at improving the living conditions of the disabled, in particular through the improvement of the functional structure and environmental qualities of settlements; this process must respect the rights, needs and aspirations of the disabled, while at the same time preserving existing cultural and social values;

(e) neighbourhood planning should be aimed at providing a responsive physical environment for the disabled, and should pay special attention to the provision of appropriate facilities, services and amenities;

(f) The disabled in rural settlements, while benefiting from existing social networks, must have more access to community extension services and improved physical infrastructure and greater opportunities for rehabilitation;

(g) The concept of barrier-free design should be widely disseminated in order to demonstrate its significance and to attain an appreciation of the optimum extent to which the built environment can be adapted to the needs of the disabled;

(h) In the existing built environment, physical barriers should be removed wherever possible, and facilities and services should be regrouped in locations to which the disabled have access;

(i) Further research and development is essential for the identification of simple, cheap and easily applied solutions to the problems of the disabled; the choice of designs and technologies for shelter, infrastructure and services should both reflect present demands and take account of future needs; the greatest possible use should be made of local resources and skills, and standards should be established with a view to ensuring steady improvements in the living conditions of the disabled;

(j) The potential contribution of the disabled to society must be acknowledged; when a choice is being made between alternative solutions aimed at improving the quality of life of the disabled through the provision of shelter, infrastructure and services, account should be taken of the social, environmental and economic costs and benefits of these alternatives, including future management, maintenance and operating costs;

(k) Mechanisms for the implementation of regulations and programmes focused on the disabled need to be established or strengthened; legislative, institutional and financial measures should be re-oriented to ensure the involvement of the disabled in all processes related to the satisfaction of their own needs;

(l) A reliable statistical data base must be established to provide the detailed knowledge which is a prerequisite to meeting the specific needs of the disabled through appropriate policies and programmes;

(m) The contribution of voluntary organizations and non-governmental organizations in terms of promoting awareness and finding solutions to the problems of the disabled should be recognized by Governments so that these organizations' support can be enlisted in the relevant programmes.