SITUATION OF DISABLED PERSONS IN AFRICA

(Document prepared by the ECA Secretariat
Social Development Division)
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## ANNEXES

I. AN OVERVIEW OF THE SITUATION IN FOUR COUNTRIES OF THE REGION

II. DEVELOPMENT OF STRUCTURES FOR REHABILITATING THE DISABLED IN ALGERIA
SITUATION OF DISABLED PERSONS IN AFRICA

I. Background and development

1. The outcome of numerous world events and the desire of Governments and peoples to ensure that those who have hitherto been afflicted with poverty, ignorance, malnutrition, disease and other disabilities should henceforth lead a more harmonious and healthy life have provided the basis for the thoughts expressed in this report.

2. Indeed in rural and traditional communities, assistance to the needy and disabled viewed as a moral obligation, and given in the form of charity or alms, is generally provided by the disabled person's family or by private agencies, charitable organizations, religious or community associations.

3. The development of education, improvement of health, transport and communications services and advances in industrialization, which are lacking ever substantial numbers of people drift from rural to urban life, are both causes and effects of the transitional stages through which a great number of individuals and States in the region are passing. Particularly significant among the sociological changes characterizing the state of transition are the weakening of the bonds uniting members of the extended family group and tribal community and the consequent diminution of traditional assistance. It is for this reason and also because African people are aware of social security measures taken in many Western industrialized countries since the end of the last world war that citizens are asking their Governments to shoulder increasingly greater responsibility by instituting programmes for improving the health situation and for maintaining the family income of invalids and also to reconsider the social, political, institutional and technical aspects of the rights of the disabled to assistance.

4. The preparation of government programmes on disability prevention, rehabilitation and assistance, both in developed and in developing countries, can almost invariably be traced to religious or traditional practices dating back several centuries. Whatever their origin, such customs still preserve their importance to varying degrees both in theory and in practice in almost every country including those that now have a comprehensive state assistance programme. States have accepted to bear the cost of disability assistance that used to be borne by individuals acting on their own account or as a group. This development is in any case most often due in part to the abandonment of old customs.

5. In some countries, the preparation of official assistance programmes was hastened by the weakening of old customs; but the contrary happened in other countries where the establishment of official programmes, necessarily financed through compulsory levies, minimized the role of private charity. In yet other countries, traditional customs and official programmes have continued to exist side by side with neither having a significant impact on the other. In some countries, disability assistance shows up in various slowly changing forms: traditional customs are still clearly
pre-eminent but the effects of the social and economic changes that have taken place within the last 20 years are beginning to be felt. In those few countries where permanent government assistance programmes exist in one form or another, they are of relatively recent date. At the same time, in other countries, traditional customs of private assistance, particularly those that relate to looking after relatives and the disabled, have been sanctioned by law and incorporated into national legislation.

6. While legislative action for the disabled is being taken in most States in the region, the expansion of health and technico-medical structures has fallen considerably behind both in rural and urban areas.

7. The proportion of physically and mentally disabled persons is generally higher in the developing countries (of Asia and Africa) than in the developed countries. This is primarily because the medical services in developing countries are very limited and also because the most widespread life-style, aggravated in cases by harsh climates, tends to nurture diseases that leave persons permanently disabled. Special mention should be made of blindness resulting from the trachoma rife in many States of the region. The number of cases of blindness is particularly high in countries of the region where medical services have been almost non-existent until recent years and where they are still very inadequate.

8. The situation of chronically ill and disabled persons can be critical in countries where most able-bodied people can barely take care of their own basic needs and where, as a result, the precepts of mutual assistance can obviously only partially be put into practice. This problem is highlighted by the large number of blind, deaf, disabled, lepers and other beggars one sees daily in the cities and along the highways of many countries in the region.

9. In this connexion, the report of a previous meeting of experts convened under United Nations auspices 1/ provides a useful analysis of the remedial, and preventive functions of social welfare and the role it can play in human resource and national development. The remedial functions of social welfare, according to the experts, must themselves be subdivided into supplemental, substitutive and rehabilitative activities.

10. When for example, traditional institutions such as the family, tribe or any other social structure fall or are unable to fulfil their normal role, then an important objective of social welfare activities is to remedy the situation either by supplementing the inadequate care provided by the traditional groups or, if necessary, substituting for it. The supplemental role of social welfare services needs no special defence, particularly in

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the case of developing countries which historically have been preoccupied with remedial services. There are good reasons for this: many countries have had to cope with unprecedented social problems which demand immediate attention - remedial action under these circumstances is an expression of social responsibility; remedial services are a significant step towards conserving human resources; they often fulfil a pioneering function, satisfying certain needs not met by traditional institutions. In situation where it is the individual's disability rather than his social environment that calls for remedial action, the role of social welfare services is of a rehabilitative nature ... Rehabilitation services are an essential part of an over-all social welfare programme because they help to conserve manpower and also because the range and nature of dependency exposed in this area give some indication of the total condition of human need.

II. Scope and objectives of the report

11. Over the last fifteen years, the development of rehabilitation programmes for the disabled has been shaped by a growing national and international awareness, which is rapidly gaining ground in countries with widely varying social, cultural and economic structures. The concern for disability problems reflected in national social welfare programmes has been strengthened by four major historical factors:

(a) Firstly, the number of disabled persons increased considerably as a result of the two world wars and wars of national liberation;

(b) Secondly, urbanization in developing countries, which involve massive rural exodus and expansion of industrial activity, has multiplied risks and increased the likelihood of accidents;

(c) Thirdly, major advances in medicine, technology and social sciences have provided the knowledge and technology needed to expand rehabilitation services;

(d) Finally, social awareness has made people more sensitive to the plight of disabled and more prepared to accept the idea that society should help to remedy the suffering, trials, waste of energy and sacrifice that involve disability.

12. At the same time, rehabilitation programmes have acquired a two-fold objective: on the one hand, they aim at ensuring the welfare of the disabled and at making them able as far as possible to engage in a profession and to participate in society; on the other hand, they meet a vast national objective, in that they contribute to conserving and improving the human resources needed to rebuild and develop the country.
13. The activities of the United Nations, its specialized agencies and of non-governmental organizations, particularly over the last fifteen years, are indicative of the growing interest that rehabilitation has been arousing on the international scene. Research and surveys have been conducted and seminars and conferences organized under the auspices of the United Nations, ILO, WHO, UNESCO, UNICEF of other international organizations interested in the handicapped. As part of their technical assistance programmes, the United Nations and the specialized agencies have provided fellowships, consultancy services, technical staff and equipment to developing countries to assist them in planning and organizing their rehabilitation programmes. It is interesting to note that a number of these countries now consider these programmes as part and parcel of their social policy.

14. Such activities have been successful in the field of rehabilitation that it would now appear necessary, on the one hand, to draw up an inventory of national experiences in Africa and do a comparative study of socio-economic data and, on the other hand, to evaluate the steps taken by States in the region on behalf of the disabled with a view to defining priorities for subregional and regional co-operation programmes and international technical assistance programmes in the area.

15. For purposes of this report, the scope of rehabilitation has been limited to physical disabilities of a motor nervous or sensory nature and to mental disabilities. However, rehabilitation will be considered a very broad concept and the importance of simultaneously considering the physical, psychological, social, occupational and economic needs of the disabled is stressed.

16. The data on which this report is based have been obtained mainly from reports of experts and regional advisers (WHO, ILO and other agencies) and from responses to the questionnaire sent to Governments.

III. Nature and scope of the problem in Africa

17. Like other continents of the third world, Africa is underdeveloped because among other things it has not made good use of its manpower resources. Africa has not seen to the health, nutrition and education of its people. So long as human capital is not completely and effectively utilized, social factors will continue to militate against its proper use.

2/ Summary of information on projects and activities in the field of rehabilitation of the disabled during 1977 and 1978, United Nations.

18. The theme chosen for this seminar very closely relates to problems concerning the need for and the use of manpower resources in Africa today and even in the so-called developing world. Services which provide short-term relief to those in need should no longer be the sole consideration. It is important and realistic to provide food, shelter, clothing, health care and other essentials to those in need but then it is equally important in such a changing world as this to implement plans and programmes that help those people to take care of themselves.

19. In most States in the region, 80 to 90 per cent of the people live in rural areas. The objective is to provide such people with public health, disease prevention and rehabilitation services. The literacy rate among these people averages 20 per cent but in countries like the United Republic of Tanzania where adult literacy campaign has been conducted on a large scale over the last ten years, the rate stands between 65 and 70 per cent and is expected to attain nearly 90 per cent by 1980. Universal primary education is a solid basis for developing manpower resources.

20. From a quantitative point of view, Africa has vast human resources but steps need to be taken to develop the quality of those resources. Health services in African countries are fragmental, inefficient and badly managed, mostly because there are not enough well-trained people at all levels. Training the needed manpower will require specific national policy directives in the fields of education, literacy and improvement of health care at all levels.

21. A piecemeal approach to the provision of assistance to the physically and mentally disabled and destitute does not tackle the problem at its roots. Poverty, ignorance and disease are linked and combatting them effectively requires that all the substantive policies of national and international bodies should be efficiently co-ordinated.

22. In Africa, the situation is getting serious. With an area of 30 million square kilometres, Africa is the world's second largest continent after Asia (44 million sq km). Africa's population as of 1974 stood at 403 million. These men and women have the lowest life expectancy in the world; an average of 42 years. Africa also has the highest infant mortality rate of any continent with 137 first-year deaths out of every 1,000 births. The birth rate in the African region ranges between 3 and 3.5 per cent. In spite of this high birth rate, Africa is underpopulated if one considers only the habitable regions: 13 persons per sq km as against 27 for Europe (1977 figure). 4/

23. The most disadvantaged people in the world are therefore found in African countries, particularly in the rural areas. For these people life means poverty, hunger, disease, misery and despair. Disability and poverty go hand in hand. In most cases these people have no access to basic social and medical services, primary education or proper national training.

24. Not enough is known about the problem of disability in Africa and elsewhere because relatively little research has been conducted in the field and this has generally been carried out in only a few developed countries. The findings of such research are also difficult to compare since the definitions and criteria of disability differ from one study to another. Finally, most quantitative analyses focus estimates of the prevalence of disability and functional impairments on economic dependence rather than on disability as defined in this report.

25. Disability has been defined as any restriction or prevention, resulting from an impairment or a disorder in the performance of an activity in the manner or within the range considered normal for a human being. It may be transitory or permanent, reversible or irreversible, regressive or progressive. It may or not constitute a handicap. Disability may be the result of genetic and chromosomal abnormalities, or it may be acquired.

26. Rehabilitation has been defined by the famous psychiatrist, Dr. Howard Rusk, as the medical art and science which restores the individual suffering from physical disability to the highest possible level of physical, social and chromosomal self-sufficiency.

27. By and large, the following conditions account for the great majority of disabilities in Africa:

(i) Blindness, total or partial;
(ii) Deafness, total or partial;
(iii) Cardiac disorders including cardiovascular accidents;
(iv) Pulmonary disorders, tuberculosis in particular;
(v) Mental derangements;
(vi) Orthopaedic conditions, chiefly those associated with neuromuscular problems and loss of limbs (poliomyelitis, amputation);
(vii) Disabilities associated with road traffic accidents;
(viii) Workmen's disabilities;
(ix) Home accident disabilities.

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28. Most countries of the region do not have accurate community-based statistical information relating to the prevalence of disability. Nor are institutional statistics adequate for evaluating the extent of disability at national and regional levels.

29. The prevalence of major disability diseases varies considerably from one geographical area to another. It is well known for example that blindness is more common in the Sahelian countries than in other countries. Syphilis is said to be very widespread in some countries but less so in other countries such as the Central African Republic and Madagascar. Poliomyelitis and leprosy are among the most widespread disabling diseases in all countries of the region. Certain congenital deformities such as club-foot are common in the region while other congenital weaknesses common in other parts of the world are said to be uncommon in Africa, the most typical example being congenital dislocation of the hip. One very significant problem that almost exclusively affects the black race is dermanocytosis with its skeletal symptoms and complications that often result in disability. Maladjustment in both children and adolescents, a difficult problem to solve, seems to be on the increase. The causes of disability should be analysed at this point to determine possible preventive action and evaluate its effects.

30. The World Health Organization has estimated that no less than 10 per cent of the world population has some kind of physical or mental disability and needs rehabilitation in one form or another.

31. According to the latest estimates of experts, there are no less than 40 million blind people in the world today. Eighty per cent of them live in developing countries and can for the most part attribute their blindness to a few well-defined diseases namely, trachoma, glaucoma, cataracts and xerophthalmia (blindness caused by malnutrition). Onchocerciasis (river basin blindness) which afflicts at least 20 million people in the world, should also be numbered among those diseases. West African, particularly seven countries in the Volta Basin (Benin, Ghana, the Ivory Coast, the Upper Volta, Mali, The Niger and Togo), is one of the areas most affected: approximately one million persons there are affected by the disease with 70,000 already blind and most of the rest on the way to losing their sight.

32. In this connexion, a number of African countries have attempted to evaluate the proportion of disabled persons in their populations through sample surveys or national censuses but experience has shown that these surveys are generally confined to such obvious disabilities as blindness, deafness, deformities of the lower limbs and mental disabilities and make no mention of persons suffering from heart disease, respiratory ailments, psychomotor and numerous other diseases that prevent them from leading a normal life.

33. However, before plans and programmes of activity can be drawn up for the disabled, national, subregional and regional statistics are required for each category of disabled so that a concerted international effort can be mobilized.

34. Dr. C. Smith, former President of the Committee for the Rehabilitation of Disabled Persons in Africa, estimated that in 1980 the number of disabled persons in Africa could exceed 70 million. He also stated that:

"From the raw data available, it is estimated that there are probably from 3 to 10 million disabled children on the continent and their number is increasing by 1 million new disabled children each year. The average rate of blindness in Africa is 856 out of every 100,000 persons. In West Africa, the rate of blindness is an astonishing 1,056 out of every 100,000 persons - four to five times the rate in the rich countries ... Blindness in African children is caused mainly by trachoma and onchocerciasis."

35. According to a survey conducted in East Africa (Uganda, the United Republic of Tanzania and Kenya) in 1966-1967, the proportion of disabled children of school-going age was 27 per 1,000 while the same proportion for the United Kingdom was 2 per 1,000. Excepting those who have poor eyesight or are hard of hearing, the count of disabled children was 100,000, 40 per cent of them physically disabled, 30 per cent of them leprous, 12 per cent of them blind and 10 per cent deaf. 10/

36. Endemic diseases are causing an increase in the number of disabled persons in Africa. Leprosy, which is rife in the region, is a major cause of disability. Experts feel 11/ that it is a world public health problem affecting approximately 11 million disabled persons. Over 3.5 million cases have been counted in Africa, 6.5 million in Asia, 350,000 in North and South America and more than 50,000 in Europe. One study showed that

10/ Elisabeth Anderson, East Africa Survey (International Association for the Rehabilitation of the Disabled).

23.4 per cent (100,000) of all the lepers in the Emirates of Katsina (Nigeria) are disabled in one way or other. 12/ Approximately 35.6 per cent (30,000) of all the lepers in the United Republic of Cameroon also suffer from a disability caused by the disease.

37. Civil wars and wars of liberation, traffic and occupational accidents, and natural disasters such as droughts, floods, famine and earthquakes are also the cause of much disability. The major causes of disability are related to heredity, the environment, nutrition and disease. These factors are covered in the analysis of the general situation regarding causes of disability in some countries of the region, namely:

*In Mali:* In all, the number of orthopaedic patients suffering from a locomotor disability accounts for 59 per cent of all operating room cases.

*In Zaire:* It is estimated that Kinshasa had as many as 10,000 persons paralyzed by polio in 1975, with 300 new cases being reported annually.

*In Botswana:* The tuberculosis is one of the most important public health problems. In 1976, over 4,600 new cases of tuberculosis were treated as out-patients and over 2,600 as in-patients. Of the in-patients, more than 50 per cent were hospitalized for longer than 30 days. It is estimated that as much as 5 per cent of the population may have active tuberculosis or chronic restrictive pulmonary disease following tuberculosis.

*In Zambia:* In paediatric practice the most common causes leading to permanent disability are all related to the nervous system: immaturity at birth (13 per cent), difficult birth, microcephalia, meningitis (70 per cent due to pneumococcus), and viral encephalitis. In adult internal medicine, a permanent disability is most commonly related to nervous system diseases, particularly brain lesions (source: UTH clinicians).

38. For greater detail on the last four countries mentioned earlier, reference may be made to annex I of this report.

12/ Invalidité et la réadaptation médicale (Disability and medical rehabilitation), Bulletin de l'UMS.
IV. General situation of disabled persons in the world

39. The estimated total number of disabled is about 400 million, or 10 per cent of the world population. Allowing for some miscalculation and double counting, the lowest estimate must exceed 300 million, or about 8 per cent of the world population.

40. Others trying to calculate the prevalence of disability have arrived at figures of the same magnitude. The most thorough estimation in the past was done by an expert group working under the auspices of Rehabilitation International. This group arrived at a figure of about 450 million, of which 300 million were calculated to be "without basic rehabilitation services".

41. The figures above refer to persons with a decreased ability to carry out important functions (e.g., to work, take care of themselves, keep house, attend school or obtain comparable education, get around without help, or have social contacts, owing to major disturbances). About one-third of such people are estimated to be dependent on daily help from others.

42. Moreover, an estimated 3 million new cases are added annually to the total figure because of increases in population, life-span, industrialization and the number of automobiles on the roads.

43. Disabilities appear to be primarily caused by accidents, especially accidents in the home. In 1968 alone, 20 million persons, of whom 110,000 became permanently disabled were victims of accidents in the home. Traffic accidents are an increasingly significant cause of disability since the injuries sustained are generally quite severe (e.g., amputations, brain injuries, paraplegia and quadriplegia). It has been calculated that traffic accidents injure more than 10 million persons annually.

44. Among other primary causes of disability are the disfiguring diseases (leprosy alone afflicts 20 million persons), diseases caused by dietary deficiencies (each year over 100,000 children in South-East Asia go blind from vitamin A deficiency), congenital deformities and mental retardation.

45. Brazil presents a case in point that is both relevant and timely. "The Brazilian Minister of Health has recently admitted that nearly half (55 million people) of his country's population are ill with tuberculosis, leprosy, malaria, schistosomiasis and other parasitic diseases; 18 million have mental disorders. In the seven North-eastern Brazilian States over half the children die before reaching the age of five. Millions of others are blind from protein deficiency, undernourished or crippled. The Brazilian Government estimates that 2 million children under the age of ten suffer from such severe malnutrition that they are liable to suffer brain damage.
or starve to death. The Church Vicariate General and Terre des Hommes have set up 1,435 nutrition centres, which are forced daily to turn away hundreds of children too ill to be saved. In Bangladesh, 800,000 persons have succumbed since 1974 from a lack of protein..." 13/

46. As for mental illness, WHO figures indicate that one person in 10 has been, is currently or will be so afflicted; more than one quarter of all hospital beds are occupied by psychiatric patients. Blindness affects a total of 40 million people throughout the world, while deafness strikes another 69 million. Other significant groups whose disabilities severely limit their ability to work include those with cerebral palsy (it is estimated that between 1 and 59 out of 1,000 persons throughout the world suffer from this disease) and epileptics, whose minimum number is estimated at 15 million world-wide.

47. The WHO Regional Office for Europe has begun to pay increasing attention to the rehabilitation needs of persons suffering from cardiovascular problems. The number of these ailments varies greatly among different age groups and countries, and significant variations can be found from one region to another within a country.

48. Table 1 below lists causes of disability as well as the estimated number of disabled people in the world. 14/


Table 1. Cause of disability and estimated number of disabled people in the world

<table>
<thead>
<tr>
<th>Medical cause</th>
<th>Estimated disabled people (World population 4,000 million)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions</td>
</tr>
<tr>
<td>Congenital disturbances:</td>
<td></td>
</tr>
<tr>
<td>Mental retardation(^a/)</td>
<td>40</td>
</tr>
<tr>
<td>Somatic hereditary defects</td>
<td>40</td>
</tr>
<tr>
<td>Non-genetic disorders</td>
<td>20</td>
</tr>
<tr>
<td>Communicable diseases:</td>
<td></td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>1.5</td>
</tr>
<tr>
<td>Trachoma</td>
<td>10</td>
</tr>
<tr>
<td>Leprosy</td>
<td>3.5</td>
</tr>
<tr>
<td>Onchocerciasis</td>
<td>1</td>
</tr>
<tr>
<td>Other communicable diseases</td>
<td>40</td>
</tr>
<tr>
<td>Non-communicable somatic diseases</td>
<td>100</td>
</tr>
<tr>
<td>Functional psychiatric disturbance</td>
<td>40</td>
</tr>
<tr>
<td>Chronic alcoholism and drug abuse</td>
<td>40</td>
</tr>
<tr>
<td>Trauma/injury:</td>
<td></td>
</tr>
<tr>
<td>Traffic accidents</td>
<td>30</td>
</tr>
<tr>
<td>Occupational accidents</td>
<td>15</td>
</tr>
<tr>
<td>Home accidents</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>100</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>516</td>
</tr>
<tr>
<td>Correction for possible double</td>
<td>-129</td>
</tr>
<tr>
<td>accounting ((-25%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>387</td>
</tr>
</tbody>
</table>

\(^a/\) Not all of these are congenital cases.
V. Preventive measures taken by States in the region

49. Most States in the region have incorporated preventive measures in some of their legislation focusing particularly on the prevention of occupational accidents, consumer protection, traffic regulations and various safety regulations such as those concerning construction and public works.

50. In some African countries, useful and effective preventive action has already been taken, but in others, substantial gaps still remain. It is strongly recommended that all sectors of society that have a role to play in prevention, including non-health sectors, should be mobilized into organizing and carrying out such action as part of their general services without having to rely on personnel with specialized training.

51. However, African countries cannot overlook the conventional measures that are generally applied in other continents. In order to prevent disability, the countries of the region must act at various levels. Such action therefore involves not only the health sector but also a whole range of social activities affecting the individual, his immediate environment and the community as a whole. As matters stand, it can be said that, if appropriate preventive action is not taken in the region, the disability problem will continue to increase.

52. In the past, rehabilitation has usually been described as the third phase of medicine, with prevention and curative care respectively the first and second phases. This attitude has disassociated rehabilitation from the preventive area and also, to some extent, from the area of curative care. 15/ Thus, experiences in rehabilitation have rarely been utilized to plan adequately for the future. Prevention depends on our ability to understand the causes of disability so that prevention of disability can be developed through scientific means. This also requires a political process, a commitment to change from one type of service to another. For disability prevention the priority need is not to extend rehabilitation services; what is required is a change of focus from the type of delayed intervention that has characterized rehabilitation in the past to a strategy of earlier intervention so that the incidence of problems in this area may be reduced.

53. As defined in the preceding chapters, the prevention of disability calls for intervention at different levels, for which the terms "first-level prevention", "second-level prevention" and "third-level prevention" will be used. 16/


54. Our present technologies to deal with disability prevention will be reviewed below. The description does not aim at giving a full account of all the available preventive resources, but rather at giving examples of the possible interventions, which need to be strengthened within and outside the health sector in order to reduce the incidence and impact of disability. This will be followed by a discussion of the possible over-all strategy in this area. 17/

55. It should be stated that there are already many programmes in the area, operated by national or international agencies, many of which have been or are at present, being assisted by WHO, ILO and other agencies.

First-level prevention (prevention of impairments)

56. Impairments can be prevented to a certain extent and the main strategies involved in such preventions are discussed below. Some examples of preventive measures are given in table 2.

Table 2. Some first-level prevention measures

<table>
<thead>
<tr>
<th>Problem</th>
<th>Preventive measures</th>
<th>Agents for preventive measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicable disease</td>
<td>Vaccination, proper water and sewage systems, hygiene education</td>
<td>Primary health care, public works, health authorities</td>
</tr>
<tr>
<td>Road accidents</td>
<td>Legislation, inspection of cars, traffic regulations, etc., education in traffic behaviour</td>
<td>Traffic authorities, Community school teachers</td>
</tr>
<tr>
<td>Home accidents</td>
<td>Community education and improvement of home installations and housing</td>
<td>Legislation, Community leaders, Teachers</td>
</tr>
<tr>
<td>Work accidents and occupational diseases</td>
<td>Legislation and law enforcement, engineering measures, health control of workers, monitoring of accidents and environment hazards, safety committees</td>
<td>Occupational health authorities, Management, Labour organizations, Safety committees</td>
</tr>
<tr>
<td>Alcohol and drug abuse</td>
<td>Legislation and law enforcement to decrease availability, restrictions, Social welfare attitude change, etc.</td>
<td>Health authorities, Community leaders</td>
</tr>
</tbody>
</table>
Table 2. Some first-level prevention measures (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Preventive measures</th>
<th>Agents for preventive measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>Changes in farming outputs, improved distribution and information, control of gastrointestinal infections, supplementary feeding, legislation</td>
<td>Agricultural authorities Health sector</td>
</tr>
<tr>
<td>Burns</td>
<td>Re-design of cooking stoves, use of less dangerous fuel</td>
<td>Community leaders</td>
</tr>
<tr>
<td>Traumatic lesions following falls from trees</td>
<td>Construction of safety belts to be used when climbing trees</td>
<td>Community leaders</td>
</tr>
<tr>
<td>Complications of pregnancy and birth</td>
<td>Full coverage of pregnant women by maternal and child services, legislation, education, attitude changes, etc.</td>
<td>Local and central health authorities Community leaders</td>
</tr>
</tbody>
</table>


Second-level prevention

57. When an impairment has appeared, it is necessary to try to prevent any long-term functional limitation from occurring and to do so requires measures specifically in three areas (for example, see table 3):

(a) Ability to identify those impairments that might lead to such limitations;

(b) Proper care of impairments in the acute state to avoid subsequent limitations;

(c) Proper care of impairments in the chronic stage or recurrent impairments to avoid limitations.
Third-level prevention

58. When a long-term functional somatic or mental limitation has developed, measures should be instituted to prevent disability. Such measures may be divided into medical, social, vocational, educational, etc. This division should not be a restraint on their total co-ordination in terms of planning, arrangements of priorities and use of manpower.

59. Besides systematic medical treatment to postpone as long as possible the disability which may result from long-term functional limitation, third-level disability prevention measures include (see also table 3):

(a) Training to increase independence in self-care;

(b) Education and vocational measures aimed at achieving economic independence;

(c) Social measures to ensure full integration and acceptance in the community.

Other solutions mainly dependent on highly developed institutional services

60. Table 3 also lists several examples of solutions to problems in the disability area that should not be given priority in the contest of developing countries (listed under section (b) in the table). These depend mainly on the development of institutional services with access to specialized professionals and high-cost advanced technology.

61. The establishment of such institutional facilities should not be encouraged at the present phase of development in the emerging countries.

The strategy of disability prevention

62. As may be concluded from the above, disability is not a new area or a new speciality. To prevent disability is the responsibility of all health personnel and also of staff outside the health area.

63. The choice between approaches is not an easy one, but in developing a strategy to diminish the impact of disability, one should try on a long-term basis to give priority to the approaches that have the best cost/effectiveness. Some examples of the change in trends are given below, e.g., one should:

- Extend vaccination against poliomyelitis rather than extending rehabilitation services for those already crippled by polio;
- Invest funds in prevention of blindness rather than extending special education and sheltered workshops for the blind;
- Provide simple drugs for epileptics and the mentally disturbed in their homes rather than build institutions to care for them;
- Provide safety measures to prevent traffic, home and occupational accidents rather than extending institutional care for the victim;
- Each simple method of care and technology to family members of patients with functional limitations instead of referring them for treatment at far-away hospitals;
- Change agriculture technology to make it more suitable for those with functional limitations rather than provide for disability pensions or "welfare".

64. When such and similar means fail, the need for rehabilitation arises. The new orientation towards prevention of disability therefore does not imply the suppression of ongoing rehabilitation services, for which there are at present no better alternatives. With present technology at least 50 per cent of all disability may be prevented or postponed. For those conditions where the proper means and technology are lacking, research must be promoted.

65. Guidelines for the creation of a disability prevention system within this new orientation will be given in the next chapter.

Table 3. List of examples of problems and solutions related to second- and third-level prevention

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amputation below knee</td>
<td>(a) Simple leg made in the community (with local materials, e.g. wood, rubber, leather)</td>
</tr>
<tr>
<td></td>
<td>(b) Modern artificial limb made on a prosthetic workshop</td>
</tr>
<tr>
<td>Amputation above knee</td>
<td>(a) Pylons (jointed simple prostheses), crutches made locally</td>
</tr>
<tr>
<td></td>
<td>(b) Modern artificial limb made in a prosthetic workshop</td>
</tr>
<tr>
<td>Mental retardation</td>
<td>(a) Education of mothers in training retarded children in self-care; later, provision of suitable jobs within the family or the community</td>
</tr>
<tr>
<td></td>
<td>(b) Institutional care, sheltered work</td>
</tr>
<tr>
<td>Deafness</td>
<td>(a) Advice to parents and/or teachers on how to train children in self-care and communication; provision of jobs within the family or community</td>
</tr>
<tr>
<td></td>
<td>(b) Provision of hearing aids, special schooling, institutional care, speech therapy</td>
</tr>
</tbody>
</table>
Table 3. List of examples of problems and solutions related to second- and third-level prevention (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blindness</td>
<td>(a) Advice to parents and/or teachers on how to train children on self-care and how to move about in the neighbourhood; provision of guides and suitable jobs within the family or community</td>
</tr>
<tr>
<td></td>
<td>(b) Provision of special schooling, institutional care, electronic aids</td>
</tr>
<tr>
<td>Arm fracture</td>
<td>(a) Closed fracture without dislocation splintered locally, open fracture or one with dislocation referred to next level of care</td>
</tr>
<tr>
<td></td>
<td>(b) Referral to an orthopaedic specialist</td>
</tr>
<tr>
<td>Leg fracture</td>
<td>(a) Referral to local hospital, after-care in the community</td>
</tr>
<tr>
<td></td>
<td>(b) Referral to an orthopaedic specialist</td>
</tr>
<tr>
<td>Cerebral palsy, other chronic neurological</td>
<td>(a) Parents advised to train child in self-care activities, community economic aid (in kind) if necessary</td>
</tr>
<tr>
<td>disease (paralysis excepted, see under</td>
<td>(b) Institutional training by physiotherapy, speech therapy, special schooling, special hospital units for multiple sclerosis</td>
</tr>
<tr>
<td>poliomyelitis)</td>
<td></td>
</tr>
<tr>
<td>Poliomyelitis sequelae and other paralysis</td>
<td>(a) Orthoses made locally, community help with transportation, local schooling, arrangement of suitable job within family or community</td>
</tr>
<tr>
<td></td>
<td>(b) Special orthoses, wheel chairs, institutional schooling and care, shelter work, special units for paraplegics and tetraplegics electronic aids</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>(a) Provide simple inexpensive anticonvulsive therapy in the community. Refer severe cases to next level of care. Arrange for suitable jobs</td>
</tr>
<tr>
<td></td>
<td>(b) Examination, including EEG, by specialists; Institutional care</td>
</tr>
</tbody>
</table>
Table 3. List of examples of problems and solutions related to second- and third-level prevention (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosis</td>
<td>(a) Provide long-term, inexpensive drug treatment locally after advice by psychiatric nurse or physician, refer severe cases to next level care. Arrange for suitable jobs, supervision and support of patient's family.</td>
</tr>
<tr>
<td></td>
<td>(b) Institutional care</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>(a) Education in nutrition, especially of mothers in the community, treatment of gastrointestinal infections, referral of severe cases to next level of medical care</td>
</tr>
<tr>
<td></td>
<td>(b) Referral of all mothers and children to specialized facilities</td>
</tr>
<tr>
<td>Community attitudes to the disabled</td>
<td>(a) Education, information and propaganda aimed at changing public attitudes, to increase acceptance and diminish social distance</td>
</tr>
<tr>
<td>Disabled person's acceptance of own disability</td>
<td>(a) Education and information aimed at attitude change</td>
</tr>
</tbody>
</table>

(a) Indicates solutions given priority and falling within the responsibility of a community-based care system in developing rural areas.

(b) Indicates the solutions not given priority in such areas because of high costs or technical refinement.


VI. Remedial measures: advances made in the field of rehabilitation; obstacles at the national and international levels

66. Institutions for the rehabilitation of disabled people were first founded in the early part of the 19th century, mainly by non-governmental organizations. In the early years many institutions concentrated on the blind or on the "crippled", and later on the deaf and the mentally retarded. In a typical institution there would be provided a combination of medical care (including orthopaedic surgery and the provision of technical aids like prostheses, braces, hearing aids, etc.), education, physical training (in physiotherapy and in daily life activities), and vocational training, sometimes followed by work in a sheltered workshop or agricultural area within the institution.
67. Through the initiative of several non-governmental organizations, institutions of this kind were founded in many developed countries. Many of these institutions were run with the help of foreign staff and supported wholly by foreign funds. Several of them, started in the early decades of the 20th century, are still in existence.

68. During the 30 years since the end of the Second World War, rehabilitation has become increasingly specialized. Most countries have seen the area as being divided into medical, educational and vocational rehabilitation and even further subdivided into separate facilities for different groups (e.g., the blind, the mentally retarded, the mentally ill, patients with locomotor disturbances, speech disorders, or cerebral palsy, road traffic victims, polio victims, paraplegics, alcoholics, etc.). As a result, there is at least one rehabilitation institution operating in almost every country of the region.

An analysis of the present status of rehabilitation services

69. The first major document to criticize the way in which rehabilitation services were developed was the report of a meeting of experts held in Killarney, Ireland, from 21 to 24 September 1969; this report was published by the International Society for Rehabilitation of the Disabled and entitled: The Development of Rehabilitation Services in Relation to Available Resources. The report stated that:

"... it is obvious that the pace at which personnel were being trained and other necessities for rehabilitation services were being developed was not adequate to meet the current problem, and certainly incapable of coping with the predictable growth in the number of persons requiring professional help ..."

"... it is possible that an objective analysis of methods of delivering rehabilitation services will suggest measures which can serve to provide at least the most essential assistance to larger numbers of people with the resources available now or in the immediate future ..."

"... experience in the less developed areas makes clear that essential help may be given to disabled persons in ways which are often different from those methods established for use in industrialized and economically developed areas but are consistent with the available resources and the cultural, social and educational patterns of the developing countries ...

"... it may be possible to identify forms and patterns of services which, by requiring fewer trained personnel, less advanced level of training, simple facilities, etc., may enable the delivery of essential services to be expedited and expanded."

18/ This meeting was organized by ISRD and was attended by representatives from several interested organizations as well as from the United Nations, ILO and WHO.
70. The views presented at this ISRD meeting on the deficiencies in rehabilitation services were confirmed in a review of present medical rehabilitation services conducted by WHO in 1971 in 45 countries, and also in a similar study undertaken in Algeria in 1979 by Professor A. Seyfried, Consultant for WHO. Further information on this study may be found in annex 2 of this report.

71. From these studies and other experiences, it may be concluded that:

(a) The growth of services has been rather slow in the developed countries because of the lack of awareness and sense of urgency and because of a lack of funds and manpower;

(b) Rehabilitation services are practically non-existent or grossly inadequate in developing countries;

(c) There is an apparent lack of national planning and co-ordination of services (medical, educational, vocational, social, etc.) in most countries;

(d) Medical rehabilitation services have usually concentrated on institutional care, with a low turnover of patients at a high unit cost;

(e) Owing to the factors mentioned above, coverage has been exceptionally poor;

(f) There is an evident lack of "know-how", even in the major rehabilitation fields, because of the paucity of research into the effects of the care provided (as compared with control groups);

(g) When advanced rehabilitation services and technology have been introduced in developing countries, the result has often been discouraging or a complete failure.

72. It should be noted that the mere extension of existing rehabilitation services will not be sufficient to cover all disabled persons.

73. Moreover, it is quite clear in the foreseeable future, not all countries will be able to provide rehabilitation personnel to the extent that they are now available in some developed countries.

74. Some examples are given below to illustrate this fact. It was recently recommended that rehabilitation services should be set up in the capacity of a country in Africa. The recommendation closely followed the conventional design of an institution in Europe or North America. It was then recommended

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that services be extended by setting up a similar institution in the second large city, then in the third, etc. Figures for manpower needs (in 11 different occupations) and of turnover were provided for the first institution. When this plan was scrutinized, it became clear that if the entire health budget for the country were utilized solely for rehabilitation services, it would take 60 years to develop the necessary manpower, and about 200 years to provide the present needy population with the desired amount of care.

75. Similarly, a study was made for in an Asian country in which the number of amputees (victims of several years of warfare and a high rate of accidents) was calculated at about 1 per cent of the population. The country spends about $1 per person per year on health. To provide these amputees with western-type prostheses, training, care, necessary repairs, etc., would require half of the country's total health budget.

76. Once the fact has been realized that the extension of the conventional type of services is not feasible, it is logical to continue the analysis even further. Although the past results of institutional rehabilitation services have sometimes been admirable from the viewpoint of the individuals helped they must now be evaluated from a community stand-point.

Community participation in rehabilitation services

77. For a discussion of community involvement in rehabilitation programmes, it is relevant to note the Report of the Consultation of Directors of Rehabilitation Centres (Brazzaville, WHO, 8-12 October 1973).

78. "A new solution calls for a community-based approach to rehabilitation - that is, to utilize the principles of primary health care to train our disabled. In this approach the community will be given the responsibility of training their disabled and will participate actively in this training. Family members, neighbours and friends of the disabled, teachers, community leaders and the local authorities will all be involved in training and integrating their disabled. Supervision of the training programmes will be primary health workers and community-based multipurpose rehabilitation professionals."

79. "All the needs of the disabled cannot be met by a community-based approach and referral services will still need to be developed within hospitals and specialized centres."

80. "In conclusion, a community-based rehabilitation service will give wider coverage to the disabled in need of immediate attention. This, together with effective measures for the prevention of disability, may diminish the need for too many specialized institutions. Therefore, it is desirable to develop first the peripheral network of basic rehabilitation services in the community and the hospital referral services, prior to the final extension of specialized centres."
81. "Basic rehabilitation services should be integrated into general health services. In this way, basic rehabilitation activities should be carried out at health posts and health centres, as well as at general hospitals. The workers in these health institutions should be prepared to interact with greater humanity, particularly with the disabled".

82. "The present system of providing rehabilitation services through specialized institutions will not lead to the desired wide coverage; these institutions should continue to exist, but their orientation and mode of function should be adapted to reflect the realities of the communities they serve. To this end, these institutions should:

(a) Tackle the problems at the base: educate the community so as to change its attitude towards the disabled, thus giving them a sense of belonging;

(b) Develop full interaction between the disabled, his family, the community at large, and the centre itself;

(c) Look after disabled persons in need of specialized care, and not merely a dumping place for them;

(d) Assume leadership functions, and supervise rehabilitation activities in general health units, as well as evaluate the results of rehabilitation services by monitoring the progress made by discharged disabled persons;

(e) After evaluation, and in conjunction with other health workers and institutions, constantly review strategies for the provision of rehabilitation services in the community."

VII. Technology adapted to the needs of disabled persons

83. Artificial limb supply centres exist in several countries within the region, but they seem to be isolated operations facing considerable financial difficulty as well as a shortage of trained personnel. The type of apparatus provided varies from centre to centre: in some cases the devices are entirely foreign-made and imported at high cost; in other cases the raw materials and essential pieces of equipment are imported, to be assembled locally. Finally there are the "African prosthetic devices which are constructed almost entirely from resources at hand. Thus the development of subsidized workshops and co-operatives for the production of equipment such as wheel chairs, canes, crutches, etc. is to be encouraged. In light of the proposed studies 20/ on the availability and origin of materials, technical instruments and assistance for rehabilitation in Africa, the following independent variables must be considered:

20/ Dr. F.A.O. Owosina, Vice-President of Rehabilitation International in charge of Africa, report concerning the consultation of Directors of Rehabilitation Centres (Brazzaville, 8-12 October 1979).
(a) In the case of imported materials, problems of importation, availability of replacement parts and repair service, the influence of climate and local technical skill on the equipment;

(b) In the case of materials indigenous to the region, availability of raw materials, potential for developing and constructing replacement parts; prosthetic devices provide a case in point:

(i) Wood is plentiful throughout Africa; afrara and obeche wood from Nigeria are universally accepted as prosthetic device materials; research should be conducted jointly with ministries of agriculture to determine the suitability of other African species of wood in building prosthetic devices for local use; these species might also be successfully marketed as an expert commodity;

(ii) Petroleum technicians in conjunction with medical personnel should study resins and other plastic by-products of the petrochemical industry in Nigeria and other African oil-producing nations to develop a material for use in prostheses that would hold up well in the African climate and cause as little allergic reaction as possible to African skin;

(iii) The leather industry is well-developed and tanneries are numerous in many African countries;

(iv) The iron and steel industries are growing in Nigeria and elsewhere in Africa; however, despite an abundance of raw materials, at present most of the metallic components of prosthetic devices are imported, causing a considerable drain on States' economic resources; and yet there are many skilled artisans in Africa who could easily be taught to produce simple and inexpensive devices for local use;

(v) A study of amputees, the acceptance of prostheses and the development of simple devices made of locally available materials should be a top priority.

84. The importance of these proposed studies is plainly indicated in the report of the Consultation of Doctors of Rehabilitation Centres (Brazzaville, 8-12 October 1979), the authors of which acknowledge the need to use appropriate technologies, but warned against the use of devices, such as orthopaedic and other appliances of poor quality. The word "appropriate" does not necessarily mean primitive or cheap. Very often, appropriate technologies are developed in important centres, and from there spread to the periphery. Simple appliances such as sticks and crutches can, of course, be made in the villages themselves.
VIII. African policies and programmes for the disabled

85. It is clear that unless preventive services are organized and implemented with adequate resources, the problems posed by disability will not diminish.

86. These services must be established by political decision specifying what benefits they will provide, who is to receive them and detailing when, where, how and why the benefits are to be distributed. These decisions should be made at the national, regional and local (i.e. "Community") levels according to the funds that can be made available at each level.

87. In most African States disability prevention services are generally a part of community primary health care services, patient referral services in local clinics, regional hospital, etc. These services also exist at the national level. Thus many resources, specifically in the areas of personnel, equipment facilities and training techniques, are required at all levels. Political decisions concerning regulations and educational and public information programmes, which are primarily the responsibility of the central Government, should be made applicable to all levels.

88. During the past two decades most African States have endeavoured to take steps on behalf of the physically and mentally disabled, the blind, lepers, etc. Nevertheless, all these steps are insufficient to cope with the magnitude of the problem. In addition, it is interesting to note that most African countries even those which have not as yet adopted a scheme of old-age pensions or health and disability insurance, have some type of legislation covering occupational injuries and employer's liability, aimed at protecting the rights and interests of workers permanently disabled while in someone else's employ. However, such legislation usually applies only to that small minority of the population engaged in paid professional work.

89. Some disabled persons in Africa are able to utilize their professional experience; however, most have very little professional training and require systematic help.

90. In light of this situation, Governments generally agree that programmes should be established to allow the region's disabled to participate in all phases of development activity.

91. While certain fundamental principles and systems can be defined at the regional level (e.g., exchange of information, compilation of statistics, training of personnel, etc.) basic disability prevention and rehabilitation programmes should be the result of initiatives taken by both national and local government offices throughout the region; these initiatives should also be taken by non-government and voluntary organizations and the specialized agencies of the United Nations involved in projects and programmes for the disabled.
92. Currently in most African States there is a movement towards setting up programmes to train personnel who will provide preventive and rehabilitation services, organizing co-operatives employing disabled workers and establishing rehabilitation and training workshops for disabled persons.

93. An example is the multilateral campaign against onchocerciasis in the Volta Basin of West Africa. Since 1974, the riparian States of the Volta Basin (Benin, Ghana, the Ivory Coast, the Upper Volta, Mali, the Niger and Togo) and WHO, UNDP, FAO and the World Bank have pooled their efforts to launch a comprehensive long-term programme aimed at wiping out onchocerciasis, a disease which strikes roughly 1 million of this region's inhabitants. Of these victims, 70,000 are blind, while the rest will eventually become so.

94. In conclusion, it should be noted that the principles underlying programmes for the disabled in the region should be oriented along these lines:

(a) Promoting effective measures at the local level for early prevention of disability rather than the treatment of disability in its later stages;

(b) Establishing a system of services within the community with the aid of community participation;

(c) Developing a technology capable of meeting the community's most pressing needs and adapted to solving major quantitative problems in a cost/effective way;

(d) Training an all-purpose staff to work in primary health units.

IX. Bilateral and multinational technical co-operation

Administrative co-ordination of efforts in the area of disability prevention and rehabilitation

95. Present efforts must be increased in order to co-ordinate the administrative aspects of disability prevention and rehabilitation. Many organizations and agencies are active in the developing world, e.g.,

(a) National governments, which establish and maintain separate or joint services for medical, educational, vocational and social rehabilitation for their disabled populations;

(b) Non-government organizations (international and national), which provide services generally aimed at selected groups of recipients, e.g., special schools for the blind or deaf, treatment centres for polio victims or children with cerebral palsy, training centres for the mentally retarded, etc., or endeavouring to promote such services;
(c) **Bilateral aid agencies**, which support or finance prosthetic workshops training courses for physiotherapy teachers, etc.;

(d) **Intergovernmental agencies**, such as the United Nations, the World Bank, ILO, WHO, UNICEF and UNESCO, which provide technical co-operation in the form of consultants to make recommendations or long-term planning and programming, equipment, the organization of courses and assistance to schools, fellowships, vocational training centres, special education for handicapped children, etc.

96. The role played by each of these organizations in the context of administrative co-operation is discussed below.

**The role of national governments**

97. The main responsibility in co-ordinating all efforts of disability prevention and rehabilitation rests primarily with national governments. It is up to them to decide on long-term aims and strategies, to define national goals and priorities and to set targets for action. Generally there are two obstacles to such co-ordination:

(a) Rehabilitation is often the responsibility of several national ministries, each with a certain degree of autonomy;

(b) Planning usually starts at the national level. It is seldom recognized that planning should preferably start at the community level, proceed to district and regional levels and finally to the national level. The national plan should be the final product rather than the initial one. Community involvement in all planning must be broadened and community leaders consulted before decisions are taken at the national level.

98. Governments should find ways to deal with these two major problems. Once proper planning has been carried out, the agreed national set of priorities should not be challenged, as has often happened, by outside attempts to establish services with a low priority, because the ultimate economic responsibility for such facilities will rest with the national government, should external support be withdrawn.

**The role of non-governmental organizations**

99. Such organizations have in many instances provided front-line workers, responsible for promoting the idea of rehabilitation for specific groups and providing economic and human support, and have usually been able to create a favourable climate for the cause of rehabilitation.

100. Many such institutions are, however, inflexible in their approach and a radical change in attitudes would be required to bring about a change in the content of present conventional services and to introduce prevention-oriented solutions to the problem.
101. It has been suggested that the services provided in developing countries by non-governmental organizations should be evaluated. Such an evaluation should be encouraged and could lead to a new approach, as referred above, and to a system with an optimum cost/benefit ratio instead of less efficient systems. All national planning should consider the eventual integration of non-governmental organization rehabilitation institutes into the national health services and provide for appropriate changes to achieve such integration.

102. As indicated under chapter _______, non-governmental organizations were among the first to recognize the need for a policy change, favouring rapidly trained manpower and low-cost technologies. Their role in contributing to the improvement of services will continue to be important in the future.

103. Many of these organizations have official relations with WHO. Among these are those making efforts to improve the situation of special groups (e.g., the blind, the mentally retarded), those representing professional groups (e.g., specialized physicians, physiotherapists, occupational therapists), and those with more generalized objectives. Most of them belong to the World Council of Organizations Interested in the Handicapped, which holds annual meetings with the United Nations organizations to exchange information and ideas and to agree on policy matters.

104. We should try to establish even closer co-operation with such non-governmental organizations reflected in joint programmes of action and the pooling of resources.

The role of bilateral aid

105. The contribution of bilateral aid to health care has been significant but such aid has rarely been directed towards national assistance programmes for the disabled.

106. Most of it is directed towards projects given priority by the Government; increased attention will therefore be paid to disability prevention programmes by these agencies, only if they are promoted at the country level.

107. The socio-economic aspects of disability have rarely been explored by bilateral aid agencies or Governments, and consequently there is little awareness of the problem. Health surveys have mostly covered acute medical problems and neglected disabilities. As a result, planning for the utilization of resources has not taken into consideration the need for disability prevention in its broader sense. This situation could be altered if attempts were made to close this information gap and give higher priority to solving the disability problem.
The role of United Nations organizations

108. Most United Nations organizations, e.g., the United Nations, ILO, UNDP, UNESCO, UNICEF and WHO have been active in the area of rehabilitation. Many resolutions have been adopted by their governing bodies. Most of them emphasize the need for well-co-ordinated activities among the United Nations organizations to assist the Governments of developing countries. 21/ And yet, such co-operation has been apparent in the past. With rare exceptions, each of the United Nations organizations has launched independent projects without proper co-ordination. Many of these have had the same deficiencies as described under Item I; and this criticism is also true for several of the projects assisted by WHO, e.g., inadequate planning, lack of emphasis on the prevention of disability, insufficient coverage by services and lack of co-ordination.

109. The United Nations organizations interested in rehabilitation projects have usually co-operated in the exchange of information and other material, and have held discussions once a year at ad hoc interagency meetings. It has now been suggested that better mechanisms should be set up to increase co-operative efforts at the country level, and several agencies have agreed to attempt joint programming on a pilot basis. It is hoped that this will improve co-operation.

Co-operation with regional and national development and training projects

110. It is suggested that national development projects be developed in each African region. These could be useful for intercountry training purposes or as testing grounds for the evaluation and research components of the future programme. Such projects should include comprehensive activities, such as:

   (a) The organizing of field areas (in previous under-served communities) where auxiliaries and community members would be trained in priority tasks and then deliver services aimed at diminishing the disability problem in the context of primary health care;

   (b) A well integrated two-way referral system with proper staff and facilities at each level;

   (c) Associated training and teaching programmes for medical staff, including multipurpose therapists/technicians and physicians, with possibilities for preparing teaching materials and manuals;

   (d) A well-developed evaluation system to assess the effectiveness of activities, including an appropriate accounting system to determine the cost/effectiveness of various programmes;

   (e) Research with a view to the most appropriate solutions or to adapting present systems to the national setting;

21/ For example, the resolution adopted by the Economic and Social Council of the United Nations at its fifty-eighth session, 6-14 January 1975.
(f) Planning activities aimed at indicating how national development and training programmes can be increased to provide a reasonable degree of population coverage in the future;

(g) Financing for necessary equipment related to the above activities.

III. WHO, ILO and other agencies might co-operate in such projects, wherever needed, e.g., in providing:

(a) Staff or consultants to take part in all development and training activities, including evaluations;

(b) Teaching materials and simple manuals;

(c) Fellowships for personnel from interested countries to be trained in regional, intercountry or national projects;

(d) Staff and funds for the development and co-ordination of research components;

(e) Information on and co-ordination of field activities.

112. Close co-operation will be established between national and United Nations specialized agencies' staff at all levels (country, subregional and regional offices).

Technological development

113. United Nations specialized agencies, NGOs and national governments should aim at encouraging and directly involving both developed and developing countries in research aimed at assessing present rehabilitation technology and developing special techniques suitable for all countries. The agencies should promote the co-ordination of such research and the transfer of information to the appropriate recipients. They may consider promoting the establishment of several regional co-operative centres to serve these functions.
ANNEX I

AN OVERVIEW OF THE SITUATION IN FOUR COUNTRIES OF THE REGION

An analysis of summary data from four different countries is presented, as an illustration of the magnitude of factors contributing to disability in Africa. The countries discussed are Mali, Zaire, Botswana and Zambia. The statistical data for these countries are taken largely from mission reports of experts, consultants and officers of governmental and non-governmental bodies, such as WHO, ILO, Rehabilitation International, etc.

1. Situation in Mali

There is a need to improve the quality of care administered to those with locomotor injuries, diseases and disabilities, and to provide a much greater segment of the population with such care.

Priority in Mali is given to the following categories:

(a) Trauma: of the limbs and spinal column. Hospital visits in Bamako, Ségué and Mopti indicated that 40 per cent of all operating room cases were trauma victims, the majority injured in highway accidents. 1/

(b) Leprosy: The Institut Marchoux puts the total number of lepers in Mali at 60,000, of whom 42,000 (70 per cent) are monitored by health services; 8,400 (20 per cent) have foot problems (anaesthesia, ulceration, mutilation) requiring specially designed shoes from orthopaedic workshops for each individual case. A small number of lepers undergo reconstructive surgery.

(c) Poliomyelitis: Bamako health services have recorded approximately 36,000 cases of polio with significant paralytic sequelae in children and young persons since 1973; some of these cases are from regions other than Bamako. Some 9,000 (25 per cent) of these will most likely require orthopaedic attention in the form of surgery or leg braces. An additional 400 cases with sequelae are added to the Bamako records annually. There are perhaps another 1,600 cases not on record throughout the country, and these receive no special care.

(d) Bone and joint infections: As far as can be determined, complications involving sickle cell anemia and other conditions account for 13 per cent of all operating room cases.

(e) It is difficult to give a number for the remaining groups since they are less frequently seen in hospitals; these groups are composed of children with cerebro-motor difficulties and adult hemiplegics.

In all, the number of orthopaedic patients suffering from a locomotor disability accounts for 59 per cent of all operating room cases.

1/ Dr. F. Cardenal, WHO Regional Office for Africa, Mission report, Mali, April 1979.
2. **Situation in Zaire** 2/

There are few statistical data available on the pathological conditions that call for medical rehabilitation. The incomplete information available, however, together with the observations made during the mission, enabled the team to make a rough assessment of needs in terms of local pathological conditions.

Traumatic injuries (traffic and work accidents) are the major problems: 50-75 per cent of surgical beds in the hospitals visited were occupied by traumatic patients.

Sequelae of polio, with a high percentage of severe paralysis, also form a considerable group. In 1971 the Rehabilitation Centre for the Physically Handicapped (CRHP) gave physical treatment to 4,541 patients of whom 50 per cent were polio victims. It is estimated that Kinshasa had as many as 10,000 persons paralyzed by polio in 1975, 3/ with 300 new cases being reported annually.

Other paralytic conditions (cerebral palsy, hemiplegia, obstetric brachial palsy, etc.) account for about 25 per cent of patients seen at the above-mentioned centre.

The estimated number of leprosy patients in Zaire is 300,000, of whom some 10 per cent are physically handicapped.

Other orthopaedic conditions observed are osteomyelitis, bone and joint tuberculosis, congenital malformation and complications of sickle cell anaemia and contagious diseases.

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3. Situation In Botswana

The consultant spent about one week in rural areas in order to familiarize himself with the problems of the disabled, their families and communities. He was provided with a number of documents concerning previous plans for services for the disabled, statistics on the disabled, memoranda, annual reports, budgets of the different institutions, etc. 4/

An assessment of the disability problem

International estimates of the number of persons with chronic impairment, functional limitations and disability usually indicate that some 10 per cent of the population is affected at any time. 5/

Table 1. Causes of chronic impairment, functional limitation and disability

<table>
<thead>
<tr>
<th>Cause</th>
<th>per cent of total population involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital deformities and perinatal disease/trauma</td>
<td>1</td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>3</td>
</tr>
<tr>
<td>Non-communicable diseases</td>
<td>2</td>
</tr>
<tr>
<td>Functional psychiatric disturbances, including</td>
<td>2</td>
</tr>
<tr>
<td>chronic alcoholism and drug abuse</td>
<td></td>
</tr>
<tr>
<td>Mental retardation</td>
<td>1</td>
</tr>
<tr>
<td>Accidents and traumas</td>
<td>1</td>
</tr>
</tbody>
</table>

A review of the major causes of disability in Botswana is given in the following pages. A summary is shown in table 1. About 10 per cent of the population in the country has medical, psychological, social or economic problems related to the existence of chronic impairment, functional limitations and disability. 6/


5/ For a review see A29/INF.DOC/1, World Health Organization, Geneva, 1976.

6/ For definitions of these terms, see ibid., pp. 6-13. As the term "handicap" is already used in Botswana, the consultant will use it to indicate chronic impairment, functional limitation and disability either combined or alone.
In some of these cases, the impairment or disability may be compensated for, or does not have any major significance in the individual's social position; in other cases the condition is so severe or has lasted so long that rehabilitation will not help.

In view of these considerations, the population in Botswana in immediate need of rehabilitation, and for whom such treatment would be effective, can be estimated at 1 per cent of the total, or 7,000 persons.

The Special Services Unit for the Handicapped, carried out registration of the handicapped in some areas of Botswana in 1976 and 1977. During 1976, four of the seven medical regions were involved, but, because of manpower shortages, only a few geographical areas, which are not representative, were covered. Up to the end of 1976, 1,307 cases were reported. Table 2 shows a breakdown of some of the registered cases into age and sex groups, and table 3 a breakdown by disability and sex. These tables show that more men than women have been registered, that people over 45 years of age form almost half of the group and that the major groups are the physically handicapped (31 per cent) and, the blind (24 per cent).

Table 2. Sex and age distribution of "registered handicapped"

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>per cent distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>38</td>
<td>21</td>
<td>59</td>
<td>7</td>
</tr>
<tr>
<td>6-14</td>
<td>82</td>
<td>69</td>
<td>151</td>
<td>18</td>
</tr>
<tr>
<td>15-18</td>
<td>33</td>
<td>19</td>
<td>52</td>
<td>6</td>
</tr>
<tr>
<td>19-30</td>
<td>53</td>
<td>42</td>
<td>95</td>
<td>11</td>
</tr>
<tr>
<td>31-45</td>
<td>73</td>
<td>37</td>
<td>110</td>
<td>13</td>
</tr>
<tr>
<td>Over 45</td>
<td>206</td>
<td>182</td>
<td>388</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>485 (57%)</strong></td>
<td><strong>370 (43%)</strong></td>
<td><strong>855 (100%)</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 3. Distribution of "registered handicapped" by disability and sex

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>per cent distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blind</td>
<td>153</td>
<td>161</td>
<td>314</td>
<td>24</td>
</tr>
<tr>
<td>Deaf</td>
<td>25</td>
<td>47</td>
<td>72</td>
<td>6</td>
</tr>
<tr>
<td>Physically</td>
<td>236</td>
<td>173</td>
<td>409</td>
<td>31</td>
</tr>
<tr>
<td>Handicapped</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentally</td>
<td>116</td>
<td>101</td>
<td>217</td>
<td>17</td>
</tr>
<tr>
<td>Handicapped</td>
<td>24</td>
<td>12</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Multiple handicaps</td>
<td>137</td>
<td>122</td>
<td>259</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>691 (53%)</strong></td>
<td><strong>616 (47%)</strong></td>
<td><strong>1,307 (100%)</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Chronic impairments, functional limitations and disability in Botswana

A review based on available health statistics and other information is made below in order to estimate the number of persons with chronic impairments, functional limitations or disability in Botswana. The main contributors are:

Congenital deformities and perinatal disease/trauma of the approximately 31,000 births in Botswana in 1976, about 17,000 took place in hospitals. A total of 198 persons with congenital deformities was recorded by hospitals in 1976. The majority of cases were under one year of age. This corresponds to about 1 per cent of all supervised deliveries.

Perinatal disease/trauma contributes to such chronic diseases as cerebral palsy, brain damage, hydrocephalus, mental retardation, changes related to metabolic disturbances, etc. Most of these conditions are rare, the prevalence of cerebral palsy being estimated at one per thousand.

Congenital deformities and perinatal disease/trauma cause disability in about 1 per cent of the population.

Communicable diseases. Tuberculosis is one of the most important public health problems in Botswana. In 1976, over 4,600 new cases of tuberculosis were treated as outpatients and over 2,600 as inpatients. Of the inpatients, more than 50 per cent were hospitalized for longer than 30 days. It is estimated that as much as 5 per cent of the population may have active tuberculosis or chronic restrictive pulmonary disease following tuberculosis. Acute poliomyelitis is rare; only three such cases were recorded in hospitals in 1976. The Government has an extensive vaccination programme, which reached over 100,000 people in 1976. There are, however, a considerable number of patients with poliomyelitis sequelae. Measles are still widespread and cause complications in the form of visual and hearing impairment. Trypanosomiasis has been almost eradicated; only 26 cases were reported during 1976. In 1976, 867 new cases of schistosomiasis were reported, of which 66 were admitted to hospitals: (S. haematobium, S. mansoni). Earlier assessments of the prevalence of sexually transmitted diseases showed that as much as 25-30 per cent of the population over 14 years of age may be suffering from gonorrhoea, syphilis or other venereal diseases. Chronic ear infection is widespread especially among children, and lack of appropriate treatment sometimes causes chronic hearing impairment. Over 15,000 outpatient cases of ear infections were seen in 1976. Eye infection, including trachoma, are also quite common; more than 45,000 such cases were diagnosed in 1976. Some experts have estimated that about 1 per cent of the population suffers from blindness or severe visual impairment. Leprosy is quite rare; only 13 persons were admitted to hospitals in 1976.

It is estimated that the above-mentioned communicable diseases cause disability in at least 3 per cent of the population.
Non-communicable somatic diseases. Non-communicable diseases, such as back disorders, arthritis, arthrosis, musculo-skeletal diseases, cerebrovascular diseases, cardiac diseases, diabetes, epilepsy, eye diseases (e.g., cataracts and glaucoma), chronic bronchitis and asthma, silicosis, chronic urinary tract infection and cirrhosis of the liver, contribute to disability. There are no statistics in Botswana regarding the prevalence of these disorders or the extent to which they cause disability. It would, however, be reasonable to estimate that they cause disability in about 2 per cent of the population.

Functional psychiatric disturbances, chronic alcoholism and drug abuse. Psychotic disturbance are quite common in Botswana. The prevalence is estimated to be about 12 per 1000. This is mainly related to the widespread use of kadhi, an extract of the fruits of a plant, which is found all over the country and is available at low price. The use of kadhi leads to psychosis, hallucinations, delusions and other symptoms similar to schizophrenia. Alcoholism is also widespread, but no figures are available. Neurotic conditions are frequent. Patients are usually treated as outpatients and no statistics are available. A marijuana-like preparation, called dagga, is used in several parts of the country, especially by bushmen. The above factors are estimated to cause no less than 2 per cent disability in the population of Botswana.

Mental retardation. No figures are available, but it is felt that at least 1 per cent of the population is affected to such a level that normal education and participation in daily life activities are difficult.

Trauma and injuries. Over 40,000 outpatients were seen for injuries in 1976, and over 9,000 for burns. In addition, the following number of patients were treated as inpatients in 1976: 116 for skull fracture; 139 for fracture of the spine and trunk; 1,029 for limb fracture; 292 for dislocation, sprains and strains without fracture; 208 for intracranial injury without fracture; 1,585 for laceration, superficial injuries and contusion; 734 for burns. Of these, 223 stayed in the hospital for periods longer than 30 days indicating severe damage. Traffic accidents are increasing in Botswana. As a result of increased mining construction, industrialization and mechanization of agriculture, the incidence of occupational accidents has increased. Border disturbances have until the present time contributed to only a small number of cases of disability. Trauma and accidents are estimated to contribute to disability in at least 1 per cent of the population.

Other causes. Malnutrition is not widespread in Botswana, 2,500 new cases were seen as outpatients, and of those 380 were admitted to hospitals. There seems, however, to be a problem of undernutrition among a large proportion of the population. This is related to employment problems (the unemployment rate is very high in Botswana), disability (as the population is mobile, disabled persons are deserted) in combination with changing family patterns. As the provision of social assistance in a developing country like Botswana is insufficient, a considerable proportion of the population is destitute with inadequate food, clothing and heating. Occupational diseases related to cattle breeding, such as anthrax and brucellosis can be mentioned, although they are probably not a very significant cause of disability. Persons aged 65 and older account for 4 per cent of the total population; a relatively high proportion of them are destitute. In one geographical area with about 22,000 inhabitants, over 1 per cent were officially recorded as destitute.
4.(a) Situation in Zambia

Physical and mental disabilities: extent and causes

The 1969 census distinguishes four groups of handicapped: 7/

- Blind .................................................. 9,584
- Deaf-mute ........................................... 7,419
- Motor-handicapped ............................ 26,181
- Disabled ............................................ 44,784

Except for the blind and the deaf-mute, the above figures may also include some temporary disabilities. The census does not set apart mental disabilities; it is assumed that mental patients are included among the "disabled".

Physical disabilities

(i) Disabilities of the locomotor system

The exact composition of this group of 26,181 handicapped is not known (e.g. how many disabled leprosy patients are included within the "disabled" group and how many within the motor-handicapped group?), but it appears that the most prevalent disabilities are those caused by poliomyelitis, trauma, various diseases of the nervous system and leprosy.

Poliomyelitis is grossly under-reported, and the official returns cannot be taken as an indication of its prevalence. Only 225 cases were reported in 1969. In 1968 the School Medical Service reported that 2.1 per cent of children examined had poliomyelitis sequelae. For a school-age population of 1,000,000, that would represent 21,000 children with sequelae.

Trauma. In 1969, 622,000 accident victims received treatment as outpatients. This means that one out of six inhabitants had an accident, however minor; 30,221 of these required hospitalization. 8/ The number of these accidents

7/ Dr. F. Cardenal, WHO Regional Office for Africa, Mission report, Zambia, April-May 1974. The statistical data presented here are taken largely from this report.

8/ Trauma admissions were surpassed only by gastro-intestinal disorders of all sorts (36,973) and by respiratory diseases (33,894). The other major admission groups were: malnutrition or anaemia (16,079), diseases of the genito-urinary systems, including venereal diseases (12,948), diseases of the skin and subcutaneous tissue (10,165) and diseases of the nervous system (non-mental) and of the musculo-skeletal system (7,977). Trauma accounted for 11 per cent of the total number of inpatient admissions of 277,281.
resulting in permanent disability is not known, though it may be roughly estimated at 3,000. But there is a group of accidents for which the resulting number of disabilities is accurately known - the group of work accidents which are all reported to the Workmen's Compensation Board because compensation is at stake.

During the financial year 1971/72, out of a total of 253,702 workers protected under the Workmen's Compensation Act (including 11,867 domestic servants), 7,455 met with an accident for which liability was accepted by the board, i.e., one out of 33 employees.

Many accidents (3,596 or 49 per cent) occurred in the mines (2,197 underground and 1,399 at ground level), followed by accidents in factories and workshops (1,450), road accidents (533), accidents in loading places (469) and building sites (362). These four places accounted for 38 per cent of the total. The accidents resulted in:

- Death 201
- Permanent disablement 751
- Temporary disablement 6,513

Out of the 751 workmen permanently disabled, 364 had disabilities exceeding a degree of 10 per cent. The WCB report does not specify the nature of the disabilities.

Assorted diseases of the nervous system. In paediatric pracite in Zambia the most common causes leading to permanent disability are all related to the nervous system:

- Immaturity at birth (13 per cent);
- Difficult birth;
- Microcephalia;
- Meningitis (70 per cent due to pneumococcus);
- Viral encephalitis.

In adult internal medicine, a permanent disability is most commonly related to nervous system diseases, particularly brain lesions (source: UTH clinicians).

Rapid survey. In order to get an idea of the most common type of disability encountered in rural areas, a remote village was chosen at random; the dispensary was given a one-date notice to assemble all the disabled, and the authors of the report were brought in by the flying doctor service.

Twenty-two disabled were found (population unknown):

- Two mentally disabled;
- Five cases of poliomyelitis;
- Five hemiplegics (one also blind);
- One case of kyphosis with paraparesia (probably Pott's disease);
- One case of microcephalia and spasticity;
- One case of cerebral palsy with normal intelligence;
- One case of severe deformity of hand due to burns;
- One case of burnt-out leprosy;
- One probable case of general paraplegia; and
- One case of paraplegia of unknown aetiology.
Permanent leprous disability. The estimated number of lepers is between 30,000 and 40,000, of which 16,500 are registered. Some leprosy patients have been included in the motor-handicapped group and others in the disabled group.

The reported notification of new cases has not varied substantially from year to year:

<table>
<thead>
<tr>
<th>Year</th>
<th>New cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>2,050</td>
</tr>
<tr>
<td>1967</td>
<td>1,706</td>
</tr>
<tr>
<td>1968</td>
<td>1,851</td>
</tr>
<tr>
<td>1969</td>
<td>1,806</td>
</tr>
<tr>
<td>1970</td>
<td>1,745</td>
</tr>
<tr>
<td>1971</td>
<td>2,093</td>
</tr>
</tbody>
</table>

It seems that leprosy is neither substantially increasing nor decreasing. Traumatic lesions in anaesthetic hands and feet and secondary infection leading to soft tissue ulceration, contractures and bone absorption account for a great deal of disability in leprosy. Plantar ulcer is the greatest single challenge. An orthopaedic surgeon in Zambia working exclusively with leprosy patients estimates that about 30 per cent of the known 16,500 leprosy patients should wear protective shoes either because they are in danger of developing plantar ulcers or to prevent the recurrence of healed ulcers.

The second source of disability is paralysis of the peripheral motor nerves causing drop hand or foot, clawing of fingers or toes, drooping of face or eyelids (the latter leading to imperfect occlusion of the eye and blindness). A review of unselected cases admitted to leprosaria at a time (before 1971) when the policy was to isolate leprosy patients showed that 63.7 per cent had some sort of motor disturbance. These were all sufficiently advanced cases to be taken into leprosaria. As at that time there were 4,500 inpatients, those having motor nerve disability can be estimated to be 3,000.

(ii) Sensory disabilities

Blindness. Of the total of 9,684 blind persons, only 730 were children under the age of 15. More than 50 per cent were persons over 50.

The main causes of blindness according to the local ophthalmologists in Zambia, in estimated order of importance, are: common infections plus application of indigenous medicines; glaucoma; cataracts; trachoma; measles; avitaminosis; refraction defects, and squint.

Blindness is much more prevalent in the rural areas (2.18 per 1000) than among the urban population (0.44 per 1000). This is probably not due to any specific cause of disease but to differences in hygiene and medical attention. There is a higher concentration of reported cases in the Luapula province (2.12 per 1000 among the urban and 3.39 per 1000 among the rural population). Again it would seem that this is not due to any specific cause of disease but to the fact that this somewhat backward and very swampy region has been thoroughly explored in recent years by medical missionaries. The so-called
"Lualupa valley blindness" may not correspond to any special aetiology. Blindness is already declining in that area, and it is expected that future returns will show the effects of the improved general medical attention the area is now receiving.

Deafness. The 1969 census recorded 7,419 deaf or mute (1.3 per 1000), of whom 1,076 were children under 15. The special school inspector for the deaf estimates that including the "hard of hearing", there are probably about 2,000 deaf children of school age.

The main cause of deafness seems to be otitis media, but there are no reliable figures to verify this. Deaf-mutism, a form of endemic cretinism, also occurs in areas of high goitre endemicity.

Other known physical disabilities

As for work-related diseases, partial permanent disablement was assessed by WCB in five cases of dermatitis. The Pneumoconiosis Medical and Research Bureau certified 52 new cases of pneumoconiosis, and in addition established 32 re-certifications in cases of pneumoconiosis having advanced in stage or in cases where tuberculosis was diagnosed in addition to previously known pneumoconiosis or vice versa. Thus it would seem that industrial diseases are not a frequent cause of disability.

Mental disability

It is generally admitted that in a transitional society, in process of industrialization, at any moment at least 1 per cent of the population requires some kind of psychiatric treatment. The data of the 1972 Mental Health Service report indicate that this applies to Zambia.

Statistical data come from general hospitals, psychiatric hospitals and other health units. A great effort has been made and appreciable results achieved. However, most of the psychiatric data are provided by psychiatric medical assistants, who do not always have the benefit of medical supervision. This may explain certain deviations from generally prevailing patterns. Moreover, the statistical forms are not in line with the International Classification of Diseases and do not provide the necessary data for defining the incidence of the different categories of mental disorders; e.g., "neurosis" is listed together with "personality disorders"; all functional psychoses are listed under the same heading; organic psychoses are classified together with all other diseases of the nervous system.

During the period 1969-1972 the number of admissions increased by 23 per cent while the population increase was only 11 per cent.

The total number of admissions was 5,397 in 1972, and 6,100 (estimated) in 1973. There were in addition 12,834 outpatients in 1972 (11,000 in Lusaka and the Copperbelt), and 19,000 (estimated) in 1973. However, no distinction is made between new patients and follow-ups.
Data on readmissions are available only for the Chainama Hill Psychiatric Hospital: 32.77 per cent in 1972. This seems to be a rather low rate in a country where mental disorders are already a social problem (rejection by the family, the community and employers). No data are available on the number of patients admitted for each specific disorder.

Aetiology: The general causes of mental illness include congenital, heriditary, psychogenic, psychobiological, biological, social and cultural factors.

According to the available data, the patterns of mental disorders do not differ from those generally seen in other countries. Psychosis accounts for 62 per cent of all cases. It appears mostly in the form of "functional discharges", with a relatively low rate of chronicity. Other major diseases appear to be neurosis, personality disorders, addiction (drug and alcohol); epilepsy, mental retardation and organic psychosis. The possibility of pellagrous psychosis in maize-growing areas must be considered.

Certain participating factors seem to operate in Zambia, notably the rapid changes accompanying urban migration and acculturation.

The identity crisis of a nation, that is, a dynamic concept of social evolution towards a new phase of social order, may cause individuals and families to pass through similar crises. Many individuals stay in a marginal position during this process; they manifest their difficulties in adapting to the dynamic process by different or "abnormal" behaviour. These individuals are, however, human beings like others and need help in readjusting.

It is already generally admitted that rehabilitation should not be considered as a separate process, but should be seen as an integral part of the process of social evolution.
Annex I
Page 12

4.(b) Data on road accidents and casualties in Zambia 9/

Table 1. Total number of accidents and casualties

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents</td>
<td>10,160</td>
<td>10,637</td>
<td>10,378</td>
<td>10,499</td>
<td></td>
</tr>
<tr>
<td>Persons killed</td>
<td>723</td>
<td>794</td>
<td>832</td>
<td>935</td>
<td></td>
</tr>
<tr>
<td>Injured</td>
<td>4,292</td>
<td>4,800</td>
<td>4,537</td>
<td>5,025</td>
<td></td>
</tr>
</tbody>
</table>

Since November 1972, the published figures have been broken down by province, a classification which is not useful in the present study; however, there are figures from January through October 1972 broken down into two groups:

(a) Districts along the railway line, which are heavily populated: Copperbelt, Kabwe, Lusaka and Livingstone;

(b) Other areas (meaning the rest of the country).

Table 2. General geographical distribution of accidents and casualties
(January-October 1972)

<table>
<thead>
<tr>
<th></th>
<th>Railway line</th>
<th>Other areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents</td>
<td>5,603</td>
<td>1,347</td>
</tr>
<tr>
<td>Persons killed</td>
<td>441</td>
<td>240</td>
</tr>
<tr>
<td>Injured</td>
<td>2,329</td>
<td>1,383</td>
</tr>
</tbody>
</table>

Source: The National Road Safety Council.

This shows that three times as many road accidents occur on the roads of the populated districts situated along the railway line than in all the rest of the country, while fewer than twice as many persons are killed or injured. Thus, the results of accidents are relatively more serious away from the railway line.

Table 3. Geographical distribution according to road sections

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>K</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>GWR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lusaka-Nakonde</td>
<td>595</td>
<td>96</td>
<td>119</td>
<td>581</td>
</tr>
<tr>
<td>GER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lusaka-Luangwa a/</td>
<td>435</td>
<td>48</td>
<td>22</td>
<td>389</td>
</tr>
<tr>
<td>bridge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luangwa bridge-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muami b/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>341</td>
<td>50</td>
<td>279</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,667</td>
<td>380</td>
<td>998</td>
<td></td>
</tr>
</tbody>
</table>

a/ Luangwa bridge is about half way along the road.

b/ Muami is on the Malawi border. Figures for this section are not available for individual years.

Data from Police headquarters.

A = Number of accidents
K = Number of persons killed
I = Number of persons injured
Table 4. Causes of accidents in 1972

<table>
<thead>
<tr>
<th>Cause of Accident</th>
<th>1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misjudging clearance, distance or speed</td>
<td>1,730</td>
</tr>
<tr>
<td>Failing to obey traffic sign/signal</td>
<td>1,151</td>
</tr>
<tr>
<td>Overtaking improperly</td>
<td>637</td>
</tr>
<tr>
<td>Excessive speed</td>
<td>568</td>
</tr>
<tr>
<td>Reversing negligently</td>
<td>573</td>
</tr>
<tr>
<td>Other error of judgement</td>
<td>592</td>
</tr>
<tr>
<td>Pedestrians hit while crossing the road</td>
<td>725</td>
</tr>
<tr>
<td>Pedestrians hit while walking/standing on the road</td>
<td>85</td>
</tr>
<tr>
<td>Children killed</td>
<td>105</td>
</tr>
</tbody>
</table>

Type of vehicle in accident

<table>
<thead>
<tr>
<th>Type of Vehicle</th>
<th>1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private motorcars, vans, etc.</td>
<td>11,509</td>
</tr>
<tr>
<td>Goods vehicles</td>
<td>1,679</td>
</tr>
</tbody>
</table>

Source: The National Road Safety Council.

Table 5. Classification of casualties

<table>
<thead>
<tr>
<th>Class of Casualties</th>
<th>1970</th>
<th>1971</th>
<th>1972</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Killed</td>
<td>Injured</td>
<td>Killed</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>184</td>
<td>641</td>
<td>221</td>
</tr>
<tr>
<td>Pedal cyclists</td>
<td>82</td>
<td>444</td>
<td>105</td>
</tr>
<tr>
<td>Pedal cycle passengers</td>
<td>10</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Motorcycle drivers</td>
<td>23</td>
<td>192</td>
<td>25</td>
</tr>
<tr>
<td>Motorcycle passengers</td>
<td>7</td>
<td>95</td>
<td>15</td>
</tr>
<tr>
<td>Motor vehicle drivers</td>
<td>142</td>
<td>1,033</td>
<td>161</td>
</tr>
<tr>
<td>Motor vehicle passengers</td>
<td>275</td>
<td>1,044</td>
<td>265</td>
</tr>
</tbody>
</table>

Source: The National Road Safety Council.
DEVELOPMENT OF STRUCTURES FOR REHABILITATING THE DISABLED IN ALGERIA

1. Possibilities for implementing and expanding rehabilitation services in hospitals

Algeria has a rehabilitation centre with a 175-bed capacity (reduced to 115 beds in the wake of a fire), which is supplemented by the Douera annex capacity 52 beds). 1/

Since 15 November 1979 the Centre has been under the direction of Professor E. Yagoubi; four assistant teaching physicians are employed to train the 21 residents in rehabilitation techniques.

The Centre hospitalier universitaire Moustapha in Algiers has a rehabilitation unit, but because of a lack of beds, patients are seen on an outpatient basis only. The Centre de rééducation of Oran (capacity: 20 beds) employs two physicians in addition to physical therapists. There is another centre with 150 beds at Bou Hanifia; consultations are conducted by doctors from Oran.

Most Algerian hospitals lack rehabilitation units and often do not see even outpatients. Kinesitherapists practise in only a few hospitals. A large number of hospitals do not have the most basic facilities and equipment to maintain a rehabilitation service.

The over-all lack of therapists and equipment, including on occasion wheelchairs and crutches, tends to prolong the time patients spend in hospitals. Physically disabled patients are frequently treated in centres away from home; in many cases, particularly when the patients are children, they are sent abroad to be hospitalized for a period of 6 to 12 months or longer. Such foreign hospitalization often alienates the child from his family and home environment.

Such a small number of rehabilitation centres clearly cannot meet the needs of all disabled persons in Algeria.

2. Evaluation of the current status of equipment and apparatus

Obtaining and maintaining corrective and prosthetic devices for the disabled is a major problem. Only three entities in Algeria have any responsibility in this area: Casoral, the Organisation des anciens Moudjahidines (a veterans' organization) and the Ministry of Public Health.

There are only a few orthopaedic workshops where prosthetic devices are built, and these devices are made from imported prefabricated parts. The fact that these parts are not always provided on a regular basis creates many difficulties, while the great variety of prosthetic devices and equipment poses problems of maintenance and repair.

The equipment needed for rehabilitation therapy, such as Balkan frames, crutches and wheelchairs, is also imported, but in insufficient quantities.

As a result, many children are sent to France for prosthetic and correctional care.

3. Rehabilitation extension throughout the country

Extension of existing structures

The great needs observed by the consultant cannot be met by existing structures. The consultant participated in the extension project of the Centre hospitalier universitaire de Tixeraine and in the upgrading of its operations. As part of this project, a study was conducted on the construction of a 50-bed centre for paraplegics and a day hospital, and also on the rebuilding of that part of the rehabilitation centre destroyed by fire.

Short-term decentralization

Visits were made to the following hospitals outside the Wilaya (administrative district) of Algiers: Blida, Koléa, Thenia and Tizi-Ouzou. From these visits it was determined that rehabilitation services could be provided at once, thus reducing the heavy demands placed on facilities within Algiers. This would be facilitated by the participation of the team from Tixeraine, who had expressed their willingness to work in these hospitals.

Medium-term decentralization

Medical specialists are currently being trained and should start to practise in hospitals situated in the interior of the country in a year or two. These hospitals, located in Annaba, Constantine, Biskra, Sétif, El Annam and Chergaia, have great untapped potential. The services of these specialists could be used earlier if training of paramedical personnel were to begin at once.
Equipment and apparatus

In order to facilitate maintenance and repair, a countrywide standardization of equipment should be undertaken.

The devices should be constructed locally to eliminate the need for importation, with all its concomitant problems.

UNDP might effectively assist in developing plans for the unit construction of pieces of equipment. A Commitment has already been made to provide a staff of experts to manage such a project.