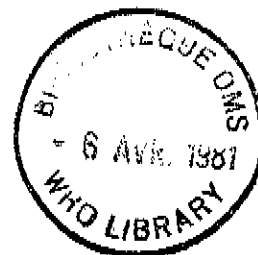


EXPERT COMMITTEE ON DISABILITY
PREVENTION AND REHABILITATION

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Population and Development Problems Relating
To Disability Prevention and Rehabilitation

by

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Background Paper for Meeting of the Expert Committee on
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ABSTRACT

The purposes of this background paper are two-fold:

- (1) To orient the Expert Committee on Disability Prevention and Rehabilitation, scheduled to meet in February 1981, to the possible impacts of world population trends on (a) the prevalence of disability and (b) the policies intended to prevent disability or, through rehabilitation, to limit its effects;
- (2) To review emerging national and international development policies that seem likely to affect the future availability of resources for disability prevention and rehabilitation.

The paper consists of 6 parts:

- I Review of documentation relating to primary health care, disability prevention, and rehabilitation and their roles in socio-economic development;
- II Analysis of the evolution of the concepts of rehabilitation, disability, prevention, and handicap;
- III Analysis of the possible impacts of population trends in the developed and developing countries;
- IV Estimates of the probable general and specific cost burden of disability;
- V Analysis of world trends and the outlook for the future;
- VI Analysis of development needs, costs, and their implications for policy changes in bilateral and multilateral development programs.

Primary Health Care, Disability
Prevention, and Rehabilitation

1. On 12 September 1978 the participants in the International Conference on Primary Health Care in Alma-Ata, USSR, adopted as its point of departure the 1977 resolution of the 30th World Health Assembly:

. . . a main social target of governments, international organizations and the whole world community in the coming decades should be the attainment by the year 2000 of a level of health that will per-

mit them to lead a socially and economically productive life.¹

The participants declared the essential interdependence of health for all and world economic and social development, nurtured and sustained by a New International Economic Order wherein the gap in health status of the developing and developed countries would be reduced. They recognized that fuller and better use of the world's resources was needed to achieve an acceptable level of health for all by the year 2000, and called on all countries to pursue "a genuine policy of interdependence, peace, detente and disarmament . . . (to) release additional resources that could well be devoted to peaceful aims and in particular to the acceleration of social and economic development of which primary health care, as an essential part, should be allotted its proper share."² Last, the participants called on all governments, international organizations, multilateral and bilateral agencies, non-governmental organizations, all health workers, and the entire world community to develop and maintain primary health care, particularly in the developing countries.

2. In January 1977 the Executive Board of WHO endorsed the Declaration of Alma-Ata, and since then has convened numerous meetings of experts to formulate ways by which to implement the Declaration. The Executive Board of WHO published in 1979 a statement of guiding principles and essential issues that relate to formulating national, regional, and global strategies for attaining "an acceptable level of health for all by the year 2000,"³ including a timetable for use by member states, WHO governing bodies, and the WHO Secretariat. Member states are to submit their reports on national strategies by June 1980. In January 1981 the Executive Board, 67th session, is to review the proposed global strategy of its Program Committee and report to the 34th World Health Assembly. From May 1981 and onwards there is to be continuing activities relating to the development of national plans of action, periodic progress reviews and evaluation, and technical cooperation and support by and among member states, WHO governing bodies, and the WHO Secretariat.⁴

3. The 1979 report is particularly important for its explanation of what is meant by the slogan "health for all by the year 2000." The 1979 report tells us that each country will

¹WHO, Primary Health Care, Geneva, 1978, p. 3.

²Ibid., pp. 5-6.

³WHO, Formulating Strategies for Health for All by the Year 2000, Geneva, 1979.

⁴Ibid., pp. 56-59.

interpret the goal differently "in light of its social and economic characteristics, health status and morbidity of its population, and state of development of its health system."⁵ What is more, what is considered an acceptable level of health will vary and be susceptible to widely different approaches to attainment, permitting some countries to opt for broad health care coverage of the population in greatest need and others to extend limited services to the entire population-- both starting points converging on the ideal of progressively reaching the whole population with the appropriate range of needed services.

4. The strategies and plans of action which the 1979 report calls on all governments and regions of the world to develop are directed to the creation and maintenance of primary health care systems. "Primary health care" is nowhere precisely defined by either the 1978 report on primary health care or the 1979 statement of the WHO Executive Board concerning guiding principles and essential issues. Instead, primary health care is broadly and relativistically described as "essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination."⁶ A more manageable concept of primary health care emerges when its minimum content is specified:

- Education concerning prevailing health problems and the methods of preventing and controlling them;
- Promotion of food supply and proper nutrition;
- Adequate safe water and basic sanitation;
- Maternal and child health care, including family planning;
- Immunization against the major infectious diseases;
- Prevention and control of locally endemic diseases;
- Appropriate treatment of common diseases and injuries;
- Provision of essential drugs.

⁵Ibid., p. 8.

⁶Primary Health Care, p. 3.

5. The WHO Executive Board correctly recognized both the importance of primary health care as the key to attaining an acceptable level of health for all and the need to re-orient existing health systems so that primary health care does not become "a parallel system that is a 'poor relation' of the existing system."⁷ It tactfully suggests that governments will have to face up to their existing health systems and review how programs and services are delivered and coordinated and resources and energies spent.

6. WHO convened in late October 1979 an expert group to consider how countries should go about development of an integrated health structure at the national level in order to achieve the goal of health for all by the year 2000. When countries had made the political decision and commitment to achieve the goal, there would still remain the task of mobilizing and/or developing national resources and technical skills with which to formulate and implement strategies and plans.⁸ The enormity of the effort and the sustained political will required to achieve the goal of health for all by the year 2000 led the expert group to conclude that simple improvements in existing health systems would simply not do; fundamental redirection was needed. In consequence, a new institutional arrangement functionally linked to the highest political authority in each country would have to be created. Termed the "national health development network" (NHDN), this new institutional arrangement was conceived as likely to be a more effective mechanism for sustained health development at the national level than the previously tried and partially successful National Health Councils, National Health Development Institutes, National Collaborating Centers, and the like. None of them had proven effective as "a total structure for integrating the various facets of health development and for relating health development to overall development at the country level."⁹

7. The Expert Group on NHDN recommended that countries, the UN system (WHO and UNICEF in particular), the World Bank, regional development banks, bilateral aid agencies, and the developing countries themselves acting on the principles of Technical Cooperation among Developing Countries (TCDC), all

⁷Formulating Strategies for Health for All by the Year 2000, p. 28.

⁸WHO, "Meeting on National Health Development Network," SHS/79.5, Geneva, 29 October - 2 November 1979.

⁹WHO staff document, "Health for All by the Year 2000 and National Health Development Network," Geneva, undated.

undertake to share implementation of a sequence of actions to promote development of NHDNs:

- Establish or strengthen a NHDN as one essential mechanism by which the objective of Health for All by the Year 2000 through the primary health care approach can be attained;
- Obtain a clear mandate for the establishment and proper functioning of a NHDN within the context of individual countries' socio-economic development policies and programmes;
- Establish the necessary legislation where required;
- Prepare inventories and profiles of institutions eligible for inclusion in the NHDN on the basis of specified criteria;
- Identify the contributions being or to be made to national health development and the institutions that do or could participate in the process;
- Estimate the different types of resources needed (financial, human, physical) and assess what is presently available;
- Mobilize the support necessary from within and outside individual countries;
- Orient personnel for national leadership roles by providing documentation, workshops, seminars, visits to relevant institutions within and outside individual countries;
- Develop a framework by which to evaluate NHDNs and their contribution to national health development.¹⁰

8. The UN and other organizations in the UN system have addressed some of the same issues in the context of disability prevention and rehabilitation. A UN Expert Group met in Geneva, 1 - 9 December 1977, to consider the socio-economic implications of investments in rehabilitation for the disabled. After considering the full ramifications of disability on individuals, families, and communities, it concluded that, given average family size, the proportion of the world's population affected by disability could be at least 25 percent.¹¹

¹⁰"Meeting on NHDNs," pp. 11-12.

¹¹"Socio-economic Implications of Investments in Rehabilitation for the Disabled," Geneva, 1 - 9 December 1977, para. 42 (under publication).

Planners--particularly those in developing countries--were seen as tending to overlook the needs of disabled people as the result of giving first priority to meeting the needs of the greatest number, thus "keeping disabled people and their families amongst the lowest strata of society."¹² The Expert Group endorsed the principal conclusions of a UN sponsored study by Rehabilitation International:

- Available research did not "demonstrate any conflict between the humanitarian basis for rehabilitation service provision, and the basic principles of socio-economic planning;"¹³
- The costs of disability will accrue to society whether or not rehabilitation services are provided;
- Recognition of the costs of disability and their amelioration by the provision of adequate disability prevention and rehabilitation services can be expected to yield an overall economic return on the investment.

Last, the UN Expert Group suggested that rehabilitation services should be tailored to meet the assessed need of each area within a nation rather than patterned after the practices of other nations or areas.¹⁴

9. More recently, UNICEF contracted with Rehabilitation International for a study of childhood disability. On 15 April 1980 the Executive Director of UNICEF endorsed the guiding principles proposed by Rehabilitation International because they coincided with the UNICEF emphasis on "the basic services concept, the promotion and support of primary health care, the concern with enabling children to realize their full potential that was emphasized during the International Year of the Child, and the policy adopted by the Board last year to promote child mental health--a policy in which preventive and rehabilitation aspects were viewed as a single subject having interacting components that could be addressed through primary health care."¹⁵ The Executive Director highlighted the importance, in connection with UNICEF policy, of 4 of the main conclusions of the Rehabilitation International report:

¹²Ibid., para. 18.

¹³UN Department of Economic and Social Affairs, Rehabilitation for the Disabled: The Social and Economic Implications of Investments for This Purpose, New York, 1977, p. 70.

¹⁴"Socio-economic Implications of Investments in Rehabilitation for the Disabled," para. 32.

¹⁵UN Economic and Social Council, "Childhood Disability: Its Prevention and Rehabilitation," E/ICEF/L.14/10, New York, 26 March 1980.

- Simple measures within the capabilities of families and communities could either prevent or limit the impairment of millions of children;
- The main concern of intervention should be not with the impairment itself but with the preservation and continuation, to the extent possible, of normal child development, since the distortion of the latter can be more serious than the direct consequences of the impairment;
- Programs should use family resources, wherever possible, supported and reinforced by those of the community instead of relying solely on costly institutional and professional care;
- UNICEF should incorporate measures within its cooperative programs of general health, nutrition, education and social welfare services that are more responsive to both the prevention of the disability and the rehabilitation of children who have become disabled.¹⁶

10. In summary, the pronouncements of several expert groups, as well as the recommendations of the boards and high officials of member organizations of the UN system, have emphasized and embraced the concept of primary health care as the principal means of promoting health for all by the year 2000 and, in a broader sense, the fullest development of the socio-economic well-being of nations. There is general belief that simple and economic measures can be found to enhance the capabilities of families and communities to prevent health impairments and disability and, where they occur, to limit their effects on the social functioning of individuals, families, and communities. This belief, if sustained in practice, implies that the burden of disability on society can be lightened by appropriate intervention. By implication, the progress of development in the developing nations might even be accelerated through the integration of suitable disability prevention and rehabilitation measures in overall plans of national development. The Rehabilitation International report to UNICEF comes closest to making this latter point explicit when it recommends that UNICEF adopt the policy of incorporating disability prevention and rehabilitation measures into its general cooperative programs of health, nutrition, education, and social welfare services.

¹⁶Ibid., pp. 2-3.

Definitions

11. Since the publication in 1958 of the first WHO expert committee report on medical rehabilitation, the concepts of rehabilitation, disability, and prevention have evolved toward standardization and greater precision of usage. The 1958 report defined "medical rehabilitation" as "the fourth phase in the whole scheme of health and medical measures applicable to an individual or to a community," a phase which followed the first three phases of health promotion, disease prevention, and treatment.¹⁷ Medical rehabilitation was viewed as contributing to health by preventing unnecessary disability during the treatment of a disease and by helping persons afflicted with unavoidable disability to overcome to the extent possible its consequences through the achievement of their "fullest physical, mental, social and vocational usefulness."¹⁸

12. The 1958 report regarded the classification of physical impairments set forth in the International Statistical Classification of Diseases, Injuries, and Causes of Death as of limited value to the field of rehabilitation because of its narrow focus on etiology and the anatomical site of lesions. It distinguished between "impairment" as "a medically diagnosed physical defect in the individual which reduces his fitness to cope with the requirements of everyday life" and "disability" as "a complex evaluation of the reduction in the patient's ability as regards gainful employment."¹⁹ Only statistics compiled by the staff of specialized rehabilitation centers were viewed as valuable from the rehabilitation point of view. Those who might benefit from rehabilitation, as revealed by clinical impressions, were thought by the first expert committee on medical rehabilitation to number at least 25 percent of all patients with physical disorders treated in acute general hospitals and as many as 75 percent of patients with locomotor disorders.²⁰

13. Eleven years later, the second WHO expert committee on medical rehabilitation published its report. Numerous definitions and terminological distinctions were provided. Medical, social, and vocational rehabilitation were seen as arti-

¹⁷WHO, Expert Committee on Medical Rehabilitation: First Report, Technical Report Series No. 158, Geneva, 1958, p. 5.

¹⁸Ibid.

¹⁹Ibid., p. 9.

²⁰Ibid.

culated parts of a holistic rehabilitation process which "combined and co-ordinated use of medical, social, educational, and vocational measures for training or retraining the individual to the highest possible level of functional ability."²¹ Specific therapies and/or practices considered important as subdivisions of medical, social, or vocational rehabilitation, including physiotherapy, occupational therapy, speech therapy, audiology, vocational counseling, and selective job placement, were defined.

14. The 1969 report distinguished between: "handicap," as "a state of temporary or permanent impairment of the physical and/or mental well-being of people impeding self-dependence, schooling, or employment;" "impairment" as "a permanent or transitory pathological condition resulting in diminution of functions;" "disability" as "the reduction of functional ability to lead a fruitful daily life," caused not only by physical and/or mental impairment but also by the person's adjustment to it; and "invalidity" as "a measure of the diminution of the individual's capacities."²²

15. The 1969 report, unlike the 1958 report, made no attempt to estimate how many persons might benefit from the application of rehabilitation techniques. It did, however, express the hope of the committee that studies would be undertaken to develop eventually a classification scheme for disability in order to compensate for the exclusion of the section on impairments from the 1965 revision of the International Classification of Diseases.

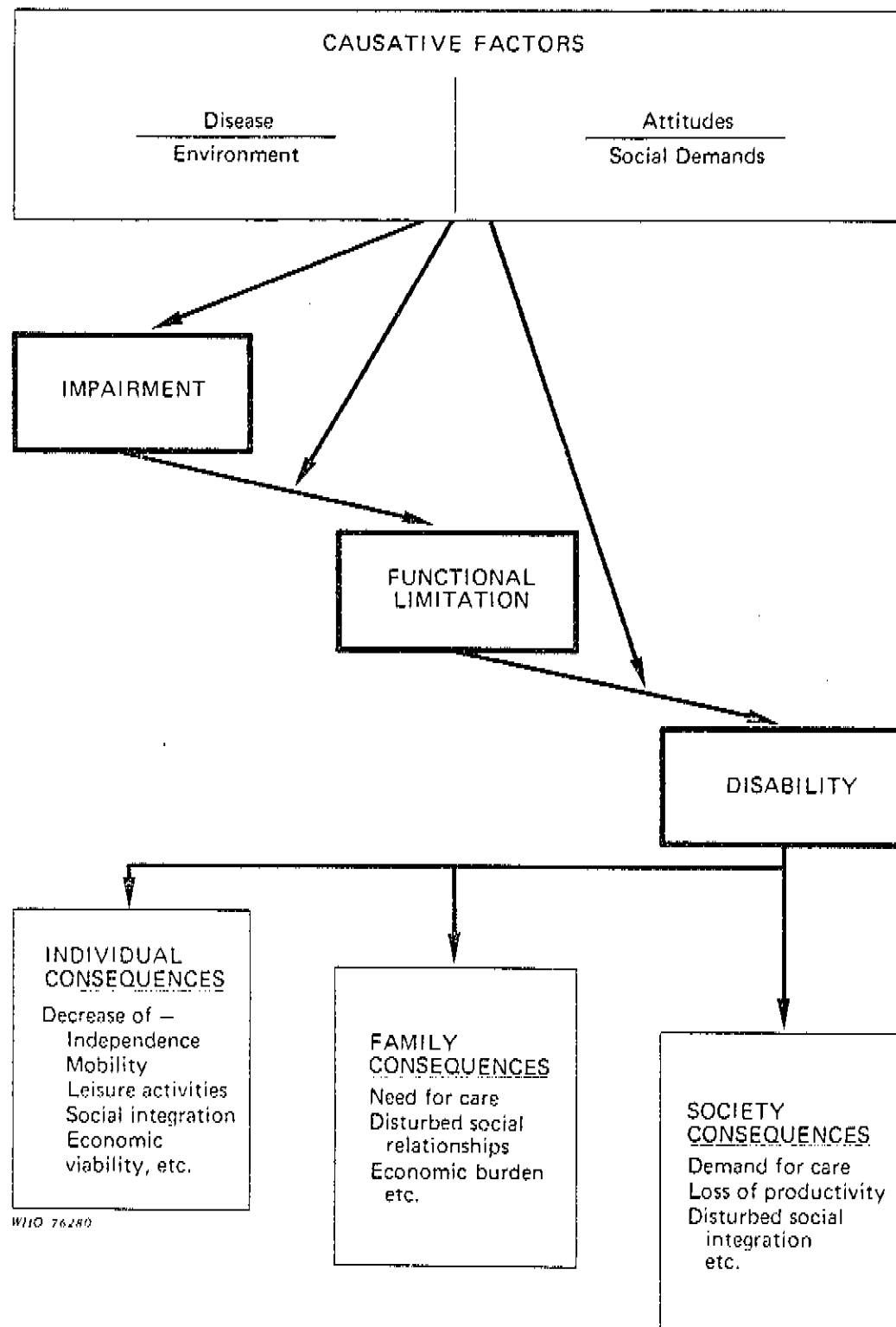
16. In 1974 WHO assembled an expert group to consult on development of the Program and Policy for Disability Prevention and Rehabilitation. As the result of that meeting and the refinements of WHO staff, the Director-General provided in 1976 to the 29th World Health Assembly an annex report on disability prevention and rehabilitation.²³ The 1976 report went to great lengths to give precise operational definitions, together with concrete illustrations, of "impairment," "functional limitation," and "disability." Schematics were presented of the "disability process" and of the points in the process that prevention and rehabilitation efforts might be applied (Figures 1 and 2). The 1976 report also estimated

²¹WHO, WHO Expert Committee on Medical Rehabilitation: Second Report, Technical Report Series No. 419, Geneva, 1969, p. 6.

²²Ibid., p. 7.

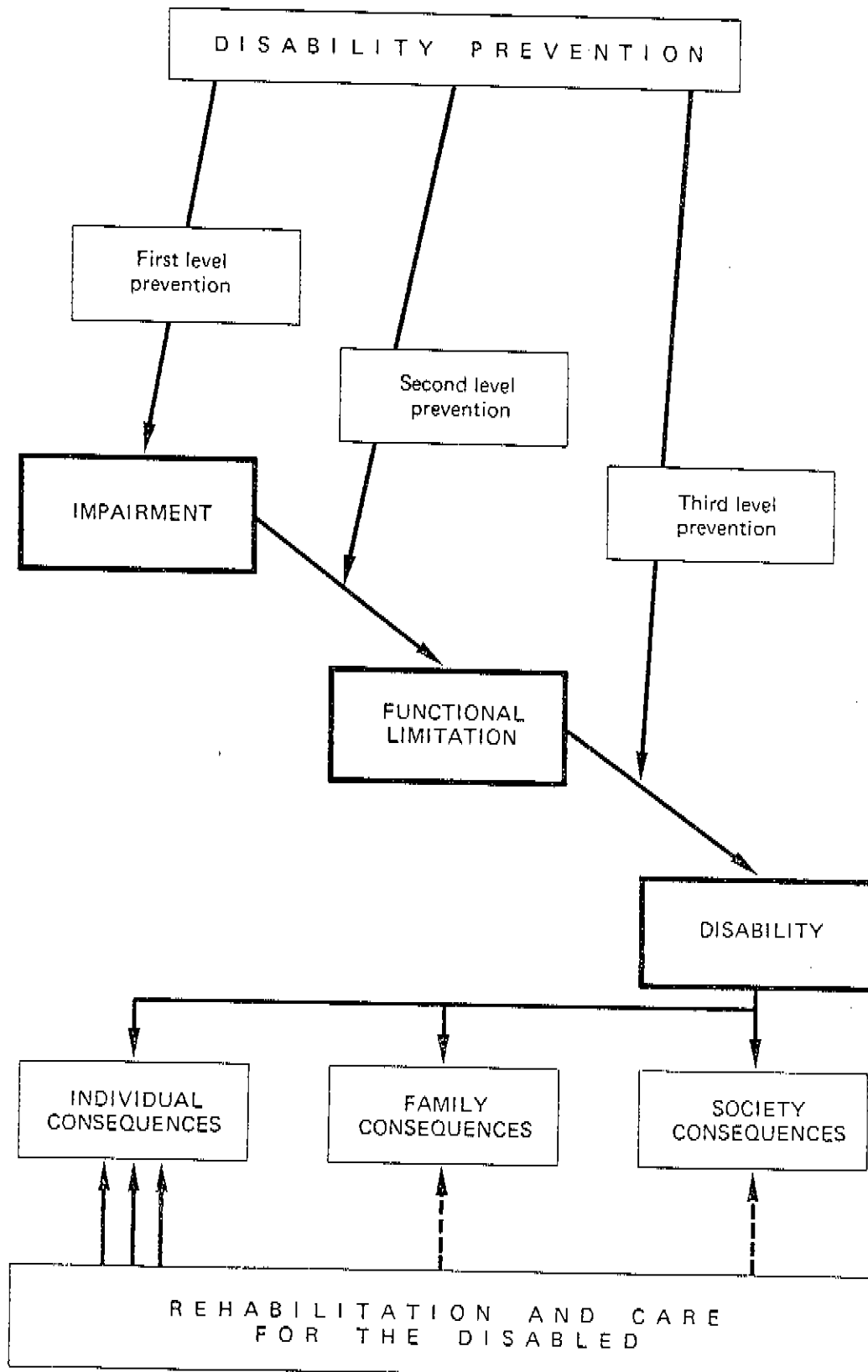
²³WHO, "Disability Prevention and Rehabilitation," A29/INF. DOC/1, Geneva, 28 April 1976.

FIG. 1
THE DISABILITY PROCESS



Source: WHO, "Disability Prevention and Rehabilitation," p. 9.

FIG. 2
INTERVENTIONS TO DIMINISH THE IMPACT OF DISABILITY



WHO 76281

Source: Same as Fig. 1 above, p. 14.

the causes of disability and the number of disabled people throughout the world (10 percent of the world population in 1975 of 4 billion people).

17. The 1976 report described the disability process as paralleling the natural history of disease, progressing from impairment as a consequence of disease through functional limitation to disability. "Impairment" was defined as "a permanent or transitory psychological, physiological, or anatomical loss and/or abnormality;" "functional limitation" as "partial or total inability to perform those activities necessary for motor, sensory, or mental functions within the range and manner of which a human being is normally capable;" and "disability" as "an existing difficulty in performing one or more activities which, in accordance with the subject's age, sex and normative social role, are generally accepted as essential, basic components of daily living, such as self-care, social relations, and economic activity."²⁴

18. Most recently, as culmination of efforts through the years to achieve conceptual clarity and terminological precision, WHO published in 1980 a provisional manual of classification relating to the consequences of disease, entitled International Classification of Impairment, Disabilities, and Handicaps. The classification scheme encompasses three distinct and independent dimensions of experience which can result from disease: impairments, disabilities, and handicaps. "Impairment" is conceptualized and defined as in the earlier WHO medical rehabilitation and disability prevention and rehabilitation reports: "any loss or abnormality of psychological, physiological, or anatomical structure or function." The term "disability," however, is used to connote what the 1976 report referred to as "functional limitation": "any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being." The term "handicap" is adopted to connote what the 1976 report referred to as "disability": "a disadvantage for any given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual."²⁵

19. Whereas the concepts and taxonomic structure of "impairments and disabilities are regarded as least controversial and most susceptible to objective measurement, the introduction

²⁴Ibid., pp. 7-8.

²⁵WHO, International Classification of Impairments, Disabilities, and Handicaps, Geneva, 1980, pp. 27-29.

to the new classification scheme comments on the problematic nature of the concept of "handicap," based on its situational and cultural relativity. The concept and taxonomy attempt to capture the normative circumstances surrounding the individual's performance of certain key roles in society that can be expected to place disabled people at a disadvantage; namely those circumstances which define the "discordance between the individual's performance or status and the expectations of the particular group of which he is a member."²⁶

20. The new scheme, if incorporated into the record-keeping of the various service delivery systems with which persons suffering impairments, disabilities, and handicaps come into contact, can be expected to yield in time much more complete and systematic data about such people than is currently available. If linked to documentation about the effects of intervention, we may come to a better understanding of the cost-effectiveness of intervention at the different stages of the disability process. If adopted by surveys and studies throughout the world, the body of comparative knowledge should expand as rapidly as resources to support these undertakings permit, increasing thereby the precision of our currently crude estimates of the prevalence of handicapping conditions and making possible for the first time estimates of the prevalence of specific kinds of impairments and disabilities.

21. Because of the newness of the WHO classification scheme, the essential comparability of its definitions to earlier usage, and the literature which is cited, this background paper employs the older definition of "disability" instead of "handicap" and distinguishes it from "impairment" and "functional limitation," respectively.

Prevalence

22. Assuming nothing changes that would alter the overall estimate of 10 percent disability prevalence in the world population given in the 1976 WHO report on disability prevention and rehabilitation, the projected growth of the world population to the year 2000 will increase the estimated number of disabled people by 193 million over the 1975 estimated number of 387 million disabled persons (Table 1). During the 25 year period, the estimated annual growth rate of disabled people throughout the world will be 1.63 percent. This means that each year the total number of disabled people will grow by an estimated 2.4 million.

²⁶Ibid., p. 29.

Table 1. Causes of disability and estimated number of disabled people in the world, 1975 and 2000

| | | 1975 | 2000 |
|---|------------------|----------------------------------|-------------------|
| World population (billions) | | 4.0 | 6.0 |
| | | <u>Estimated disabled people</u> | |
| <u>Medical Causes</u> | <u>Percent</u> | <u>(millions)</u> | <u>(millions)</u> |
| Congenital disturbances | | | |
| Mental retardation ^a | 7.7 | 40 | 60 |
| Somatic hereditary defects | 7.7 | 40 | 60 |
| Non-genetic disorders | 3.9 | 20 | 30 |
| Communicable diseases | | | |
| Poliomyelitis | 0.3 | 1.5 | 2.3 |
| Trachoma | 1.9 | 10 | 15 |
| Leprosy | 0.7 | 3.5 | 5.4 |
| Onchocerciasis | 0.2 | 1.0 | 1.5 |
| Other | 7.7 | 40 | 60 |
| Noncommunicable somatic disease | | | |
| | 19.3 | 100 | 149 |
| Functional psychiatric disturbance | | | |
| | 7.7 | 40 | 60 |
| Chronic alcoholism and drug abuse | | | |
| | 7.7 | 40 | 60 |
| Trauma/injury | | | |
| Traffic accidents | 5.8 | 30 | 45 |
| Occupational accidents | 2.9 | 15 | 22 |
| Home accidents | 5.8 | 30 | 45 |
| Other | 0.6 | 3.0 | 5.0 |
| Malnutrition | | | |
| | 19.3 | 100 | 149 |
| Other | | | |
| | 0.4 | 2.0 | 3.0 |
| | Total: | <u>100.0</u> | <u>516</u> |
| | | | <u>774</u> |
| Correction for possible double counting (-25%): | | | |
| | | -129 | -194 |
| | Corrected total: | 387 | 580 |

Annual growth rate, 1975-2000: 1.63 percent^b

^aNot all of these are congenital in origin.

^bThis amounts to an annual increase of 2.4 million disabled persons.

Source: Reports on specific technical matters, "Disability prevention and Rehabilitation," WHO A29/INF. DOC/1, Geneva, 28 April 1976, p. 17; Labor Force Estimates and Projections, 1950-2000, Vol. V, ILO, Geneva, 1977, Table 5.

23. WHO based its 1975 estimate of disability and the underlying medical causes on scattered survey data and studies conducted throughout the world during the previous 20 years.²⁷ The 1976 WHO report which presented the 10 percent estimate of the world prevalence of disability acknowledged the paucity of reliable research--mostly concentrated in the developed countries--and the lack of comparability in operational definitions and criteria in the extant studies. It stated the virtual impossibility of deriving from available information on the prevalence of health impairments any estimates of "the extent of disability and the dependency associated with these impairments."²⁸ The health impairments were seen as leading to significant long-term permanent functional limitations and serious disruption of the ability to perform according to age and sex defined normative social roles such activities as self-care, participation in social relations, and work.

24. There is reason to believe that the WHO 1975 estimate of disability is overly conservative. Extant studies of the prevalence of disability are concentrated in the developing countries; they do not differentiate adequately prevalence among various social classes; and studies which yield low estimates of prevalence severely restrict either the population surveyed or the definition of disability. There is evidence that the prevalence of disability is highly correlated with poverty and social disadvantage caused by the skewed distribution of society's available resources. Accordingly, it is necessary to measure the prevalence of health impairments and attendant disability as found among the different social classes of society, as well as the proportion of the total population which falls into each social class, in order to estimate the world prevalence of disability.

25. In the United States, for example, recent survey data on the population of California show that the risks of disability for blacks and native Americans (Indians) approach twice the risk for whites, when the age and sex composition of the study sample are standardized to reflect that of all working-age adults in California; the risks of severe disability among blacks and native Americans exceed twice the risk for whites (Table 2). These differentiated prevalence rates occur among the socially disadvantaged subpopulations of the U.S. in face of a 10.5 percent prevalence rate in the total population. Repeated surveys of the total non-institutionalized population of the U.S. provide estimates of the prevalence of disability of roughly between 10 and 15 percent (Table 3). Within limits, therefore, one can anticipate high-

²⁷WHO, "Reports on Specific Technical Matters--Disability Prevention and Rehabilitation," A29/INF. DOC/1, Geneva, 28 April 1976, Annex pp. 1-16.

²⁸Ibid., p. 16.

TABLE 2

SEVERITY OF DISABILITY BY ETHNIC GROUP AMONG DISABLED PERSONS
AGE 16 THROUGH 64: CALIFORNIA, 1978

| Ethnic group | Wghtd. sample size | Percentage distribution | | | |
|---------------------------------|--------------------------|-------------------------|------------------------|--------------|----------------------------|
| | | Total | Severity of disability | | |
| | | | Severe | Occupational | Secondary work limitations |
| Total adults ^a | 5,826 | 100.0% | 54.1% | 14.6 | 31.3 |
| White..... | 4,061 | 100.0% | 51.7%** | 15.6* | 32.7 |
| Hispanic..... | 850 | 100.0% | 61.4%** | 11.6 | 27.0* |
| Mexican-American..... | 553 | 100.0% | 66.0%** | 9.9* | 24.1** |
| Other Hispanic..... | 296 | 100.0% | 52.7% | 14.5 | 32.8 |
| Black..... | 603 | 100.0% | 61.7%** | 11.4 | 26.9 |
| Asian-American..... | 119 | 100.0% | 47.9% | 15.1 | 37.0 |
| Mainland origins..... | 79 | 100.0% | 51.9% | 16.5 | 31.6 |
| Pacific Is. origins.. | 40 | 100.0% | 40.0% | 12.5 | 47.5 |
| Native Americans..... | 93 | 100.0% | 63.4% | 21.5 | 15.1* |

^a Includes other and non reported ethnic group, not shown separately.

* Difference from total statistically significant at the .05 level.

** Difference from total statistically significant at the .01 level.

Source: NICHOLLS, W.L., FREEMAN, H.E., SHANKS, J.M. & Kiecolt, K.J, "Ethnic Differences in Work Disability." Deliverable I to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health, Education, and Welfare, 20 March 1980, p. 16a.

TABLE 3

COMPARISON OF WORKING-AGE DISABILITY AND SEVERE DISABILITY RATES
BY ETHNIC GROUP FROM FOUR SURVEYS

| Ethnic group | 1978 California Disability Survey (California) | 1976 Survey of Income & Education (California) | 1970 U.S. Census Public Use Tape (U.S.) | 1972 Nagi Survey (Cont. U.S.) |
|---------------------------------------|--|--|---|--|
| Total sample of working-age adults | 56,332 | 6,825 | 114,937 | 5,331 |
| | <u>Percent disabled</u> | | | |
| All adults ^a | 10.5% | 12.5% | 10.5% | 10.6% |
| Native American..... | 18.9% | b | 15.0% | b |
| Black, non-Hispanic.. | 16.0% | 23.0% | 13.9% | 16.7% |
| White, non-Hispanic.. | 10.6% | 12.1% | 10.2% | 10.2% |
| Hispanic..... | 9.0% | 11.5% | 10.2% | 7.3% |
| Mexican-American... | 8.7% | b | 10.3% | b |
| Other Hispanic..... | 9.5% | b | 10.1% | b |
| Asian-American..... | 4.5% | b | 6.3% | 0.0% ^c |
| | <u>Percent severely disabled</u> | | | |
| All adults ^a | 5.7% | 7.2% | 4.3% | 6.3% |
| Native American..... | 11.9% | b | 6.0% | b |
| Black, non-Hispanic.. | 9.9% | 15.5% | 7.3% | 12.1% |
| White, non-Hispanic.. | 5.5% | 6.6% | 3.9% | 5.8% |
| Hispanic..... | 5.5% | 8.2% | 4.4% | 3.1% |
| Mexican-American... | 5.8% | b | 4.4% | b |
| Other Hispanic..... | 5.0% | b | 4.4% | b |
| Asian-American..... | 2.1% | b | 2.5% | 0.0% ^c |

^aIncludes other or unreported ethnic group not shown separately.

^bNot separately available.

^cNo disabled persons were found in the small sample of Asian-Americans in the Nagi survey.

Source: Same as Table 2, p. 16b.

or rates of disability among the socially disadvantaged sub-populations of a society.²⁹

26. In order to approximate better the world prevalence of disability, we shall use the WHO 1975 estimate of 10 percent for the developed countries. For developing countries, the higher prevalence rates of 20 percent will be applied for all degrees of disability limiting the kind or amount of work that can be done and 12 percent for severe disability which prevents affected persons from working at all or regularly. These latter rates will not be applied to the entire population of the developing countries, however. They will be applied only to that portion of the population in the developing countries, regardless of age, who are estimated to live in absolute or relative poverty and whose per capita caloric deficits exceed 250 calories per day (approximately 70 percent of the total number of poor in all developing countries).³⁰ This very large segment of the population in the developing countries is assumed to lack minimally acceptable health care. It is further assumed that these rates of work disability, which are, strictly speaking, applicable only to the working-age population, can be applied to the nonworking-age segments of the population who live in absolute or relative poverty in order to derive equivalent levels of dysfunction in social, learning and/or self-care activities. Proceeding in this way will still yield prevalence rates of disability lower than the 24.1 percent rate reported for any disability in work, social and/or self-care activities in the Serbian commune of Vozdovac among persons in the 35-54 age group.³¹

²⁹The figures on the prevalence of chronic conditions do not measure precisely the likelihood that a particular condition will cause functional limitations or disability. Although statistics show higher disability rates for conditions that are more prevalent in the general population and for those with high potential for causing disability, whether or not a particular chronic condition will create disability depends on "the cause and natural history of the disease itself, the characteristics of those it affects, the efficacy of current medical practice in preventing or ameliorating any long-term impact on functional capacities, and the nature of the work environment and labor market." See KRUTE, A. & BURDETTE, M.E., 1972 survey of disabled and nondisabled adults: Chronic disease, injury, and work disability. Soc. Sec. Bull., 41:3-17 (April 1978), p. 4.

³⁰BURKI, S.J. & VOORHOEVE, J.J.C. "Global Estimates for Meeting Basic Needs: Background Paper," World Bank, 10 Aug. 1971.

³¹The Serbian study, supported by WHO, is the most carefully designed and executed one available; it employed alternative measurement procedures to operationalize the concepts of "impairment," "functional impairment," and "disability," in addition to documenting health services utilization among the study's disabled and nondisabled populations. See SLATER, S.B., VUKMANOVIC, C., MACUKANOVIC, P., PRVULOVIC, T., & CUTLER, J.L., The definition and measurement of disability. Soc. Sci. & Med., 8: 305-308, Pergamon Press, 1974.

27. The disability prevalence rates applied to the absolute or relatively poor in the developing countries may be construed as middle range estimates of overall and severe disabilities of every kind (work, social, learning, and self-care) that prevail among socially disadvantaged persons. They approximate the different risk levels of disability that may be found in the lower social classes of even highly developed countries such as the United States, wherein discrimination against minorities and/or certain ethnic groups limits their access to the goods and services enjoyed by the majority.
28. In 1975 people throughout the world suffering all types and degrees of disability numbered an estimated 490 million (12.3 percent of the world population); by the year 2000, their number will reach an estimated 846 million (13.5 percent of the world population). Whereas in 1975 more than three-quarters of the world's disabled people lived in developing countries, by the year 2000 more than four-fifths of them will live in these countries (Table 4). Our assumptions concerning the differing risk levels of disability among the social classes yield a higher disability prevalence figure of 12.3 percent than that of 10 percent estimated by WHO for the world population in 1975.
29. The differing rates of projected population growth in the developed and developing countries appear not only to lead to a build-up over time in the percentage of disabled people living in developing countries but also to an increase in the total percentage of the world population who will experience disability as a condition of life. By the year 2000, disabled people are estimated to grow to more than 13 percent of the world population.
30. Growth in the total number of disabled people will also occur in the developed countries, although at a substantially lesser rate than in the developing countries. The more developed countries are estimated to experience an annual growth rate of 0.74 percent from 1975 to 2000. The total number of disabled people in less developed countries is expected to increase at an annual rate of 2.56 percent. The underlying types of disabling conditions will be quite different, however.
31. Disability in the developing countries is, and will continue to be, a problem in all age groups largely caused by uncontrolled infectious diseases such as diarrhea, tuberculosis, ascariasis, onchocerciasis, trypanosomiasis, poliomyelitis, and the like (Table 5). In the developed countries, except for developmental disabilities, road accidents, and chronic mental illness, disability is associated with the aging process. Data from the U.S. show that age-related changes in disability rates for chronic conditions reflect not only in-

Table 4. Estimated number of disabled people
in MDCs and LDCs, 1975 and 2000

| | MDCs (millions) | | LDCs (millions) | |
|--|-----------------|-------|-----------------|-------|
| | 1975 | 2000 | 1975 | 2000 |
| Total population | 1,132 | 1,360 | 2,836 | 4,897 |
| <u>Applicable disability prevalence rate</u> | | | | |
| a. MDCs | | | | |
| i. Disability, all types and degrees - 10% | 113.2 | 136 | | |
| ii. Severe disability - 6% | 67.9 | 81.6 | | |
| b. LDCs (population living above absolute or relative poverty: 1,904 million in 1975; 2,697 million in 2000) | | | | |
| i. Disability, all types and degrees - 10% | | | 190.4 | 269.7 |
| ii. Severe disability - 6% | | | 114.2 | 161.8 |
| c. LDCs (population living at or below absolute or relative poverty: 932 million in 1975; 2,200 million in 2000) | | | | |
| i. Disability, all types and degrees - 20% | | | 186.4 | 440 |
| ii. Severe Disability - 12% | | | 111.8 | 264 |
| <u>Total disability</u> | | | | |
| a. Count (millions) | | | | |
| i. All types and degrees | 113.2 | 136 | 376.8 | 709.7 |
| ii. Severe disability | 67.9 | 81.6 | 226 | 425.8 |
| b. Percentage world population, <u>1975 and 2000</u> | | | | |
| i. All types and degrees | 12.3 | 13.5 | | |
| ii. Severe disability | 7.4 | 8.1 | | |
| c. All types and degrees, <u>1975 and 2000</u> , as percentage in: | | | | |
| i. MDCs | 23.1 | 16.1 | | |
| ii. LDCs | 76.9 | 83.9 | | |
| d. Annual growth rate (%) | | | | |
| i. MDCs | 0.74 | | | |
| ii. LDCs | 2.56 | | | |

Source: BURKI & VOORHOEVE, p. 7; ILO, 1977, Table 5.

Table 4. Prevalence, Mortality and Morbidity of the Major Infectious Diseases of Africa, Asia and Latin America, 1977-1978.*

| DISEASE | INFECTIONS (THOUSANDS, YR) | DEATHS (THOUSANDS/YR) | DISEASE (THOUSANDS OF CASES/YR) | AVERAGE NO. OF DAYS OF LIFE LOST (PER CASE) | RELATIVE PERSONAL DISABILITY† |
|-------------------------------------|-------------------------------|--------------------------|---------------------------------------|---|-------------------------------------|
| Diarrheas | 3-5,000,000 | 5-10,000 | 3-5,000,000 | 3-5 | 2 |
| Respiratory infections | | 4-5000 | | 5-7 | 2-3 |
| Malaria | 800,000 | 1200 | 150,000 | 3-5 | 2 |
| Meesles | 85,000 | 900 | 80,000 | 10-14 | 2 |
| Schistosomiasis | 200,000 | 500-1000 | 20,000 | 600-1000 | 3-4 |
| Whooping cough | 70,000 | 250-450 | 20,000 | 21-28 | 2 |
| Tuberculosis | 1,000,000 | 400 | 7000 | 200-400 | 3 |
| Neonatal tetanus | 120-180 | 100-150 | 120-180 | 7-10 | 1 |
| Diphtheria | 40,000 | 50-80 | 700-900 | 7-10 | 3 |
| Hookworm | 7-900,000 | 50-60 | 1500 | 100 | 4 |
| South American trypano- somiasis | 12,000 | 60 | 1200 | 600 | 2 |
| Onchocerciasis | | | | | |
| Skin disease | 30,000 | Low | 2-5000 | 3000 | 3 |
| River blindness | | | | | |
| Membranitis | 150 | 20-50 | 200-500 | 3000 | 1-2 |
| Amebiasis | 400,000 | 30 | 150 | 7-10 | 1 |
| Ascariasis | 800,000-1,000,000 | 30 | 1500 | 7-10 | 3 |
| Polio-myelitis | | 20 | 1000 | 7-10 | 3 |
| Typhoid | 1000 | 10-20 | 2000 | 3000+ | 2 |
| Leishmaniasis | | 25 | 500 | 1-4-28 | 2 |
| African trypanosomiasis | 12,000 | 5 | 12,000 | 100-200 | 3 |
| Leprosy | 1000 | 5 | 10 | 150 | 1 |
| Trichuriasis | 500,000 | Very low | 12,000 | 500-1000 | 2-3 |
| Filariasis | 250,000 | Low | 100 | 7-10 | 3 |
| Giardiasis | 200,000 | Low | 2-3000 | 1000 | 3 |
| Dengue | 3-4000 | Very low | 500 | 5-7 | 3 |
| Malnutrition | 5-800,000 | 0.1 | 1-2000 | 5-7 | 2 |

*Based on estimates from the World Health Organization and its Special Programme for Research and Training in Tropical Diseases, confirmed or modified by extrapolations from published epidemiologic studies performed in well defined populations (see references). Figures do not always match those officially reported, because under-reporting is great.

†1 denotes bedridden, 2 able to function on pain to some extent, 3 ambulatory, 4-1 minor.

Source: WALSH, J.A. & WARREN, K.S., Selective primary health care: An interim strategy for disease control in developing countries, N.E. JI. Med., 301:967-974 (1 November 1979), p. 968.

creases in the prevalence of these conditions with age but also their greater likelihood of causing disability with age (Tables 6 and 7).

32. As the developed countries experience low rates of population growth compared to the developing countries, the age structure of their populations is shifting upward, i.e., the older age groups will comprise a larger proportion of their total population base. In the U.S., for example, the number of institutionalized persons is expected to grow from 8.1 per 1,000 in 1976 to 9.6 per 1,000 in the year 2000, largely as the result of the substantial increase in the number of persons who live to ⁷⁵ years and older and become dependent on others for care.³² Thus, age-related chronic illness and disability will become an increasing burden in the developed countries for the able-bodied to sustain. Again, an increasing proportion of chronic illnesses and disabilities is expected to result from occupational exposure to substances which cause long-latency conditions. The incidence of occupational diseases in the U.S. approximates 400,000 cases per year and may cause as many as 100,000 deaths.³³

33. The burden of infectious disease and related disability is, and seems likely to continue to be, a burden which is unequally distributed in the developing countries between the advantaged and the disadvantaged populations and between urban and rural areas. A very high correlation exists, of course, between rural life and poverty. Despite unprecedented growth of national income in the developing countries in the 1960s, very little, if any, of this increased wealth has reached the poor. Indeed, the already tiny share of total income received by the poor in the developing countries may be diminishing in many of these countries.³⁴ Because development in both the developing and the developed countries is biased toward the urban areas, the rural areas wherein the majority of the population in the developing countries live have failed to share in the benefits of modernization and economic growth.³⁵

³²NOBLE, J.H. & CONLEY, R.W., The search for fact amidst conjecture in the policy of deinstitutionalization. Health Policy Qrtly, in press.

³³President's Report on Occupational Safety and Health, 1972, cited in BARTH, P.S. & HUNT, H.A., Workers' Compensation and Work-related Illnesses and Diseases, MIT Press, Cambridge, MA, 1980, p. 16.

³⁴McNAMARA, R.S., One Hundred Countries, Two Billion People, Praeger, New York, 1973, pp. 102-104.

³⁵LIPTON, M., Why Poor People Stay Poor, Harvard University Press, Cambridge, MA, 1977, pp. 13-14.

TABLE 6—Prevalence rate (per 1,000 population) for total and disabled population aged 20-64, by age group and condition, 1972

| Chronic condition group | Prevalence rate per 1,000 population | | | | | Disabled population as percent of total population | | | | |
|-------------------------|--------------------------------------|------------|---------------------|------------|------------|--|------------|------------|------------|------|
| | Total population | | Disabled population | | | Under age 45 | Aged 45-64 | Aged 65-84 | Aged 85-94 | 20-5 |
| | Under age 45 | Aged 45-64 | Under age 45 | Aged 45-64 | Aged 65-84 | | | | | |
| Total..... | 399.0 | 583.6 | 662.8 | 84.7 | 192.4 | 8.5 | 19.3 | 29.5 | 29.5 | |
| Musculoskeletal..... | 123.7 | 269.9 | 357.5 | 44.8 | 122.5 | 37.3 | 47.0 | 54.6 | 54.6 | |
| Cardiovascular..... | 129.6 | 268.7 | 349.3 | 27.6 | 103.3 | 21.3 | 38.4 | 54.9 | 54.9 | |
| Respiratory..... | 85.2 | 164.3 | 181.3 | 19.0 | 45.3 | 22.3 | 44.5 | 39.1 | 39.1 | |
| Digestive..... | 62.0 | 106.3 | 126.3 | 17.5 | 40.7 | 28.2 | 38.1 | 57.9 | 57.9 | |
| Mental..... | 38.2 | 59.2 | 71.9 | 17.0 | 39.4 | 53.2 | 66.5 | 82.0 | 82.0 | |
| Neurological..... | 6.3 | 8.9 | 10.2 | 1.8 | 7.2 | 8.6 | 84.5 | 84.5 | 84.5 | |
| Urogenital..... | 19.0 | 24.3 | 28.1 | 4.9 | 9.2 | 26.6 | 59.0 | 69.4 | 69.4 | |
| Neoplasms..... | 17.7 | 33.3 | 36.3 | 4.3 | 15.3 | 24.2 | 45.7 | 65.0 | 65.0 | |
| Endocrine..... | 29.3 | 61.6 | 73.8 | 6.0 | 20.4 | 24.6 | 31.9 | 51.6 | 51.6 | |
| Other..... | 97.8 | 103.2 | 122.5 | 15.8 | 33.3 | 16.1 | 32.3 | 41.9 | 41.9 | |

Table 7

| Chronic condition group | Ratio of prevalence rate of those aged 65-84 to rate of those under age 45 | | Percent of disability rate increase due to— | |
|-------------------------|--|---------------------|---|--|
| | Total population | Disabled population | Prevalence of condition | Disabling effects of chronic condition |
| | | | | |
| Total..... | 1.66 | 3.48 | 38 | 62 |
| Musculoskeletal..... | 2.89 | 4.35 | 66 | 34 |
| Cardiovascular..... | 2.69 | 4.44 | 39 | 61 |
| Respiratory..... | 2.83 | 5.18 | 36 | 64 |
| Digestive..... | 2.04 | 4.15 | 49 | 51 |
| Mental..... | 2.62 | 3.79 | 69 | 31 |
| Neurological..... | 1.62 | 3.43 | 52 | 48 |
| Urogenital..... | 2.79 | 5.39 | 32 | 68 |
| Neoplasms..... | 2.65 | 5.35 | 40 | 60 |
| Endocrine..... | 2.32 | 5.35 | 40 | 60 |

Source: KRUTE, A. & BURDETTE, M.E., 1972 survey of disabled and non-disabled adults: Chronic disease, injury, and work disability. Soc. Sec. Bull., 41:3-29 (April 1978), p. 9.

34. These tendencies perpetuate the current distribution of infectious disease and disability among the different classes of society in the developing countries, as well as reinforce the direction and magnitude of projected trends. As the poor remain poor or grow poorer while increasing in number in the developing countries, so will the burden of infectious disease and disability increase as a source of misery for those afflicted. The poor with nothing to lose but their miserable lives remain always a destabilizing political factor for governments to contend with.

Cost Burden

35. General - How great a burden does disability impose on the countries of the world to sustain? Assuming that the burden of care is not ignored but met by other family members, either directly or through payment of taxes for the purchase of health care and related services, what do the projections of the magnitude of the increase of disability between 1975 and 2000 imply?

36. Since it is not feasible for a variety of reasons to estimate the monetary cost burden of disability for comparison of the developed and the developing countries, a cruder measure of the "cost burden" is adopted; namely, the number of disabled people of all ages per 1,000 persons in the labor force. This measure of cost burden assumes that all economically active persons in a society must pay either directly or indirectly through taxes for the care of disabled people both in and outside of the immediate family. Obviously, this is an oversimplification of reality. Other persons not in the labor force can and do bear some portion of the burden of care for disabled people in the community. Indeed, one of the major arguments for investing in rehabilitation is that it lifts the burden of disability from all those who share it-- disabled persons themselves, family members, tax-payers, and the community at large.

37. Based on ILO estimates and projections of the labor force in 1975 and 2000 and the previously estimated number of disabled people in the developed and developing countries for those years, the calculated ratios of disabled people per 1,000 persons in the labor force give an indication of the burden of disability that is now sustained by societies throughout the world and of what the future is likely to bring (Table 8). In 1975 the burden per thousand economically active persons in the developed countries was an estimated 217.7 people with all types and degrees of disability and 130.6 people with severe disability. By the year 2000 the ratios for these levels of disability in the developed countries are expected to decline to 213 and 117.8, respectively. In the developing countries, on the other hand, the burden per thousand economically active

Table 8. Disability burden per 1,000 labor force participants in MDCs and LDCs, 1975 and 2000

| | MDCs | | LDCs | |
|--|---------|---------|-----------|-----------|
| | 1975 | 2000 | 1975 | 2000 |
| Total labor force participants (000's) | 520,082 | 638,514 | 1,125,493 | 1,907,344 |
| <u>Disability level</u> | | | | |
| All types and degrees | 217.7 | 213.0 | 334.8 | 372.1 |
| Severe | 130.6 | 127.8 | 200.8 | 223.2 |

Source: Table 4 above; ILO, 1977, Table 5

persons in 1975 was an estimated 334.8 people with all types and degrees of disability and 200.8 people with severe disability. These ratios for the developing countries are 1.5 times higher than for the developed countries. By the year 2000 the burden in the developing countries is expected to grow to 371.1 people with all types and degrees of disability and to 223.2 people with severe disability. Compared to the ratios for the developed countries, the expected increase in the burden of disability for the developing countries in the year 2000 will be 1.75 times higher. Clearly, the trends are running at cross purposes. The burden is growing in countries least able to sustain it. Wealthier countries can look forward to a measure of relief from their present burden, freeing resources for alternative uses.

38. Education for the Handicapped - If we assume that the prevalence rates of disability which were applied to the developed and developing countries of the world can also be applied to school-age children, 6 to 17 years, then the need for special education places in the classrooms can be predicted. In making a forecast, we must recognize that actual enrolment of both sexes in the developing countries was only 62 percent in the 6-11 age group and 35 percent in the 12-17 age group in 1975.³⁶ These enrolment ratios were substantially lower for females--53 and 32 percent in the respective age groups. By the year 2000 the enrolments of both sexes in the respective age groups is projected to reach 76 and 47 percent, with female enrolment still lagging by 5 percentage points.

39. According to conservative estimate, circa 1970 5 million disabled children throughout the world received some form of special education, 95 percent of whom resided in Europe and North America.³⁷ The forecast of need for special education places (or, alternatively, for special accommodations in regular classrooms in response to the modern trend of integrating placement of disabled children in the schools) assumes that national planners in developing countries will not adopt the policy of excluding disabled children as they make serious effort to increase the basic literacy of their populations.

³⁶UNESCO, Development of School Enrolment: World and Regional Statistical Trends and Projections, ED/BIE/CONFINTED 36/4/Ref. 2, Paris, July 1977.

³⁷WHO, "Part II - Some Statistical Data," Unpublished document, undated, p. 28.

40. WHO staff made a forecast (using very conservative assumptions) of the need for special education places in 1980. Twenty-five places per 1,000 enrollees in the 6-17 age group was the assumed need ratio, a figure only one-quarter of the CWOIH estimate of 100 per 1,000 enrollees. The WHO staff forecast indicated a sizeable gap between available special education places and need (Table 9). The gap was viewed as greater than revealed by the forecast, however, since only two-thirds of the child population in the developing countries were expected to be enrolled in school.

41. Unlike the WHO staff forecast, we shall assume the higher rate of disability prevalence of 13 percent among children in developing countries and 10 percent prevalence among children in the developed countries. A 13 percent prevalence rate for the developing countries is consistent with our earlier estimate of the higher risk of disability that prevails among the lower social classes of society; it reflects the high proportion of the population in the developing countries who live in absolute or relative poverty. The 10 percent prevalence rate for the developed countries is consistent with the CWOIH estimate, derived principally from the developed countries, of the proportion of handicapped children in the world population.

42. We shall also assume that equity considerations will permit enrolment of only the same proportion of disabled children as the proportion of all children projected to be enrolled between 1970 and 2000. In a situation where resource constraints limit educational opportunities for the general population, the target of equal opportunity and non-discrimination appears just and not overly ambitious, although it might be argued that disabled children should receive a higher investment than nondisabled children in order to help them to overcome their handicaps and to realize their highest human potential. Unfortunately, the latter ideal is not likely to be realized in the foreseeable future in view of the scarcity of resources and the general levels of deprivation which plague the majority of mankind. Equality of educational opportunity for disabled and minority group children is still an elusive goal in even the more developed countries of the world.

43. Under our assumptions, the gap between needed special education places for children 6-17 years of age and those which the schools seem likely to make available will probably widen still more in the next 20 years. Between 1970 and 2000 the total child population, 6-17 years, in the developed countries is projected to increase from 127.6 to 245.2 million (Table 10). The number of disabled children, barring dramatic disability prevention measures, will grow from an estimated 12.8 to 24.5 million. In the developing countries during the same 30 year span the total child population, 6-17 years is projected to grow from 507.4 to 1,040.6 million. The number

Table 9: Forecast of the need for special education places

| Region | Projected enrolment 6-17 years in 1980 | In need of special ed | Places provided around 1970 |
|---------------------|---|--------------------------|--------------------------------|
| <u>World total</u> | <u>552 568 000</u> | <u>13 814 000</u> | <u>(4 794 000)</u> |
| Developed countries | 201 913 000 | 5 048 000 | (4 570 000) |
| Africa | 64 959 000 | 1 623 000 | (9 000) |
| Asia | 213 778 000 | 5 344 000 | (112 000) |
| Latin America | 79 232 000 | 1 981 000 | (88 000) |

Source: WHO, "Part II - Some Statistical Data," Unpublished document, undated, p. 29.

Table 10. Estimated need for special education places (000's) for children, 6-17 years, in the MDCs and LDCs, 1970 and 2000

| | MDCs | | LDCs | |
|--|---------|---------|---------|-----------|
| | 1970 | 2000 | 1970 | 2000 |
| 1. Total population, 6-17 years | 127,622 | 245,240 | 507,362 | 1,040,594 |
| 2. Projected enrolment ratio (%) | 82.8 | 92.5 | 45.9 | 62.0 |
| 3. Projected enrolment, 6-17 years | 105,654 | 226,820 | 232,694 | 644,811 |
| 4. Projected number disabled children, 6-17 years (MDCs - 10%; LDCs - 13%) | 12,762 | 24,524 | 65,957 | 135,277 |
| 5. Projected equity enrolment disabled children, 6-17 years (2. X 4.) | 10,567 | 22,685 | 30,274 | 83,872 |
| 6. Actual places provided in 1970 | 4,570 | unknown | 209 | unknown |

Source: UNESCO, Development of School Enrolment: World and Regional Statistical Trends and Projections, ED/BIE/CONFINTED 36/4/Ref.2, Paris, 1977, Annex Tables I and II.

of disabled children in these countries is likely to increase from an estimated 66.0 to 135.3 million.

44. While enrolment ratios for this age group of children are projected to improve dramatically in the developing countries, increasing from 45.9 in 1970 to 62.0 in the year 2000, there appears to be little hope of bridging the gulf that existed in 1970 between available special education places in the developing countries--only 209,000 places--and the projected need for 83.9 million places in 2000 to assure equity in educational opportunities for disabled children. Even the more developed countries face the considerable challenge of closing the gap between an estimated 10.6 million needed special education places and the 4.6 million places that were provided in 1970, and then of creating the additional number required to accommodate 22.7 million children projected to need special education places in the year 2000. Yet from a human capital investment perspective, children between the ages of 6 and 17 are the prime target for development both through education and by the application of disability prevention and rehabilitation techniques. Each year of schooling represents a "sunk cost" which is nonrecoverable if the child drops out of school as the result of disability. The children who are already disabled when they reach school age stand their best chance of becoming independent, self-sustaining members of society if they receive education and rehabilitation.

45. Service Needs - Given the prevalence rates of disability in the developed and developing countries, what levels of services may be required to meet the needs of disabled people? Hazardous as estimating and projecting the prevalence rates of disability may seem, still more risky is the estimation of needed services and the manpower requirements to provide them. Issues of adequacy, equity, and efficiency of resource allocation impinge from all sides. Nonetheless, to gain some approximate idea of resource requirements and/or deficiencies, an attempt must be made to analyze the kinds and levels of services that the number of disabled people who now exist (and those who are projected to exist in the future) are likely to need.

46. Fortunately, there is one study which explored the relationship of disability to needed services for a known population served by a primary health care system.³⁸ This study sampled 1,397 persons in the Serbian commune of Vozdovac and obtained complete household, self-report, social, medical,

³⁸SLATER, S.B., "Disability in the Productive Age," unpublished draft manuscript, WHO, Geneva, undated.

and psychiatric information generally representative of adults, 35-54 years of age, living in 1974. The sampled population lived in urban (59.4 percent), rural (17.8 percent), and mixed (22.8 percent) areas of the commune.

47. The Vozdovac population was served by a health care system comprising both general and specialized hospitals, territorially based outpatient clinics providing a wide range of preventive and curative treatment, and back-up polyclinics (Home of Health) each covering 80-100 thousand persons. The outpatient clinics employed one or more teams consisting of at least one physician, a nurse, a midwife, and a medical technician. Each physician covered 2-3 thousand persons. Individuals and, where possible, entire families subscribed to specific physicians for their medical care. Children were the exception; they received specialized pediatric care. There were also occupational specialists attached to factories and other enterprises who cared for work-related conditions.

48. Twelve free-standing polyclinics covered the population of Belgrade, of which Vozdovac is a district. The polyclinics provided specialist services, including gynecological and ophthalmology exams, to back up the outpatient clinic teams; received referrals from the outpatient clinics; advised on case management; provided drugs and follow-up reviews; and prescribed the "plan of treatment" for the general practitioner (GP) in the outpatient clinics. Only the GP could refer patients to the hospital, however--except in the case of emergencies and for a limited number of specific procedures. The polyclinics also had on staff a rehabilitation physician specialist who provided consultation to other physicians in the polyclinic as well as to the outpatient clinics covered by the polyclinic. Some polyclinics had extensive equipment for rehabilitation.

49. The Vozdovac study found that disabled men primarily needed and used medical care, physical therapy, psychiatric therapy and counseling and, secondarily, needed and used prosthetic services and vocational training. Disabled women primarily needed and used medical care, psychiatric therapy and counseling and, secondarily, needed and used physical therapy and vocational training. Internists' ratings of the service needs of persons living in Vozdovac, 35-54 years old, indicated that annual service needs increased according to the degree of disability (Table 11). In rank order, medical care, counseling, and physical therapy were most needed by the moderately disabled men; severely disabled men most needed medical care, counseling, psychiatric therapy, and physical therapy. Moderately disabled females most needed medical care, counseling, and physical therapy; severely disabled females most needed medical care, counseling, and psychiatric therapy.

Table 11. Estimated number of persons in Vozdovac, aged 35-54, needing services; by sex and degree of disability (based on 1971 population) (Rounded to nearest 50)

| Type of service needed | Males | | | Females | | | All persons |
|------------------------|-----------------------|--------|-----------|------------------------|--------|-------------|-------------|
| | Degree of disability* | | | Degree of disability** | | | |
| | Moderate | Severe | All males | Moderate | Severe | All females | |
| (N) | (8,268) | (276) | (19,737) | (8,711) | (597) | (19,888) | (39,620) |
| Medical care | 6,950 | 250 | 8,500 | 7,500 | 500 | 9,900 | 18,400 |
| Surgical care | 850 | (14) | 1,150 | 1,050 | 0 | 1,300 | 2,450 |
| Physical therapy | 3,200 | 100 | 3,900 | 3,450 | 150 | 4,700 | 8,550 |
| Prosthetic services | 250 | 50 | 500 | 350 | 0 | 500 | 1,100 |
| Psychiatric therapy | 1,600 | 150 | 1,900 | 2,150 | 350 | 2,800 | 5,850 |
| Counselling | 5,250 | 250 | 7,400 | 5,850 | 500 | 8,650 | 16,050 |
| Vocational training | 450 | (9) | 550 | 50 | (20) | 150 | 700 |
| Total needed | 18,550 | 850 | 23,850 | 20,400 | 1,550 | 28,000 | 53,050 |
| Average number needed | 2.24 | 3.09 | 1.21 | 2.34 | 2.59 | 1.41 | 1.34 |

*Based on internist rated employment limitations

**Based on internist rated social activities limitations

Source: SLATER, S.B., "Disability in the Productive Age," unpublished draft manuscript, WHO, Geneva, undated, Table 5.44.

50. With the Vozdovoc study as background, let us assume that disabled people everywhere have the same service needs as a function of the degree of disability which is experienced. In other words, let us assume that degree of disability everywhere predicts, regardless of age and culture, the average number of services needed, as implausible as this may seem when juxtaposed to wide differences in the availability of resources of every kind among the nations of the world: What then is the projected number of disabled people needing specific services in the developed and developing countries in 1975 and 2000 by the standard used in the Vozdovoc study? What services would the Vozdovoc internists have prescribed for the average disabled person coming under their scrutiny?

51. The Vozdovoc internists, by our assumptions, would have concluded that the disabled in both the developed and developing countries of the world, by virtue of their increasing numbers caused by population growth, have increasing need for: (1) medical care, (2) counseling, (3) physical therapy, (4) psychiatric therapy, (5) surgical care, (6) prosthetic services, and (7) vocational training (Table 12). Taking the estimated quantity of physical therapy defined as needed by the average disabled person in Vozdovoc as the baseline against which to compare the quantities of other services needed, the quantity of medical care needed is 2.1 times greater; needed surgical care is 0.29 as much; needed psychiatric therapy is 0.69 as much; needed counseling is 1.9 times greater; and needed vocational training is 0.08 as much.

52. In proceeding in this way, however, the possible biases of the Vozdovoc internists' view of "needed services" must be kept in mind, especially with respect to their opinion about the possible need for vocational training and perhaps surgical care. Also worthy of note is the difficulty of translating estimates of the quantity of needed services into estimates of the time, manpower, and skill levels required to deliver these services. Let us illustrate this point by applying the Vozdovoc service workload statistics to the estimated volume of services needed by disabled people throughout the world according to the Vozdovoc standard.

53. In 1973 physicians in Belgrade provided an average of 8,110 visits per physician to the adult population; the intensity of physician use was assumed to be 2.66 visits per patient based on a ratio of 1:2.66 first visits. Specialists in physical medicine and rehabilitation provided an average of 10,403 visits per physician; their patients received 3.29 visits per episode. No comparable statistics were reported for the other needed services.³⁹ Commenting on the available

³⁹Ibid., pp. 120-121.

Table 12. Estimated number (millions) of disabled people with all types and degrees of disability needing services, by type, in the MDCs and LDCs, according to the Vozdovac standard, 1975 and 2000

| | MDCs | | LDCs | |
|---|-------|-------|-------|-------|
| | 1975 | 2000 | 1975 | 2000 |
| Total disabled population | 113.2 | 136.0 | 376.8 | 709.7 |
| <u>Type of service needed (ratio needing service)</u> | | | | |
| Medical care (.464) | 52.5 | 63.1 | 174.8 | 329.3 |
| Surgical care (.062) | 7.0 | 8.4 | 23.4 | 44.0 |
| Physical thrapy. (.216) | 24.5 | 29.4 | 81.4 | 153.3 |
| Prosthetic services (.028) | 3.2 | 3.8 | 10.6 | 19.9 |
| Psychiatric therapy (.148) | 16.8 | 20.1 | 55.8 | 105.0 |
| Counselling (.405) | 45.8 | 55.1 | 152.6 | 287.4 |
| Vocational training (.018) | 2.0 | 2.4 | 6.8 | 12.8 |

Source: Table 4 above; SLATER, Table 5.44.

statistics, the author of the unpublished draft manuscript describing the Vozdovoc study notes that the 8,110 visits per physician year translate into an average of four minutes per visit during the physician's work day. Nothing is known about the adequacy or efficacy of the physician's efforts.⁴⁰

54. By the Vozdovoc standard for the average disabled person, the estimated 52.5 million disabled people needing medical care in the developed countries in 1975 required 139.7 million visits to 17,200 GPs, and the estimated 24.5 million needing physical therapy required 80.6 million visits to 7,700 physical medicine/rehabilitation specialists (Table 13). By the year 2000 the developed countries will have an increased population of an estimated 63.1 million disabled people needing medical care who will require 167.8 million visits to 20,700 GPs; an estimated 29.4 million needing physical therapy will require 96.7 million visits to 9,300 physical medicine/rehabilitation specialists. In 1975 the developing countries had an estimated disabled population of 174.8 million people needing medical care and 81.4 million needing physical therapy. To meet their needs by the Vozdovoc standard would have required 465 million visits to 57,300 GPs and 267.8 million visits to 25,700 million physical medicine/rehabilitation specialists. By the year 2000 the estimated disabled population in the developing countries will have increased to 329.3 million needing medical care and 153.3 million needing physical therapy. By the Vozdovoc standard, this population of disabled people in the developing countries will require an estimated 875.9 million visits to 108,000 physicians and 504.4 million visits to 48,500 physical medicine/rehabilitation specialists.

55. Clearly, resource constraints in the foreseeable future preclude meeting the Vozdovoc service standard for the average disabled person in the developing countries and perhaps in many of the developed countries as well. In 1975 just to meet the needs of the estimated 12.3 percent of the world population who are disabled would have required 32.8 physicians per 100,000 disabled needing medical care and 31.7 physical medicine/rehabilitation specialists per 100,000 disabled population needing physical therapy. The supply of physical medicine/rehabilitation specialists is currently a tiny fraction of the available medical manpower pool. Many developing countries--Malaysia, Thailand, Pakistan and Bangladesh, Sudan, Indonesia, Algeria, Zambia, Zaire, Uganda, Tunisia, and Ethiopia--lack two physicians per 10,000 population.⁴¹ For these countries, acquisition of specialized medical manpower is a distant if not impossible dream.

⁴⁰Ibid.

⁴¹WHO, Sixth Report on the World Health Situation, Geneva, 1980, p. 194.

Table 13. Estimated number of general practitioners (GPs) and physical medicine/rehabilitation specialists needed by people with all types and degrees of disability in the MDCs and LDCs, according to the Vozdovac standard, 1975 and 2000

| | MDCs | | LDCs | |
|---|--------|--------|--------|---------|
| | 1975 | 2000 | 1975 | 2000 |
| 1. Persons needing medical care (millions) | 52.5 | 63.1 | 174.8 | 329.3 |
| 2. Persons needing physical therapy (millions) | 24.5 | 29.4 | 81.4 | 153.3 |
| 3. Estimated volume (millions) of medical care visits per year (2.66 X 1.) | 139.7 | 167.8 | 465.0 | 875.9 |
| 4. Estimated volume (millions) of physical therapy visits per year (3.29 X 2.) | 80.6 | 96.7 | 267.8 | 504.4 |
| 5. Number of GPs needed (3./8,110) ^a | 17,200 | 20,700 | 57,300 | 108,000 |
| 6. Number of physical medicine/rehabilitation specialists needed (4./10,403) ^a | 7,700 | 9,300 | 25,700 | 48,500 |

^aRounded to nearest 100.

Source: Table 12 above; SLATER, pp. 119 and 121.

56. Whereas in the developed countries there are almost 1,000 health workers per 100,000 population, the developing countries have little more than 200 (Table 14). What is more, available health resources in the developing countries tend to be concentrated in urban areas, particularly the capital cities (as many as 70 percent of some countries' medical doctors).⁴² This tendency is reinforced by the policy in many countries of providing a "pyramid of health care," starting with health posts, through district hospitals, up to a national teaching hospital which accepts referrals from the lesser facilities. The UN Conference on Human Settlements observed, "This situation favours the already existing cultural gap between physician and patient from the countryside or poor urban social class, which also assures that such patients will visit such hospitals only in cases of extreme need."⁴³

World Trends and Outlook for the Future

57. There are a variety of trends discernible at the present time which, if they continue, will lead to predictable outcomes for the developed and developing countries of the world. Caution must be exercised, of course, in making predictions about the future from information concerning recent history--information that is often fragmentary and of untested reliability. Wars, political instability, and world recession could interrupt what little global progress has been achieved in the post-World War II era. On the other hand, an era of more generous international cooperation, coupled with technological breakthroughs in health care, agriculture, energy, and education, could accelerate the rate of socio-economic development in places where people now struggle unsuccessfully for basic survival amidst squalor and absolute want.

58. The Sixth Report on the World Health Situation, published by WHO, documents the general relationship between infectious diseases and mortality. Dramatic disparities exist in overall and childhood mortality between the developed and developing nations. These disparities are characterized as "unpardonably disgraceful" in view of global resources and knowledge and reflective of "a worldwide lack of commitment to the closing of the enormous health gap between the more and less developed nations."⁴⁴ The Sixth Report observes further, ". . . there appears to have been little or no progress in recent years in reducing either their (infectious diseases) incidence or their prevalence."⁴⁵ Perhaps one-eighth of the

⁴²UN Conference on Human Settlements, "Global Review of Human Settlements," A/CONF. 70/A/1, 31 May - 11 June 1976, pp. 192-195.

⁴³Ibid., p. 192.

⁴⁴Sixth Report on the World Health Situation, p. 41.

⁴⁵Ibid.

Table 14 Distribution of countries (or areas) and population, according to density of aggregate of certain health occupations c. 1975¹

| Density rate per 100 000 population) | World | | | Less developed countries | | |
|--------------------------------------|------------------------------|------------------------|-----|------------------------------|------------------------|-----|
| | Number of countries or areas | Population (thousands) | % | Number of countries or areas | Population (thousands) | % |
| Less than 50 | 26 | 374 172 | 9 | 26 | 374 172 | 13 |
| 50-99 | 22 | 786 402 | 20 | 22 | 786 402 | 28 |
| 100-249 | 59 | 717 692 | 18 | 59 | 717 692 | 26 |
| 250-499 | 44 | 1 184 943 | 30 | 36 | 974 897 | 34 |
| 500-749 | 23 | 345 640 | 9 | 9 | 1 478 | 0 |
| 750 plus | 19 | 543 348 | 14 | 3 | 1 755 | 0 |
| Total | 193 | 3 952 205 | 100 | 165 | 2 866 396 | 100 |

¹ "Aggregate of certain health occupations" refers here to data on the following categories:

Physicians
 Medical assistants
 Multipurpose health auxiliaries (barefoot doctors, village health auxiliaries, etc.)
 Professional midwives, assistant midwives, traditional birth attendants
 Professional nurses, assistant nurses
 Traditional medical practitioners

¹ The term "health workers" covers the following categories:

| | |
|--|--|
| Physicians | Medical laboratory technicians |
| Medical assistants | Medical laboratory assistant technicians |
| Multipurpose health auxiliaries | Medical radiological technicians |
| Dentists | Medical radiological assistant technicians |
| Operating dental auxiliaries and dental hygienists | Sanitarians and assistant sanitarians |
| Dental technicians | Traditional medical practitioners |
| Pharmacists | |
| Nurses and midwives | |
| Assistant nurses and assistant midwives | |

Source: WHO, Sixth Report on the World Health Situation, p. 181.

world population, concentrated in Asia and Africa, are poorly nourished or undernourished. Chronic deficiency of calories causes poor growth, listlessness, and muscle wastage in children and the loss of weight and capacity for activity among adults. All ages become more susceptible to infection and illness and recover from disease less rapidly.⁴⁶ Slow growth of per capita GNP and rapid population increases in countries which now experience the greatest nutritional deficiencies threaten to make an already bad situation worse. Mayer claims:

. . . the increase in oil prices effectively put the green revolution out of reach of such countries as India, Pakistan and Bangladesh, which are poor in petroleum and other resources and have gone about as far as they can in increasing yields from traditional methods of farming. The increase in oil prices also dislocated the economies of the wealthy nations, reducing their contributions to international aid.⁴⁷

59. To Mayer's pessimistic assessment must be added other exacerbating developments:

- Prediction of a severe world wide recession causing an inflation-adjusted decline in GNP of 3 percent between 1979 and 1981;
- Strong movement by the U.S., the world's largest producer of grains, to cope with its oil dependency and escalating costs of energy by converting an increasing share of grain production to alcohol as an oil substitute;
- Action by the U.S. Congress to cut the U.S. share of financing for two international regional development banks as a "belt-tightening" response to recession in the U.S. which is expected to cause a 2 percent drop in inflation-adjusted GNP in 1980 and a 1 percent decline in 1981-- thus eroding the U.S. President's ability to fulfill his negotiated commitments to the World Bank and other international financial institu-

⁴⁶MAYER, J., The dimensions of human hunger. Sci. Amer., Sept. 1976, p. 40.

⁴⁷Ibid., p. 45.

tions.⁴⁸

Lamentable as this action by the U.S. Congress may seem, it is congruent with the mood of the American people at this time. The ABC-Harris opinion pool, conducted 20 March - 5 April 1980 show that a majority--82 v. 14 percent--favor cutting foreign economic aid; a majority--77 v. 20 percent--also favor cuts in foreign military aid.⁴⁹

60. The tendency of the wealthier nations to neglect their commitments to provide aid to poorer nations appears to occur not only in times of economic recession but in good times as well. The European Parliament recently accused the Common Market's nine governments of "mismanaging and deliberately obstructing its program to help the community's poor regions."⁵⁰ In a resolution approved by the majority of the European Parliament, numerous deficiencies were identified in the European Development Fund, including insufficiency in the amounts of funding, excessive delays between requests for funds, their appropriation, and eventual expenditure, the lack of accountability for how the funds are spent by member countries, and use of the funds by some countries to offset their own commitment to meeting the needs of poor regions.

61. Meanwhile, world population growth continues its inexorable pace. During the period 1975-2000 the world population is expected to increase by 60 percent and exceed 6 billion. Most of the growth will take place in the developing countries. While these countries now contain 70 percent of the world population, in the year 2000 80 percent of humanity will live in the developing countries--more than 70 percent in Asia and Africa alone! During the same period declining rates of natural increase in the industrialized North, particularly in Europe, USSR and North America, are causing major changes in the composition of its populations. By the year 2000 the developed countries will contain a smaller proportion of both youth and persons of prime working age (15-44 years) and a higher proportion of older workers and elderly. In contrast, demographic shifts in the developing countries will enlarge the relative size of the prime age group for labor force participation and reduce somewhat the relative size of the youth

⁴⁸See ELIA, C.J., Oils' strength may run dry as recession cuts fuel use and surplus increases, analysts warn. Wall St. J1., 22 April 1980, p. 47; BERRY, J.M., Conferees' cut U.S. aid share in global banks. Washington Post, 16 May 1980, p. B-3.

⁴⁹HARRIS, L., The public has definite preferences on where to cut and not cut budget. Washington Post, 12 June 1980, p. A-2.

⁵⁰GOTTLIEB, H., Assembly charges neglect of EEC development fund. Int. Herald Tribune, 16 April 1980.

population. In terms of dependency, the developed countries are expected to experience an increase in the old-age dependency ratio which will be offset by a decrease in the child dependency ratio. The child dependency ratio in the developing countries is expected to drop precipitously, with some slight increase in the old-age dependency ratio. According to the Sixth Report on the World Health Situation, the easing of dependency in all of the developing countries (except for Africa where no improvements are expected) is the result of growing acceptance of family planning and the reduction of crude death rates.⁵¹

62. The WHO forecast of growing acceptance of family planning and a reduction in crude death rates is predicated, however, on the assumption of continuing development and/or maintenance of aid levels commensurate with population growth in the developing countries. In view of the tendency of the wealthier nations to cut back on aid when faced with economic recession and to divert agricultural output to energy production, the WHO forecast may be overly optimistic. According to Mayer, the average annual change in food production is failing to keep pace with population growth and/or domestic demand for food in 42 of 71 developing countries.⁵² The diminishing supply of fish resulting from overfishing and pollution, the lessening of the impact of the "green revolution" without considerably more time, work, and capital investment, and the reduced supply, and increased price, of oil, all impinge on the availability of food and make what Mayer describes as a "precarious but manageable" situation less certain.⁵³

63. Central to Mayer's plan of attack on world famine is an adequate grain reserve, strategically located throughout the world, which can be drawn on to meet the needs of stricken areas. By implication, the U.S. (defined by Mayer as "currently the granary of the world") will have to provide a substantial portion of the needed grain reserve. But if Mayer's program for averting famine and malnutrition is not implemented as the result of contracting levels of aid from the developed countries (including the capital needed to increase food production), then the expected drop in the crude death rate, which typically precedes a reduction in the birth rate, may not occur. In effect, malnutrition will continue as a potent direct cause of high mortality and an indirect cause of high birth rates--thus impeding the realization of the projected diminution by the year 2000 of the child dependency ratio in many of the developing countries.

⁵¹Sixth Report on the World Health Situation, pp. 228-229.

⁵²MAYER, pp. 47-48

⁵³Ibid. Noteworthy in this regard is the fact that the ratio of expenditures for oil by non-oil producing LDCs to net official aid from all sources to these countries has shifted from 0.62 in 1973 to 1.72 in 1980, an extremely ominous trend.

64. Barring major wars that would kill off people who would otherwise grow old and become dependent by the year 2000 in the developed countries, the Sixth Report on the World Health Situation seems quite accurate. There will be increased numbers of elderly persons in general and a larger proportion of older workers in the labor force. These trends have significant implications for the health and socio-economic policies in the developed nations of the North.

65. The elderly are heavy consumers of health care as well as those kinds of rehabilitation services which contribute to the maintenance of daily living functioning. They are becoming increasingly influential as a voting bloc. To the extent that the elderly succeed in obtaining more generous allocations from the public treasury of highly specialized and expensive health care as well as income support, then the cost burden of chronic illness and dependency associated with old age seems likely to rise. In the U.S. and other highly industrialized countries of the North the increasing costs of health care and the indexing of income transfer payments for retirement and disability insurance annuitants are considered two of the major sources of inflation.⁵⁴ Physicians in the U.S. are beginning to ask, "Can society afford all the expensive new things we know how to do?"⁵⁵ Budgetary constraints are forcing hospitals to ration some kinds of care; there is increased attention being paid to the cost-effectiveness of existing medical technology.

66. On a still broader plane of concern, the inflationary costs of the modern welfare state are causing retrenchment of some of its benefits in places where wide consensus has existed for some time about the desirability of generous income redistribution policies. The Social Democratic government of Denmark is proposing substantial cuts in public spending in order to avert the threatening financial crisis that has arisen because of the government's huge budget deficit. Sweden and Norway are also reported to feel similar strain as the result of inflation.⁵⁶ The cost of repaying the national debt caused by welfare spending is becoming a greater burden each year in many of the more developed countries. The pre-

⁵⁴See NOBLE, J.H., Rehabilitating the severely disabled: The foreign experience. *Jl. Health Pol., Policy and Law*, 4: 221-248 (Summer 1979); NOBLE, J.H. & CONLEY, R.W., Hospital cost containment and the social services, in LUM, D. (ed.) *Social Work and Health Policy*, in press.

⁵⁵COHN, V., Can U.S. afford the new medical miracles? *Washington Post*, 9 May 1970, p. A-10.

⁵⁶DOWNIE, L., Scandinavian inflation imperils welfare state. *Washington Post*, 10 May 1980, p. A-14.

sumption of many economists that income transfer payments, because they transfer consumption from one group to another, do not represent "opportunity costs" as the use of other economic resources does, may be less valid when the income transfer is derived from borrowed funds. Economists such as Milton Friedman and Martin Feldstein in the U.S. are joining the issue and presenting strong arguments that excessive public consumption deprives a nation's economy of needed investment in productive capacity.

67. It seems clear that between now and the year 2000 the debate about appropriate levels of spending for competing purposes will heat up, fueled by many special interest groups who obtain benefits from public spending. As stagflation takes its toll on economic growth, the disability prevention and rehabilitation programs which serve all age groups will come under closer and closer scrutiny. The paradox that more successful medical care creates still more longer term problems will in all likelihood pervade the public consciousness and cause second thoughts about many policies.

68. Long-term care of the elderly and the burden that it imposes on the economically active segment of the population seems likely to create particularly painful strain between the generations, especially in countries in which the forces of industrialization and high labor force mobility have loosened the ties of family responsibility for its members. If the experience of eight cities in eight different European countries can be considered representative of what the developed countries face as their populations age and the old-age dependency ratio increases, we can anticipate significant problems relating to:

- Provision of adequate care facilities;
- Education of physicians concerning the needs of the elderly;
- Placement of patients into the appropriate kind of facility and/or hospital bed;
- Changing attitudes and practices in hospitals toward confused patients and how they should be treated;
- Staffing in face of the poor distribution of services;
- Complex organizational and financing systems for supporting the elderly.⁵⁷

Of the eight cities (Stockholm, Amsterdam, Copenhagen, Dublin,

⁵⁷WISEMAN, C. & BARNARD, K., "Information for Planning: Services for the Elderly," Final Report of Workshop, Stockholm, 1979. University of Leeds, Nuffield Centre for Health Services Studies, 1980.

Edinburgh, Geneva, Nottingham, and Zagreb), only Zagreb with its cultural emphasis on having the elderly continue to live with their families seemed able to cope with the long-term care problem without undue stress.

69. The contrast between Zagreb and the rest of the cities permits statement of a working hypothesis and prediction concerning course that successful versus unsuccessful long-term care policy will take in the developed countries over the next 20 years. Countries which can provide financial and other incentives as well as service supports to the families of severely handicapped or debilitated persons will minimize the burden of long-term care at least cost to the public treasury and win for this policy a greater measure of support from taxpayers. Countries, on the other hand, which try to improve the effectiveness of their existing service systems by spending increasing amounts on coordination mechanisms--the course of least political resistance--will achieve only marginal improvements at inordinate cost. They will succeed in adding layers of bureaucracy and regulatory controls and increase thereby not only friction between government and service providers but also between service providers and families. The already weak ties that families have with their elderly members in these countries may be still further loosened.

70. The U.S. is an extreme example in this regard. The vested interest groups that surround a very complex, often duplicative and highly interactive set of categorical social programs tend to block basic reforms. So many forms of categorical governmental intervention have gradually eroded family responsibility for severely disabled members. Some programs, because of the strong financial disincentives they provide to continuing responsibility, encourage families to jettison their handicapped into nursing homes and institutions. The Supplemental Security Income program, which provides means-tested income support for the elderly, blind, and disabled, reduces by one-third the amount of benefits if the beneficiary lives in or takes up residence in the household of a related other.⁵⁸ Instead of removing these disincentives to family responsibility at the cost of higher near-term budgetary outlays (which in all likelihood would lead to reduced future costs) and possi-

⁵⁸NOBLE AND CONLEY, The search for fact amidst conjecture in the policy of deinstitutionalization; CALLAHAN, J.J., DIAMOND, L.D., GIELE, J.Z., & MORRIS, R., Responsibility of families for their severely disabled elders. Health Care Financing Rev., Winter 1980, 29-48.

ble adverse reactions from providers of nursing home and institutional care, the U.S. is predictably pursuing a policy of low-cost demonstrations to show how better coordination and channeling of resources can improve service delivery to the chronically ill.

71. While it may be too late for many of the more developed countries to revise their institutional arrangements for coping with the dependency of severely handicapped or debilitated persons, it should be self-evident that the less developed countries would be ill-advised to adopt similar policies. Cultures which place value on family support of weaker members should be preserved and reinforced by adoption of appropriate public policies, even as socio-economic development with its centrifugal action on families is embraced as the means of securing the welfare of the greatest number.

72. Equally as difficult for the developed countries will be the discovery and adoption of an appropriate mix of rehabilitation and income transfer policies that, on the one hand, offer handicapped people the opportunity to obtain work and, on the other, do not diminish their work incentive. To the extent that paying an adequate amount of income support makes less attractive any job paying wages equal to or less than this amount, then scarce resources will be spent on the retraining of persons for whom no job paying sufficiently high wages is feasible. Politics and equity considerations constrain adoption of economically efficient policies in this regard.

73. The issue of work disincentives and their impact on the outcomes of rehabilitation is attracting increasing attention in the U.S. Inflation, the priority placed on serving the more severely handicapped, and a growing population of disabled persons are jointly contributing to the reduction in the number of persons being served each year by the vocational rehabilitation (VR) program, erosion of the average per client expenditure as measured in constant dollars, and a shrinking of the proportion of handicapped persons potentially in need of services who are served by the program. National planners are in a quandary as to how best to allocate to applicants competing for services a budget which is losing its value to inflation. If the principal goal of the VR program is to return handicapped persons to self-sufficiency by retraining them for remunerative employment, the question is being asked, "Does it make sense to invest scarce resources on individuals for whom, on balance, a job will pay less and provide less security than the combined benefits of indexed income transfer programs and publically provided health care?" It is argued that money spent on the rehabilitation of a person whose best interests financially are to avoid work, is an opportunity cost to other individuals who, with the assistance of VR services, are capable of obtaining a job paying enough to overcome the work disincentives attached

to the receipt of income transfer payments. It has been suggested that one way to mitigate this problem is to incorporate into the definition of eligibility for VR services an estimate of the likelihood that retraining will result in placement in a job paying enough to overcome any work disincentives that may exist for given individuals.⁵⁹

74. If a policy decision is made to invest substantial sums in persons for whom a job is not a viable option, then justification for these expenditures must be found. Such justification can be found in improved non-vocational functioning that may result from the provision of rehabilitation services. National planners in some countries may require explicit measurement of the benefits that accrue from improved non-vocational functioning and the costs of their attainment. They will want to be convinced that rehabilitation services with non-vocational objectives will not endanger the traditionally understood favorable benefit-cost ratio of rehabilitation programs directed to the employment of the handicapped.

75. The case can be made for investments in rehabilitation with non-vocational objectives on the basis of two premises:

(1) The costs of disability accrue regardless of whether or not rehabilitation services are made available; and

(2) One of the effects of rehabilitation is to reduce the costs of disability.⁶⁰

The costs referred to are those which handicapped individuals, their families, and society bear directly and indirectly as a consequence of disability. The beneficial effects of rehabilitation are the improved functioning and self-care of handicapped persons which lessen the burden that all parties would have borne, had not rehabilitation services been provided. Although acceptance of these premises does not require a heroic act of faith, demonstrating their scientific validity as applicable in all places and under all circumstances would be difficult and expensive. Hence, skeptics who do not wish to believe will ask for empirical proof. Accordingly, advocates of disability prevention and rehabilitation will have to garner scientific evidence wherever possible as well as political support for investments on behalf of handicapped persons for whom achievement of a vocational objective is not feasible.

⁵⁹NOBLE, *Rehabilitating the severely disabled: The foreign experience*, p. 246.

⁶⁰"Socio-economic Implications of Investments in Rehabilitation for the Disabled," para. 38. See also SIMPKINS, J., *The Value of Independent Living*. Rehabilitation Fund, New York, 1979.

76. Finally, it is important to understand the tendencies of social security programs in the developed and developing countries. Social security programs define what protections a society can afford to provide against the risks of old age, deteriorating health, and loss of income due to a variety of factors. Social security programs often pay for disability prevention and rehabilitation measures.

77. The developed countries spend an average of 14.5 percent of their GDP, compared to 3.1 percent among the developing countries, for family allowances and for social security coverage of their populations against the hazards of dependency arising from sickness and maternity; employment injuries; and from old age, invalidity, or the death of the family breadwinner. During the period 1972-1974, the developed countries remained stable or spent an increasing percentage of their GDP for social security 10.3 times as often as they spent a declining share of GDP for social security. In contrast, the developing countries remained stable or spent an increasing share of their GDP for social security only 0.81 times as often as they devoted a declining share of GDP for this purpose (Table 15). The developed countries provided an average coverage of 4.5 of 5 possible social insurance and assimilated schemes and family allowances, and 6.4 of 9 possible components under these schemes. The developing countries afforded their citizens the lesser coverage of 3.2, on average, of the 5 possible schemes and 4.3 of the 9 possible components.

78. During 1970-1974 the developed countries increased, on average, the rate of expenditures for social security 1.53 times more rapidly than the growth rate of their respective GDPs., and 3.2 times more rapidly than the rate of increase of the Consumer Price Index (CPI). The comparable ratios for the developing countries are 1.28 and 3.1, respectively. They indicate that the developing countries experienced less rapid growth in social security expenditures relative to GDP compared to the developed countries, but managed to stay ahead of CPI increases equally as well as the developed countries. The baseline for measuring GDP growth is, of course, many times smaller in the developing countries than in the developed countries. Thus, the gap in the expenditure level for social security appears to be widening between the developed and developing countries.

79. As an indication of benefit equity, there is great disparity between the developed and developing countries in the relative proportion of the population which enjoys social security coverage. An average of one-third of total social security expenditures in the developing countries goes to military and civilian public employees, a small segment of the total population. The developed countries spend, on average, a much smaller share of total social security expenditures on

Table 15. Social Security (SS) coverage in the MDCs and LDCs, 1974

| | <u>MDCs</u> | <u>LDCs</u> |
|---|-------------|-------------|
| 1. Average percentage of GDP spent for SS, 1974 | 14.5 | 3.1 |
| 2. Ratio of countries showing no change or an increasing percentage of GDP spent for SS, to those showing a decline, 1972-1974 | 10.3 | 0.81 |
| 3.(a) Average coverage by 5 possible social insurance and assimilated schemes ^a and family allowances | 4.5 | 3.2 |
| (b) Average coverage by 9 possible components of the 5 social insurance and assimilated schemes ^b and family allowances | 6.4 | 4.3 |
| 4. Average increase in SS benefit expenditures, 1970-1974, as ratio of: ^c | | |
| (a) Percentage increase in GDP | 1.53 | 1.28 |
| (b) Percentage increase in CPI | 3.2 | 3.1 |
| 5. Average percentage of total SS expenditures spent on benefits to military and civilian public employees, 1974 | 14.0 | 33.3 |
| 6. Ratio of countries showing no change or a decreasing percentage of total SS expenditures spent on benefits to military and civilian public employees, to those showing an increase, 1970-1974 ^d | 2.85 | 1.33 |

^aThe "social insurance and assimilated schemes" include coverage for: sickness-maternity; employment injuries; pensions for old age, invalidity, and survivors; and unemployment.

^bThe components of "social insurance and assimilated schemes," in addition to pensions and unemployment coverage, include: medical care, benefits in kind other than for medical care, and

^b(Continued) cash benefits under both sickness-maternity and employment injuries coverages.

^cExcluding the MDC of Chile which experienced an increase of 4,846 percent in its CPI during 1970-1974.

^dCountries showing little or no change tended to expend a relatively small percentage of total SS benefits on military and civilian public employees compared to those which were increasing benefits for this group.

Source: ILO, The Cost of Social Security, Ninth International Inquiry, 1972-1974. Geneva, 1979, Tables 2, 5, 8, and Appendix Table.

this group of beneficiaries--only 14 percent of total expenditures. What is more, the developed countries are either maintaining or decreasing the share of social security benefits that goes to military and civilian employees 2.85 times more frequently than showing an increase. The developing countries are tending in the same direction, although the tendency exhibited by a ratio of 1.33 is less pronounced than in the developed countries.

80. In view of the decline in the rate of growth of the world economy since 1974 and the poor outlook for at least the first half of the 1980s, it is hard to see how social security coverage of the world population can be improved in any but the OPEC countries. There are signs, as previously mentioned, of retrenchment in the Scandinavian countries. The United Kingdom and the U.S. have already taken steps to curtail social welfare benefits. Recently enacted legislation in the U.S., for example, limits the maximum payable social security disability insurance benefit for a disabled worker with family to no more than 80 percent of the worker's prior wages or salary (a change which, from the standpoint of work incentives, is undoubtedly beneficial). Annual budget growth of the vocational rehabilitation program from 1975-1979 has been constrained to 4.1 percent, a rate well below the rate of inflation. Projected budget growth through 1985 shows no sign of improvement. Still more dramatic is the strong possibility that the U.S. Congress will pass legislation that will permit companies and unions which provide private pension plans to cut back on promised benefits to retired workers if a plan runs into financial trouble. Changing social trends, technology, foreign competition, and a declining union membership are seen as endangering 200 multi-employer pension plans covering millions of workers in printing, construction, coal and other industries in the course of the next 10 years.⁶¹

Development Needs, Costs, and
Implications for Policy Change

81. What will it cost to support the development needs of the developing countries from now to the year 2000? What role does disability prevention and rehabilitation play in socio-economic development? What proportion of development costs should the developing countries devote to disability prevention and rehabilitation? What steps can the more developed countries take to increase the investment in disability prevention and rehabilitation? In view of recent trends, these are indeed very difficult questions, but ones which WHO and the UN system must address if the goal of achieving health for all by the year 2000 is to become more than an empty slogan.

⁶¹PORTER, S., Legislation would cut benefits of many private pension plans. Washington Star, 3 June 1980, p. C-10.

82. WHO and the UN system have a critical role to play in promoting the concept of primary health care and clarifying its concrete meaning for specific contexts and instances, as the developed and developing countries struggle to adapt to its precepts. For the developing countries primary health care implies continuing progress in socio-economic development, with special emphasis on improving nutrition, sanitation, and the supply of safe water. The costs of development along these lines, by any reckoning, will be enormous. Financing these costs will challenge the resolve and ingenuity of the developing and developed countries, the UN system, intergovernmental institutions, and the world order. Finding solutions to what now appear as almost intractable problems is not, however, beyond the scope and capacity of the presently constituted authorities to cope with--a subject to which we shall return later.

83. The World Bank has estimated that implementation of a basic needs policy to raise the standard of living for the world's poorest populations will cost \$10-12 billion annually in U.S. 1975 dollars and prices between 1980 and the year 2000.⁶² If this basic needs policy, involving the provision of minimally acceptable diets, safe water, sewerage, public health measures, and basic education, is directed to all poor people (not simply the poorest of the poor), then the estimated annual costs for the next 20 years will amount to an estimated \$19 billion. Tables 16 and 17, taken from the World Bank report, provide a breakdown of the estimated annual investment costs by sector (food, water and sewerage, housing, health, and education) and an estimate of recurrent costs for each sector. The combined investment and recurrent costs of implementing a basic needs policy encompassing all sectors over the next 20 years is estimated to average between \$47.1 and \$58.5 billion annually. Within this range, the estimated annual average costs by sector are: food - \$7.1 billion; water and sewerage - \$6.0 billion; housing - \$18.8 to \$29.6 billion; health - \$2.9 to \$3.5 billion; and education - \$12.3 billion.

84. While outlays of this magnitude for the next 20 years may appear too great to sustain, some perspective can be had by comparing these costs with the size of the world's income. The World Bank noted that total investment costs of \$377.4 to \$381 billion for a 20 year global basic needs program amounted in 1975 to only 6.0 percent of world income for that year, or 0.3 percent of world income if total investment costs are expressed as an annual rate.⁶³ The same comparison which takes into

⁶²BURKI & VOORHOEVE, p. 1.

⁶³Ibid., p. 2.

Table 16. Investment cost of a global basic needs program for 1980-2000 (1975 billion dollars)

| | <u>Total</u> | <u>All LDCs</u> | <u>Annual</u> | <u>Low income LDCs</u> |
|--------------------|------------------------|----------------------|---------------|------------------------|
| Food | 28.4 | 1.4 | | 1.1 |
| Water and sewerage | 75.8 | 3.8 | | 2.0 |
| Housing | 197.5 | 9.9 | | (6.6) ^a |
| Health | 25.1 - 29.0 | 1.26 - 1.45 | | .84 - 9.6 |
| Education | 50.6 | 2.5 | | (1.7) ^a |
| <u>Total</u> | <u>\$377.4 - 381.3</u> | <u>\$18.9 - 19.1</u> | | <u>\$12.2 - 12.4</u> |

^aEstimated at 67% of the total investment requirement.

Source: BURKI & VOORHOEVE, p. 4

Table 17. Estimated recurrent costs for basic needs strategies (billions of 1975 U.S. dollars)

| | <u>Low</u> | <u>Medium</u> | <u>High</u> |
|---|------------|---------------|-------------|
| <u>Food</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | | 20% | |
| - Annual average recurrent cost (\$bns.) | | 5.68 | |
| - Total recurrent cost, 1980-2000 (\$bns.) | | 113.60 | |
| <u>Water and Sewerage</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | | 3.0% | |
| - Annual average recurrent cost (\$bns.) | | 2.27 | |
| - Total recurrent cost, 1980-2000 (\$bns.) | | 45.48 | |
| <u>Housing</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | 4.5% | | |
| - Annual average recurrent cost (\$bns.) | 8.88 | | 19.7 |
| - Total recurrent cost, 1980-2000 (\$bns.) | 177.6 | | 394.0 |
| <u>Health (a) Primary Health Care</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | | 10.0% | |
| - Annual average recurrent cost (\$bns.) | .54 | | .93 |
| - Total recurrent cost, 1980-2000 (\$bns.) | 10.80 | | 18.60 |
| <u>(b) Tropical Disease Control</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | | 5.7% | |
| - Annual average recurrent cost (\$bns.) | | 1.12 | |
| - Total recurrent cost, 1980-2000 (\$bns.) | | 22.3 | |

| | <u>Low</u> | <u>Medium</u> | <u>High</u> |
|---|------------|---------------|-------------|
| (c) <u>Total health strategy (a & b)</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | 6.6% | | 7.0% |
| - Annual average recurrent cost (\$bns.) | 1.66 | | 2.05 |
| - Total recurrent cost, 1980-2000 (\$bns.) | 33.10 | | 40.90 |
| <u>Education</u> | | | |
| - Ratio of annual average recurrent cost to total investment cost (%) | | 19.4% | |
| - Annual average recurrent cost (\$bns.) | | 9.8% | |
| - Total recurrent cost, 1980-2000 (\$bns.) | | 195.5 | |
| <u>Total: All strategies</u> | | | |
| - Annual average recurrent cost (\$bns.) | 28.26 | | 39.47 |
| - Total recurrent cost, 1980-2000 (\$bns.) | 565.28 | | 789.48 |

Note on sources: Investment costs from which recurrent costs are derived are taken from the descriptions of the strategies, as summarized in Table 15. The following sources were used to derive rough estimates of recurrent cost/investment cost ratios:

Food - FAO, "Provisional Indicative World Plan for Agricultural Development," 1970; consultation with specialists at the International Food Policy Research Institute.

Water and Sewerage - Average ratio derived from 7 recent and current water projects in Egypt, Indonesia, Kenya, Sri Lanka, Syria, Tanzania, and Tunisia.

Housing - Consultation with urban projects specialists in CPS.

Health - Average ratio for primary health care derived from five population projects in Bangladesh, India, Kenya, Malaysia and the Philippines; tropical disease eradication ratio derived from WHO, "Special Program for Research and Training in Tropical Diseases," 1976, and consultation with environmental health specialists in CPS.

Education - Consultation with education projects specialists in CPS.

Source: BURKI & VOORHOEVE, p. 5.

account total investment and recurring costs over the next 20 years (\$942.7 to \$1,170.8 billion in 1975 dollars) translates into between 14.9 and 18.5 percent of world income for 1975, or between 0.7 and 0.9 percent of world income if the total costs are expressed as an annual rate.

85. Extending the World Bank's comparison of total investment costs and defense spending, the annualized investment and recurring costs of a 20 year global basic needs program would amount to between 12.6 and 15.6 percent of the estimated \$375 billion spent in 1975 on defense by the nations of the world. Expressed in these terms, it is apparent that the seemingly enormous costs of a global basic needs program encompassing the components of the WHO primary health care strategy is affordable--if only the nations of the world give up a relatively small proportion of spending for defense.⁶⁴

86. Focusing now specifically on disability prevention and rehabilitation, there is reason to believe that placing priority on an attack on infectious and parasitic diseases which afflict 3 billion people in the less developed world would yield very large benefits for relatively small costs per capita. Walsh and Warren⁶⁵ set forth a strategy of selective primary health care that takes into account prevalence, morbidity, mortality, and the feasibility of control and provide estimates of its costs in comparison with alternative strategies of health intervention (Table 18). The per capita cost of \$0.25 for selective primary health care is between 28 percent (onchocerciasis control) and 0.6 percent (community water supplies and sanitation) as expensive per capita as the alternatives. Accordingly, Walsh and Warren recommend that selective primary health care be adopted as a cost-effective interim intervention by many of the less developed countries. In comparison with the World Bank estimates of the costs of meeting basic health needs in the less developed countries, based on the principles and experience of primary health care strategies being pursued in 13 developing countries,⁶⁶ the strategy of selective primary health care may

⁶⁴There is evidence showing that the reallocation of defense spending to peaceful purposes would have the beneficial effect of creating more jobs requiring the lesser skill levels possessed by greater numbers of people who seek employment than would the capital intensive and mechanized weapons production technology of today. See DEMPSEY, R & SCHMUDE, D., Occupational impact of defense expenditures. *Mthly Labor Rev.*, 94:12-15 (Dec. 1971).

⁶⁵WALSH, J.A. & WARREN, K.S., Selective primary health care: An interim strategy for disease control in developing countries. *N.E. Jl. Med.*, 301:967-974 (1 Nov. 1979).

⁶⁶Mexico, Brazil, Columbia, the Dominican Republic, Jamaica, Bangladesh, India, Indonesia, Malaysia, the Philappines, Kenya, Tanzania and Tunisia.

Table 18 Estimated Annual Costs of Different Systems of Health Intervention.

| INTERVENTION | PER CAPITA COST (\$) | COST PER INFANT AND/OR CHILD DEATH AVERTED* (\$) |
|---------------------------------------|----------------------|--|
| Basic primary health care† | | |
| Range | 0.40-7.50 | 144-20,000 (I) |
| Median | 2.00 | 700 |
| Mosquito control for malaria | 2.00 | 600 (I) |
| Onchocerciasis control program | 0.90 | Few infant & child deaths |
| Mollusk control for schistosomiasis | 3.70 | Few infant & child deaths |
| Community water supplies & sanitation | 30-54 | 3600-4300 (I,C) |
| Nutritional supplementation | 1.75 | 213 (I) |
| supplementation | | 3000 (C) |
| Selective primary health care‡ | 0.25 | 200-250 (I,C) |

*I denotes infant & C child

†Delivered by village health workers

‡In this case delivered by mobile units

Source: WALSH & WARREN, p. 973.

be about 12.5 percent as expensive per capita.

87. Obviously, provision of rehabilitation services in the traditional specialist mode--even as implemented in Vozdovac within the Belgrade primary health care system--will be too expensive for the developing countries to afford. Helander's concept of a "multipurpose rehabilitation specialist," analogous to simply trained primary health care workers who function at the community level, deserves careful study to determine its cost-effectiveness relative to Walsh and Warren's \$0.25 estimate of the per capita cost of selective primary health care.⁶⁷ Similarly deserving of study is the cost-effectiveness of the WHO rehabilitation community-training program with emphasis on self-rehabilitation and self-training under local supervision and guidance, which was designed for implementation in the developing countries.⁶⁸ Unless the costs of rehabilitation services can be shown to be as cost-effective as disability prevention measures, health authorities in the developing countries seem likely to continue assigning low priority to their development.⁶⁹

88. As previously noted, there is serious question about the value of providing vocational rehabilitation services to handicapped persons in developed countries where high levels of income transfer payments act as a potent work disincentive insofar as jobs paying significantly more than the income transfer payments may not be available because of labor market discrimination against this group of people and/or their lack, before the onset of disability, of the basic education and work skills demanded by those sectors of the labor market where jobs exist. When the ratio of wages to size of the income transfer payment lies between 0.76 and 1.0, the rate of termination from the U.S. social security disability insurance rolls is roughly 40 percent; as the ratio increases or decreases, a commensurate increase or decrease in the termination rate occurs (Table 19). How to adjust and accommodate to the requirements of benefit adequacy while maintaining an appropriate level of rehabilitation investment in face of work disincentives that will inevitably exist can be predicted to plague policy-makers in the developed

⁶⁷HELANDER, E., "Towards a Multipurpose Rehabilitation Therapist." Paper based on speech at the Medical Commission of Rehabilitation International, Halle (Saale), 13 June 1977.

⁶⁸WHO, Training the Disabled in the Community: Part A, DPR/79.1, Geneva, August 1979.

⁶⁹It should also be noted that primary health care itself--especially those parts which subsume "traditional" healing systems--may be viewed with suspicion by health authorities in some of the developing countries if primary health care appears as a "watered down" version of Western health technology. The para-

Table 19
Wage/Benefit Ratio and the Rate of Termination

| Wage/ Benefit Ratio | Category Total ¹ | Nontermi- nations | Termi- nations ² | Rate of Terminations |
|---------------------------|--------------------------------|----------------------|--------------------------------|-------------------------|
| 0.00-0.25 | 2,342 (27.9) | 2,239 | 103 | 4.4 |
| 0.25-0.50 | 525 (6.3) | 452 | 73 | 13.9 |
| 0.51-0.75 | 463 (5.5) | 360 | 103 | 22.2 |
| 0.76-1.00 | 513 (6.1) | 305 | 208 | 40.5 |
| 1.01-1.25 | 511 (6.1) | 252 | 259 | 50.7 |
| 1.26-1.50 | 506 (6.0) | 235 | 271 | 53.6 |
| 1.51-1.75 | 468 (5.6) | 179 | 289 | 61.8 |
| 1.76-2.00 | 365 (4.4) | 129 | 236 | 64.7 |
| Greater than 2.00 | 1,653 (19.7) | 503 | 1,150 | 69.6 |
| Insufficient data | 1,010 (12.4) | 794 | 216 | 23.7 |
| | 8,386 (100.0) | 5,448 (65.0) | 2,938 (35.0) | |

¹Percentage figures are in parenthesis

²Terminations include only those 1973 BRP rehabilitants with both an MBR and a R 300 record with appropriate entries for the variables used who left the DI beneficiary rolls because of recovery for any duration during the period July 1972 to January 1977

Source: 1973 SRS RGA R 300 Tape and SSA Master Beneficiary Record

Source: BERKOWITZ, M., Work Disincentives and Rehabilitation, Institute for Information Studies, Falls Church, VA, 1980, p. 37.

countries into the indefinite future. It is a problem for which no technical or politically satisfying solutions exist.

89. Turning now to the question of what proportion of development costs the developing countries should devote to disability prevention and rehabilitation, it seems clear that no fixed percentage of GDP can be established as appropriate. Each country must assess the prevalence, morbidity, mortality, and the feasibility of control over the spectrum of diseases and other causes of disability which afflict its population. The developing countries must follow, in effect, the recommendations in this regard of the WHO Executive Board⁷⁰ and the WHO expert group on national health network development.⁷¹ Both sets of recommendations placed responsibility for surveying population needs and developing plans for meeting them primarily on the governments of UN member nations.

90. Finally, what can be done about financing the substantial costs of global socio-economic development incorporating primary health care as one of its essential elements? Recently the Independent Commission on International Development Issues, chaired by Willy Brandt, struggled with this and related issues and

⁶⁹(Continued) dox is that the priority given to health care is itself a function of the level of development, and is likely to involve a belief and expectation that sophisticated and specialized health services delivery is a necessary condition of effectiveness. As expressed by Charles Elliott, economist and Senior Research Associate at the School of Development Studies, University of East Anglia, England:

The higher the general level of education; the higher the general level of income (as a proportion of the average wage in the modern sector); the greater the exposure to mass media; the greater the aggregate urban experience of the community; the more sophisticated the lifestyle of the community; the higher priority is accorded to health care in both preventive and curative aspects.

See ELLIOTT, C., Is primary health care the new priority? Yes, but . . . Undated copy of Contact, published by the UK Christian Medical Commission, p. 4.

⁷⁰Formulating Strategies for Health For All by the Year 2000, p. 16.

⁷¹"Meeting on National Health Development Network," pp. 9-10.

reported its findings and recommendations.⁷² To avert a variety of serious dangers which it saw rapidly converging to provoke a world crisis, the Brandt Commission recommended that the nations of the world, the UN system, and intergovernmental institutions embark on an emergency program during the next 5 years to accomplish a number of equally important objectives:

- Large-scale transfer of resources to developing countries;
- Development of an international energy strategy;
- Implementation of a global food program;
- Initiation of major reforms in the international economic system.⁷³

In this connection, the Brandt Commission further specified what should be the most urgent sub-objectives of the emergency program:

Resource Transfer

- Assistance to poorest countries and regions being threatened by the current world economic crisis;
- Financing the debts and deficits of the middle income countries;

Energy Strategy

- Ensuring regular supplies of oil; rigorous conservation; more predictable and gradual price increases in real terms;
- Development of alternative and renewable energy sources;

Food Program

- Increasing food production in the Third World through necessary international assistance;

⁷²Independent Commission on International Development Issues, North-South: A Programme for Survival. The MIT Press, Cambridge, MA, 1980.

⁷³Ibid., p. 276.

- Provision of regular supplies of food, including increased emergency food;
- Development of a system to ensure long-term international food security;

International Economic System Reform

- Steps to create an effective international monetary and financial system, providing for fuller participation by all parties;
- Accelerated effort to improve the conditions of trade in commodities and manufactures for the developing countries.⁷⁴

91. The Brandt Commission proposal to create a new category of aid to the developing countries that would take the form of "program lending," i.e., "flexibly usable funds which are not tied to specific investment projects," is undoubtedly controversial.⁷⁵ It flies against conventional wisdom and the vested interests of the aid-giving countries which obtain immediate benefits from projects that earmark funds for the purchase by recipient countries of capital goods from outside. To some degree, political support of aid programs is dependent on this kind of reciprocity; "priming the pump" of the developing countries is viewed as a way of directly benefiting the exports, production, and job markets of the aid-giving countries. The Brandt Commission takes the position, however, that undue reliance on specific investment projects, together with earmarking of funds for capital goods spending, does not meet the pressing need of poorer developing countries for external finance to cover balance of payments and local currency expenditures.

92. Realization of the magnitude of the recurrent costs of development that accompanies the initial investment in socio-economic development provides additional reason for the kind of program lending envisioned by the Brandt Commission. According

⁷⁴Ibid., pp. 276-277.

⁷⁵Ibid., p. 232.

to World Bank estimates, the ratio of annual average recurrent costs to total investment cost varies from a high of 19.4 and 20 percent for education and food, respectively, to a low of 3 percent for water and sewage. The estimated ratio is 10 percent for primary health care and 5.7 percent for tropical disease control (Table 2). As the North-South dialogue between nations proceeds, it will be important for all parties to recognize the vital contribution that disability prevention and rehabilitation has to make to socio-economic development. If any conditions are to be attached to whatever program lending proposals emerge from this vital dialogue, one which WHO would be well advised to espouse is the requirement that primary health care, including disability prevention and rehabilitation, be integrated into the development plans of countries which receive program loans. In this way the aid-giving countries, the UN system, and intergovernmental institutions can be assured that capital investments and technical assistance directed to improved health for all by the year 2000 will become an integral part of national development programs.

93. Presently, specific investment and technical assistance projects are high risk, "hit or miss" propositions. WHO and other organizations of the UN system have very little, if any, systematic documentation of the long-term effects of their interventions. Conditioning the receipt of program loans on the integration of primary health care, disability prevention, and rehabilitation program development into overall plans of socio-economic development could be expected at a minimum to increase the likelihood that immediate investment and technical assistance projects would have a chance to make a long-term impact by virtue of assured outlays for the recurrent costs of these projects. Accountability for how program loans are spent by their recipients would in time produce documentation of whatever long-term impacts occur.

94. The challenge facing WHO is one of convincing the aid-giving countries and institutions of the vital role that disability prevention and rehabilitation as part of primary health care can play in overall socio-economic development. It seems appropriate for WHO to explore the feasibility of either drawing joint funding from these sources into initiatives of its own creation or, conversely, scanning for opportunities to lend its own expertise and financial resources to significant initiatives of others. In this way projects and programs with potential for long-term health improvement can be identified and become models for emulation throughout the world.