

Intersectoral Action for Health

The Role of Intersectoral Cooperation in National Strategies for Health for All



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Foreword

This publication is the outcome of a series of activities initiated in 1981, which included research, consultations and meetings designed to improve understanding of the relationship between development activities and changes in people's health and well-being, at different socioeconomic levels. These activities provided a valuable input to the Thirty-ninth World Health Assembly Technical Discussions on the role of intersectoral cooperation in national strategies for health for all. These Discussions were co-sponsored by the following organizations and bodies of the United Nations system: the Office of the Director-General for Development and International Economic Cooperation, United

Nations; the United Nations Environment Programme (UNEP); the United Nations Centre for Human Settlements (Habitat) and the International Year of Shelter for the Homeless (IYSH); the Food and Agriculture Organization of the United Nations (FAO); and the United Nations Educational, Scientific and Cultural Organization (UNESCO)¹. During the Discussions a number of important recommendations were made (see Chapter 6), which formed the basis for Resolution WHA39.22 adopted by the Thirty-ninth World Health Assembly in May 1986.

¹ A list of the Officers of the Technical Discussions and of the specially invited participants is included in Annex 1.

**Resolution WHA39.22 adopted
by the Thirty-ninth World
Health Assembly, May 1986**

**Intersectoral cooperation in national
strategies for health for all**

The Thirty-ninth World Health Assembly,

*Recognizing that factors which influence
health are found in all major sectors of
development;*

*Appreciating the active participation and
support through cosponsorship of the
Technical Discussions by the Office of
the Director-General for Development
and International Economic Cooperation
(United Nations), UNEP, the United
Nations Centre for Human Settlements
(Habitat), FAO and UNESCO in the
preparation and conduct of the
Technical Discussions during the Thirty-
ninth World Health Assembly;*

*Recalling that existing inequalities in
health between socioeconomic groups
are — as stated in the Declaration of
Alma-Ata on primary health care —
politically, socially and economically
unacceptable;*

*Having considered the report on the
evaluation of the Strategy for Health for
All,¹ which emphasizes the importance
of intersectoral actions for health, and
the background documents for the
Technical Discussions on the role of
intersectoral cooperation in national
strategies for health for all, as well as
the report of the Technical Discussions
on this issue;*

¹ Document A39/3 (to be published as the first volume of the *Seventh report on the world health situation*, Geneva, World Health Organization, in press).

1. CALLS ON Member States:

*(1) to identify and develop health ob-
jectives as an integral part of sectoral
policies for agriculture, the environ-
ment, education, water, housing and
other health-related sectors, and to
include health impact analyses in all
feasibility studies of health-related
programmes and projects;*

*(2) to include in their health-for-all
strategy specific equity-oriented
targets expressed in terms of im-
proved health among disadvantaged
groups such as women, the rural
poor, the inhabitants of urban slums,
and people engaged in hazardous
occupations;*

*(3) to use the health status within the
population, and in particular its
changes over time among disadvan-
taged groups, as an indicator for
assessing the quality of development
and its impact on the environment;*

*(4) to ensure, in cooperation with in-
ternational financing institutions, that
the health and nutritional status of
the most disadvantaged social groups
are protected when economic adjust-
ment policies are designed and im-
plemented;*

*(5) to encourage and support action-
oriented multidisciplinary research
focusing on socioeconomic and en-
vironmental determinants of health
in order to identify cost-effective
intersectoral actions for improving
the health status of disadvantaged
groups;*

*(6) to review the training of economic
planners, agricultural extension
workers, water engineers, teachers,
environmental specialists, and other*

professional groups who are to work in health-related fields, in order to secure an adequate understanding of intersectoral relationships with health within their sphere of competence;

(7) to strengthen the capacity within the health sector at national and local levels to identify vulnerable groups, assess health hazards as experienced by different groups, monitor health conditions within the population, and assist other health-related sectors to formulate and evaluate intersectoral actions for health;

(8) to ensure that the training of health professionals at all levels encompasses an adequate awareness of the relationships between environment, living conditions, life-styles and local health problems in order to enable them to establish a meaningful collaboration with professionals in other health-related sectors;

(9) to develop appropriate mechanisms within the overall development process to promote intersectoral actions for health at national and local levels in order to facilitate an efficient use of existing resources for achieving multisectoral health-for-all targets;

2. *CALLS ON the relevant United Nations agencies and organizations to continue their collaboration with WHO and Member States through concrete intersectoral activities, in particular at country level to ensure that socioeconomic development promotes the well-being of the people;*

3. *CALLS ON national and international nongovernmental organizations to promote and support intersectoral actions for health, particularly at the*

community level — for example, as carried out by local self-help groups;

4. *REQUESTS the regional committees to further develop specific regional health-for-all strategies fostering intersectoral actions in order to achieve equity-oriented health targets and to strengthen support to Member States in formulating, implementing and evaluating country-specific intersectoral health policies;*

5. *REQUESTS the Director-General:*

(1) to develop and strengthen the Organization's activities as regards:

(a) support to Member States in their efforts to formulate, implement and evaluate intersectoral actions for health at national and local levels and to establish effective national intersectoral mechanisms that will ensure that development initiatives in any sector will not have adverse effects on health;

(b) the promotion of equity-oriented health targets within the context of the Global Strategy for Health for All and the use of health indicators — in particular as related to disadvantaged groups — in assessments of socioeconomic development and quality of life;

(c) the role of universities and nongovernmental organizations in promoting intersectoral actions for health in accordance with resolutions WHA37.31 and WHA38.31;

(d) support to action-oriented research focusing on socioeconomic determinants of health and the coordination of such activities — for example, through the establishment of a scientific working group on intersectoral actions for health;

(e) the further development of interagency cooperation at international, national and local levels, as envisaged in the Global Strategy for Health for All, and in pursuit of the implementation of activities recommended by the Technical Discussions;

(2) to mobilize available resources and develop an appropriate organiza-

tional structure within WHO in order to secure firm support to Member States as regards intersectoral action for health, particularly as related to the improvement of health conditions among vulnerable groups;

(3) to include in progress reports on the health-for-all Strategy in-depth reviews of achievements within countries in formulating and implementing country-specific equity-oriented intersectoral health strategies, and thus reducing inequities in health between different socioeconomic groups;

(4) to report to the Forty-first World Health Assembly on the implementation of these activities.

Introduction

Intersectoral cooperation for achieving health goals has been accepted as one of the guiding principles of the health strategy that was adopted at the International Conference on Primary Health Care (Alma-Ata, USSR, 1978). This strategy reordered the priorities in the health sector, made primary health care its main focus, and moved from a perspective of health that was predominantly disease-oriented and curative to one that emphasized the prevention of ill health, the removal of health risks and the promotion of health. Conceived in these terms, the improvement of health required more than the services delivered by the health sector alone; the contribution of other sectors — in particular agriculture, animal husbandry, food, industry, education, housing, public works and communications — was explicitly recognized as vital for improving the health and well-being of the population.

The linkages between health and development have been amply demonstrated both by the experience of developed countries and by the improvement in the quality of life in several low-income countries. In developed countries, the communicable diseases, which were the principal causes of mortality, were controlled before major discoveries for their cure and treatment were made. The health gains were mainly due to better living conditions, which reflected improvements in nutritional status, sanitation and health behaviour. In the low-income countries, health development became part of a strategy that sought to satisfy the basic needs of the population by giving the poor access to resources and economic opportunities, raising educational levels, ensuring availability and distribution of food, improving the status of women, and providing the basic infrastructure of transportation and other public amenities.

Recognizing the multisectoral character of health development, the Alma-Ata Declaration¹

called for the coordination of health-related activities of the different sectors. In response, both the World Health Organization and its Member States have sought to develop more integrated health policies and programmes — embodied in the primary health care approach — and to design institutional mechanisms and administrative structures better able to promote intersectoral action for health. This book highlights some of the relevant experiences in different regions and the lessons that can be derived from them. These efforts point to the potential resources that are available for health promotion through intersectoral action. But it cannot be said that they have as yet led to a comprehensive intersectoral approach that would enable the health sector to collaborate with other sectors to shape and influence their health-related components towards a positive outcome in health.

There are several reasons why health strategies have not advanced far in this direction. Despite the new strategy for health, health planning has remained a more or less self-contained exercise within the health sector, carried out principally by health professionals, in relative isolation from other development processes. This isolation is reinforced by the tendency of most sectors to perceive health as comprising mainly medical services and their output. This pushes the health strategy back to a curative approach. In this context, other development sectors tend to regard intersectoral collaboration for health as a diversion of time and resources from their own sectoral priorities.

Another reason may be the nature of the linkages between the health sector and other areas. Any socioeconomic sector producing

¹See: *Alma-Ata 1978: Primary health care. Report of the International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978*. Geneva, World Health Organization, 1978 ("Health for All" Series. No. 1).

goods and services has a vast range of exchanges and links with other sectors. In most commodity-producing sectors and those providing physical infrastructure, such as transport, energy or communications, these links are quantified in terms of supply and demand, and inputs and outputs, and intersectoral linkages are incorporated into their plans and programmes from the outset. This is not so with the health sector; the curative component to some extent lends itself to quantification in terms of inputs and outputs, and the intersectoral linkages related to the physical infrastructure, equipment, drugs and manpower can be specifically defined and identified. But when health services move from the curative component to the prevention of ill health, and more particularly to the maintenance and promotion of health and capacity to resist disease, the linkages become much more complex and varied. The factors that can interact to influence the outcome are to be found in all major sectors contributing to socioeconomic development. These factors often contribute more to health or ill health than the factors that are immediately within the control of the health sector.

Intersectoral cooperation is not being promoted as a panacea for all health problems. There are many important programmes in health, as in other sectors, that can be implemented with well defined sectoral boundaries with the minimum of interaction between sectors. The intersectoral cooperation that is envisaged here relates to the factors that have a major impact on health, and by so doing, produces the best possible outcome for health, at the lowest possible cost. Such cooperation requires more extensive policy coordination than that to which the health sector has been traditionally accustomed.

Promoting health as a goal of development

In recent years, the wide-ranging reappraisal of development concepts and indicators has led to a growing recognition that improved health is a major goal of development in its own right. Although the prevention of ill health and control of disease are among the important

prerequisites for economic development, the importance of health as a development goal does not stem from any causal relationship between health and economic growth. Health is fundamental to the quality of life that development aims to achieve. The changing health situation of a country is therefore one of the most revealing indicators of the quality of its development. National development strategies — their impact on income distribution and poverty, their biases between and within urban and rural areas, their outcome in relation to regional disparities and vulnerable groups — have far-reaching consequences for the health situation. Sectoral programmes and projects outside the health sector can have major implications for health, both positive and negative, e.g., agricultural policies that affect food availability, a large irrigation project that might increase agricultural output and at the same time become a major transmitter of disease, female education which can have a dramatically positive effect on child survival rates, or environmental pollution from industrial projects.

The promotion of health and prevention and control of diseases require health strategies that have the capacity to identify the health risks and conditions leading to ill health within all health-related sectors. This has important consequences for the national system of planning and the allocation of sectoral responsibility. While the primary responsibility for achieving health goals is with the health sector and its agencies, a share of the responsibility devolves on the other sectors.

Health goals thus have to be incorporated as part of the sectoral goals of many different sectors and the health-related components of their policies must be clearly specified.

This is a collective task in which the relevant sectors must work closely together, with the health sector playing an active role. This book examines some of the main health-related issues both in the overall development strategy and in areas that have strong linkages with health.

The intersectoral cooperation required goes beyond what has been typical of efforts so far whereby the health sector seeks inputs from other sectors into its own health care programmes and services. The approach calls on the health sector to move out and collaborate with other sectors in incorporating health goals and health criteria into their strategies, policies and programmes. The health sector can also assist development sectors in monitoring and evaluating the health impact of projects, so that negative health effects can be anticipated and countered, and the positive impact on health strengthened and promoted. When health goals are in conflict with other sectoral goals, special efforts must be made to find a solution that does not have adverse effects on health. In all circumstances, it is important that decisions are taken with full knowledge of the trade-offs between health and other goals, and that compensatory actions that might be needed are clearly stated.

All this will require significant changes in the processes of development planning, resource allocation and budgetary procedures, which may present difficulties because of the lack of national mechanisms for intersectoral actions and coordination for health. The development planning system normally organizes development activities vertically in sectors, neglecting horizontal linkages with major synergistic impact on development.

Intersectoral coordination would require that health and related sectors undergo major internal adjustments and reorientation. The national system as a whole must have the capacity to perceive health as an integral part of the entire process of social and economic development. The health sector in particular has to be able to take an overview of the changing health profile of the population, relate it to the socio-economic changes that are taking place and, in collaboration with other sectors, develop the analytical tools and methodologies for identifying and monitoring the health impact of the development policies and programmes in other sectors.

Vulnerable groups as the main target of the strategy for health for all

The Alma-Ata Conference urged that high priority be given to the special needs of “those who are the most vulnerable or at greatest risk”, “who are least able, for geographical, political, social or financial reasons, to take the initiative in seeking health care”, “women, children, working populations at high risk, and the underprivileged segments of society”. The strategy for health for all had to reach out “into all homes and working places to identify systematically those at highest risk, to provide continuing care and to eliminate factors contributing to ill health”. The improvement of the health of vulnerable groups was singled out as one of the principal objectives of the health strategy. While the specific emphasis in this section of the Alma-Ata Declaration was on the coverage of health care services, the concern for vulnerable groups as the main target of health policies could not have been more forcefully expressed. The limited nature of the intersectoral cooperation that has been achieved so far can be attributed partly to the fact that while the health sector has generally recognized the importance of groups at risk, it has seldom adopted a systematic approach to their identification or to consideration of their living conditions. Such an approach would immediately confront the health sector with the health risks that originate in other sectors and the health-related concerns of those sectors.

This is clearly demonstrated in the chronic ill health of extreme poverty, which affects a large segment of the human population, and which has the highest priority for health strategies both nationally and globally. To eradicate this chronic ill health, health strategies would have to rely heavily on the contributions of other sectors. Chapter I, “Equity and health”, examines these issues and argues that the health-for-all strategy is by its very nature equity-oriented. The most revealing indicator of the health status of a nation is that of its vulnerable groups. The health strategy, therefore, demands an approach and a methodology that focus on and define the disparities in health that prevail in the population

as a whole, and that systematically identify the vulnerable population groups and the factors contributing to their vulnerability. One lesson of fundamental importance that can be drawn is that an equity-oriented health strategy involving different health-related sectors can overcome some of the constraints of poverty and achieve a dramatic improvement in health.

The intersectoral strategy for health has to be selective. It has to define the field of action where the linkages are known, proven and demonstrated in specific situations. This publication therefore focuses on four specific areas that are known to have a major impact on health — equity (Chapter 1), agriculture, food and nutrition (Chapter 2), education, culture, information, and life patterns (Chapter 3), and environment, water and sanitation, habitat, and industry (Chapter 4) — in each case providing illustrative examples. No attempt has been made to cover the entire spectrum of intersectoral linkages in health.

Thus, Chapter 1 sets out a number of health situations with different combinations of priorities, and with equity as an overriding factor. There is one situation where problems of survival demand the first priority; another in which the problems of morbidity and malnutrition persist after a dramatic reduction in mortality; and a third, where a change in health status results in an accelerated decline in mortality and a higher quality of life. The examples cited suggest that countries need to learn from each other's experience.

The profile of ill health in the developed countries is closely associated with living conditions and, for some diseases, with the life-style typical of industrialized societies, as well as with the prolongation of life. The health strategies that are evolving in developed countries are giving increasing attention to the intersectoral aspects of health. This is essential for dealing with the major health risks in these societies; their reduction depends primarily on efforts to improve working conditions, combat unemployment, change eating habits, reduce smoking and alcohol consumption, control environmental pollution and reduce traffic

accidents. Cooperation between the health sector and a wide range of governmental and nongovernmental agencies is thus required.

Many of the major health hazards in developed countries are already reaching significant proportions in the developing countries. While dealing with the urgent health problems they face now, these countries cannot neglect the future health scenario. They need to examine how they can avoid or mitigate the health risks that are associated with industrialization and development. Such a long-term view of the changing health profile of the population will require reorientations in the approach to health on the part of both development planners and the health sector.

The place of health in resource allocation and adjustment policy

Another set of issues raised relates to the priority that health receives in the national allocation of resources. Linked to this are the adjustment policies adopted by governments in times of economic crisis, as in the recent widespread economic recession, and the impact of these policies on the health sector. The relatively low priority for health in national resource allocation and the neglect of the social costs of adjustments become pronounced in times of crisis, when resources are severely constrained. There is, therefore, a need for nationally accepted criteria and norms regarding the allocation of resources for health, reflecting the national commitment to health improvement. In times of major economic adjustments, these criteria would have to guide macro-economic policies to ensure that the essential health needs of the population are met. These policy reorientations at the national level, and their implications for international assistance as well as for the conditions governing international financial support during periods of adjustment, are discussed.

Institutional mechanisms

A selective summary of the main conclusions and the possibilities for action are outlined in Chapter 5. This chapter examines the information needs and institutional framework for

intersectoral action, as identified in the discussion in Chapters 1–4. Among the many institutional arrangements and mechanisms that are surveyed, the main levers for intersectoral cooperation must operate effectively at the national, intermediate (district), and community levels.

An appropriate restructuring of the development processes at the national level is required to enable sectors to formulate policies and act in relation to multisectoral goals, so that horizontal linkages become clearly identified at all levels, and development strategies are not confined within sectoral boundaries. The national health council or similar institution must form an integral part of the national planning and decision-making system. Similar arrangements are needed at the intermediate or district level, which in many countries is instrumental in the formulation and implemen-

tation of intersectoral strategies.

The greatest potential for intersectoral cooperation is, however, often found at the community level. It is here that sectoral barriers can be broken down as the community perceives development as a composite whole in which the activities of various sectors are interdependent and contribute together to its well-being. It is also here that the health-related aspects of development policies and activities become clearly manifest in the health status of the people, especially that of the vulnerable groups. Community involvement is an essential component of the institutional framework and mechanisms. Chapter 5 discusses the uses and abuses of the concept of community participation and goes on to identify some of the conditions necessary to make it a meaningful process whereby communities are enabled to participate in development and improve their health and well-being.

Equity and Health

Background

International concern with removing inequities and promoting development has focused specifically on health since the adoption of the Alma-Ata Declaration in 1978. Health for all was accepted as a goal to be achieved by the end of the century, and by being included in the International Covenant on Economic, Social and Cultural Rights became a universal human right. This implies that every person is entitled to a healthy life, and that resources essential for satisfying health needs should be within reach of everyone. Yet this condition remains a distant prospect in much of the world.

Equity is fundamental to health for all. The wide disparities in health within and between countries reveal the complex and diverse nature of the health problems that face the world. They indicate the varying faces of ill health in different parts of the world, show where problems are most acute, and what population groups are most exposed to health risks. Analysis of these differences in health status shows how they are related to disparities in development at national and international levels. It uncovers the factors and conditions producing these disparities and is therefore indispensable for formulating health strategies and defining health priorities.

Reduction of such disparities will require an equitable distribution of health-related resources to bring health within reach of vulnerable groups. This will necessitate strategies and activities capable of broadening social equity to promote equity in health. In this task, health policies and interventions must be seen as an integral part of national development policies. The causes of disparities in health can only be removed through intersectoral actions involving sectors such as agriculture, education and environment. The

way in which these sectors affect the well-being of vulnerable groups is of direct concern to the health sector and of critical importance for achieving health for all.

The national allocation of resources depends on how the health goal is incorporated into the national strategy for development. Yet while health contributes to other sectors and supports growing productivity and economic well-being, it should form part of national and sectoral strategies, as a goal in its own right. The investment in health should not have to be shown to have a direct effect on economic growth.

The health of vulnerable groups is one of the most sensitive measures of health development as a whole and can also reflect the capacity of the health care system. Equity in health raises four important sets of issues.

- 1 Given the constraints of poverty and low levels of resources, how can the poorest countries achieve equity in health? A few countries have broken out of the trap of high mortality and low income, using intersectoral relationships to combine major macro-social and macro-economic policies to enhance well-being, particularly among the disadvantaged groups, and to reduce disparities in health.
- 2 What combinations of policies can improve health in countries as they move through different stages of health and development?
- 3 How can vulnerable groups be identified in both developed and developing countries and health strategy reoriented towards equity goals? What are the relevant methodologies for these tasks?

- 4 How is health related to national resource allocation, and how are health considerations incorporated into economic and social adjustments in times of severe economic crisis?

These issues have relevance not only for national development priorities but also for criteria governing international development assistance.

Disparities in health between and within countries

The global distribution of health and ill health

The inequalities in health between certain countries are illustrated in Figure 1. Where health is poorest, the risk of dying within one year after birth is 20–28 times higher than where health is best. In Bangladesh, for example, 1 out of 8 newborn children die before they reach 1 year of age, while in Japan, the figure is 1 in 142, and in Scandinavian countries, 1 in 125. In 33 developing countries with a population of nearly 550 million the average life span is about 50 years. This is about two-thirds the life span of people in the developed countries of Western Europe and North America. The death rate among children 1–4 years of age is around 20 per 1000 in sub-Saharan Africa; in developed countries the rate is less than 1 per 1000.

These wide differences are well known. They have been emphasized repeatedly at international meetings. Comparisons of this kind have raised the consciousness of the world community, provided motivation for international programmes, and directed assistance to countries in need. The targets of the health for all strategy are themselves an expression of the global commitment to reduce these glaring inequalities quickly. These intercountry comparisons also mark the different points from which countries begin their pursuit of health for all. They place variations in health within their

socioeconomic and sociopolitical context and highlight the constraints within which appropriate health and development strategies have to evolve to achieve the state of well-being implied in health for all.

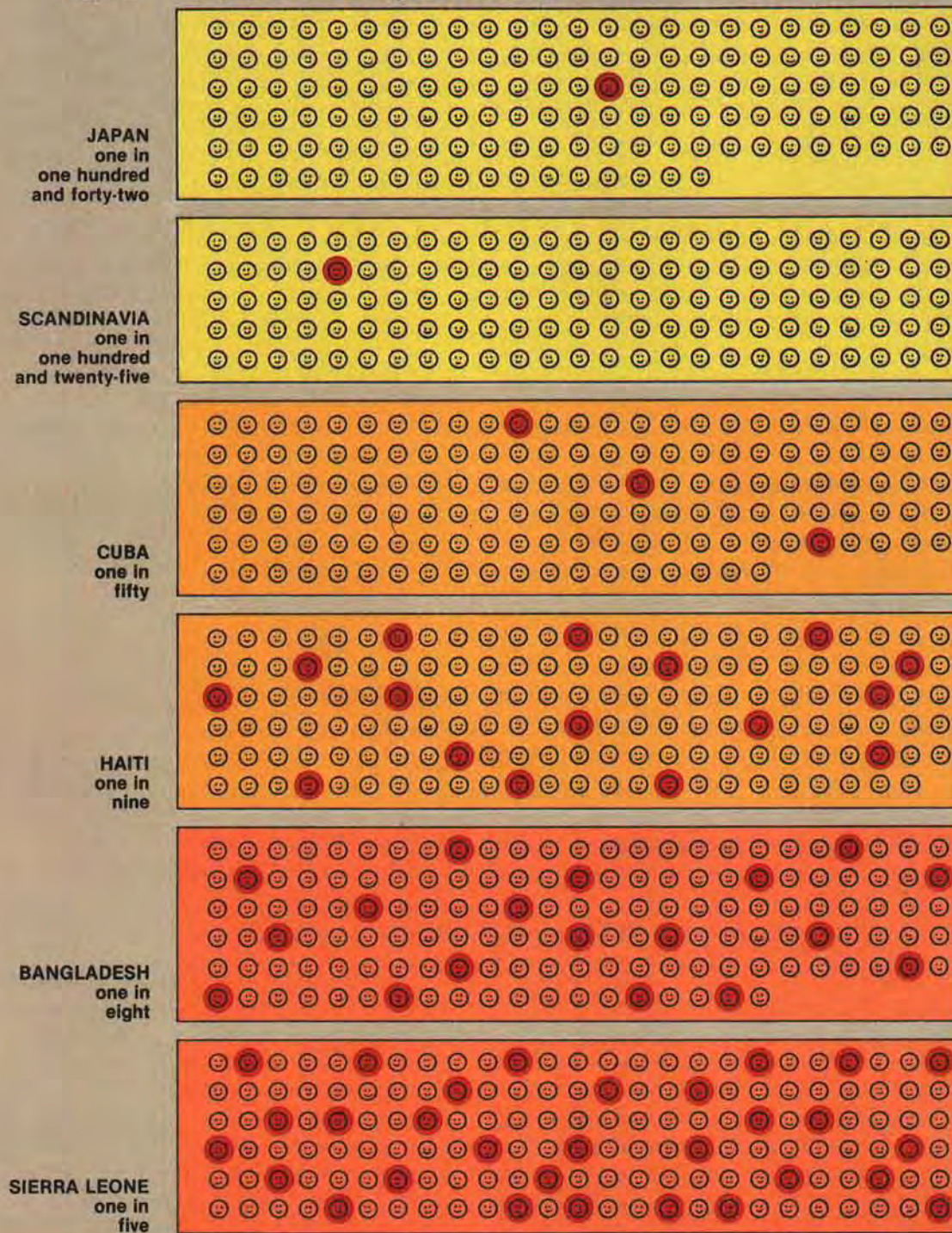
Differences in health risks in rich and poor countries

The wide disparities in health status between the developed countries and the large majority of developing countries reflect differences in their profiles of ill health, mortality, and sickness, and in the age and social groups most at risk. In developed countries the mortality rate among infants is almost the same as the average for the whole population. But in developing and low-income countries, the average rate of infant mortality is about seven times the average for the population and the risk of death for children 1–4 years of age is higher than the average. For developed countries, it is less than one-tenth the average.

The high death rate among the very young in the developing countries results from diseases that have almost disappeared or have been brought well under control in developed countries. The main causes of mortality and morbidity are the communicable diseases, the gastrointestinal and respiratory infections, and parasitic diseases. In contrast, in developed countries, the elderly are the most vulnerable group, with diseases of the circulatory system, cancers, and degenerative disorders of aging causing most mortality.

The causation and mode of transmission of disease in each are very different. In the developing countries the main diseases are caused by living conditions created by poverty. They are often transmitted by human contact, insects, animals, water, or inadequate sanitation. In developed countries, morbidity and early death are often caused by poor working environment, unemployment, cardiovascular disease, cancer, accidents, psychosocial stress factors, excessive consumption of alcohol, and smoking.

Figure 1 The death rate one year after birth



These differences show that both affluence and poverty can be linked to ill health, each with its own combination of causes and effects. The disease pattern prevailing in developed countries is associated with affluence and a high level of resources for society as a whole. Adequate food and nutrition, good water and sanitation, and widely available preventive and curative health care at the family and community level have succeeded in reducing health risks for the young, controlling a range of communicable diseases, and increasing the resistance to disease of the whole population. Within this general context, however, the possibilities for a healthy life differ significantly among various socioeconomic and occupational groups, with the socially disadvantaged being at highest risk.

This link is much stronger in developing countries, where the predominant risks are closely associated with conditions of poverty — insufficient food and nutrition, poor social and physical infrastructure for satisfying minimum basic needs, and lack of knowledge to cope with problems of ill health. In such a situation problems of survival acquire the greatest urgency.

The disparities in health status between developed and developing countries are reflected in their respective demographic situations. In the developed countries, much of the population — approximately 78% — is urban. Fertility is low, with populations growing at less than 0.5% a year. In these conditions, the health status of women and children, the traditionally vulnerable groups, is far superior to that in the developing countries.

Conversely, in the developing world, it is only in the rapidly industrializing countries that the urban population is in the majority. In countries with less than US\$ 400 per capita income, the urban population is, on average, only 22% of the total. For countries with incomes between US\$ 400 and US\$ 1310, the proportion is 36%. Altogether 70% of the population in developing countries, or 2400 million people, live in rural areas where the social and economic infra-

structure, including health services, is greatly inferior to what is available to the urban population. The annual growth of population exceeds 2% for the large majority of developing countries, while total fertility rates range from 4% to 6% on the average. In sharp contrast to the situation in developed countries, the health risks are concentrated among the very young and women of reproductive age in the rural areas, though many of those living in sprawling urban slums are also at risk.

In each of the clusters of health risks described, the strategies for equity in health differ significantly. In poor countries, macro-economic and macro-social policies aimed at satisfying basic needs of the population will play a decisive role in promoting equity in health. The equity-oriented health strategy and intersectoral action needed for alleviating disparities will have to be developed within this context. Later in this publication, it will be shown how health strategy can identify and forge links with national as well as the other sectoral strategies to combat the health risks of deprivation and low income.

The strategies for equity in health in developed countries, on the other hand, have to take account of the socioeconomic and demographic conditions that are specific to the disadvantaged groups. They therefore require a different combination of social policies and actions, including those that promote security of employment and income, improve access to resources and services for the aged, protect workers in occupations with high health risks, and support changes in life-styles that endanger health.

The strategies in both developed and developing countries require political and administrative processes that adequately decentralize power and decision-making to subnational levels. Conditions must be created in which individual and community actions reinforce each other in promoting equity in health. The roles of the individual and the community and their relative capacities for the task will vary according to the health situation and socioeconomic conditions in the country. As the main factors

contributing to ill health in the developed countries stem from health-endangering behaviour, such as inappropriate diet, or excessive consumption of alcohol, policies and actions must aim principally at changing individual behaviour to eliminate personal health risks, while at the same time improving the social conditions associated with them. The poverty-related ill health of developing countries reflects a situation where the overriding factors are primarily external, such as inadequate nutrition, poor sanitation, lack of access to education, and a physical environment in which parasitic and communicable diseases are endemic. A different set of public policies and community-based actions, directed mainly at the external factors, is needed to reduce the gradient in the ascent towards health for all (Fig. 2).

The inequalities in health within countries

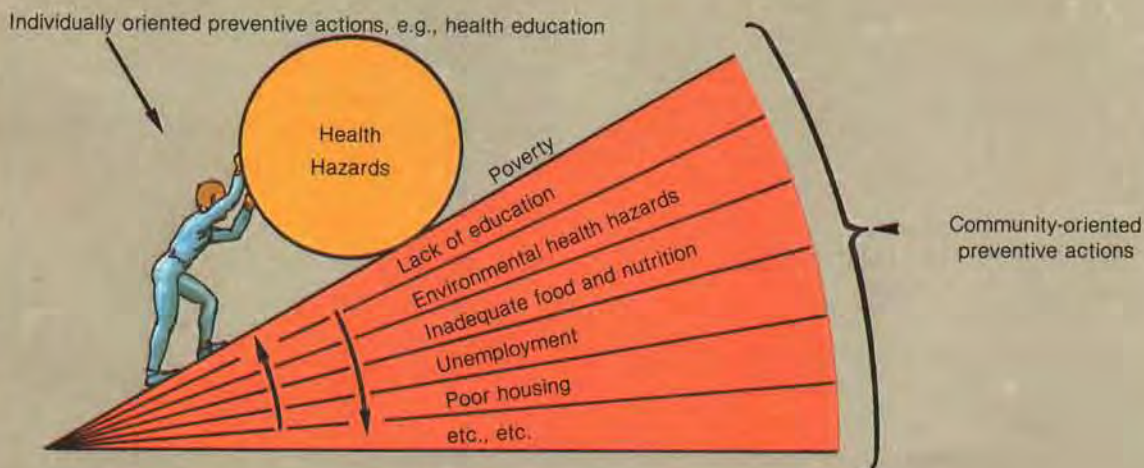
While inequality exists at the global level, the health disparities within countries are even more serious, the most visible gap being between urban and rural populations in the developing countries. In most developing countries for which data are available, infants born in rural areas have a much lower chance of survival than urban infants. Data from some

developing countries show a considerable differential between rural and urban infant mortality rates (see Table 1). This reflects how health-related resources including access to health facilities and services, education and income-earning opportunities are distributed within the countries.

There are also disparities within the rural areas. In most developing countries, it is possible to identify the poorest rural regions, which have been by-passed by development and where the infrastructure in health and other services, such as education and transport, is far less developed than elsewhere.

The massive drift to the cities during the past half century has altered rural/urban population ratios, particularly in Latin America, where there are now more urban than rural dwellers. In the developed countries a decline in mortality and improvement in health most often followed the process of urbanization, which resulted in a steady increase in the urban population and the development of urban infrastructure, including safe water and sanitation. This process is difficult to repeat in less industrialized countries, where the slums and shanty towns, with their disorderly expansion, do not have a

Figure 2 Health hazards: individual and community-oriented preventive actions



Source: From a lecture by Professor Peter Hjort, of Norway. Used by permission. 1985.

Table 1. Urban/rural differentials in infant mortality for selected developing countries

	Year of survey	Urban (deaths per 1000 live births)	Rural (deaths per 1000 live births)	Rural population as % of total (1983)
India	1980	65.0	124.0	76
Congo	1980	107.0	172.0	45
Mozambique	1975-1980	130.0	183.0	83
Senegal	1978	71.4	136.8	66
Somalia	1975	146.0	174.0	67
Peru	1970-1975	73.6	158.2	33
Syrian Arab Republic	1976-1979	43.0	67.0	52
Papua New Guinea	1980	50.0	80.0	86

Sources: (1) National evaluation reports on the Strategy for Health for All by the Year 2000. (2) World Bank *World Development Report 1985*.

healthy environment. Thus, ethnic minorities and socioeconomic groups living near relatively prosperous areas often have far poorer access to resources and less chance of a healthy life than the average. People living in periurban slums tend to have the poor health profile of those in deprived rural areas.

The inequalities in health found in the developed countries raise a different set of issues. While it is true that the lower levels of well-being are still well above the average for developing countries, significant variations in health persist. Higher levels of morbidity and mortality are associated with certain occupational groups, social classes, ethnic minorities, and family conditions, causing growing concern. The efforts made in some countries to identify these risk groups, and design appropriate health policies, can provide guidelines for formulating equity-oriented strategies in health.

identified and priorities for health strategies defined.

There is no doubt that low per capita income is strongly associated with poor health indicators. Of 42 countries with an infant mortality rate of over 100 per 1000 live births, 26 have per capita incomes below US\$ 400, 9 have per capita incomes between US\$ 400 and US\$ 670, and only very few have per capita incomes above US\$ 800.¹

When adequacy of food supply is taken together with income, the incidence and distribution of poverty show a somewhat different configuration, which is more relevant for measuring the satisfaction of health needs (Table 2). In 1982, the daily energy supply per capita was below the required level in 43 countries, with a population of approximately 1350 million people, or 30% of the world total.² Of these, 15 countries had a daily supply that was below 90% of the norm, as shown in Fig. 3.

Equity and health in the poorest countries

Income levels, food availability and health status

The definition and measurement of poverty in relation to health needs raise a number of important issues for policy-makers. Such issues become critical when target groups are being

¹ *World Development Report 1985*, Tables 1 and 23. The World Bank cautions "that perfect cross country comparability of GNP per capita estimates cannot be achieved", because of differences in the national accounting systems of countries and problems of converting national currencies to the US dollar. Various adjustments in the estimation procedures have been introduced to improve comparability. An effort is being made by the World Bank to measure GDP in terms of purchasing power parities, which would be a more reliable basis of comparison. Some of the initial results indicate that the disparities between developed and developing countries are less than those reflected in the conventional estimates; there are also significant changes in the ranking of developing countries according to income

² *World Development Report 1985*, Table 24.

Figure 3 Countries with energy insufficiencies in 1982

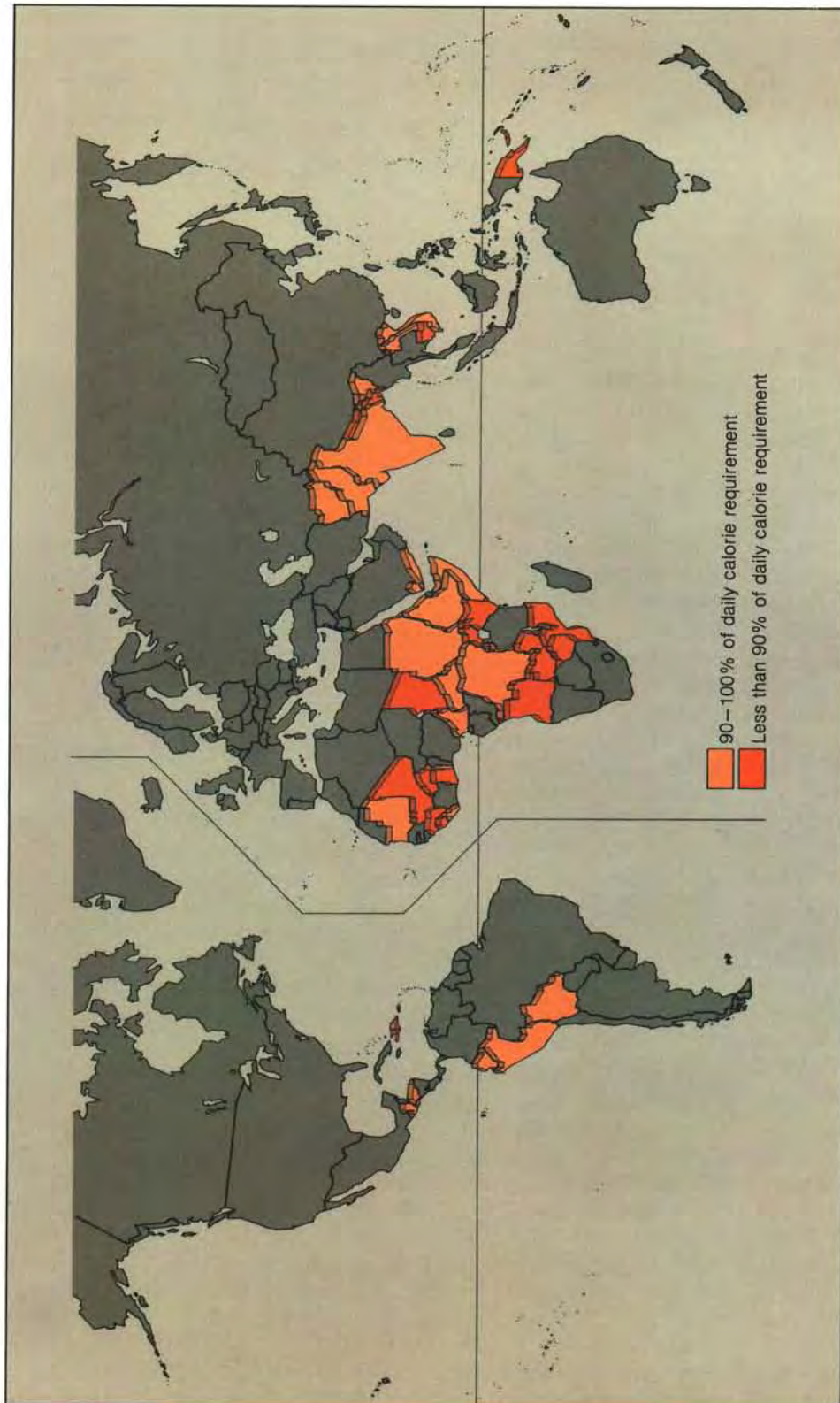


Table 2. Calorie supply and income

	Countries	Daily energy supply (Kcal _{th}) per capita as percentage of requirement	GNP per capita (in US dollars)
34	Low-income countries (excluding China)	93	120-400
	China	109	300
36	Lower middle-income countries	109	440-1430
22	Upper middle-income countries	119	1840-6850
29	Developed countries	133	4780-16 290

Source: World Bank. *World Development Report 1985*.

Even where energy supply reaches 100% of requirements, allowance has to be made for the unequal distribution of purchasing power, which is likely to leave a significant proportion of households with a food supply below the required minimum level. In countries where the aggregate supply is below requirements, the situation would be worse, depending on the extent of inequality in the society. In a large majority of these countries, poverty coexists with highly skewed income distribution. In India, for example, it is estimated that in 1975–1976, households in the three lower quintiles, i.e., the bottom 60%, enjoyed only 30% of total household income. It is only in households in the fourth quintile that incomes reach the national average.

On this basis it is likely that nearly 800 million people in these “food deficit” countries live in extreme poverty and do not have access to adequate nutrition. It is there that exposure to health risks is highest, and most infants have low birth weight. Of the 20 million infants of low birth weight born in 1985, 13 million were in South Asia and 3 million in Africa, accounting for 25% and 13% of the total number of live births, respectively. Other countries on the borderline of food sufficiency are also likely to have social groups of significant size in similar conditions. In all, it is likely that about a thousand million people are exposed to health risks in extreme poverty, and live in a vicious circle of undernutrition, infection, disease and low productivity.

It is the health problems of the populations in these extreme conditions that must command

the highest priority both nationally and globally. To deal with the hard-core ill health of extreme poverty, health strategies require various resources from health-related sectors that improve the ability of people to satisfy their health needs and increase their resistance to disease. Strategies for the eradication of hard-core ill health will have to be an integral part of development strategies directed at reducing inequalities and eradicating extreme poverty. It must also be a guiding principle in international development assistance.

Current trends and the health-for-all targets in poor countries

Despite the constraints of poverty, the trends in developing countries for the key health indicators during the last two decades have continued to show some improvement. The reductions in crude death rates for low-income developing countries, excluding China and India, were in the region of 26% during the period 1965–1983. For the sub-Saharan low-income countries they were smaller — 20%. For all developing countries in both low- and middle-income categories, the reduction in death rates during this period has been about 36%. China and India, the two countries with the largest populations, showed substantial gains. In China, infant mortality dropped 57%; in India, approximately 38%. In other low-income developing countries, infant mortality decreased by nearly 32% during the same period.

On past trends, the infant mortality rate in this group of countries should reach an average of

about 83 per 1000 by the turn of the century. This average will include several countries that will continue to have rates over 100 per 1000. Thus, the pace of health improvement will still fall short of the health-for-all targets, especially since recent data indicate that for many countries the rate of decline in mortality has slowed.

For the low-income countries the growth in per capita income during this period has been only 0.7% per year, and for sub-Saharan African countries in the low-income category it has been negative. A positive change, however, has been the significant improvement in the levels of literacy for both males and females. In the low-income countries as a whole, including China, school enrolment in primary education for both males and females increased from 62% of the relevant age groups in 1965 to 89% in 1983 (see Fig. 4). For females, it rose from 31% to 58%. In sub-Saharan African countries in this income category, the corresponding figures were 40%, rising to 69%, for both sexes, and 28% to 56% for females.

Despite slow growth in income, the progress in health indicators shown by countries reflects the positive impact of other factors. These include the expansion of health care facilities and rising levels of literacy and education. In both these sectors there has been an equity-oriented thrust to ensure more widely distributed access to health and education. These developments, supported by other sectoral policies, can greatly accelerate progress towards health for all.

The lessons of the special cases

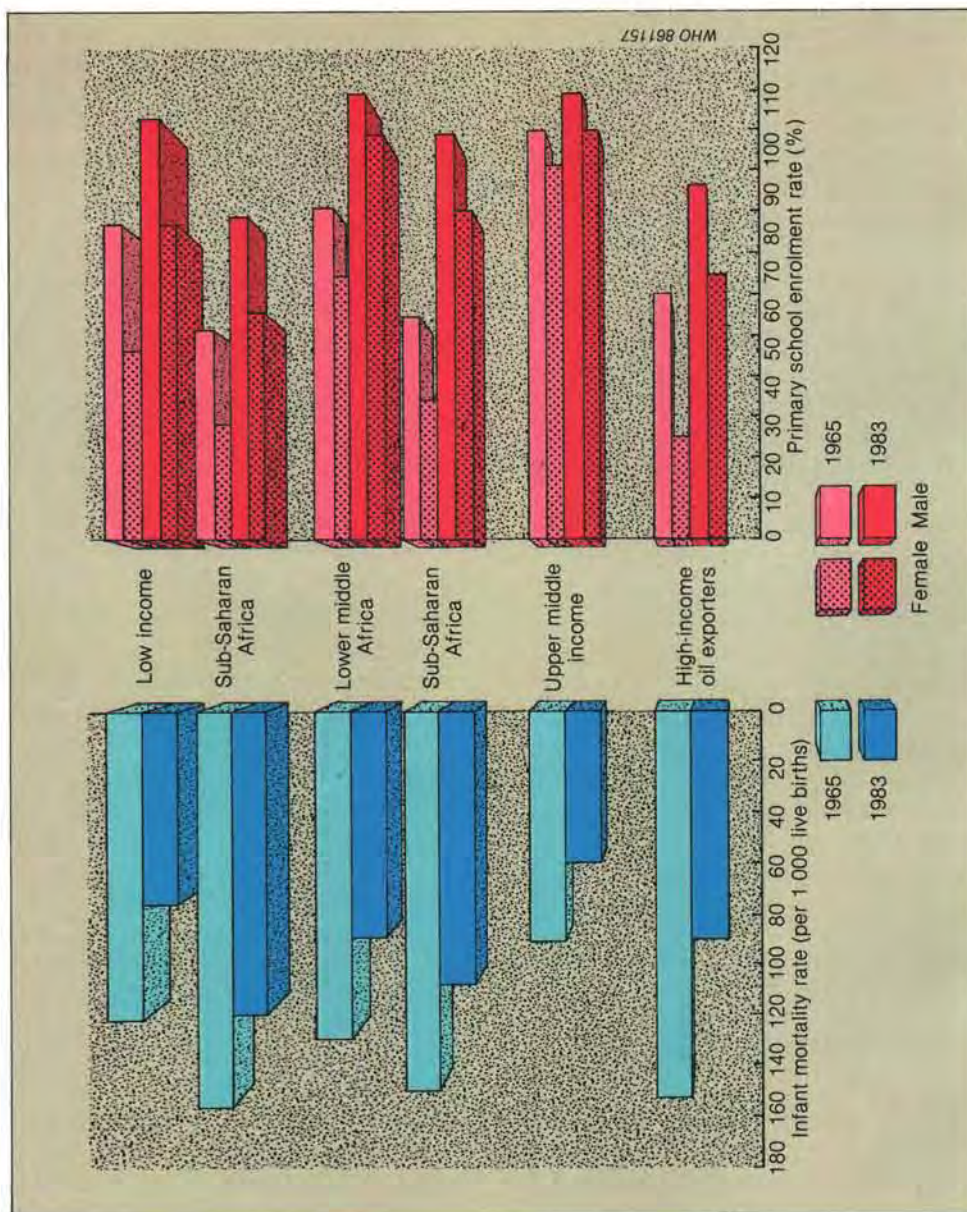
In this context, cases that stand out from the general correlation of income with health, as depicted in Fig. 5, are perhaps most relevant. There are two types of exceptions. In the first, very low levels of income have not been a barrier to dramatically declining mortality rates and increasing life expectancy; in the second, high mortality co-exists with very high levels of income. Both cases teach important lessons for the health strategies of poor countries.

Good examples of developing countries or areas with remarkable success in lowering mortality and improving the health of the relatively poor are China, Sri Lanka, and the Indian state of Kerala. Even at income levels below US\$ 350, life expectancies at birth in China and Sri Lanka in 1983 were estimated at 69 years and 67 years respectively — higher than the average life expectancy of 65 years for the upper middle income group of countries with an average per capita income of US\$ 2050.

The mix of policies followed in these areas to produce this outcome has special relevance for the health strategies of poor countries. The experience of the few successful countries indicates, first, how equity in health has been realized within the constraints of relative poverty and, second, how strong intersectoral linkages made exceptional improvements in health possible.

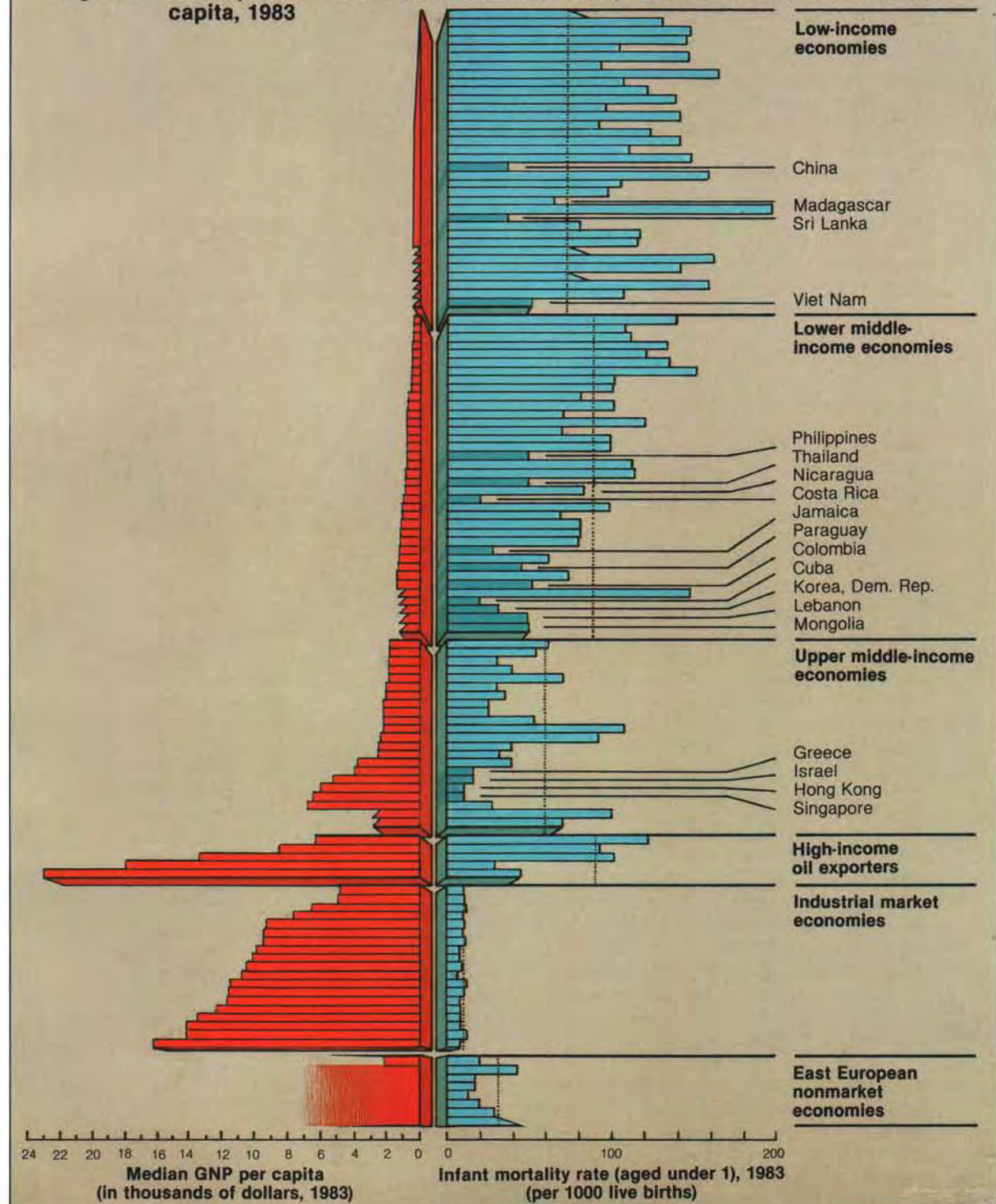
The health strategies followed were conceived and implemented within the equity-oriented macro-economic and macro-social framework described in Box 1. The success of the health strategies and the dramatic improvements in the health of the population could have been achieved only with complementary advances in many health-related sectors. These advances enhanced the capacity of the large segments of the population exposed to the worst health risks to satisfy their health needs. Many resources for satisfying health needs were health-related resources from other sectors, including: the entitlement to adequate food; basic education and knowledge which enhanced capacity to cope with health problems, particularly the capacity of females to deal with maternity and child care; and a well-distributed social and economic infrastructure leading to improved housing, water, sanitation and transportation facilities, including ready access to health services. All these improvements created the capacities for families and communities to lift themselves out of the condition of absolute poverty and the cluster of health risks it creates.

Figure 4 Primary school enrolment in developing countries compared with the infant mortality rate (1965-1983)



Note: The School intake may exceed 100% if some pupils are below or above the standard primary-school age.

Figure 5 A comparison between the infant mortality rate and the median GNP per capita, 1983



Box 1 China, Kerala, Sri Lanka — the interaction of health and development

In all these areas there was a strong commitment to the goals of equity and concerted efforts to ameliorate the conditions of the disadvantaged and poorer social groups. In all important sectors, the development strategies contained elements aimed at realizing these goals.

The state and public agencies assumed an important role in meeting the basic needs of the people. In China, this was the norm, while in Kerala and Sri Lanka, the supply and distribution of certain goods and services essential to basic needs occupied a central place in public policy and was not left to market forces.

Development policies avoided the urban bias common to the strategies of most developing countries in the early phases of their planning. Consequently, resources for the social and economic infrastructure and investments in development were more equitably distributed. The differences in living conditions between rural and urban areas were not worsened by development. Civic amenities spread to the rural areas. Sri Lanka, for example, was able to maintain a rural/urban balance that limited the internal migration to metropolitan areas.

The political processes were designed such that demands could be formulated and responded to at the community level. In China this was achieved with structures of decentralized decision-making in the communes and lower units. In Kerala and Sri Lanka a highly competitive democratic parliamentary system helped to give forceful expression to community needs and elicit responses from the state.

In economic development programmes, strategies for raising productivity and income in the backward parts of the economy, which contained the poor majority, received priority. Examples are

the diversification of the rural economy, and the increase of productivity and output in agriculture, fisheries, energy, and small-scale industry in China, and the drive for food self-sufficiency through programmes for the improvement of peasant farming and small-scale fisheries in Sri Lanka.

In all three areas high priority was given to education. The strategies pursued brought education within the reach of the whole school-age population through a system that provided free or heavily subsidized education. Here again, policies were aimed at the equitable distribution of facilities to provide the rural population with access to education. In all three cases, there was a very high level of female participation in the school system. In China, female participation in primary education was 97% in 1982; in Sri Lanka, it was 101%.^a According to data available for 1978 for Kerala, the rate was 86% as against 55% for the whole of India.

The improvement in the status of women and the removal of forms of discrimination against females as in the case of education played an important role in enhancing the capacity of the population as a whole for social advancement.

Food security for all segments of the population became an essential objective of public policy. Different policy instruments were used in each case and included state management in the trade in staple foods (China and Sri Lanka), food rationing with food subsidies (Kerala, Sri Lanka), free food supplements for target groups (Sri Lanka), and land reform to provide scope for food production in small allotments (Kerala).

^aNote: percentage enrolled in primary school as a percentage of the age group. It can exceed 100% if some pupils are below or above the country's standard primary school age.

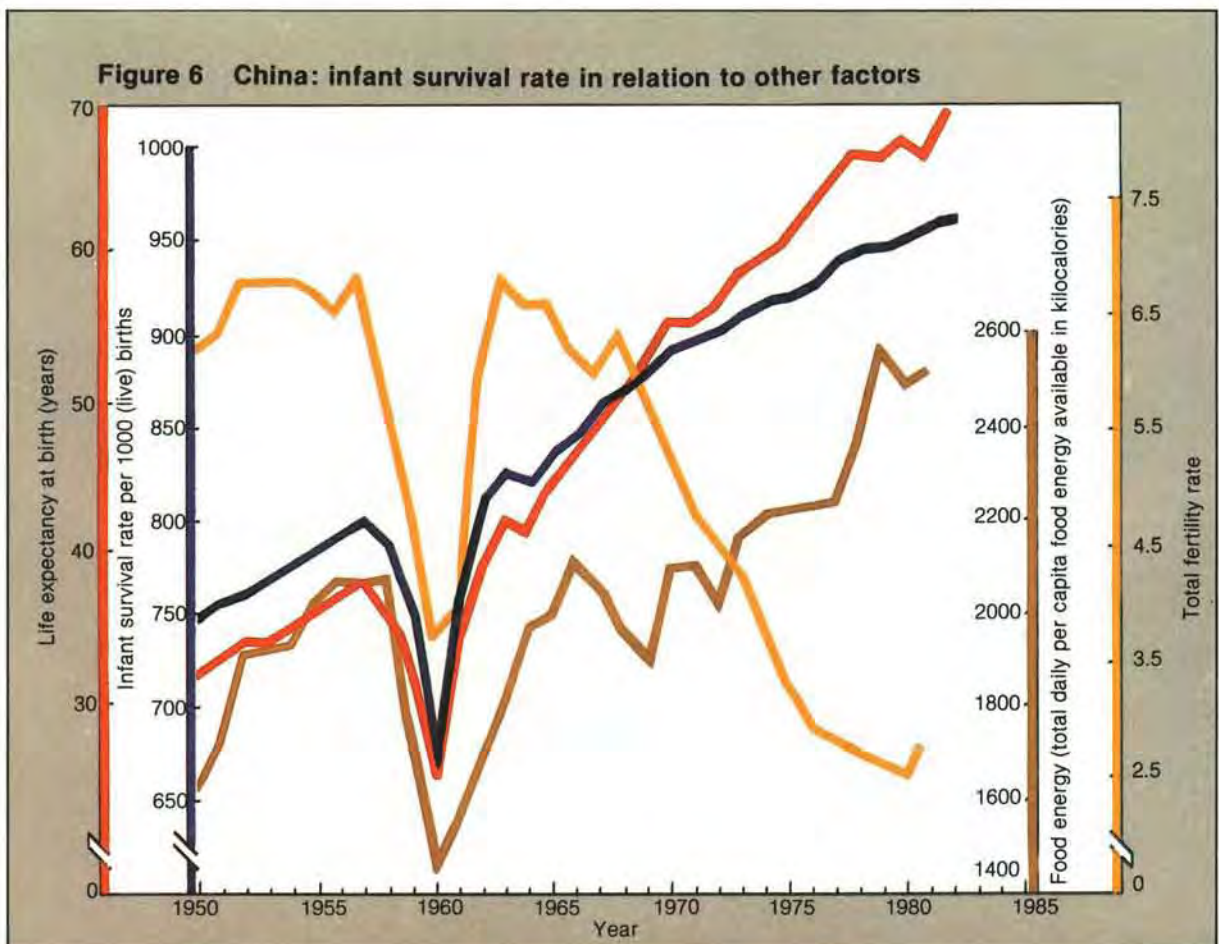
Sources: (1) Gunatileke, G., ed. *Intersectoral linkages and health development*. Geneva, World Health Organization, 1984 (WHO Offset Publication No. 83). (2) *Good health at low cost*. Rockefeller Foundation, 1985.

Within this framework, all three regions, at an early stage, directed resources towards strengthening the primary health care system. The network of services for maternal and child health, and programmes for the prevention and control of major common diseases (e.g., malaria and tuberculosis in Sri Lanka), were central to the health strategy. Cadres of nursing and midwifery staff and local health workers were expanded and the base of community health was strengthened. The distribution of resources in the health sector ensured that health facilities were within easy reach of the poor.

In all three areas, there was a long indigenous tradition of health care with a systematized body of knowledge and practices promoting an

intelligent awareness concerning the prevention and cure of disease and maintenance of good health. In many ways, this promoted acceptance of a modern health system. The traditional system was supported by the state and co-existed with the expansion of modern health services. In the case of China, elements of the traditional system were widely incorporated into the national health care system. This approach, which maximized the use of available health resources, had many positive results. The mix of technology helped the health care system to grow along with what was already familiar to the people, and improved access to health care.

None of the three cases cited can be duplicated entirely, since in each one the



Adapted from graphs in a World Bank country study: Jameson, D. & Evans, J. R. *China — the health sector*, 1984.

**Box 2 Kerala and West Bengal —
urban bias and rural well-being**

Commitment to equity goals can in practice lead to strategies that have a strong urban bias and are elite-oriented, unless the specific equity-oriented components in the different sectors are clearly identified. The comparison of Kerala and West Bengal provides illuminating insights.

Per capita income in West Bengal in the early 1970s was about 20% higher than that of Kerala. The daily calorie intake per person in West Bengal is about 25% higher than in Kerala. Yet, on all the health indicators Kerala seems to be significantly ahead of West Bengal.

These differences are reflected in the distribution of health and health-related resources within each state. In West Bengal mortality rates are 50% higher in the rural than in the urban areas. In Kerala the rural mortality rate is 7.1 per 1000 compared with 6.7 per 1000 in the urban areas. Kerala is far ahead of West Bengal in its level of adult literacy. In 1971, 53% of females in rural Kerala were literate, as against 15% in rural West Bengal. Kerala has given due emphasis to universal primary level education and the education of women, while in West Bengal the educational structure is directed more towards satisfying the demand for education to higher levels, and is oriented to serving the needs of the urban elite. While primary level education received about 58% of the total allocation for education in Kerala in the 1970s, the corresponding rate in West Bengal was 32% in 1970–1971, rising to 41% by 1978.

The utilization of urban and rural health facilities in Kerala is much higher than in West Bengal. In terms of the number of patients the rates are more than double. The better use of facilities is related to the superior primary health care system, its larger coverage and greater accessibility, and the improvement in the status of women. "Higher female literacy has contributed significantly towards higher utilization of maternal and child health services by women in Kerala. They are also less inhibited regarding physical examinations and more open to travelling to the Health Centre without male escorts." The rural areas of Kerala are also much better served by roads and public transportation. With a population of less than half that of West Bengal, Kerala has a greater number of public vehicles, including taxis.

The better health status in Kerala no doubt reflects differences in the complex interaction of sociocultural, political and economic factors in each case. Kerala has enjoyed the advantage of higher levels of female literacy for a long period. For example, it is reported that by the end of the nineteenth century every village in Kerala had a school, whereas in West Bengal only one out of five did so. However, the difference in female literacy rates is part of a larger mix of policies and priorities relating to the distribution of resources. In Kerala the effort to include the rural population in the processes that improved social well-being seems to have been more effective.

Source: Nag, M. Impact of social and economic development on mortality. Comparative study of Kerala and West Bengal. In: Good health at low cost, New York, Rockefeller Foundation, 1985.

sociopolitical context, the mix of policy instruments, and the weight of their various components were unique. This may argue against the transfer of these models to other national situations. However, within very different sociopolitical structures and systems of decision-making, each has reached a comparable health status. This suggests that the main policy ingredients common to all three provide the basis for intersectoral strategies that can lead to rapid improvement in social well-being and health.

As has been shown in these three cases, the three health-related sectors in which equity-oriented approaches have been critical for health are food and agriculture, education, and the infrastructure related to environment and living conditions. The combination of these elements with the equity-oriented components of the health sector forms a concerted intersectoral strategy in which health targets are defined and kept in perspective as a principal goal of development.

Several important lessons emerge from the experiences of these areas:

— Within the constraints of low income, there is considerable scope for far-reaching improvements in the levels of well-being, including lowered mortality and raised life expectancy;

— The health risks associated with poverty require particular combinations of macro-social and macro-economic policies, with a strong commitment to equity;

— It is possible to identify the equity-oriented components of different sectoral strategies which need to be implemented together, and which must complement and reinforce each other in order to provide the resources needed to improve the capacity to cope with and reduce health risks associated with conditions of poverty.

Threshold conditions for health improvements

Other developing countries have recently developed and implemented intersectoral equity-oriented health strategies of a similar character. These provide useful guides for adapting the experience of countries and areas such as China, Kerala and Sri Lanka. Thailand's "basic minimum needs" strategy (Box 3) illustrates how health goals have been added to social goals in a social development programme to improve the quality of life for the less advantaged. The programme attempts to correct the imbalance in past development policies that have emphasized growth and neglected equity. Given a per capita income higher than that of China or Sri Lanka, but comparable rates of male and female literacy, the decisive factor for a major improvement in health in Thailand will be the equitable distribution of income and health-related resources.

The United Republic of Tanzania offers another example of an equity-oriented health strategy (Box 4). Among the poorest African countries, with a per capita income of US\$ 240, it has the third lowest infant mortality rate for sub-Saharan Africa. It has progressed to the point where the impact of literacy and equity-oriented development in rural areas can combine with the health strategy based on primary health care to improve health status. During the last two decades, infant mortality has been reduced by 30%. The country's approach to health forms an integral part of a development strategy emphasizing self-reliance and equity.

China, Kerala and Sri Lanka, on the other hand, have advanced beyond this stage to a point where the development processes stressing satisfaction of the basic needs of the population as a whole have led to social and economic improvements and a dramatic reduction in mortality. However, despite remarkable success in lowering mortality, high levels of morbidity and malnutrition persist. These problems appear to derive partly from the low level of income and resources, which an equity-oriented strategy by itself will not be able to

Box 3 Thailand — incorporating health improvements in social development

Thailand, which is in the lower middle income category (as defined by the World Bank), had an estimated infant mortality rate of 50 per 1000 in 1983 and a life expectancy of 63 years. It had enjoyed an uninterrupted period of economic expansion during the previous 20 years, sustaining an annual average rate of growth between 7% and 8%. National planners, however, noted that "the social gap between the rich and the poor has been increasing" and that "social services such as health and education" have not been developed appropriately and sufficiently "to reach the low income population, especially in the rural areas".

The regional disparities in income and living conditions have remained high. Between 1960 and 1980 the disparity between the poorest region, the north-east, and the richest, the central region, widened. In 1979, the per capita income in the north-east was 40% of the national average and approximately one-sixth of that of the central region. The main pockets of poverty are in the north-east and north, where the proportions of the population below the poverty line have been estimated at 52% and 23% respectively.

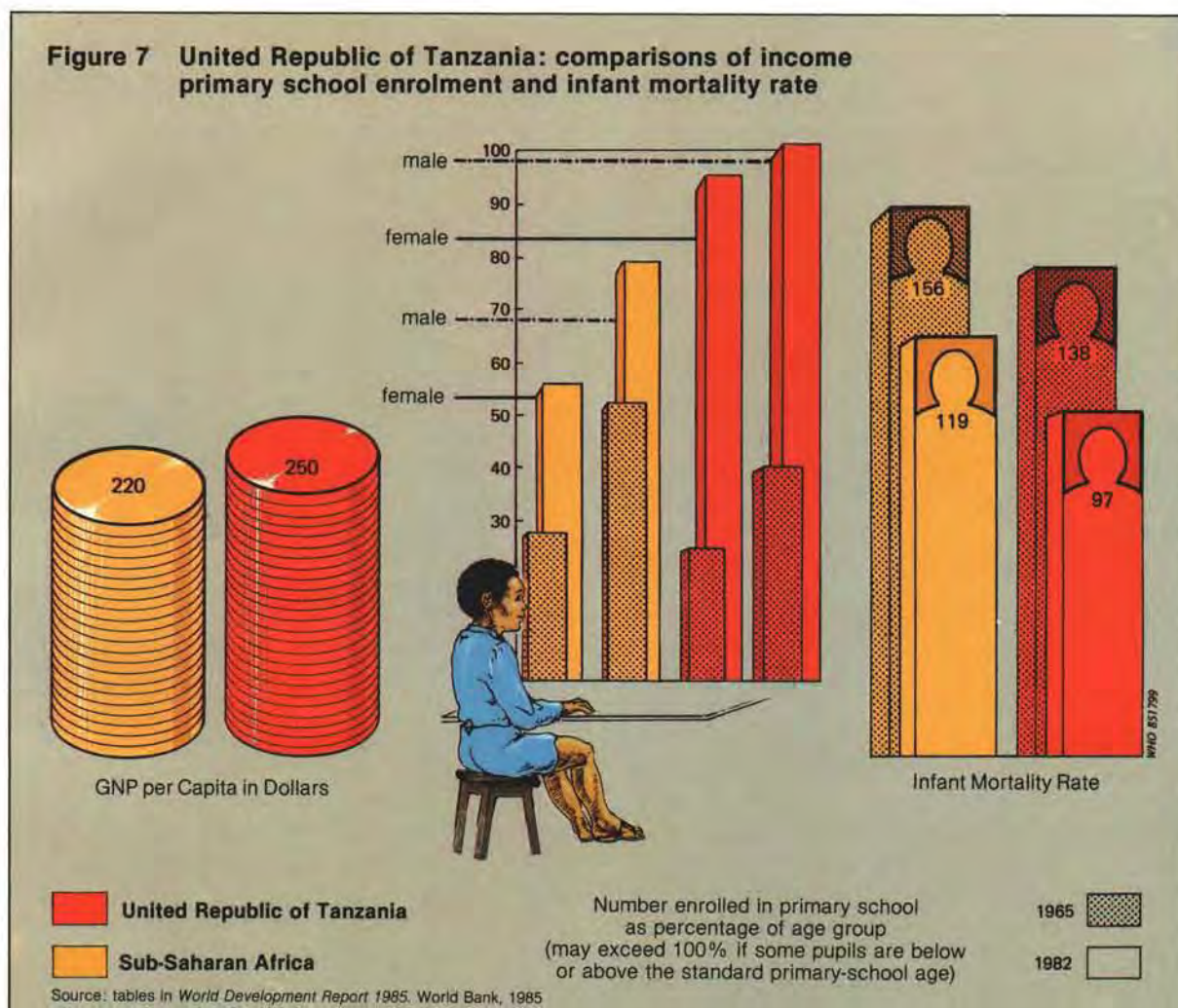
The Prime Minister's office organized the Rural Poverty Education Programme in 37 provinces throughout the country, assigning to four key ministries (agriculture and cooperatives, education, health, interior) the joint responsibility for formulating and executing the programme under the overall coordination of the National Economic and Social Development Board (NESDB). A key strategy in the programme was job creation for the rural poor to narrow income disparity. At this juncture the

NESDB established the Social Development Project to support the Rural Poverty Education Programme in problem identification, operational planning and management at the village, sub-district and district levels. The Social Development Project formulated basic minimum needs and their indicators and elaborated methods for their use as tools for identifying gaps and proposing priority activities at the village level. The Programme was not initially incorporated in the National Social and Economic Development Plan.

When the Fifth National Social and Economic Development Plan was formulated, the Rural Poverty Eradication Programme was incorporated and renamed the Rural Development Programme, the formulation of which was based on experience gained in the application of the basic minimum needs, mentioned above. Examples are "hygienic nutrition to meet physical needs", "adequate shelter and environmental conditions", and "development of pre-school children". The four key ministries were still jointly responsible for the preparation and implementation of the programme plan, with the continued coordination of the NESDB. Job creation was still its main strategy, but in a wider scope and framework, and a larger proportion of the government budget was allocated to the programme. The Social Development Project was terminated at the beginning of 1985. The Government used outputs of the project, particularly the basic minimum needs and their indicators, as a basis for organizing the National Campaign for the Quality of Life (1985–1986), and they have since been incorporated in the Sixth National Development Plan.

Sources: (1) National Economic and Social Development Board, Thailand. (2) Gunatilleke, G., ed. Intersectoral linkages and health development. Geneva, World Health Organization, 1984 (WHO Offset Publication No. 83).

Figure 7 United Republic of Tanzania: comparisons of income primary school enrolment and infant mortality rate



overcome in the absence of rapid growth and further increase in the purchasing power of the poor. The experience in these cases demonstrates the complexity of the health problems of poor countries; while dealing with the urgent problems of survival in situations of high mortality, the development strategy and the health strategy within it will need to grapple constantly with further problems related to the quality of life.

It would be possible, on the basis of the knowledge that is now available, to develop basic policy criteria for the evaluation of macro-economic and sectoral policies in relation to the goals of health. The health policy-

makers and health workers could collaborate with development planners to evaluate and define the macro-social, macro-economic and sectoral policy mix conforming to the health-related criteria set out above. This can be done at the national, sectoral, and micro levels.

Priority for social development

Costa Rica, Cuba, and Jamaica are three countries in the middle income range — with per capita incomes between US\$ 1020 and US\$ 1300 — that have achieved a health status above that of other countries at their income level. Costa Rica, with the advantage of a higher level of resources and well-being, has

Box 4 The threshold of major health improvement — the case of the United Republic of Tanzania

The health plan gave high priority to the distribution of health services providing equitable access to health. The targets set in the early 1970s aimed at a network of health facilities providing a dispensary for each unit of 10 000 people and a rural health centre for 50 000. By the end of the 1970s approximately 70% of the population lived within 5 kilometres of a health institution. The self-reliant approach also sought to strengthen health care capacity in villages. A cadre of village health workers staffed first-aid posts for primary health care closer to the local community and household.

The distinctive character of the country's health strategy was the way in which equity in health was supported by equity-oriented strategies in related social and economic sectors. In the early 1980s, the United Republic of Tanzania had 98% school enrolment at the primary stage, with a female enrolment of 95%. This was the outcome of a remarkable expansion of state facilities for education over a period of 20 years. The rate of female participation in primary schooling increased from approximately 25% in the mid-1960s to 95% at the beginning of the current decade.

These improvements have to be placed in the context of national development policies in which the major part of the effort was village-centred. The underlying concept of development itself aimed at a condition of well-being in which social and economic aspects were appropriately balanced. In the health ex-

perience of the United Republic of Tanzania there are many of the elements that characterized the experience of the most successful cases cited earlier. The country appears to have created some of the preconditions for the health revolution that was witnessed in those cases — a social base that is equity-oriented, including equitable access to health and education, a strategy that gives priority to improving the quality of rural life, including food and nutrition, and the high value placed on self-reliance and community involvement. In the next two decades, nearly all women who reach reproductive age will be literate and will have had a primary education. All these conditions contain the potential for dramatic improvements in health.

The United Republic of Tanzania's strong commitment to equity in health, which has been affirmed by its desire to monitor closely the health status and coverage of the population, is reflected in periodic evaluation and assessment of the health situation. The most recent primary health care review identified pockets within regions where the health situation was below the average for the region. In certain districts infant mortality was 50% to 70% higher than the national average. These higher rates are most frequently associated with lower maternal literacy, poorer water supply, and lower levels of immunization. These findings have enabled the health sector to give preference to the reallocation of resources to these particular population groups and districts.

Source: Ministry of Health, United Republic of Tanzania. Joint PHC review, United Republic of Tanzania, Ministry of Health/World Health Organization, 1984.

been able to advance furthest. By the beginning of the 1970s, the cumulative impact of social improvements produced conditions favourable to a dramatic improvement in the nation's health status. Costa Rica exploited this situation effectively and reaped substantial health benefits from its equity-oriented strategies. While achieving a remarkable reduction in mortality and increase in life expectancy within a decade, it has reduced malnutrition to very low levels and has provided its people with the opportunity for a healthy life (Box 5).

The Costa Rican example helps to place health initiatives in relation to important developments in health-related sectors that precede and

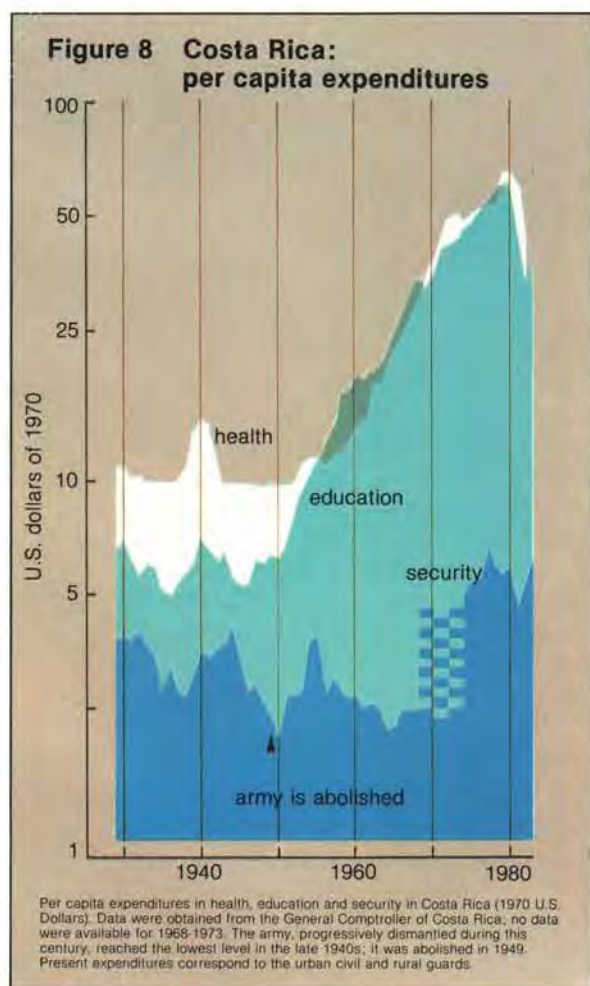
prepare the ground for health initiatives, or act concurrently, leading to the common objective of improving social well-being, as in Thailand. One remarkable feature of Costa Rica throws fresh light on the nutrition/health relationship. Studies revealed that nutrient consumption improved only slightly between 1966 and 1978 in rural households, and declined in the urban sector. Nevertheless, mortality declined dramatically and nutritional status and health continued to improve. Other factors such as the control of infection through education, hygienic practices, primary care, community organization, and increased knowledge of food and nutrition evidently contributed significantly to this phenomenon. Resistance to disease also meant more efficient nutritional absorption.

Further comparative studies of the health development experiences of these countries at three different stages, which in many ways appear to be sequential, could yield insights for policy-makers. Such insights could provide guidance regarding the mix of priorities and policies that lead to the optimal health outcome in different development situations.

The identification of vulnerable groups and the analysis of disparities

The preceding discussion has stressed that the improvement in the health status of a nation depends primarily on the extent to which the development processes improve the well-being of vulnerable groups, and that to achieve the goal of health for all, it is essential to reduce inequities in health. The groups that are disadvantaged in terms of health are most often those that have been by-passed in the larger processes of social and economic development.

In developing countries these groups include farmers with inadequate resources, landless agricultural labourers with limited employment opportunities, workers in the unorganized sector, the illiterate, and the urban poor living in slums and shanties. In developed countries the



Box 5. Costa Rica

The accelerated decline in mortality in Costa Rica in the period 1970–1980 was unusual; the infant mortality rate declined from 66 per 1000 in 1970 to 20 per 1000 in 1980 while life expectancy increased from 65 to 72 years. The dramatic health improvements in this period were the result of initiatives taken during the 1970s as well as the cumulative effect of equity-oriented social policies taken by progressive governments over a long period.

Costa Rica had reduced the infant mortality rate from 137 per 1000 in 1940 to 95 per 1000 in 1950. Adult literacy was already about 75% in 1940 and increased to nearly 80% by 1950. The absence of a military establishment enabled the State to direct resources to socioeconomic development and to allocate a substantial proportion of the government budget to health and education. A comprehensive social security system was established in 1942, and progressively expanded its coverage to include nearly 70% of the economically active population by 1980. Large public outlays on the development of the physical infrastructure have been equitably distributed, and public utilities such as power, potable water, telecommunications, radio and television have been made available in both rural and urban areas. The proportion of the population with a domestic water supply increased from 53% in 1950 to 84% in 1980, while the proportion served by sewage disposal increased from 49% to 93%.

Costa Rica enjoyed relatively rapid economic growth for three decades until the recent economic recession. Per capita incomes increased at an annual rate of 2.1% during the period

1965–1983. The distribution of the benefits of growth took place largely through a welfare-oriented policy. By the beginning of the 1970s, the large majority of women entering motherhood were educated at least to the primary level. The period of sustained economic growth, combined with equity-oriented policies, had significantly reduced the prevalence of extreme poverty and economic deprivation. The conditions were therefore conducive to a health revolution.

In the first half of the 1970s the Government took several major health initiatives: action was taken to expand the coverage of the social security services to reach the entire population; the health care system was reoriented towards primary health care; a rural and community health programme was implemented, to bring health within reach of the underserved population; and active community involvement in health was promoted. In 1974, the Government introduced a levy on salaries and allocated the revenues from sales taxes, under a "social development and family subsidy" law, to finance specific health and nutrition programmes such as complementary feeding programmes. Nutrition policy decreed the enrichment of certain foods for the prevention of particular nutritional deficiency diseases. Several laws and decrees were enacted which, together with the general health law, gave legal status to the health programme and defined the health entitlements and duties of individuals and institutions. In brief, the drive for improving the health status of the population became an important focus of national policy.

Source: Mata, L. & Rosero, L. Health and social development in Costa Rica. Washington, DC, Pan American Health Organization (in press).

disadvantaged are members of the lower social classes, migrants, the unemployed, the various categories of the working population exposed to occupational health risks, those at high risk of accident and injury, adolescent victims of life-styles that intensify health hazards and the aging populations subject to physical and mental ill health, which seriously degrade the quality of life.

In these disadvantaged and vulnerable groups the weaknesses and inadequacies in the care system are clearly manifest. It is in relation to these groups that the importance of simultaneous action to satisfy a range of inter-related needs — food and nutrition, water and sanitation, education and housing — is thrown into sharp relief. For the disadvantaged and vulnerable groups, the achievement of health goals depends on the capacity of the various sectoral programmes to achieve the goals of equity in their own spheres. The linkage and interaction of these components of other sectors with health, in a concerted effort to improve the well-being of the disadvantaged, become the prime movers in intersectoral action for health.

Improvement in the health status of these vulnerable groups can then be one of the best criteria for evaluating the effectiveness of health strategies. The way in which the strategies, policies, programmes and activities of the other sectors affect the well-being and health of these groups is also an important indicator of the quality of the development resulting from the efforts of these sectors. The changing health status of these groups is an important indicator of the quality of life produced by the national development process as a whole.

Identifying inequalities in health status

The configurations of health disparities will vary according to the level of socioeconomic development and demographic characteristics, such as fertility rates, family life cycle, age structure, population, and urbanization.

Age-specific morbidity and mortality rates are useful for discovering pockets of ill health, but they are often not available, particularly in the developing countries, at the levels of disaggregation needed for effective targeting of health programmes. While the very young in the developing countries, and the elderly in the developed, are the groups most exposed to health risks in their respective societies, this distribution of ill health needs to be analysed further, and disaggregated by its distribution in terms of specific socioeconomic conditions and locations in each country. The disparities of one category are often transposed on those of another; when the health status of a specific age group, for example, is examined in relation to socioeconomic class, gender, and location, the concentrations of inequality in health begin to emerge clearly. This knowledge will bring understanding of the conditions that intensify or minimize health risks, and help in the formulation of policies and action in health and health-related sectors capable of attacking the roots of the disparities in health.

In the analysis of health disparities, commonly accepted criteria such as levels of income and economic resources or rural and urban residence are sometimes inadequate by themselves. Data from developed countries reveal that workers in a variety of occupations who are in a relatively better position in terms of income are still poorer in terms of health, when compared with persons in certain other occupations. For example, fishermen in Norway with average incomes higher than those of farmers have higher rates of morbidity and lower life expectancy. In Sri Lanka, households in the rural poverty belt earn less income than households of workers in plantations, who, for a variety of reasons, such as less education, lower capacity for self-care, and overcrowding in housing, have higher rates of infant mortality.

Groups may become disadvantaged in terms of health in socioeconomic and working conditions that expose them to higher health risks, and in a sociocultural milieu of health-damaging habits and life-styles that reduce

Box 6 Cuba: better health for all

Cuba has fulfilled the major goals of social equity — which were set after the revolution in 1959 — despite comparatively low income levels. The focus has been on three areas — education, health, and food availability — and therefore, better health for all. A mass literacy campaign was launched in 1961 throughout the country — in villages, hamlets and plantations alike. In one single year the illiteracy rate was brought down to 3.9% and the people's interest aroused in raising their health and living standards. Universal primary education was achieved soon after, so that today all school-age children are enrolled, 72% of the relevant age group were in secondary school in 1982, and 19% in higher institutions — figures that compare favourably with and, in some cases, surpass the industrialized countries.

Health indicators are equally impressive. Life expectancy at birth was 75 years in 1983 (77 for women and 73 for men). Infant mortality rates were reduced from 50 per 1000 in 1965 to 20 per 1000 by 1983, and child death rates from 4 per 1000 to 1 per 1000, during the same period. Although a comparatively

advanced health system had existed in prerevolutionary Cuba, it was out of reach of the mass of the population, was concentrated in the cities, and was disease-oriented. The transformation of the system, which took place alongside educational development, made health care a basic right accessible to the whole population. Preventive and curative services were integrated and the community was mobilized to participate actively in health work. The first thrust was against preventable communicable diseases. Primary health care encompassed socioeconomic, environmental and psychological dimensions as well as essential curative services. In their training, health staff combined work with study, and theory with practice, while a self-reliant technological strategy was developed in respect to pharmaceuticals. The agrarian reform programme and equitable employment opportunities ensure that the Cuban people are well nourished, the daily calorie supply per capita being 130% of requirements in 1982. The magnitude of the resources allocated has ensured the social progress achieved.

Sources: (1) Health and education technology in Cuba (Unpublished UNCTAD document TD/B/C.6/46, August 1979). (2) World Bank. World Development Report 1985.

their capacity to cope with such risks. Discriminatory structures in some multi-ethnic societies may also deny people equal access to a healthy life. Peru provides yet another example of how socioeconomic and culturally based disparities are being addressed (Box 7).

These problems go beyond the hazards of the immediate working environment; health policies must therefore take into account, and respond to, the complexity and diverse character of the health deprivation and disparities.

Health disparities between the sexes

The health status of women and the disparities in health between the sexes are often critical indicators of equity in a society.

Since women are more resistant to infections and malnutrition their natural life-span is longer than that of males. This difference is 5–7% of the male life-span. Significant deviations from this average suggest an imbalance in the distribution of health risks between males and

Box 7 Peru — reduction of disparities a national priority

Infant mortality in Peru has averaged 127 per 1000 live births. But in the Department of Lima, it is only 55 per 1000 and, in the wealthier residential districts of the capital, drops to 15 per 1000 — virtually indistinguishable from the rates in most developed countries. The contrast becomes even more glaring in rural regions of Peru, particularly in the Andean provinces where the indigenous populations live and the infant mortality rate is higher than 270 per 1000. In the isolated rural communities

of these provinces, the rate reaches 500 per 1000, or one death for every two live births.

The new Peruvian Government has recognized these inequities, and has made health one of the three national priorities along with education and rural development. The health sector's share of the central government budget has been doubled to 7.1%, in spite of the rigid economic constraints facing the nation.

Source: PAHO/WHO Regional Office for the Americas.

females. In developing countries in the low-income category, the female life expectancy is higher by about 3.5% ; in the middle-income countries the corresponding figure is nearly 7% and in developed countries it is about 10%.

The wide gap in some developed countries reflects behavioural health risks, associated with tobacco use, alcohol, stress, and violence, which reduce life expectancy among males.

Excess female mortality can be observed in many developing countries in early childhood and in the reproductive years. This reflects, on the one hand, the low value placed on female children in some societies, and on the other, the high maternal mortality due to lack of maternity and family planning care. Both these situations reflect the low status of women in society.

Nearly half of all women of child-bearing age and 60% of pregnant women in the developing

countries suffer from nutritional anaemia. Rates of prevalence are highest in Southern Asia and Africa. Health problems are exceptionally acute for the female population in four Asian countries — Bhutan, India, Nepal and Pakistan — where the average female life-span is in each case *lower* than that of males by about two years.

The factors affecting women's health have their source in the systems of production and resource use in poor communities, as well as in the social structures that discriminate against women. Reducing the health risks of women therefore requires combined action in several sectors (as is demonstrated in the chapters that follow). The intersectoral dimension of an equity-oriented health strategy is strikingly illustrated in the case of women and their health status. The situation of women in Bulgaria — a country at the threshold of becoming a developed socialist economy — has improved dramatically (Box 8).

Box 8 Bulgaria: women, equity and health

Bulgaria has progressed rapidly over the past 40 years through mobilization of human resources, women and men alike, and natural endowments in the cause of development. An equitable distribution of the fruits of development is ensured. Emphasis is given to education and adequate health care for all.

The participation of women, who constitute 48% of economically active persons, is of crucial importance. Legislation gives women equal status with men in all spheres of public and private life. They are involved in all participatory processes and are well represented in communal and municipal administration, as well as in trade unions and administrative posts in the central government. The greatest advancement of women has been in the industrial sector, reflecting their improved educational status, particularly in scientific fields (women comprised 52.3% of those in higher institutions in 1981, one of the highest proportions in the world).

The health services available to women include 14 months paid maternity leave (an extension to 20 months is being contemplated). Women's reproductive and maternal functions are given primary attention, and the whole spectrum of family planning services is extended to

them. Over 90% of all pregnancies are notified to polyclinics during the first three months and the expectant mother is given constant care. The trade unions try to ensure that women get sufficient rest, that their mental health is protected, and that there is a flexible retirement age. In 1979, women's life expectancy was 73.9 years, against 68.7 for men.

A major aim of the health programme is to ensure that children are born to healthy parents in a healthy environment. The educational status of the mother is recognized as an important element in improving the health and well-being of children. The better educated mother takes good care of her own health and uses immunization and other health care programmes for her infant. Bulgaria has a clear policy regarding preschool services. Mothers are encouraged to look after their children at home until they are three years old. Only 20% of infants 1–3 years old are enrolled in creches. The family has access to financial allowances and the mother's employment and income are secured through part-time work during extended maternity leave, and a guaranteed place when she returns to work.

Source: UNICEF, Office for Europe. Report: Workshop on Women and Development in Europe, Impact on Children, Lisbon, 9–13 November 1981.

Disparities in developed countries

Inequalities in health are a major problem in some developed countries, as stated, for example, in the health-for-all strategy for Europe. Several studies have shown more than a two-fold difference between different socio-

economic groups in infant mortality and mortality from accidents, poisoning, violence, lung cancer and myocardial infarction, and a three-fold difference for mortality from cirrhosis of the liver. Moreover, the mean age of retirement due to sickness or disability has been found to differ by 2–5 years between blue- and white-

Box 9 Socioeconomic and occupational distribution of morbidity and mortality in the Nordic countries — some examples

Progressive welfare policies have reduced inequities in health in the Nordic countries. The infant mortality rate in Stockholm, which was more than three times higher for children of low-income families than for those of high income during the 1930s, is now almost the same (7 per 1000) in all socioeconomic groups. The general trend for most diseases is still, however, for incidence to be higher in the lower social classes.

In Finland, for example, the proportion of the population suffering from certain chronic diseases in 1976 was 55% in the lowest income quintile and only 26% in the highest quintile. In Norway, the working class (age 25–64) has nearly 60% more chronic illness than the highest social class.

Major social differences have also been found — e.g., in Denmark — in the socioeconomic background of disability pensioners, many of whom had been in occupations that exposed them to a large number of physical and chemical hazards.

Data on specific diseases include the following:

Cardiovascular diseases: *An examination of 25 000 men in Oslo indicated that men of the two lowest socioeconomic classes were 2–3 times more likely to*

die from cardiovascular diseases than men who were functionaries or professionals. In-depth studies in Sweden showed that inpatient care arising from these diseases is most common among low-level salaried employees and among certain manual workers. At particular risk for myocardial infarction are people whose jobs involve stress and monotony, and leave little room for the employees to influence the way their work is carried out.

Mental illness *in Sweden, as measured in terms of perceived mental problems and inpatient psychiatric care, is most common among manual workers and low-level salaried employees.*

Tumours: *In studies of cancer in individual occupational groups in Sweden, a high incidence of lung cancer was found among miners, insulation workers, typesetters and sheet-metal workers. Furniture workers had a pronounced excess risk of cancer of the nose and sinus. As regards breast cancer, however, women in the highest social groups were at an elevated risk.*

Injuries: *In Finland, in 1971–75, fatal accidents among men aged 35–64 years were about three times as common among “unskilled blue-collar workers” as among “white-collar workers”.*

Sources: (1) Inequalities in health and health care — a contribution to the Technical Discussions of the World Health Assembly, May 1986. The Nordic School of Public Health. Göteborg. 1985 (NHV-Report: 5). (2) The Swedish health services in the 1990s. Stockholm, National Board of Health and Welfare, 1985.

collar workers. Similar variations have been found in morbidity and disability studies.

In their analysis of the distribution of ill health, these studies uncover the significant inequality

in health that lies beneath the aggregate indicators, which reflect a high level of well-being. There are considerable differences in life expectancy, primarily related to income, occupation and social class as represented in

Box 10 Sweden — a recent health study

A recent study of the health situation in Sweden enumerates several groups with special health risks:

- *Unemployed persons are exposed to risk of ill health arising primarily from psychosocial factors such as social isolation, and lack of purposeful activity and role in the community.*
- *Single-person households have a lower capacity to cope with health risks. Divorced middle-aged men have a pronounced excess mortality in which social isolation and abuse of alcohol play an important part.*
- *Foreign nationals — in particular, women — tend to have an elevated risk for pain and mental problems, compared with people born in Sweden. The immigrants also tend to have more hectic and monotonous work and more perceived health problems.*
- *Children in households where the parents have a low income, low education, and sociopsychological problems, stand out as a particularly vulnerable group, with a frequency of illness and behavioural disturbances several times that of other children.*

Source: The Swedish health services in the 1990s. Stockholm, National Board of Health and Welfare, 1985.

social groups. The distribution of ill health in terms of the major diseases prevalent in these societies reflects similar disparities. Apart from the more readily discernible health disparities related to the broad categories of income, social class and occupation, subgroups with special health risks emerge in the course of the analysis.

The description of the socioeconomic and occupational distribution of certain diseases presented above illustrates the magnitude of the inequities in health status within an industrial country. It does not, however, explain the causes of these inequities. The causative risk-generating factors can only be identified by further in-depth studies. The improvement of the health status of the groups involved requires the removal or reduction of these specific health risks, or at least improved capacity for coping with them. This requires efforts that go beyond remedial measures and are directed at effective prevention and health promotion. As the risk-generating and risk-

intensifying factors often lie in the domains of a number of sectors, the preventive and health promotion effort, from its inception, has to be conceived in intersectoral terms. The role of the health sector has to be defined in each situation. In this sense, the equity-oriented approach to health is intrinsically intersectoral.

Several features of this type of disparity analysis in developed countries are relevant to health-for-all strategies in all countries. First, the health sector would need to collate the nationally available socioeconomic and health data to derive a comprehensive national profile of health disparities and vulnerable groups. Most of the categories for identifying these groups have been discussed but each country will have its special categories. The initial results are likely to be merely indicative, but could provide a starting point for development of appropriate methodologies and improvement of the profile for both coverage and adequate level of disaggregation.

Disparities at the household level

Once a national profile of disparities in health is available, it is necessary to proceed to the household level. At this level, exposure to health risks and the various factors contributing to them are readily observed. They exist in specific household contexts and family situations such as low purchasing power, poor housing, large family size, illiteracy, lack of employment and similar conditions of deprivation. These are related to the basic needs the household must satisfy to achieve an adequate level of well-being. The household seeks the satisfaction of its needs as a composite inter-dependent whole. The deprivation of one basic need affects the satisfaction of another; this is particularly true of health needs. Therefore, when health status is examined in terms of the household, the intersectoral dimension of health is strikingly demonstrated.

National socioeconomic surveys can provide a wealth of health-related socioeconomic and sociodemographic data on households. From these it would be possible to extract a set of health-related indicators for classifying and assessing households according to the intensity of health risks. The national profile of groups at risk could then be disaggregated in terms of these household classes and groups. This would enable health planners and health workers to elucidate the most important intersectoral linkages pertaining to the various types of vulnerable households, target their

programmes and policies more effectively, and develop the required forms of intersectoral collaboration.

Health policy programmes in Sweden seek to deal with some of the methodological problems of the equity-oriented health strategy. They propose two complementary approaches. The first analyses the distribution of ill health in relation to a specific disease group and identifies vulnerable groups for targeted action, directed at reducing the incidence of disease. The second directs attention to hazards that increase the risk of ill health and relates these hazards to the socioeconomic and other factors generating them within different sectors. This provides information on the need for particular intersectoral actions for health.

Resources for health and adjustment in times of crisis

Priority for health in the allocation of resources

The countries that most need to improve their health have the least resources for the task. Table 3 shows the level of expenditure devoted to health by governments of countries with different levels of income. The proportion of the national income that governments are able to appropriate for expenditure by the state is 30.1% for the group of developed countries, and 16.3% for the countries in the low-income group. The proportion of central government

Box 11 The Netherlands' "scenario" for health

The "scenario" technique has been adopted by the Netherlands to ensure that long-term strategic health planning overcomes the tendencies to crisis management of immediate problems. Scenarios are a method of prospective consequence analysis showing the internal relationships between health plans,

policies and social equity. They also point toward intersectoral planning for health, rather than unisectoral planning for health care. Scenarios are being worked out for all major health issues, starting with cardiovascular diseases, cancer, aging and "life-styles".

Source: Steering Committee on Future Health Scenarios, The Hague, 1985.

Table 3. Health expenditure in developing and developed countries, 1982

	Health expenditure as % of total expenditure	Total expenditure as % of GNP
Low-income countries (total)	3.0	16.3
Sub-Saharan Africa	5.3	18.0
Lower middle-income countries (total)	3.7	23.7
Sub-Saharan Africa	5.8	33.1
Upper middle-income countries	5.1	26.7
High-income oil-exporting countries	5.5	31.1
Developed countries with market economies	11.7	30.1

Source: World Bank. *World Development Report 1985*.

expenditure devoted to health is largest in the richest countries, and smallest in the poorest — 11.7% as opposed to 4–5%.¹

These disparities reflect broad global income disparities. In the poor countries they are most often the consequence of inescapable constraints imposed by the low level of resources. First, there is the overall budgetary constraint limiting the extent to which these countries are able to expand their central government expenditures without causing inflation. Second, within the total resources available, national priorities determine the allocations to the sectors. The room for manoeuvre for expanding central government expenditures and increasing the allocation for health will vary considerably among countries. It will depend among other things on the prevailing structure of government finance and its relation to the economy, and on the levels of development in different sectors.

Central government expenditures are only part of the total resources used for health. Resources for non-government services and expenditures incurred by households are a significant part of the total expenditure on health. In

some countries, the priority the health sector enjoys in the allocation of resources remains relatively low, even where central government resources are critical for the improvement of the people's health. Within the average low level of government expenditure devoted to health, there is considerable variation. Part of this variation is explained by differences in the structure of the government budget and reflects the nature of competing sectoral demands.

The health budget

The national allocations for health depend a great deal on the perception of sectoral priorities at the level of national planning and budgeting. National health plans that are part of the overall development plans, in which targets for health improvement are incorporated as an integral part of the goals of development, are more likely to obtain an adequate share of the total resources than a health strategy conceived and implemented exclusively in terms of the health sector. The former strategy would have a frame of reference to which there is full political commitment. The experiences of several countries illustrate this. The health programme implemented in Costa Rica in the 1970s stands out. The mass health campaigns in China demonstrate how particular health goals can be achieved through mass participation on a national scale, with mobilization of the capacities available in the entire system within a limited time to achieve a specific objective.

¹These figures given in the *World Development Report* are not strictly comparable between individual countries as the total public expenditures on health may include expenditures at subnational levels which are not reflected in the central government budget. As averages for groups of countries, however, they are indicative of the levels of expenditure and the disparities between them

In the antimalaria campaign in Sri Lanka, the health goal became a vital part of agricultural resettlement and the drive for food self-sufficiency. These illustrations provide some clues for health planners and policy-makers as to how health goals and the priority for health in development can be articulated within the overall priorities, and thereafter, in the process of resource allocation. There is much that can be done to re-examine the distribution of resources at the national level and establish basic norms of resource allocation in relation to nationally accepted health goals.

At the same time, the health sector has to pursue the most cost-effective strategies. In Costa Rica, the health outcome amply demonstrated that the most cost-effective component of the post-1970 health programme was the equity-oriented rural health component. It was in many ways a precursor of the primary health care strategy endorsed in the Alma-Ata Declaration. The reorientation of health strategy with emphasis on primary health care has been accepted by WHO's Member States. However, the new approaches have to be established within a health system which, in most countries, has been heavily biased towards curative services, and concentrated in urban localities. The restructuring of the existing system and retraining and development of the cadres needed for an equity-oriented system working mainly in the rural sector will be quite extensive. This restructuring must also include conscious reallocation of resources within the health sector itself, according to the needs of the population.

Above all, a cost-effective health strategy that makes maximum use of the resources available will need to pay special attention to intersectoral linkages. The impact of developments in other sectors can increase the costs to the health sector through health-damaging effects and new health hazards, or through activities that counteract the efforts of the health sector, as in the case of special programmes for control of particular diseases. Conversely, developments in other sectors can significantly reduce the costs of the health sector by, for ex-

ample, enabling people to improve their nutritional status, take greater preventive care, increase their resistance to disease, and cope better with their health problems. The chapters that follow discuss some of these issues in detail in relation to particular sectors.

Equity and resources for health in times of crisis

During the economic recession of the early 1980s, the adjustments made by many countries, and particularly the developing nations, adversely affected the social well-being of their populations. These adjustments are likely to have medium- and long-term consequences for the social and economic development of many countries, and raise several issues with important implications for health.

The recession halted a decade of growth for the world economy as a whole. For the developing countries, the annual growth rate in per capita real income declined from 3.3% for the period 1973–1980, to 0.8% in 1981, and then to negative rates of –0.7% in 1982 and 1983. While countries in Asia adjusted much better to the crisis, African and Latin American countries experienced sharp declines in total output. For Africa average per capita incomes fell to levels prevailing at the beginning of the 1970s, and in Latin America to those of the mid-1970s. Even in Asia, the least developed countries did not share in the satisfactory performance of the region as a whole.

As recovery took place in 1984, there was a distortion in the international pattern, with the industrialized countries, led by the United States of America, averaging nearly 5% in growth. Asia managed growth rates of 6%, although again the rates in the least developed countries of that region were significantly lower. Growth in the other regions barely reached 2–2.5%. In Latin America and the Caribbean, GDP per capita rose by 0.2% — the first increase since 1981. However, even within that region, sharp differences appear. In 12 of the countries, including the largest ones, overall GDP per capita dropped once more.

In sub-Saharan Africa the recession was compounded by the worst drought in 15 years. Food production in the 24 most seriously affected countries declined by 15% between 1981 and 1983. The low-income countries of the region suffered a total reduction in average living standards of nearly 5% over the three years.

The crisis had three results that are relevant to the issues raised here. First, in the majority of countries inflation increased rapidly. It averaged 175% in 1984 in Latin America, ranging from moderate rates in several countries to 1682% in Bolivia. Inflation not only raised the general level of prices and depressed real incomes, but also altered the relative price structure.

Second, unemployment throughout the developed and developing world rose dramatically during the recession, reaching 15% in Belgium, 16% in Turkey, and nearly 20% in Spain. Between 1980 and 1982, estimated urban unemployment more than doubled in Argentina and increased by some 80% in both Chile and Costa Rica. Underemployment in much of the developing world, already high, undoubtedly worsened. In Latin America, 42% of the work force was considered underemployed in 1980, even before the crisis. By 1984, estimates show underemployment reaching 50% to 70% of the labour force in some cities, such as Lima and Belo Horizonte in Latin America and Jakarta and Bombay in Asia.

Third, even as the economic recession resulted in the contraction of economies and lowering of output, the accumulated debt of many countries imposed a debt-servicing burden leading to severe constraints on their capacity to finance essential imports. For a large number of developing countries, the proportion of export earnings needed to service the debt in 1980–1982 was more than double that of 1970–1972. This was true for Bolivia, Brazil, Chile and Ecuador in Latin America, where the proportion increased from between 15% and 30% of exports to between 30% and 60%. In

many African countries, including Côte d'Ivoire, Malawi, Niger and Zambia, the debt-servicing burden increased from levels below 10% on the average to well above 20%.

In the developed countries, increasingly fierce competition in international trade in times of depressed demand has accelerated the process of capital labour substitution in the industrial sector, giving rise to new occupational health risks and altering the relative importance of existing ones. Significant disparities have emerged between employees who benefit from health protection schemes and others, such as temporary workers and part-time employees. In the area of social security systems, fiscal policies and privatization have had direct effects on equity in health services, often leading to a worsening of inequalities.

The implications of adjustment policies for health

A combination of external and domestic factors has reduced the capacity of many countries to manage their balance of payments, maintain an adequate flow of inputs and sustain a reasonable rate of investment in the economy. Among the adjustments the developing countries were compelled to cope with during the crisis was a policy package comprising three types of instrument. These were directed mainly at stabilizing the economy at the lower level of resources available, and laying the basis for stable growth in the future.

First were policies aimed at reversing the deterioration in the balance of payments and directing it towards some type of equilibrium. These normally included currency devaluation or administrative restriction of imports, both of which led to a severe contraction of imports. Second came budgetary policies cutting government expenditure. These became inevitable as a result of the fall in government revenues with the decline in the economy and the drop in imports and exports. In addition, they were necessary to avoid any form of expansionary financing of the budget, which would be likely to have inflationary impact and run counter to the objectives of the overall

policy package. Third, monetary policies relating to money supply, interest rates, credit expansion, and banking had to control aggregate demand, which resulted in some contraction of economic activities and had the effect of reducing consumption, and often lowering investment.

In almost all developing countries, the adjustments made as a consequence of the widespread recession have required the application of part or all of this policy package. Each of the three components imposed austerities that adversely affected living conditions. During 1979–1984 the volume of imports in many African countries shrank to less than two-thirds the level in 1976–1978. For Latin America the worst impact of the adjustments was felt in 1982–1984, when countries such as Argentina, Brazil, Chile and Mexico had to make drastic reductions in imports, ranging from 12.6% per year for Venezuela to 24.8% for Argentina. This steep and sudden decrease inevitably reduced the availability of a large range of essential goods, often including food, pharmaceuticals, and critical inputs for the economic activities of the poor such as agrochemicals. The combined effect of these shortages and price increases lowered living standards and health status, particularly of the low-income and disadvantaged groups.

At the same time the second set of policies leading to economies in the government budget fell heavily on the social sectors, on subsidies and other welfare components of the budget affording some security to disadvantaged people. The reports available on the impact of the crisis on the health sector document a decline in public funding for health and health-related activities, at a time when public health systems faced unprecedented demands for services from a growing population, and when the capacity of households for private expenditure on health was at its lowest point for many years. In studies in selected countries in Latin America and the Caribbean, it was found that real resources available to the health sector, particularly to the ministries of health, decreased drastically in some cases.

The case of the United Republic of Tanzania deserves special mention in view of this country's past performance in the health sector and its potential for health improvement in the future. In real terms total government expenditures since 1978–1979 have reflected the depressed state of the Tanzanian economy, dropping back to the levels that existed a decade ago. The situation in health is even worse. Health expenditure in 1982 was 145 million shillings lower than in 1970, at 152 million, and declined further in 1983. In per capita terms, expenditure in 1982–1983 was only two-thirds of that in 1970. In the face of increasing resource constraints, the United Republic of Tanzania will find it difficult to sustain its health infrastructure and protect the health improvements already achieved. Moreover, there is evidence that both donors and government are shifting priorities away from health to the economic sectors.

Monetary policies aimed at reducing demand have as a rule been most severe on the consumption needs of the poor. Relative price increases have generally been unfavourable to essential goods — in many cases, the inescapable consequence of austerity measures.

Within each country, it was the poor and the disadvantaged who suffered most. In Africa, rural poverty is estimated to have increased from 82% in 1974 to 91% in 1982. Approximately 150 million people suffer from food shortages and, in some instances, famine. The major causes of death of children in the countries affected by drought are protein-energy malnutrition, low birth weight, malaria, diarrhoea, infectious childhood diseases, and respiratory infections.

Many national studies on the social impact of the recession have pointed to a widespread deterioration in nutritional and health status of children in developing countries. In some cases infant and child mortality is rising. The effect of the recession has been severest in the poorest countries and, within these countries, on the poorest people. Ghana, though unaffected by the drought, saw the rate of malnutrition for

children aged 6 months to 3½ years double from 1980 to 1983. In Zambia, chronic and acute malnutrition increased among children under 15 years from the early 1970s to the early 1980s. The deterioration in the health of the younger generation can have long-term and even permanent effects, to the detriment of the societies.

Adjustment policies have to be designed with a clear recognition of their effect on the health and nutrition of children and other vulnerable groups, particularly the poor. Welfare for these groups needs to be part of the recognized goals of national adjustment policies, if the burdens of adjustment are to be distributed equitably within the country.

When incorporating health goals into the adjustment policies discussed, governments could identify the policy components that directly reduce health-related resources. The impact of such policies on the groups at greatest risk would have to be evaluated and monitored. There would have to be specific modifications and additions to the adjustment package in order to minimize its health-damaging impact, and to protect the most vulnerable groups against the adverse impact of austerities. This would require a thorough and detailed analysis of the various components of adjustment policies, such as those relating to imports and pricing of goods and services that satisfy health needs, or budgetary cuts in welfare and the health sector. There would have to be close collaboration between the social sectors and economic planners to formulate adjustment strategies designed to promote stable economic growth without neglecting social needs or eroding the foundations for social development. Considerations of equity must be among the guiding principles in deciding how the austerities of adjustment are to be distributed.

Therefore, the first requirement for an intersectoral policy dealing with the most urgent macro-economic decisions facing governments today is for the *goals* of adjustment policy to incorporate a specific concern for and commit-

ment to the protection of minimum levels of health and nutrition of the most vulnerable social groups. A second element is the broadening of the definition of adjustment — not challenging the need for economic adjustment, but incorporating actions to ease the most serious threats to human welfare and maintain equity by ensuring minimum nutrition and meeting health and other basic human needs, based on levels the country can sustain, and discriminating in favour of the groups most at risk in society.

The economies induced by adjustment raise an important set of issues relating to resource allocation for health. In a situation of severe financial constraint, the health sector has to pursue the strategies that produce the most equitable health outcome with the available resources. The constraints themselves provide the opportunity for reinforcing two major reorientations in health policy which were emphasized in the Alma-Ata Declaration. The first is a further strengthening of preventive care and the primary health care approach. This means a redirection of resources to improve the infrastructure of primary health care and the referral system — where the improvement of health can be greatest at least cost. Second, health strategies would have to pay greater attention to intersectoral linkages. Such linkages, if not properly managed, entail a very high cost in terms of health. Intersectoral action, both anticipatory and preventive, for control and cure, becomes an integral part of a cost-effective health strategy. What has already been said of the potential health cost of adjustment policies is an example. Intersectoral action is also essential in efficient resource management in the health sector, because health-related resources — whether in the form of education, quality of environment, or food and nutrition — can make a significant contribution to health and thereby reduce the direct demand on the resources of the health sector itself.

Managing the adjustment process in this manner raises issues with far-reaching implications for the international community, international agencies and aid donors. The adjustment model they advocate does not normally con-

sider the needs of the social sectors. The stress is on reallocation of resources to increase productivity and growth, encourage fuller integration into a free trade environment, and promote better use of market mechanisms. The policy criteria for adjustment would have to be defined, taking into account the need to maintain a viable social base in which the

health of the population is an essential consideration. External support programmes and the flow of external resources could facilitate a process of adjustment capable of achieving this. Realistic adjustments at the national level could complement international policies mitigating the adverse social impact of adjustment and reducing its austerities.

Agriculture – Food and Nutrition

Agriculture and health — the interrelations and issues

The link between agriculture and health

Agricultural policies, products and processes are major determinants of people's health in both developed and developing countries. More than two-thirds of the people in developing countries derive their livelihood from agriculture. Most working time is spent in agriculture, and most income on food. The health of most people is integrally linked with the agricultural sector, and agriculture dominates life in the rural areas. Well-being depends upon adequate farm income and income from agricultural labour, having enough energy for agricultural work, protection from the health hazards of agricultural technology, and the nutritional value of the food eaten. For developing countries, the development of agriculture is therefore a decisive factor in the transition from one level of health to another, and increases in agricultural output and productivity are essential for well-being and improved health.

In contrast, only about 6% of the population in developed countries derive their income from agriculture. However, public policies affecting the production, distribution and use of health-promoting food, and controlling substances dangerous to health, have a significant impact on health. The agriculture–nutrition–health chain works primarily through the outputs of agriculture, and the health-damaging effects of overconsumption of certain foods.

Agricultural development affects health in diverse ways. Even raising output may create new health hazards and exacerbate existing ones. If agricultural strategies disregard equity, their benefits may bypass large segments of the farming population, including the landless,

further impoverishing vulnerable groups. Emphasis on cash crops can lead to the neglect of locally grown staple foods and traditional crops and cause food shortages. Introduction of technology can lead to loss of employment and reduced access to land.

The two main causes of death and disease, and the policies and actions that can prevent them, are linked with agriculture. The first main cause — the combined effect of inadequate diet, infection and parasites — leads to high mortality and widespread ill health in the poor countries of Africa, Asia and Latin America, particularly among children aged 0–5 years.

The second main cause of death and disease operating, as yet, mainly in North America, Australia, and Europe is also a synergism. Various ingested agricultural products, combined with other elements such as stress, work conditions, and sedentary living, accelerate or cause a variety of severe, and often fatal, diseases, including cancers, heart failure and stroke, chiefly among persons aged over 40 years.

Impact of agriculture on health

Agricultural policies can improve health, by taking into account the health implications of the agricultural processes.

Agriculture involves transforming *inputs* (soils, sun, rain, irrigation water, labour, draught-power, agrochemicals and seeds), through *technologies* and *structures of work and ownership*, into foods and other *outputs*. The four elements of this process define agriculture, and directly or indirectly affect the nutritional requirements, food availability and health of farmers, farm labourers, and their families. Also, all four components, especially the amount, volume and type of food output produced, may also affect the health and

nutrition of non-farm populations, especially consumers.

These effects of agriculture on health are for the most part well documented. We know how decisions or lack of decision throughout the entire agricultural chain, from the farmer to the policy-maker, can affect health. Yet health considerations play little or no part in most countries' decisions about farm production, or agricultural projects and policies.

While agricultural policy-makers may collaborate readily in the elimination of known, existing, and clearly visible health risks that can slow agricultural growth, equal effort is often not directed at uncovering health risks implicit in existing and planned agricultural processes *which often negate or impede the efforts of health* and have negative feedback effects on agriculture.

Agricultural professionals are generally not trained to take account of health factors in the process of project design. Equally, health professionals are often unable to influence decisions, partly because they may lack the power to do so, but also because generally they do not have the skills or necessary information to advise their agricultural counterparts on the likely impact of different options on people's health.

Impact of health on agriculture

The impact of health on agriculture is better understood than the effect of agriculture on health. Its incorporation into policy faces fewer obstacles of communication or self-interest. The control of endemic diseases has often improved prospects for agricultural growth and created new potential for development. Examples are numerous; they range from the Onchocerciasis Control Programme in the Volta River Basin Area, in West Africa, to the anti-malaria programme and resettlement in Sri Lanka. Where health and nutrition are secure, farming families are better able to risk

experimenting with new crops to try to increase productivity.

Working together

Health and agricultural sectors need to work together to reinforce and support each other's goals. Such action requires analysis of the implications of agricultural policies and strategies on health, covering production goals, output mix, and major agricultural projects, choice of technology, changes in agrarian structure, and policies of food security for the needy. The impact of these policies on the groups at greatest health risk would be the central concern of the health sector. At the micro level, the two sectors should address themselves to the impact that agricultural processes have on the health of vulnerable groups in particular and the farming population as a whole. Both health and agricultural sectors should concentrate on the equity-oriented components in agriculture. These tasks should be complemented by a clear definition of the contribution of the health sector to agriculture — its projects and programmes — and of agriculture to health.

The product mix in agriculture

The product mix in agriculture and the associated agricultural policies raise several questions for the health sector. Should production of staple food items or non-food commodities be emphasized? Should production effort go into regions with high productive potential, or into backward poor regions? Should priority be given to more expensive, high-quality products, such as foods rich in protein and nutrients, or to low-priced high-calorie food? Should the focus be on high-yielding varieties calling for rapid changes in technology or on robust products more acclimatized to local conditions, with lower costs? How should issues related to dangerous products be handled? In most countries today, health policy planners have little influence on agricultural choices in any of these areas although in every one of them agriculture, nutrition and health are linked. These links need to be made clear through the joint efforts of both sectors.

Food crops before cash crops?

The impact of cash crop production on health is likely to be positive when income from the crop covers not only the cost of its production, but also possible increases in food prices due to shortage in local markets. Cash crops may also generate employment for those who do not own land, improving their nutrition and health. However, for a number of reasons there may also be negative impacts. While subsistence farming provides food and also a little cash, cash crop income is a lump sum usually controlled by men, to the detriment of the nutritional status of the most vulnerable groups. The intensity of cash crop farming also increases the manpower requirements, sometimes met by reallocation of family resources, often at the expense of the children's well-being. Unless offsetting measures are taken, there can be severe consequences on the nutrition of vulnerable groups; this should be a special area of agriculture–health cooperation. The best option for many farmers would be a mix of cash and food crops, providing both food and a secure income.

Other issues include seasonal considerations, including questions of storability of products and access to credit markets, and considerations of who in a household controls crop income and how he or she uses it. Such issues are highly specific to crops, regions and societies, but they can be researched and subjected to policy analysis.

Nutritional vulnerability

One national-level consequence of strategic shifts in crop mix towards cash crops, which

can have a major effect on health, is the *shift in consumption*, even among vulnerable groups. For example, in some African countries, there has been a shift from locally grown millet and sorghum to maize meal processed in cities; in parts of Africa and much of Asia, there has been a shift to imported wheat flour. Increasingly, developing countries, even before they have overcome the agriculture-related health problems of poverty, are acquiring those of affluence, often without the resources to deal with either. Food security can be greatly endangered, especially if food stocks are small, remote from areas of need, dependent on scarce foreign exchange for replenishment, and/or unsupported by plans for non-commercial emergency relief. The impression that a country is nearing “self-sufficiency”, because net imports of the traditional main staple are diminishing, dangerously reduces political awareness of new nutritional hazards. It is often the case that the staple food is being replaced by a new import, e.g., rice is being replaced by wheat in Sri Lanka.

These dangers are greater where tastes are developed for imported crops that cannot easily be grown locally. The concentration of research, credit and especially marketing on the newly popular “urban” food crops frequently diverts many hectares from production of more drought-resistant local staples. The shift from sorghum to hybrid maize in Machakos, Kenya, for example, greatly increased nutritional vulnerability in the 1982–1984 droughts. Shifts to finer grains are often an irreversible part of development, but mixes — using sorghum, millet, and/or cassava as well as wheat or maize — can help to ease harsh side-effects.

Box 12 Maize or ground-nuts?

In Zambia, the profitability of growing maize (a male-controlled crop) propelled many male farmers into increasing the amount of land under maize at the ex-

pense of other crops. Women, however, continued to cultivate ground-nuts (a “woman’s crop”) despite the heavier labour required, because they could sell it in the informal market and control the income they gained.

Policy-makers need to consider the impact on "near-subsistence" farming systems where a reasonable degree of food self-sufficiency has been displaced by new crops. Food security can take many different paths, from food support for state schemes (as in Costa Rica, Sri Lanka and several other countries), to home gardens and smallholdings.

Investment in productive or poor regions?

The issue of regional balance is perhaps the most difficult question on which the agricultural sector needs health advice. Food availability at national level is best advanced by concentrating food production resources where the returns are highest; and at local level, where the need is greatest. If extra output of cheap foodstuffs only replaces imports or builds stocks, but is not available to the poor and vulnerable because their purchasing power is static, then health considerations dictate that extra investment should go to the poorest areas. On the other hand, if incomes rise, then it would be best to grow more food where the returns are highest, and make it available to areas of greatest need.

It is often assumed that poorer regions contain a higher proportion of poorer, and hence more nutritionally vulnerable, people. This need not be so, in view of migration and the possibility that greater internal equality exists within more remote, less commercialized villages and areas. The problem, rather, may be that some regions, especially if unirrigated and semi-arid, are subject to greater reductions in output in bad seasons or years, and are less likely to receive timely help from central governments. Thus, poor regions may gain more from accessible food stores and employment guarantee schemes than outlays on farm projects in their own unresponsive agro-climates.

Expensive crops at the expense of health?

For farmers, it seems obvious that crops with a higher sale value are better than crops with lower sale value, per unit of resources used in production. However, from a health viewpoint this may not apply. At farm level, a reliable supply of calories is important, even at the

expense of some efficiency in production. Emphasis on research into proteins, or into cooking and aesthetic qualities, may be misguided.

The neglect of staple root crops in African agricultural systems, in favour of export crops of high but uncertain value, and more recently of fashionable high-protein oil crops like soya beans, has damaged the health and nutritional status of the poor. This is especially so for cassava, which has health advantages as a robust food reserve and can be stored easily until needed. In urban areas of Latin America, a similar bias against commodities consumed primarily by the poor must be reversed in order to alleviate malnutrition.

Advocacy of dairy development on the grounds of "proteins for the poor" is highly questionable. The poor get their proteins (usually adequately) from affordable cereals and pulses rather than from costly animal products. They generally suffer when land and farmworkers are diverted from the former to the latter, though they may on occasion gain through ownership of one or two milking animals.

General neglect of traditional crops¹ — especially local roots, bean sprouts, melons and plantains, and non-staple gathered food crops — reduces sources of energy for very poor rural people, particularly during pre-harvest seasons, in times of drought and famine, and in the home gardens of poor urban and plantation workers.

The issue of an "international" crop-mix concerns food aid. It is better if such aid comprises grain rather than dairy products, which are bound to be much costlier per calorie once marketed.

¹The term is used to describe those cultivated crops and gathered plant foods used in the poorer regions of the world. They include traditional staple crops such as cassava, yams, plantain and sweet potatoes, and some of the so-called coarse grains (e.g., millets, sorghum). A second group encompasses the non-staple crops and gathered food plants which normally function as secondary food sources in traditional diets. They include a large variety of legumes, oil seeds, fruits and vegetables. These foods are the main source of vitamins and minerals. At its eighth session (18-27 March 1985), the FAO Committee on Agriculture passed a special resolution on the research needed in respect of these crops.

There is seldom need to worry about the effects of the spread of cereals upon availability of pulse proteins. High-yielding wheats and rice cereals are a cheaper, and hence more important, protein source than pulses. However, pulses need not compete with cereals. Newly developed early-maturing varieties of cowpeas or beans can be successfully sown after a cereal crop, or within mixes of traditional crops. Normally, it is important to incorporate pulse or leaf protein sources into foods, especially for young children, who often cannot obtain enough protein from staples alone before bulk impedes further consumption.

Young children need to be fed several times a day, but this is not always feasible in terms of

the mother's time and ability to provide sufficient food. Hence the widespread occurrence of malnutrition, even where food is available locally. There is a need for the production of suitable weaning foods based mainly on cereals, but including other cheap sources of protein such as beans and oilseed (the latter is also a cheap source of energy). It is probable that local production may overcome some of the problems of high costs encountered on a national scale. A pilot project in Ghana (Box 13) illustrates the conditions in which the special intervention of the health sector was needed to initiate a programme of production for specific agricultural outputs which, while they may not have received attention in terms of production goals, are vital for promoting health.

Box 13. A formula for self-sufficiency: the case of Ghana

The use of cereal-legume mixtures for weaning foods was popularized on a fairly large scale in Ghana beginning in 1982. The Ministries of Health and Rural Development selected two villages for a pilot project, using existing women's groups. Each group was provided with a diesel-powered corn mill to test its use in providing weaning food, lighten the women's workload, and provide income.

The simplest mixture considered satisfactory consisted of 80% maize and 20% groundnuts or beans. In one of the villages, a mixture of beans and groundnuts was already used on a very small scale; in the other, beans were commonly grown and eaten by adults, but not by young children. In the village with few traditional legumes, improved cowpea seeds were introduced, and in both a small quantity of green gram seed. It grew better than cowpea, and was more resistant to insects. The legume or groundnut component is mostly grown in a community farm.

Installation of the mills (completed in 1982) was the community's responsibility. After a year or so of operation, it was found that the communities were not making the weaning foods as recommended. A more intensive educational effort and a physical demonstration were carried out jointly by health and community development workers. Thereafter, the appropriate weaning mixtures have been produced regularly, usually on a weekly basis. Community development assistants continue to pay regular visits, usually fortnightly, to the project. They guide the women in roasting legumes, sealing them in plastic packets, calculating quantities and sale prices, and bookkeeping.

Though not complex, the intersectoral participation in this project is considered vital to its success. The profits of mill operations have helped pay for laying the foundation of a primary health care centre, roofing for the school and a chain saw. As the project is expanded to other districts, the communities will be expected to pay off the cost of the mill first, over about two years, and the projects should thereafter be self-sustaining.

High yields or dependability?

The major long-run strategy for unpromising agricultural areas has usually involved a search for more robust crops and better irrigation. Drought- and pest-resistant crops stabilize farm income as well as food availability. Irrigation normally improves both. Maximum average yield and stability may, however, require varying policies for research, irrigation, pricing, crop mix, and so forth.¹ The "agricultural establishment" generally gives priority to growth, especially of food surpluses, over stabilization of farmers' and rural labourers' ability to satisfy their needs, because of the pressures of yield-oriented research and city-dwellers' demands for plentiful cheap food. The health costs of such a choice need to be clearly understood and addressed.

Can crops with harmful effects on health be managed?

Another issue pertaining to agricultural output is that of crops that contain elements that are dangerous to life or health. Agricultural strategies seldom attempt to isolate unhealthy components of agricultural output systematically, neither has the health sector forcefully pointed out the importance of such a task. Most problems are dealt with on an *ad hoc* basis after ill health has reached a scale demanding attention.

Foods with direct health hazards

Many agricultural food products contain toxic substances. It is generally when these foods become low in cost, and replace other staples in the diet of the poor, that they become major health hazards. Legumes such as *kesari dhal* in India and *guaya* in Ethiopia have resulted in the occurrence of lathyrism and neurolathyrism on a significant scale, while the build-up of hydrocyanic acid in cassava is well known. Preventive action can be combined in both agricultural extension and primary health care. Changes in

¹ It is often difficult to generalize; every region, every cropping system and every crop may require different approaches at different times. To provide reliability, it may be first necessary to breed for genetic resistance to pests and diseases, and then in a second generation to strive for high yields. Stability may be obtained with crop diversification (mixed and/or relay cropping) and, in a compromise, it may still be possible to include high-yielding varieties.

methods of preparation and storage and use of safer substitutes can be introduced to eliminate or reduce risks.

Diets deficient in nutrients

Another type of health risk is associated with diets consisting of a limited number of staple foods. Cheap staples, e.g., root crops, occasionally replace foods richer in other nutrients, such as higher protein cereals and pulses. The reasons for shifts are varied and complex — they may include more profitable production for export, or higher income and productivity from available land. A home garden programme can provide the complementary nutrients without large-scale alterations in existing patterns of cultivation. Food fortification is another cost-effective approach. The identification of groups affected by nutritional deficiencies of this type, and the remedial action to be taken, are an appropriate field of intersectoral action in which health and agriculture can readily collaborate.

In a different context, populations with a relatively high level of well-being often consume too much refined sugar, saturated fats (including coconut and palm kernel oil), and low-fibre foods, which can lead to obesity and its associated diseases. Here too, there is a need for the agricultural sector to develop healthier crop mixes. As in the Norwegian example (see Box 14), this intervention must form part of a larger food policy covering the food processing industry and several other sectors.

Agricultural products with major health risks

Tobacco and narcotics have become major causes of ill health and mortality in the developed world, and are becoming significant health hazards in developing countries. Undoubtedly the strategies used to combat these health risks must be at the centre of global as well as national health strategies. The per acre profitability of narcotics so exceeds that of alternative crops that laws and incentives alone are unable to reduce supply significantly. Other measures are needed, as illustrated by the narcotics control project in Buner, Pakistan (Box 15).

Box 14 Food and nutrition in Norway: a healthy policy

Norway, a rocky land with long winters, has known food supply problems throughout its history. In the increasingly affluent period after 1945 the proportion of total daily energy intake per capita derived from fat rose steadily. The food pattern also moved from basic staple foods such as cereals and potatoes towards more meat and dairy products, more sugar, but also more fruit and vegetables.

In 1975, Norway became the first industrialized country to adopt a food and nutrition policy. Previously, such concepts had been discussed and tried, but only in developing countries, since industrialized countries were thought not to need such approaches. The aim was to influence dietary changes by using such measures as: (a) encouraging healthy dietary habits; (b) formulating policy in accordance with the recommendations of the 1974 World Food Conference; (c) increasing production and consumption of domestic food and heightening self-sufficiency; (d) strengthening economically weaker areas by giving priority to food production there; (e) preserving the beneficial aspects of existing diet; (f) gradually decreasing the proportion of fat in the diet to 35% of total daily energy intake; (g) increasing the proportion of polyunsaturated fatty acids in the total fat intake; and (h) increasing the intake of starchy foods, primarily cereals and potatoes.

Professional advice, information, and research were the responsibility of the National Nutrition Council and its several subcommittees. An Inter-ministerial Coordinating Committee on

Nutrition was established, with members representing nine concerned ministries: industry, fisheries, consumers, trade, education, agriculture, environment, social affairs (health), and foreign affairs. The secretariat function was placed with the Directorate of Health.

The main areas for intervention include: agricultural policy, including fisheries; pricing policies and consumer subsidies; food processing, import, marketing and sales; public information and education; legislation and regulations on food composition and contents; mass catering as a channel for improved nutrition; and research.

The National Nutrition Council has been the most active institution implementing the policy, and has helped maintain interest in nutrition questions among the public, politicians and food and nutrition policy-makers. Approximately US\$ 100 000 per year was earmarked for public information. Although small, this sum allowed for a considerable increase in activities both centrally and locally.

The Interministerial Coordinating Committee for Nutrition has not functioned well. Merely nominating representatives from various ministries does not necessarily guarantee implementation of plans and meeting schedules. Such a multi-ministerial group demands a very active secretariat to identify problems, describe them clearly, and propose solutions. The secretariat should also take ample time to convince representatives of the importance of nutritional problems, and help them to implement projects.

Results: Multisectoral action has certainly taken place. A research programme was established in 1985 to

evaluate measures for nutrition policy implementation and propose further action. Although consumption of whole milk, cereals and margarine seems to follow recommended policy, it has not yet been possible significantly to change trends in sugar and potato consumption. As for potatoes, about 20% of intake is in the form of potato chips and similar products of low nutritional value (junk food).

Still, there is reason for optimism. Cardiovascular mortality, which increased steadily in the years after 1945, has

levelled off and then decreased over the last few years. Life expectancy for women has increased year by year, so that a 70-year-old woman in 1983 could expect to live for another 14.4 years. Life expectancy for men, after an initial decrease, now seems to have turned upwards to approach the level of the early 1950s. Positive changes in risk factors other than nutrition, of course, have also contributed to the improvement. Ten years after the Norwegian Parliament adopted the food and nutrition policy the conclusion seems to be: it works — but slowly.

The case of tobacco is much more complex. While killing addicts, it saves the lives of many, e.g., in Bangladesh, where it is the only feasible crop smallholders can cultivate on poor soils to obtain adequate income to feed their desperately impoverished households. In many countries, tobacco is a high-income crop for small farmers, and is often grown instead of food crops. For regulatory interventions to be effective, farmers must have other income-

providing crops or other sources of employment such as agro-industry; in addition, pricing policies and taxes must reduce the relatively high profitability of tobacco. On the demand side, action can also be effective, as public policies and education on the health risks of smoking have demonstrated in developed countries. It is likely that in the developing countries, with rising levels of education and information, demand will decrease. Health, in col-

Box 15 More food, less poppy

In Buner, Pakistan, farmers overcame traditional low-income and low-input agriculture by growing narcotic crops such as poppy. However, a multidisciplinary and integrated approach has helped them to find alternative sources of cash income through improved technology and market-oriented agriculture.

The campaign complemented strict law enforcement measures, and guaranteed markets and profits, and the economic and technical viability of the crops and

cropping systems. It ensured adequate infrastructure, such as road, health and environmental services, and education facilities. As a result, gross production value in Buner increased from 48.3 million Pakistani rupees (with poppy) in 1977–1978, to 294.1 million in 1984–1985 (without poppy). This successful project prompted a proposal at the United Nations Interagency Meeting on Coordination in Matters of International Drug Abuse Control (1985), that focused on crop substitution.

Source: Adapted from FAO background paper for an Interagency Meeting on Coordination in Matters of International Drug Abuse Control, Rome, 11–13 September 1985.

laboration with other sectors, could accelerate this trend, and the agricultural sector would have to respond with strategies for economically viable forms of substitution and diversification. An international research effort into problems and possibilities of substitution is needed, as well as international assistance for national programmes of substitution.

Food and nutrition policies in developed countries

In industrialized countries, insufficient dietary intake as a result of poverty is much rarer, although it does occur to a significant extent among the elderly. The balance of agricultural products and government subsidies, together with policies related to processing and demand for farm products, determines whether consumers are offered more or cheaper saturated fats, tobacco, or refined sugar instead of fibrous foods, polyunsaturated fats, or complex carbohydrates.

The food and nutrition policy in Norway is a good example of the initiatives taken in an industrialized country to evolve an intersectoral consensus on policies and actions for achieving nationally accepted nutritional goals. It illustrates how the agriculture–health linkage has been managed with the wider interconnections of food policy, and how nine major government ministries have together implemented policies and actions and conducted a dialogue with private trade and industry to promote desired changes in dietary patterns.

Farm labour, land systems, and technology

An equity-oriented agricultural strategy

Agricultural development affects health mainly through farm incomes and incomes of agricultural labourers. The agricultural projects can make important and sustained contributions to health and nutrition by increasing and stabilizing income and food production, and by ensuring access to food throughout the year.

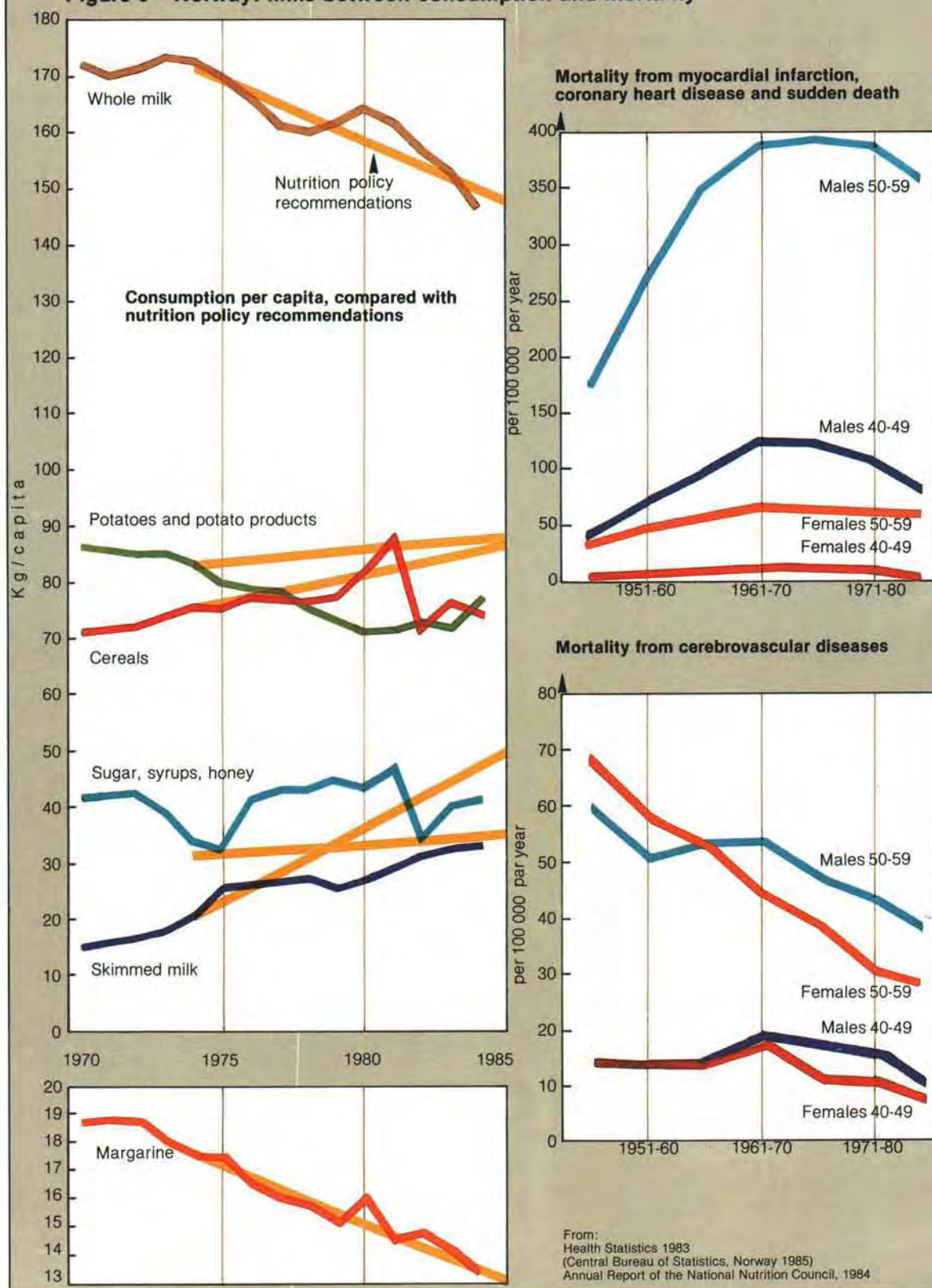
The goals of the agricultural sector are usually identified in terms of crops and output targets for crops relative to national needs. They are seldom conceived in terms of the different groups of agricultural workers, families and households, or of increasing their productivity and income. Such an approach is essential if health goals are to be incorporated in agricultural development. Methodologies and statistical criteria for introducing nutritional considerations into agricultural and rural development projects have been worked out and field-tested. These methods can be used, when suitably modified, to meet the special needs of each project, as can a similar methodology for continuous surveillance and monitoring of the nutritional status of population groups.

The main elements of an equity-oriented agricultural strategy include: crop improvements within reach of the poor; a structure of extension services and agricultural supplies providing equitable access; reforms of agrarian structures increasing access to agricultural resources, land and employment; choices of technology that reduce human effort and increase productivity without major displacements of labour; extension of investments in agricultural infrastructure to the poor, for example, in small-scale irrigation works or storage and marketing facilities; and specific measures to reduce seasonal fluctuations in income and employment. Although the health sector has little direct influence on this range of policies, it can inquire how and where equity-oriented components are incorporated. It can monitor their impact on health and nutrition, and work with agriculture to strengthen primary health care in programmes and projects for improving the well-being of disadvantaged groups.

The health of farm labourers

Four main problems of farm labour strategy can and should be addressed while promoting health for all.

Figure 9 Norway: links between consumption and mortality



Energy-saving innovations. The caloric requirements of farm labour are high. Long periods of strenuous work, travel to work or in search of new work, and the rise in basal metabolic rate resulting from continuous hard work all deplete energy. Travel time and effort spent in purchasing food, gathering fuel, hauling water, and preparing and serving meals are important factors for mothers who work in the fields. At peak seasons, the world's hungriest and unhealthiest households — those that sell much farm labour but buy little food — may well be in an "energy trap", which impedes efficient conversion of work into the food (and hence health) that their families need. This trap would only be made worse by "labour-saving" innovations that shift work and income from labourers to much wealthier farm workers (or their bankers, if the equipment is financed). The trap can only be broken by giving assets or as much work as possible to the poorest, while reducing the energy intensity of each hour that they work. Innovations are needed in both policies and projects — from furnishing wheelbarrows to transportation — that save human effort *without* throwing people out of work, as tractors, combine harvesters and modern rice mills do.

Reducing hazards. More attention should be given to the traditional hazards of the tropics — injuries, dehydration, heat stroke, inferior water, and exposure to disease, including irrigation-induced diseases such as schistosomiasis and malaria.

Improving women's status. The contribution of women and children to farm work is important and even dominates in many societies. In sub-Saharan Africa, women account for 30% to 50% of agricultural labour. Much of the stagnation in rural agriculture and the negative health consequences can be blamed on lack of attention to the special needs of women farmers. Debate continues, however, as to whether "more work for women" is good or bad for their or their children's nutritional status, despite the knowledge that improvements in women's status and in their children's well-being depend on women's access to income and power.

The situation is even more serious for women who head households and are the principal wage earner. Male migration, high marital instability, wars and political disturbances, and drought and famine have dramatically

Box 16 Mothers in India and Bangladesh: more income, healthier children

A study in Calcutta showed that the extra income from women's work improved their children's nutrition, though less than proportionately. In eight Bangladesh villages, the harm caused by female labour displacement, via modern methods of rice processing, outweighed the benefits of saved grain. In Kerala, extra female income promoted better infant birth weights and growth — a finding reversed only if the income was earned (i) outside the home

(or home farm), (ii) by the poorest households, and (iii) in the slack season. In these extremely difficult circumstances, the mother's absence from home endangered child care more than the income she earned helped it. This important finding underlines the nutritional importance of ensuring that a mother's work is compatible with child care in times of food shortage.

Sources: (1) Lipton, M. Post-harvest technology and the reduction of hunger. IDS Bulletin, 13 (3): 4-11 (1982). (2) Reutlinger, S. & Selowsky, M. Nutrition and poverty: magnitude and policy options. Baltimore and London, Johns Hopkins University Press, 1976 (World Bank Staff Occasional Papers, No. 23).

increased the number of female-headed farm households, not only in Africa but also in other parts of the developing world and in some southern European countries. Support services must be built into agricultural projects, since women's labour is essential both to these projects and to their households.

Home gardens and livestock are of particular importance to women, since they can provide work and income in cultures where males dominate. There is a need for extension services and pricing policies that favour such activities.

The seasonal pattern of work greatly affects nutrition, especially for the poorest households, which are most reliant on income from casual female labour. In slack agricultural seasons, the demand for labour is much below average. Wages and farm incomes fall, household food stores decline, the price of food goes up, infections increase, and the demands on health services are high. Agricultural projects supported by food aid have tried to fill these gaps through community income, with some success.

Projects showing a satisfactory performance have involved sound local structures and have included the beneficiaries in project planning and operation.

There is a need for the health sector to become more actively involved in innovative agricultural programmes encompassing elements that improve nutrition, save energy and time, and address seasonal problems.

Land systems and the vulnerable groups

Land systems are important to health since the size of a rural family's income, its consumption, and hence its health status and risks, are strongly related to the size of its land holding. One study in Kenya examined the link between the per capita land holding and stunting and wasting, and showed that wasting had a strong inverse correlation with land ownership.¹ The health sector needs to be concerned with land redistribution policies that increase poor people's income and raise

¹A major exception to the "land shortage, poverty, ill health" link occurs where land is very bad and lacks water, and where the occupants are forced to depend on off-farm sources of income.

Box 17 Food aid and community development

Tunisia was one of the first countries to receive project-targeted food aid, beginning in 1957, from a variety of sources and for various purposes. Project food aid was directed to economic development, especially in agriculture, and usually as salary supplements and incentives to small farmers to develop their land. There was strong motivation at all levels to use food aid to improve the conditions of the poorest in the most disadvantaged parts of the country through large-scale development

projects aimed at securing durable benefits, increasing employment, and strengthening the role of women in development. There was marked success in reducing the number of people below the minimum recommended nutritional level. Internal and external conditions can greatly influence the results of projects receiving food aid. Among the favourable influences, available trained human resources, health services, and continuity and coherence in planning are major external factors, while data availability, the integration of food aid into priority projects, and adequate, competent supervisory personnel are major internal factors.

Box 18 Labour, health and wages

Health can be improved through higher agricultural employment possibilities and increased wages. A switch towards more labour-intensive farm innovations in some developing countries has promoted productivity and agricultural efficiency, and hence labour income,

nutrition and health. The modern varieties of cereals, for example, have changed the formerly immutable times of planting and harvest, and have improved farming systems in Bangladesh and north-east India. The demand for labour is distributed much more evenly over the year, with great benefits to the nutrition and health of farmers and agricultural labourers.

agricultural output, especially of inexpensive foods for home consumption. Nomadic farmers, squatters, and those with traditional and uncoded land rights in settlement areas, are too often seen only as health “threats”, or farming rivals, to a more powerful and articulate group seeking to make more “modern” use of their land. Yet they are often the groups at most health risk. By improved understanding of their problems, and monitoring of the most vulnerable, the health sector can press for improved working conditions, job opportunities, and wage policies as well as directly provided health services.

The organization of *plantation land* can pose special health problems, especially for migrant workers. Little land is left for food cultivation by plantation workers and their families. In one African country, it was found that about one-third of children on commercial farms were below 75% of their expected weight-for-age, compared with about one-fourth of the children in communal areas. Examination of the nutritional patterns of children on plantations can indicate the need for remedial action and appropriate steps can then be planned.

Urban expansion increases competition between the rural and urban areas for land, water and fuel. Improper disposal of urban waste and agricultural residues may contaminate water supplies. Increasing encroachment on agricultural land results in the loss of fertile farmland, much of it once controlled by poor

people, and in water and fuel shortages at the urban fringe. Efficient ways need to be found to replace the cheap food (and purchasing power) lost by poor people in this process, such as land reservation for individual or group home gardens and smallholdings. Protection of prime agricultural land from non-agricultural uses should be an important consideration of agricultural policy.

The health impact of technology

Farm technology includes: hydrological, mechanical, chemical, and biological methods. The choice of technology is important in determining agricultural productivity and health. Problems arise where increased productivity is obtained at a high price to health.

Hydrological methods. Irrigation systems have been established to secure a supply of water and to open up unproductive lands to agriculture. These same systems can become a major source of malaria and schistosomiasis. Technical and economic considerations, such as regular availability of water and better cost-benefit ratios, favour large projects, which are often of little benefit to a large segment of the farming population. Little attention is given to small-scale irrigation programmes serving poorer farmers, where health hazards are easier to control. These biases need to be corrected if agricultural development is to have a positive impact on the health of vulnerable groups. Moreover, water management projects

are an excellent point of entry for intersectoral collaboration between health, agriculture and environmental activities.

Mechanical equipment simplifies work, reduces effort, and in some instances replaces human labour. The negative consequences of this have already been touched upon. The health consequences of labour-simplifying technologies have not been extensively explored, although attention is now being given to "appropriate technology", i.e., technology that is useful within the scale of the system in which it is applied, is affordable, offers less risk to the user and requires less energy (human and/or fuel) input than traditional methods. This is of particular importance to women who have a heavy work load.

In some countries almost all the hoeing and weeding is done by women. When these activities coincide with peak work load and the wet season, and when food stocks are low, women pay a heavy health cost. In the Gambia, pregnant women lose weight in the peak season, while in Thailand a tripling of the incidence of miscarriage has been noted. The introduction of appropriate technology in a project in Guinea-Bissau (Box 19) illustrates how women's time and energy constraints can be relieved, and the hours saved productively used.

Chemical methods involve an understanding of naturally occurring soil chemicals and the use of organic and inorganic fertilizers. Neither the health implications of the mix of chemicals, nor of alternative methods of plant nutrient enrichment, have been adequately investigated. For example, "mudball" techniques, by precise, repeated placing of nutrient sources in the root zone, can substantially raise yields and reduce expenditure on fertilizers. But since such techniques involve much more handling of toxic substances, inexpensive ways of reducing associated health hazards need to be found.

Insecticides save tens of millions of tons of staple foodstuffs for human use, and greatly increase poor people's income (and hence nutrition and health) from non-food and food crops alike. But insecticides can be a source of

direct poisoning, costing perhaps 10 000 lives per year in the developing countries. A cumulative *pesticide build-up* could occur throughout the food chain from the use of persistent chemicals such as DDT. People who regularly apply pesticides and/or ingest contaminated food or water are most at risk. The extent of long-term risks, especially of cancers, is controversial but probably substantial, especially in developing countries with inadequate safety standards.

As insect and pest resistance grows, an increasing variety, and in some cases increasing amounts and concentrations of pesticides, are used to achieve the same level of plant protection. Methods of integrated vector and pest control offer one possible alternative for getting off this "pesticide treadmill". In order to improve safety and effectiveness in the use of pesticides an *International Code of Conduct on the Distribution and Use of Pesticides*¹ has been prepared. This seeks to identify all potential hazards in the distribution and use of pesticides, establishes standards of conduct, and assigns responsibilities to governments, pesticide manufacturers, salesmen, users and all those engaged in the regulation, distribution and use of pesticides. The Code should be particularly useful to countries that do not yet have an effective system for registering and controlling the use of such products.

Biological research can improve the quality of food products, as exemplified by the modern cereal and root-crop varieties. But in many instances these new foods have not yet benefited the poor. A better understanding is required of how new foods can affect the nutritional status of the undernourished. Thus, biological research needs to focus on crops grown and eaten by the least well-off, and on related factors of production, profitability and safety in consumption. Efforts should be directed at developing and using crops that can be grown on marginal land. It is noteworthy

¹Adopted at the twenty-third session of the FAO Conference, Rome, November 1985.

Box 19 Saving time for the family

In the Cabaxanque integrated project in the Tombali region of Guinea-Bissau, the introduction of only four small rice-mill machines has indirectly saved many women an average of 4–5 hours of tiresome work per day. Women recounted, in the most convincing terms, the benefits of such simple, practical, inexpensive and time-saving machines. Moreover, as the responsibility for managing each rice mill and “selling” its services to the surrounding villages was given, in each case, to a committee of women chosen by the community, that responsibility has given them not

only an important place in village life but also a set of social functions that has allowed them to play a much greater role in both the health and the economy of the village.

The women were all planning how best to use the new hours that had been added to each day of their lives. Many of the projects related to the well-being of the village and their families. One of them said: “We are no longer overwhelmed by fatigue at the end of the day. This helps us not only to keep our own health in better shape, but also to take care of our children and our husbands.”

that such research — and indeed all bioresearch on root crops, sorghum and millet — is much weaker in national research systems, especially in Africa, than in international systems. The national research capabilities of developing countries in these fields need to be promoted and strengthened by the transfer of biotechnology and genetic engineering techniques, under appropriate, internationally agreed guidelines.

It is clear from the above that agricultural technologies have important health implications, which need to be better appreciated within the health sector and by the various parts of the agricultural system. Both sectors need to be more aware of mutual interests. It is not sufficient for health authorities to decry the negative effects of certain technologies; they should seek cost-effective solutions that overcome all or most of the harmful consequences.

Macro-policies in agriculture and food

The macro-policies in the agricultural sector will influence the health-related issues exam-

ined in the preceding sections. First, the policy on farm prices, taxes, producer subsidies and agricultural credit can affect the crop mix and shifts in production and consumption away from health-damaging products to health-promoting products. On the other hand, agricultural credit schemes that are crop-specific may neglect the crops essential for nutritional reasons, or the crops produced by poor farmers. Conditions applicable to subsidies such as replanting may make them inaccessible to farmers with very small holdings. Second, the package of policies will determine the purchasing power and consumption levels of vulnerable groups. The impact of these macro-policies on health depends on who the vulnerable groups are, what they produce, and how they have access to the support systems, subsidies, and credit schemes.

Policy-makers should therefore consistently take into consideration the interaction between agriculture and health, especially during the planning process. Health and nutrition goals should be stated explicitly as part of the objectives of the plans drawn up for both sectors, and actions that enable agriculture to contribute more effectively to health should be

clearly defined and incorporated in the agricultural strategy.

One example: does state action to stabilize or lower average food prices improve health? If almost all poor households are small-scale family farmers and net sellers of food, as in much of sub-Saharan Africa, the answer is a plain "No". If the great majority of them are net food buyers, as in heavily urbanized Colombia, the answer may well be "Yes". If — as increasingly in Bangladesh, eastern India and Java — the very poor are increasingly dependent, not on urban work or on their own farms, but on employment by farmers, the impact of the downward movement of agricultural prices is complex. Such people gain temporarily from cheaper food, but lose income in the medium term, as (usually labour-intensive) agricultural production and employment are discouraged. It is necessary for the health sector to collaborate in analysing various policy options, clarifying their health advantages and problems and, where appropriate, redesigning them in "health-friendly" ways.

Food policies have most often stressed the goals of self-sufficiency for major food staples and higher farm production. Food security and reduction or elimination of undernutrition have received less attention. The package of policies and incentives in support of the production goals often conflicts with the policies and schemes directed at providing food security to

the population. The latter are seen as distorting the market and creating production disincentives. Nevertheless, many countries have simultaneously maintained the package of incentives for production such as agricultural input subsidies, agricultural credit and guaranteed prices, together with food subsidies such as rationing schemes. These different sets of policy instruments are designed to fulfil the objectives of growth and equity. Experience has shown that in many countries, e.g., Costa Rica, Egypt, the Republic of Korea, and Sri Lanka, this combination of policies has been accompanied by steady growth of agricultural output on the one hand, and improvement of nutritional status on the other. Peru recently announced a policy aimed at improving the nutritional status of the poor by shifting fish products from exports to local consumption (Box 20).

A food policy that provides food security appears to be an important ingredient of a health-oriented development policy in poor countries. A variety of policy options and alternative instruments may be available, including pricing policies, state trading in staple food, use of food reserves to stabilize prices and distribution, outright state subsidy schemes for staple food, feeding programmes for vulnerable groups and the needy, and routine fortification of suitable foods. In many cases, food subsidies as well as feeding schemes have been the critical income support and food

Box 20 Peru: fishing for food rather than fertilizer

Peru has been considered one of the major fishing countries in the world, but had become one of the smallest consumers of its products. Average per capita consumption of fish per annum was only 10 kg, compared with 60 kg in Japan and 20 kg in other Latin American countries which do not have large fish

resources. For 30 years, out of every 100 tons caught only 1 ton was used to feed Peruvians. The other 99 were sold as fish meal to fertilize European crops. The new policy will reverse this trend and provide food for the poor.

Source: H.E. Alan García Pérez, President of Peru. Fourteenth McDougall Memorial Lecture. FAO, Rome, 10 November 1985.

supplement for vulnerable groups that have been too poor to afford proper nutrition. The main problem with most of these schemes has been in targeting them to the groups that are most in need.

Making agriculture more responsive to health

The health impact of agriculture stems from strategic priorities and biases in the agricultural development policy. There is little scope in current national systems for the sector to interact with agriculture on the basis of equity-oriented criteria, or to inquire into the health outcome of agricultural strategies, via their impact on the socioeconomic well-being and health-related resources of vulnerable groups. For these interactions to take place, the health sector would have to be appropriately involved in the planning of agricultural strategy, and participate in designing individual projects.

Plans and strategies find expression in specific policies that are introduced and adapted from time to time — policies on farm prices, incentives, subsidies, and agricultural research priorities. The effects on health of centrally formulated policies for large projects, and particularly on the health of vulnerable groups, are well known but as yet largely ignored, although a well-developed methodology now exists for assessment of impacts. An obvious example is the spread of water-borne diseases as a result of major irrigation works.

Many agriculture – health links can be most effectively realized through institutional and policy decisions at the community level and as *small-scale local projects*. A great deal of the research and knowledge available on the interaction of agriculture and health is at this level. Identification of situations needing intersectoral interventions, and formulation of intersectoral projects, have to become a regular institutionalized part of the tasks of health and agricultural workers, and not be confined to specific projects on an *ad hoc* basis.

Institutionalizing interaction between health and agriculture at the national level

The intersectoral actions on each set of health-related issues must be institutionalized at different levels in the national decision-making process. Agriculture – health linkages cannot be understood in isolation from other sectors such as education and environment. In development planning, at sectoral and national levels, intersectoral relationships are largely based on inputs and outputs, with objectives primarily conceived in economic terms. Planners have not developed equally effective methodologies for multisectoral coordination to achieve social and human objectives such as health, equity, and better living conditions. Intersectoral action for health has therefore to be part of a broader reorientation of planning, policy formulation and legislation in all relevant sectors. The health sector itself has tended to generate its own analysis of the problems it encounters and to propose solutions for them in health care terms alone. Institutions and mechanisms, such as national health councils and national health development networks, have concentrated mainly on immediate intersectoral support for their own programmes. There is no evidence that they have paid sustained attention to agriculture – health linkages although broader socioeconomic issues have been on the agendas of some of these bodies.

Over the past 15 years or so, many countries have established national food and nutrition councils, often under a national planning authority. This has coincided with the move away from previously dominant concerns in nutrition studies with metabolic and biological issues, towards a new socioeconomic and planning perspective, emphasizing vulnerable groups. Nevertheless, the impact of these councils, and national food and nutrition plans, has been somewhat limited. In Latin America, more was achieved in developing new methodologies and refining diagnostic tools than in getting new policies implemented. Colombia's national food and nutrition plan, with firm roots in the country's top policy coordinating agency, while quite successful at

the *project* level in the communities, has been much less able to influence national *policies*. The Joint WHO/UNICEF Nutrition Support Programme has also created coordinating mechanisms which, in many countries, are linked to the central planning agency. The deficiencies of these national-level institutions in mobilizing intersectoral action do not appear to lie in their location within the system or their institutional form.

Strengthening existing institutions

Existing institutions can be strengthened to contribute to policy-making. There are three conditions: a clearly defined agenda of intersectoral issues; more health professionals trained to deal with these issues, who can indicate feasible policy options; and involvement of professionals from disciplines and departments other than the health sciences. Efforts

are being made along these lines in some countries, of which Nepal is an example (Box 21).

Contributing institutions can include those responsible for overall planning and policy-making, and the planning, statistical and budgeting units of the sectoral ministries, with research institutes also playing an important role. In agriculture these institutions may be supported by a network of international agricultural research centres, national agricultural research institutes, local research stations, and the private sector, which deal mainly with crop improvement, breeding programmes, fertilizers, pesticides, and so on. However, they require regular and institutionalized contact with health and economic researchers, and feedback from the local level, if they are to obtain maximum benefits for the nutrition and health of vulnerable groups.

Box 21 Intersectoral action for health promotion in Nepal

In the mid 1970s a National Nutrition Coordinating Committee was established in Nepal, composed of the executive heads of the sectors of health, food, agriculture and irrigation, home and panchayat, education and finance, and also semi-governmental and social organizations. The secretariat was located in the National Planning Commission. Each sector was asked to undertake intensive sectoral exercises, to define its role in controlling malnutrition, and to put its own house in order before collaborating with others. Coordination cannot be done in a vacuum; sectoral activities and programmes were required. Nepal's Coordinating Committee grew stronger every year, with an increase in sectoral participation.

After all the concerned sectors had been "activated", a national workshop

was convened in September 1978 at Pokhara. Its report, famous in Nepal as the Pokhara Declaration, formed the substance of a Declaration for the Eradication of Malnutrition, issued by His Majesty King Birendra of Nepal. All the specific recommendations were accepted by the Government.

The intersectoral national nutrition strategy produced a series of important events, including the establishment of a nutrition section under the Health Ministry and nutritional focal points in the Ministries of Food and Agriculture, Education, and Home and Panchayat. All major nutrition activities and projects, including the Joint WHO/UNICEF Nutrition Support Programme, are reviewed and discussed by the Coordinating Committee, and acted on by the sectors concerned. A fully-fledged national food and nutrition policy is now being gradually elaborated for Nepal.

Box 22 Collaboration between agriculture and health at the grassroots level

In Argentina, in many agricultural extension agencies of INTA (Instituto Nacional de Tecnología Agropecuaria),

the national agricultural institute for research and extension, rural home extension agents are involved in promoting the well-being of the rural families. Nutrition and health also concern them. To achieve their objectives, they work hand in hand with local health authorities.

Health researchers, mainly in national institutes or universities, while long involved in health and nutrition work, are usually isolated in medical schools, and even more cut off from the socioeconomic aspects of nutrition than agricultural researchers. This problem was addressed at the Technical Discussions held in conjunction with the Thirty-seventh World Health Assembly in 1984, which considered the role of universities in the strategies for health for all.

To ensure that decisions related to agriculture have positive effects on health, health planners must contribute more effectively to the analyses preceding policy formulation. Specifically, they could ensure the incorporation of a health impact analysis in the agricultural planning and policy development process. Research into the health effects of decisions in agriculture, particularly their nutritional impact on vulnerable groups, has produced well-documented findings, often of general applicability. Nevertheless, many such findings refer to situations that may not be relevant in other countries or regions. One prerequisite for health planners to interact effectively with other sectors is that up-to-date information on the nature and range of the findings of ongoing research and field experience be easily available.

Improving the health information system

Innovations to improve the agriculture – health policy linkage have a much better chance of success if accompanied by appropriate “reforms” in the health information system. At least until capacities improve, a

strong case exists for reducing the range of data routinely collected, to include only those relevant to high priority issues. WHO’s own development of basic indicators to follow progress in achieving health for all is relevant here. Agricultural data need similar treatment and both types should be processed through a central system and made more easily available for analysis and decision-making.

Several countries have installed systems for *nutritional surveillance* which can provide a wealth of information on the agriculture – health linkage. Monitoring of the food and nutrition situation is a continuous task, and must be based on a permanent, effective link between the agriculture and health sectors. In this context, the relationship between dietary intake and disease needs to be assessed, at national and local levels, for different socioeconomic groups.

The most essential indicators are those that measure the main causes of ill health among vulnerable groups. Here, the most revealing indicator would be the adequacy of the calorie intake. It may, however, be desirable in developing countries to focus attention on monitoring the effects of agricultural policies on the health of children aged under five years, through sample studies (especially if part of the national household surveys), and the use of sentinel sites. The main point of these and other similar procedures is to ensure that relevant data are routinely collected and available for comparative analysis by population groups or areas.

Box 23. Early warning saves lives

With the adoption of primary health care as the top health priority for the 1979–1984 plan, Botswana undertook a major programme to build up its rural health infrastructure. More than 500 health facilities were established, which

had as one of their responsibilities the monitoring of the nutritional status of the population. The early warning provided by these surveys led to a timely response to the recent drought. Relief aid was organized throughout the long drought period that devastated Botswana's livestock, and human deaths due to the drought were minimized.

Subnational policy-making, administration and politics

At the district level, the health and agriculture sectors should be involved in “micro-planning”, or deciding, within the parameters given by the region or the centre, what is to be done, where, and with what resources. Intersectoral collaboration is useful in defining the complementary tasks for various workers, specifying the division of labour, and eliminating wasteful duplication or conflict of messages, notably between agricultural extension, public health, and nutrition workers. Integrated rural development projects also offer scope for innovative forms of intersectoral collaboration, and can facilitate analysis of the impact of agricultural activities on health.

The three most important processes shifting responsibility toward subnational levels are: (a) *deconcentration*, or shifting central government workload to lower levels, while keeping functional responsibility at the national level; (b) *delegation*, or transfer of managerial responsibility outside the regular bureaucracy; and (c) *devolution* of authority in response to demands from below the national level. Institutional solutions for intersectoral collaboration will largely be determined by administrative and political decentralization.

Participation and pressure from below

While there is a case for demanding monitoring and control by “pressure from above”, there is an alternative standpoint — that the interests

through popular participation, or “pressure from below”. This view has much backing, especially in the health sector, since people’s participation is essential to primary health care. However, much discussion of participation, especially from within the health sector, treats it like a tax — as the people’s necessary contribution to the improvement of their health.

Local people know better than outsiders how seasons affect demand for labour, hunger, food reserves, and disease, even though their knowledge is often incomplete and unscientific. To combine local knowledge with that of health and agricultural workers requires participation in information gathering and analysis, and demands a broad change of perspective. Such participation breaks down sectoral rigidities, since the perceptions of households, families, and local communities are inherently multisectoral. If “participation action research” is successful, people are more likely to apply policies and decisions made in a far-away capital to the local realities, and to generate pressure to implement the findings. One could say that the people stand on the last step of the downward, “technical” ladder of planning, implementation and monitoring, and simultaneously on the first step of the upward “political” ladder of promoting change.

Where the poor confront local power groups, in an unequal social structure, income-augmenting (and nutrition-improving) activities may be built up from below, around small

Box 24 A bank for the poor

Given access to low-interest credit, thousands of rural poor in Bangladesh have been able to carry out activities of importance to agriculture and health. Loans have been made for trading, making processed goods, providing transport services, storing agricultural produce, marketing agricultural and non-agricultural inputs, outputs and supplies, as well as purchasing shallow tubewells.

The Grameen (rural) Bank project has grown steadily since 1976, from an experiment in one village to a nationally and internationally supported programme aiding more than 40 000 poor

men and women to improve their living standards.

The project has five chief objectives — to extend banking facilities to poor men and women; to eliminate exploitation by money-lenders; to create opportunities for self-employment among the poor; to bring the disadvantaged into a structure they can understand and operate and in which they can find sociopolitical and economic strength through mutual support; and, finally, to turn the vicious circle of "low-income, low-savings, low-investment, low-income" into an expanding circle of "more-income, more-credit, more-investment, more-income".

Source: Ideas and actions, No. 6, 1984, pp. 4-11.

groups whose members recognize each other as sharing a similar situation. The Grameen Rural Bank for the Poor in Bangladesh is a case in point (Box 24).

The agriculture – health linkages at com-

munity level, particularly when they concern the vulnerable groups, must institutionalize participation, both in information gathering and decision-making. Depending on the local context, nongovernmental agencies can act as catalysts in this process.

Education, Culture, Information and Life Patterns

Background

Education and health in any given society have to be understood in the wider context of the local culture, with its structures of knowledge concerning health and its own processes of learning. Education takes place in everyday living even more than in formal teaching. There are therefore many possibilities to provide the populations concerned with knowledge and information.

The school system can help lay the basis for health knowledge and health behaviour in the most formative period of the individual's life — childhood and adolescence. Outside the school system, a wide variety of institutions and programmes are engaged in activities with an educational content which disseminate knowledge and information of direct or indirect concern to health. These include adult education programmes, sectoral programmes of training and extension services, nongovernmental organizations of various types, religious institutions and the mass media. Health has direct and indirect linkages with all processes of teaching and learning that are to be found in different parts of a society. The main task is therefore one of organizing selective and purposeful interaction. This raises a number of important questions.

In developing countries where child survival is the major problem, women are likely to have very limited access to formal education, and literacy rates are generally low. What is the first priority then in health and basic education? In developed countries, where the vulnerable groups are older, what is the importance of life-styles for personal health and quality of life? How can health education and information influence life-style and behaviour?

Do existing educational institutions, both formal and informal, promote health knowledge rel-

evant to peoples' lives? Formal education has often been a decisive factor in improving health. In societies where most people do not proceed beyond the primary stage, primary school takes on a greater role in health promotion. What then are the most effective means of communicating information and knowledge about health, and where does such communication take place?

What sort of health problems arise from far-reaching sociocultural changes affecting the family, the generation gap, elders, and religious beliefs and values?

Education as a decisive factor in health improvement

The impact of formal education on child survival

It is widely accepted that formal education is decisive in improving health and reducing mortality, especially in developing countries. Even a few years of schooling provide basic skills and some capacity for continued learning, which make a vital difference to the individual's ability to handle life situations and cope with a changing environment. This capacity, however rudimentary, can have far-reaching implications for health behaviour and learning about health.

Poor countries that have given priority to investments in education have lowered mortality levels far below those of countries with much higher per capita incomes, but less educated populations. The comparative analysis of mortality, per capita income, and educational level in a group of 99 developing countries (Fig. 10 and 11) highlights the close relationship between education and health. It can be seen that countries giving priority to primary schooling (Fig. 10) have high rankings for infant survival. Even though all but three have per capita

Figure 10 Thirteen countries where infant survival rankings exceed income rankings

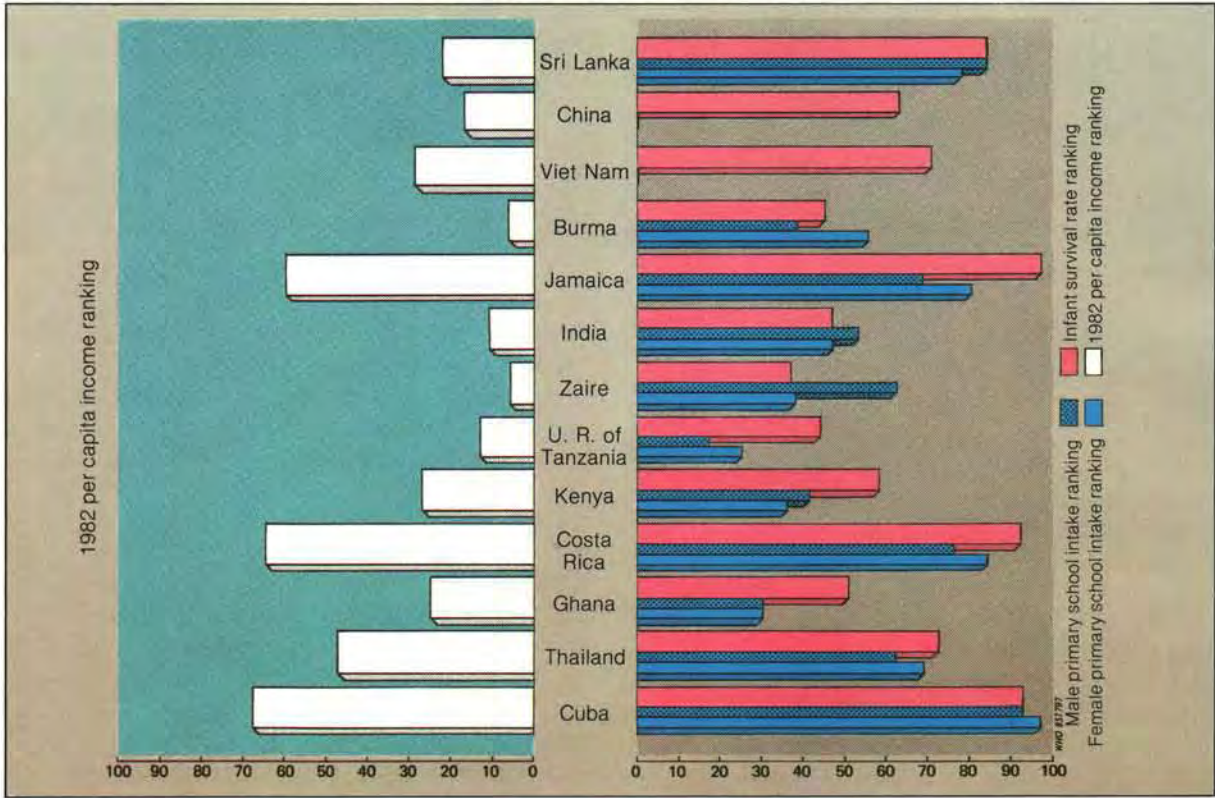
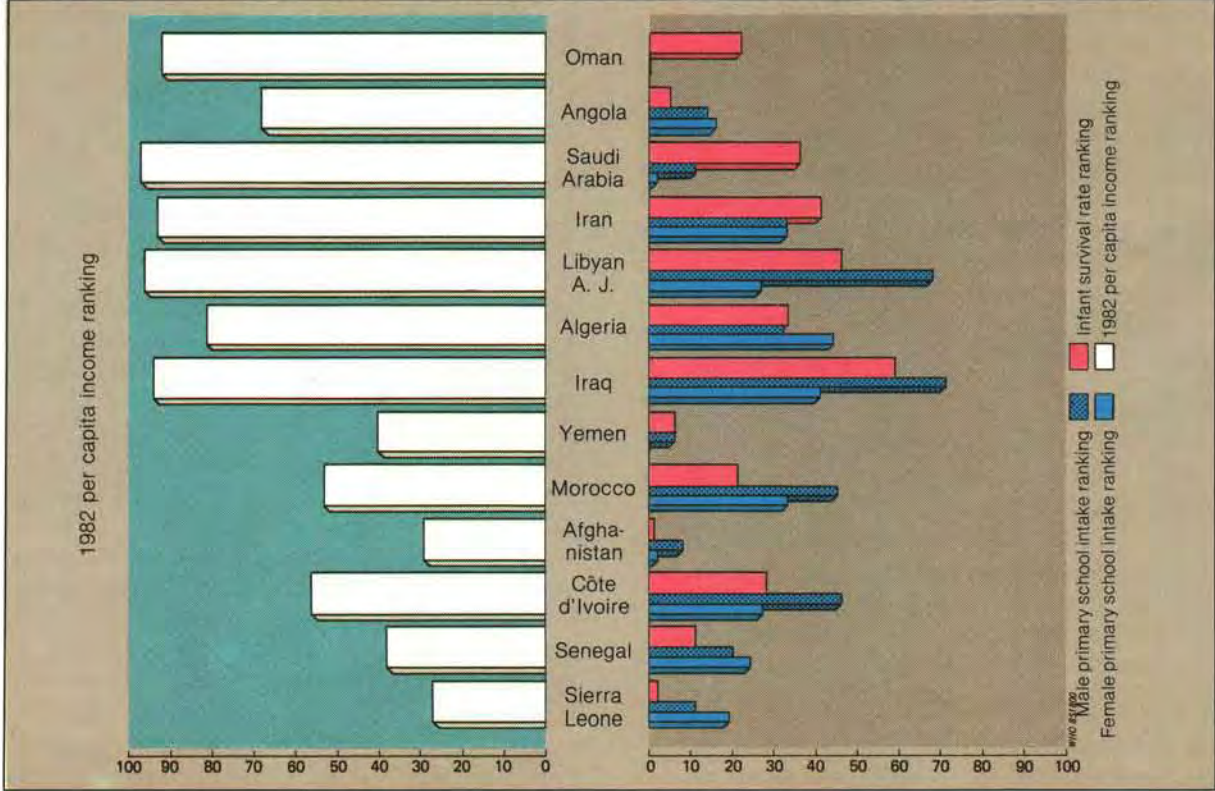


Figure 11 Thirteen countries where income rankings exceed infant survival rankings



incomes under US\$ 1100, only one has an infant mortality rate as high as 100 per 1000 births, and four have rates below 50 per 1000. Half have a life expectancy at birth of over 60 years, while Cuba has a level comparable with the industrialized countries. Past (or parental) education is thus a better predictor than income level of child mortality rate and, unexpectedly, an equally good indicator of life expectancy at birth.

In contrast, Fig. 11 shows 13 countries where infant survival rate rankings are markedly worse than income rankings. In every one of them the infant mortality rate is at least 25 ranks below that of per capita income, as is also the case, with only a single exception, for both child survival and expectation of life at birth.

The survival rankings are also compared with level of participation in primary schooling. The survival ranking corresponds closest to female participation in primary education. Furthermore, female school enrolment in 1960 is the key variable, and comes closest to the survival ranking in 1983. Primary education of females was thus having its impact with the expected time lag as cohorts who had been in primary school in the early 1960s entered child-bearing age. This has implications for health planning.

These conclusions, derived from aggregate national data, are confirmed by the mounting evidence of various small-scale studies on the health behaviour of individuals and families. A number of important findings have clarified the nature of the health—education link and how it works:

Box 25 Maternal education in India

In South India, education has fundamentally affected women's attitudes to child care and their ability to provide it. An educated woman is more likely to fight for the right to identify her child's sickness and to be able to take early and, in her view, appropriate action. And she is more likely to be accorded this right by her mother-in-law and husband. The evidence shows conclusively that mothers notice a child's sickness at an earlier stage and feel more strongly about taking action. Most illiterate women will not draw attention to the situation until their mother-in-law or husband identifies the child's problem, and very few will take action on their own accord. The educated woman's attitudes and changed decision-making situation have ramifying effects. She is more likely to give equal consideration to her children and the adults in the household when providing meals, and to treat sons and

daughters alike. This may often result from the family eating together. She is more likely to demand that food be bought for children's needs when supplies run low. She tends to provide a more balanced diet. She is more likely to excuse a sick child from work. There is an element of common sense in her child care, which is probably an education-induced attitude of responsibility. Certainly, she acts more decisively to prevent accidents and to ensure her children's hygiene. This aspect of child care was identified over 50 years ago on Tyneside in north-east England and related there at least partly to education. The World Fertility Survey evidence from Ghana, Nigeria, and Sudan suggested that maternal education went a long way to overcome deficient water and toilet facilities.

Sources: Caldwell J.C. et al. *The social component of mortality decline: an investigation in South India employing alternative methodologies*. Population studies, 37 (1983); and Caldwell J.C. *Education as a factor in mortality decline: an examination of Nigerian data*. Population studies, 33 (1979).

■ Parental education, particularly of mothers, is strongly related to improved health care for children. Several studies have indicated that educating the male parent alone does not have a significant, positive impact on infant and child mortality if the mother is illiterate. Education improves a woman's skills for survival and her capacity for self-care and maintenance of good health during pregnancy; it enables her to acquire greater knowledge and learn better child care practices. This behaviour is related more to the confidence she has acquired through trying new experiences and methods than to what she was actually taught in school. It is her receptivity, together with the increase in her general knowledge and literacy, that enables her to benefit from child care services and to understand and apply the advice given by trained midwives and health personnel.

■ Wide differentials in child survival are closely related to differences in the educational levels of the mothers. A recent major study of 15 countries confirmed earlier studies showing that once parental education is controlled, rural-urban differentials in child mortality can be greatly reduced. The better educated in rural communities travel long distances to obtain health care for their children. Even in towns with adequate health facilities, levels of infant mortality remain high in families who have migrated there, if the mother is illiterate and does not readily use such facilities. The World Fertility Survey noted that the decline in mortality accelerated as mothers proceeded from primary to secondary education. Some other studies, such as the one in Nigeria, cited in Box 26, conclude that child mortality continues to decline progressively as years of parental education increase.

Box 26 Parental education and infant mortality in Nigeria

In 1973-1974, studies were carried out on two populations in rural Nigeria of similar economic level, one with access to health facilities and one without. The project found that the provision of a hospital in one of the villages reduced infant and child mortality. However, an even more intriguing finding emerged. In the isolated centre, where hardly any sick children had ever been taken to a hospital or doctor, there was a substantial differential in child mortality according to whether the child's mother had been to school or not. Among the children whose mothers had been to school, only 60% as many children died as among those whose mothers had no education. The data were analysed in terms of 13 different characteristics, and it was shown that the mother's education was the strongest single influence on child mortality. The residential area within Ibadan city mattered

only for the poor and uneducated, probably because of the distance to the health facility. Child mortality was also lower where the parental marriage was monogamous rather than polygamous, where the parents practised family planning, and where the family sent all children to school. There was also evidence of reduced child mortality where parental and family relationships were changing, for example, where parents ate together. Much of the subsequent debate has centred on whether the impact of maternal education is clearly greater than that of paternal education. This has often obscured the much more important fact that every study and analysis has provided additional proof of the very great impact of parental education on child survival, and of the mutually supportive roles of the parents when both are educated.

Source: Updated by Caldwell, J.C., from Orubuloye, I.O. & Caldwell, J.C. The impact of public health services on mortality: a study of mortality differentials in a rural area of Nigeria. Population studies, 29 (2): 259-272 (1975).

■ The evidence available also points to a close relation between educational levels and acceptance of family planning. Education has a positive impact on mortality via changes in reproductive behaviour which produce a chain effect — higher child survival rate, readier acceptance of family planning, spacing of births, improved health of mothers and children, and better care for children (see Fig. 12).

Interaction between health and formal education

The educational policies that can most contribute to health are those that give adequate priority to female education. The educational strategy in developing countries, where female literacy and levels of participation in primary education are low, has to give priority to achieving the goal of universal primary education.

The developing countries as a whole have been able to make considerable headway in primary education, and rates of female school enrolment have shown substantial increases. Nevertheless, for the low-income developing countries, excluding China and India, the rate of female participation in primary school was about 58% in 1982. For India it was slightly higher at 64%. In 16 countries, including four in the middle-income category, it was below 50%, and in nine below 25%. Adult literacy rates for women are much lower than the current enrolment rates as the older generations generally had less schooling. In South Asia female literacy is estimated at 31% and in sub-Saharan Africa 34%.

Health-for-all goals and universal primary education are vitally interlinked: they have to be achieved concurrently and they are both equity-oriented. While the health of children is essential for universal primary education, universal primary education is essential for the improvement of the health of the population. Policy makers and field workers in the two sectors should interact closely, identifying issues and problems for collaboration. These can include promoting female participation in educa-

tion, reducing the drop-out rate in the early years of school, promoting the health of the school-going child and improving the health environment at home. The health content of formal education, both in primary and later stages, must be an important and continuing concern of the educational sector and its curricula.

Since problems of female participation may also be deeply embedded in social structures and cultural impediments, education and health can act as prime movers in a broader intersectoral programme.

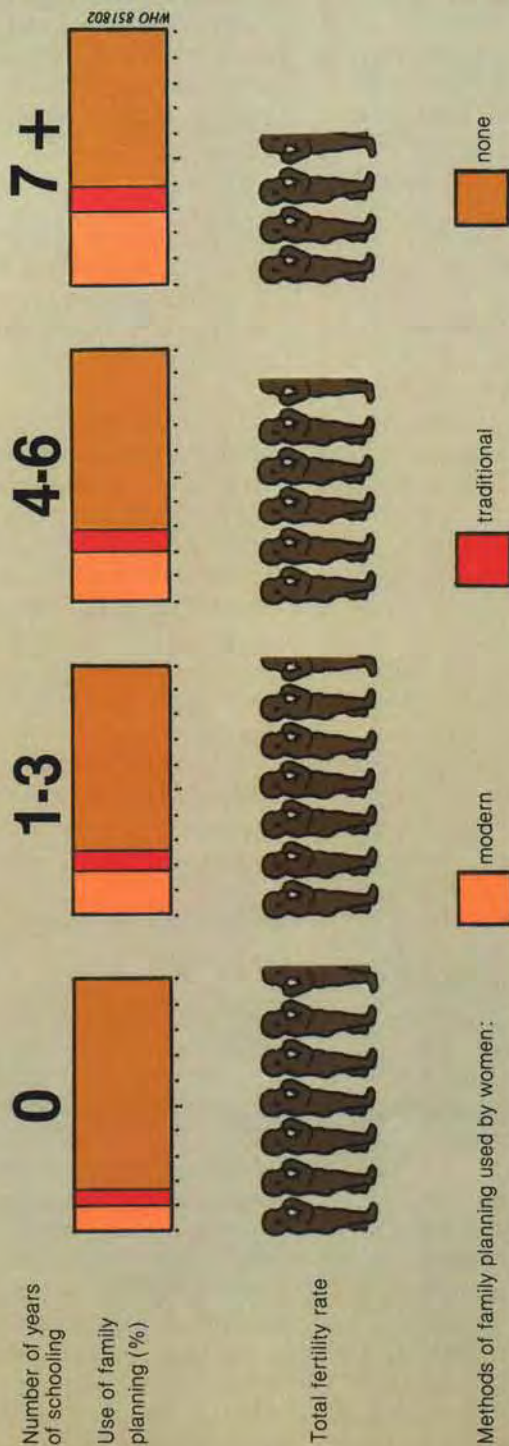
It should be remembered that the main effects of primary education normally manifest themselves in health improvements only after a considerable time lag. Innovative health education initiatives for children can also have positive feedback on adult family members and involve the school in community health programmes. This is important in itself and also leads to the best use of available resources and facilitates the absorption of and access to the new knowledge imparted to these groups. This aspect, together with the creative role that the school can play in accelerating the improvement of the health status of the community, will be discussed later.

Functional literacy, non-formal education and health

The vital role of female education in accelerating declining mortality means that communities with high adult female illiteracy are most vulnerable and at greatest health risk.

The prevailing situation requires that a much greater effort be made to impart functional literacy and non-formal education. Such programmes should address concrete life situations of illiterate women, the efficiency of their household and resource management in conditions of scarcity, their work, whether on farms or elsewhere, and their skills for family care. Chapters 2 and 4 refer to problems of nutrition and diet in conditions of poverty, and the allocation of time by women to various activities, all of which have links with both education

Figure 12 Percentage of women using contraception and total fertility rate, by years of education



One of the ways women's education affects child health is through family planning. Women with schooling tend to marry later and delay child bearing and are more likely to practise family planning. They generally have fewer children, with wider spacing between births. Women with no schooling, on average, have almost twice as many children as those with seven or more years' schooling.

Adequate birth spacing has been consistently identified as a major determinant of infant and child survival. A history of rapid childbearing, i.e., four children born within a period of six years, more than doubles the mortality risk for the next child. Children born more than two years after the birth of their next oldest sibling are much less likely to die during infancy or early childhood.

Source: Based on the experience of developing countries participating in the World Fertility Survey.

and health. At the same time methods of oral and audiovisual communication and education can be designed for non-literate populations, as shown in the examples from Mali (Box 27) and Burma (Box 28).

Many elements of non-formal education programmes with health components, targeted at vulnerable illiterate women, can be found in various experiments in adult education conducted in many developing countries. An example from Tamil Nadu (India) (Box 29) shows the

scope for highly rewarding forms of intersectoral cooperation where health and education interact closely in methodology and content.

A number of non-formal health and nutrition education programmes have incorporated communication techniques to develop and deliver health educational messages. In the successful health education programmes in various countries, a community-based approach has determined the educational messages and materials. These programmes

Box 27 Audiothèques for communities

The first audiothèques (or sound libraries) in Mali were created in 1982 to provide communities with more information. These "libraries for the non-literate" consist of cassettes recorded in vernacular languages. They work as centres both for the production and dissemination of knowledge and of rural extension.

In rural communities audiothèques are under the authority of a committee generally headed by the chief of the village. The committee, in permanent consultation with the population, decides on subjects to be treated and recorded. If the subjects relate to traditional knowledge (such as the history or geography of the community, traditional pharmacopoeia and medicine, knowledge of herbs, etc.), they are mostly dealt with by people in the community. In matters of "modern" knowledge produced elsewhere (such as problems of development of health, non-traditional medicine, agriculture, education, habitat, etc.), outside competent professionals and cadres prepare the cassettes. In this context, many communities have already collected in their audiothèques information and knowledge on topics of particular

relevance to their development and health problems such as oral rehydration therapy for preventing infectious diseases, hygiene, and water and sanitation. These "sound books" are discussed by the villagers in regular public meetings under the palaver tree. Audiothèques already number 60 in Mali, and are connected to a central audiothèque which not only keeps a copy of all the cassettes but promotes oral knowledge at the national level.

Evaluations by UNDP and Unesco have confirmed considerable interest by the populations in this new cultural instrument. Because of their low cost and adaptability to people's own needs and conditions, audiothèques have already been called "the living school of the bush" ("l'école vivante de la brousse"). The interest in audiothèques seems to stem from the fact that, unlike other methods of transmitting non-written knowledge, they allow a community:

- (a) to choose the subject of interest to it;*
- (b) to obtain the required knowledge very quickly in its own language;*
- (c) to be able to use any information of interest at all moments under the most suitable conditions.*

Source: UNDP/Unesco. Mali.

have focused on changing behaviours and practices as well as imparting new knowledge in promoting practical solutions to local health problems.

In Gambia and Honduras, for example, successful non-formal educational programmes targeted at women with young children teach village mothers how to treat diarrhoeal disease by using home-administered oral rehydration solution (see Box 30).

The dramatic increases in awareness and knowledge of oral rehydration in a relatively short time can be attributed directly to the systematic non-formal programmes which have successfully integrated face-to-face education with mass communication techniques.

The creative role of the school in health improvement

Three aspects of the relationship of school to health that are fundamentally important for the health and education sectors are (1) as a centre for organizing and providing health care for the young, (2) for educating them in healthy living, and (3) as a focal point for community health.

The school as the focus of health care of the young

Many countries have recognized the potential of schools for delivery of health services and the main elements of school health programmes are well known. They include

Box 28 Literacy programme in Burma

Since 1969 the literacy programme in Burma has been a mass movement, multisectoral and low-cost, with community responsibility, which emphasizes the involvement of national leaders, mass media, and youth.

The movement is headed by the Central Literacy Supervision and Coordination Committee, which represents the Ministries of Education, Health, Agriculture, Information and Culture. The Committee also includes representatives from universities and schools, education and youth officials, members of peasants' and workers' councils, the mass media, administration officials and social workers. A similar organization exists at district and village levels.

Experience has shown that the most effective teams combined university students with village teachers. These

teams lived and worked with the villagers and were most innovative in motivating illiterates, especially women.

The teaching material available for primary schooling was revised and adapted to meet the concerns of the adult villagers, particularly for improving the village life and environment, and focused on general knowledge, health and nutrition, and agriculture.

The literacy campaigns received constant radio and print news coverage and stressed the importance of monitoring and evaluation. Most problems uncovered by the monitoring and evaluation system were solved at village level through consultation with the villagers.

Source: Nyi Nyi. Planning, implementation and monitoring of literacy programmes: the Burmese experience. Assignment children, No. 63/64, 1985.

Box 29 Adult education in Tamil Nadu (India)

It is called K.V. Kuppan block, and it is one of the most underdeveloped communities in the area. Its literacy rate is 32.94% (male 52.77% and female 12.77%). In 1980–1981, 30 centres were selected to cover 9000 people in an adult education programme focusing on people aged 15–35.

A variety of innovative approaches stimulated and maintained interest, including social and cultural events (drama, film shows, etc.) related to life situations, such as family planning and population education, health and nutrition, immunization, disease control, values and traditions, and economic development. Times and meeting places were adapted to the learners' needs, but several formidable constraints were encountered, such as seasonal employment at harvest time, temporary migration to places with better employment opportunities, and the heavy work load. There was also hostility shown by some upper class residents to the rising awareness among the poor. Three centres in all were forced to close by various means.

Nevertheless, assessment of the programme against criteria established by education authorities revealed that considerable progress had been made. In relation to literacy and numeracy, 24% of the participants were rated high on a three-point scale, 34% medium, and 42% below average, scores that correlated with hours of attendance. Utilization of primary health care facilities showed a marked increase and 80% of learners supported the implementation

of the family planning programme and subscribed to the small family norm (having appreciated the socioeconomic benefits of smaller families), although 15% feared the effects of the methods used. Only 5% clung to the belief that many children were a form of social insurance for old age. All displayed greater awareness of individual responsibility within both family and community, but putting this into practice was hindered by poverty. Nearly 90% believed that reading and writing skills would help them advance in life, that the programme should be continued, and that efforts should be made to provide another opportunity for drop-outs. Neighbouring villages also requested adult education programmes.

In respect of functional learning, about 45% acquired facilities for poultry or dairy production, small businesses, self-employment or jobs in the public or private sector. There was great disappointment that only 5% secured loans for housing, and 12% for small businesses. Others complained of corruption among petty officials, and of their lack of collateral, but 28% had entered saving schemes, and 25% had put electricity into their homes. Their awareness of social position and self-confidence increased to the degree that they began to demand their rights and organize themselves, to the dismay of the upper classes. The evaluators recommended that the project be continued and developed, taking into account the knowledge gained in the first year.

Source: Christian Medical College Hospital. Rural Unit for Health and Social Affairs (RUHSA), mid-course evaluation. Tamil Nadu, 1983.

Box 30 A message for growth

The Indonesia nutrition, communication and behaviour change project demonstrated on a fairly large scale that education alone — without the provision of food supplements — could improve the nutritional status of target groups. The project used carefully designed messages that were behaviour-specific, practical and applicable to the daily lives of rural Indonesian women. Messages were transmitted through various channels of communication including village volunteer workers, radio, and posters. Evaluation of this project showed that the children in the target group had grown significantly more than children in the control area. Furthermore, the food intake of children in the target group was also greater, reflecting the mothers' ability to make better use of family food for feeding young children.

Source: Mantra, I.B. et al. Project description: Nutrition education and behaviour change (Unpublished Unesco document, Indonesia nutrition improvement programme).

In 1977 Honduras reported that nearly a quarter of all infant deaths resulted from dehydration due to diarrhoeal disease — the single greatest cause of infant mortality. The non-formal education programme focuses on those most at risk — small children under the age of five. The educational strategy using mass media combined with systematic training programmes for community health workers focused on teaching village women about oral rehydration therapy and how they could use it at home. Preliminary results of this project have been dramatic; deaths resulting from diarrhoeal dehydration among young children have dropped by 40% within 1½ years.

In Gambia, after only eight months of a non-formal education programme, two-thirds of the mothers in the target area already had a good understanding of, and were beginning to use, home-administered oral rehydration therapy.

Source: The use of mass media in teaching of health practice (unpublished Unesco document).

immunization programmes, health monitoring and referral, nutritional supplements and feeding programmes. A properly administered school health programme can be one of the most cost-effective ways of preventing disease and easing demand on other health services. The importance of school-based health services to the educational sector is based on the evidence linking health and nutritional status to learning ability and school achievement. School health services are contingent upon the existence of material and technical resources, and most activities involve screening and record-keeping. Overall administrative responsibility usually resides with the Ministry of Health (which often designates a special unit to handle this responsibility). However, some aspects,

e.g., school meal (lunch/breakfast) programmes or special programmes for handicapped children, are normally organized through the Ministry of Education.

Since improving school health services is a joint responsibility of the health and education sectors, close and extensive collaboration is desirable at the ministerial and school levels. Mutually supportive activities, for example, in monitoring children's health in the classroom, contribute to a more efficient use of time and scarce resources. Teachers able to recognize common diseases, such as trachoma, can deal with them in the classroom; they may also detect various physical disabilities or mental/emotional disturbance and alert the health ser-

vices. With additional training the teacher can participate more actively in the school health programme. A well designed school health service in Haute Savoie in France (Box 31) illustrates what can be achieved with sufficient resources and effective intersectoral collaboration. While the programme would be costly for developing countries, its main elements could be adapted.

The Haute-Savoie programme also emphasizes the principle of an integrated health education and service programme. School-based health education and school health services should be viewed as interrelated programmes, where intersectoral collaboration can be most effective.

Health education in schools provides wide scope for joint training and initiatives by health workers and teachers and should be designed more as an in-school activity than one being imposed from outside. To achieve this, the teachers need to pursue health education actively. The vast majority of children have much closer contact with teachers than health workers, partly because school coverage far exceeds health coverage, especially in developing countries.

Teachers can deliver knowledge and information on health and can promote health skills and behaviour more continuously and efficiently. Although it can be argued that teachers, teaching many shifts in overcrowded classrooms, cannot take on an extra responsibility, they already teach about health, at least in the abstract. The appropriate information and technology can be added to the existing school curriculum, by health professionals or research workers. In Paraguay, a health teaching programme imaginatively incorporated a variety of subjects (Box 32), while in Indonesia a health education programme centred on teaching about diarrhoea, with home-based tasks, reached out to families and the community.

Health education, particularly for rural children in developing countries, is an area in which the health sector can tap the expertise of the education workers. As for non-formal education

programmes, school health education programmes should relate to the learning processes and the child's traditional culture where living and learning are synonymous. The idea that this kind of learning was not a scarce commodity before the present school system existed is aptly expressed in the report of the International Commission on the Development of Education, *Learning to be*, when it describes how "life in the family or clan, work or play, rites and ceremonies were all day-to-day opportunities for learning, from motherly care to lessons from the hunter-father, from observing seasonal changes to watching familiar animals, or listening to tales told by the elders and chants of the tribal shaman. These natural, uninstitutionalized forms of learning have prevailed to the present day in vast regions of the world where they still provide the only form of education for millions of people".¹

In this context health education for children should be seen as a lifelong benefit. Ministries of health, education and agriculture should collaborate since each plays a fundamental role, especially in rural agricultural regions where child survival depends, in great part, on making the most of the environment. Panama provides one example in which three different ministries, guided by the Ministry of Health, met this challenge by setting up innovative schools in relatively isolated rural areas. These schools attracted children to a type of institutional framework that was consistent with their community and family life-style, and provided training and life experience critical to farming, raising livestock, using modern techniques and new knowledge, and rational systems of organization. Local children learned about the fundamentals of nutrition, basic health needs, water and irrigation, as well as reading, writing and arithmetic. The project promoted community gardens and nutrient-rich food needed by the communities, as opposed to cash crops. School buildings were very rudimentary, similar to the children's homes, but very hygienic. Everything was geared towards improving living conditions without major changes alien to the local setting.

¹ Faure, E. et al. *Learning to be. The world of education today and tomorrow*. Paris, Unesco, 1972, pp. 4-5.

Box 31 School health services: an effective approach in France

The School Health Service in Haute Savoie tried to satisfy real educational health needs by considering the child as a whole and trying to coordinate all his or her activities.

Individual programmes include a thorough medical examination at the beginning of the infant school period (covering children entering their sixth year of age), in close cooperation with the teachers and parents. This examination presents a unique opportunity for obtaining a real knowledge of the child and a better idea of the family environment. It also affords an opportunity for parental health education, especially on nutritional problems, vaccination, oral hygiene, and sleep requirements.

Children planning to go from collège (secondary school) to technical schools are screened through a vocational guidance medical examination, to avoid their having to reorient their careers at a later stage.

Pupils attending special classes and the seriously handicapped included in normal education programmes are monitored. At medical examinations for technical school students who attend workshops considered dangerous, the need to use proper means of protection is stressed, and the risks they run in the event of negligence are explained.

As a result of this effort, teachers have started to ask for medical examinations of children more and more frequently, sometimes because of obvious illness, behavioural disturbances or failure in

school work. The physician can make the student aware of risks, and appeal to her/his understanding, intelligence and sense of responsibility.

Group programmes have essentially become health education activities. The topics to be discussed are often chosen by the pupils and in most cases the sessions take place in the school. Nurses participate in the infant and primary school sessions. In secondary and technical schools, medical officers, sometimes with the help of school social assistants or others, deal with sexuality and contraception, sexually transmitted diseases, drugs, tobacco, and alcoholism, and contraindications for certain types of occupation.

Activities relating to the environment concern hygiene, ergonomics, architecture, school furniture, and the life tempo of the children. School health teams intervene whenever they find lack of cleanliness, inadequate heating and lighting, badly sound-insulated premises and physical education rooms with dangerous equipment. They visit workshops regularly to see that they are properly equipped and ensure that the safety measures are observed. Canteens and school catering are regularly inspected. Since all schools in France are being gradually equipped with microcomputers, school medicine has considered the ergonomic problems connected with the use of such equipment. In Haute Savoie circulars were sent giving recommendations for the installation and use of microcomputers in all schools. The Service reports architecture and furniture that can harm the posture of the pupils, and encourages a siesta in infant schools.

Meetings are frequently organized with parents and teachers on subjects such as drug addiction and problems of adolescence, life tempo, sleep and nutrition. Medical officers and nurses train personnel dealing with school hygiene, and orient students in schools of nursing.

The Service works with social, communal, department or mutual aid services, psychiatric services, hospitals, general practitioners and paediatricians, regarding the children referred to them. Legal authorities are informed about children who suffer abuse or who are in danger. There are also regular and

satisfactory relations with the departmental heads of the French Health Education Committee, the Departmental Drug Addiction Control Association, the various parents' associations and certain sports associations. Every important health-related aspect of the life of young people is covered and contact is maintained with all the persons and services that may have some influence on the quality of their lives, both in and out of school.

Source: Flahault, F. School health services. An effective approach to education for health. An example from Haute Savoie, France (unpublished WHO document WHO/UNICEF/HED/85.15. 1985).

The techniques of communication have to be similarly fashioned to appeal to children in their customary setting. Textbooks designed to make a direct impact on children have been developed for schoolchildren in Angola, Cape Verde, Guinea-Bissau, and Mozambique, using, for example, children's drawings to convey the health message (Box 33).

The school and its role in community health

So far only the school and its students have been discussed. But many of the examples show another dimension of the school's relationship with health — its impact on the family and its capacity to act as a focal point for many community health concerns. In develop-

Box 32 Teaching about sanitation in Paraguay

Schools in some rural areas of Paraguay are now teaching basic sanitation in primary schools using various materials, including poems, slides and films. The local water board, school superintendent, health educator, headmasters, teachers, parents and students work together in teaching how to ensure good drinking water, control parasitic diseases and dispose of waste. Teaching materials are worked into other subjects: for example, health statistics become arithmetic, and examining slides of water under the microscope becomes biology. Children

have been encouraged in several projects to find answers to questions such as: How many children under 5 years of age have died recently, and why? Where do people obtain water for their homes? Is the water supply sufficient, and is it of good quality? Plays, poetry and artwork were among the means used to illustrate their findings, and prizes were given to schools and children by a "communal committee" in which families, the church, the school, the health centre and other officials took part.

Source: Cardenas, M. Rural water supply and sanitation education in Paraguay. Assignment children, No. 45/46. 1979.

Box 33 Schoolchildren's textbook on health

A beautifully illustrated textbook dealing with the endemic infectious diseases, their causes, methods of transmission and ways of combating them was developed with expert medical advice for primary schoolchildren in Angola, Cape Verde, Guinea-Bissau and Mozambique. The book builds on traditional beliefs and uses everyday experiences to show how children and adults contract the most prevalent infections such as schistosomiasis, malaria, amoebiasis and tuberculosis — and how congenital syphilis is passed on to the fetus.

Disease transmission via the host vector is graphically and realistically illustrated, as are the preventive measures — immunization, treatment, isolation of the sick person — supported by environmental hygiene and sufficient food. Each section is followed by children's drawings illustrating their perception of the message as it relates to their daily lives, especially their home environment. The text is simple and attractive enough to be used in literacy as well as regular school programmes.

Source: Pampiglione S. As doenças infecciosas: o que são, como são transmitidas, como se devem combater. Bologna, 1977.

ing countries, and particularly rural areas, schoolchildren are often more educated than their parents. In such a context, school health care and health education become the means of introducing behavioural changes and basic health concepts into the homes of pupils. Thus the relationship between children, teachers, parents and health workers can enlarge health programmes, as in the home-based nutrition

project in Jamaica (Box 34). Finland has shown how a health care programme in a developed country can organize community action and reach out to other groups including preschool children. Education and health are both sectors that can motivate parental involvement and, by acting together through the established institutional base of school health, can generate effective community participation and well-being.

Box 34 Learning about nutrition and health in Jamaica

The Jamaican Ministries of Education and Health have shown how teachers, parents, and local resource people can develop a locally relevant nutrition programme for primary schools. Using specially designed posters, reading primers and other materials, the goal is to improve reading skills and promote nutrition and health-related behaviour changes. The programme comprised seven steps: designing, collecting and analysing basic data on reading ability and nutritional understanding; examining dietary attitudes and practices of

students and their families; establishing community-based workshops that apply research findings to development of teaching materials; obtaining the support of teachers and parents by integrating teaching materials into the regular curriculum and assigning homework like surveying home food habits; informing parents of what role they can play in the project; evaluating project impact on students and their families; and finally, a proposed national conference to put the project into wider use.

Source: Unesco.

Figure 13 Oral health status of Finnish preschool children, 1974-1982



Box 35 Improving Finnish children's dental health through intersectoral cooperation

Dental decay was by far the most common chronic disease among Finnish children in 1974, when a programme was initiated to prevent caries in all small children. Methods included: counselling on diet, instruction on oral hygiene and proper utilization of fluorides both systemically and topically.

The most important target group were expectant parents, including the fathers, in cooperation with schoolteachers and school catering and health workers. After some initial resistance, health workers and politicians at all levels gave their full support. The Primary Health Care Act of 1972 established oral health services for all children and young people, free of charge, through a coherent national programme.

Implementing the oral health care programme for expectant parents, infants, and preschool children involved comprehensive and coordinated efforts by all primary health care workers. In-service training was the first step, since most oral health personnel did not have training in maternal and child health work and the other primary health care personnel knew practically nothing about oral and dental health. Health workers then communicated the same message to parents, teachers, local politicians, the media and the public at large. Continuous monitoring of the programme helped the administrators focus on critical points, reallocate resources, and improve the oral health of the entire population.

Source: National Board of Health, Finland.

Box 36 The science of sanitation: learning in a clean environment

In Jordan, a school-based health programme, supported by WHO, the United Nations Relief and Works Agency for Palestine Refugees, Unesco and the Department of Health, upgraded school facilities and sanitary conditions and, more recently, expanded and improved health education programmes. All new students are medically examined and given any necessary immunizations. Health records are kept, and children are screened periodically for specific conditions such as hearing and vision problems. Sanitary conditions of schools and school yards are periodically checked by health personnel. Each school selects certain classroom teachers — usually science instructors — for a one-year in-service health

education course, which trains them to become health tutors and to assume responsibility for organizing health education. School health committees work with them and with outside advisers to identify specific problems amenable to change through education. Once a problem has been identified, each school prepares a school health action plan covering the health teaching-learning activities to be carried out over the school year. Health topics are worked into science, home economics and other courses, and include monitoring of the cleanliness of classrooms, toilet facilities, canteens and school yards, visits to local health centres and meetings with community health workers.

Source: Unesco.

How can education and health planners make fuller use of the potential of the school for health promotion? In addition to increasing budgetary appropriations for school health programmes, they can begin by:

- improving training in health education for primary and secondary schoolteachers so that they promote improved health behaviour within and outside school;
- developing appropriate teaching and learning materials for primary and secondary school curricula, adult literacy programmes, adult education and other community-based education;
- developing sets of goals in health education that teachers of different educational programmes could help students to seek to achieve.

The school — the child's example of a healthy environment

In order to perform its roles in health care and education of the young and in community health, the school should exemplify a healthy environment and promote concern for environmental health. However, in poor countries, schools receive the bare minimum required for basic educational tasks, and are often badly equipped and understaffed. Since some vital aspects of health in the school, such as ventilation, light, the provision of safe water, toilets, a sanitary environment, and clean eating places are often badly neglected, it may become the place for easy transmission of disease and infections, especially if overcrowded. If children are exposed to such health risks in school, vigilance and special attention, by both teachers and health workers, are required and collaboration between the health and educational sectors is needed to ensure a healthy environment.

To meet basic health needs, resources for achieving a healthy environment must receive equal priority with educational requirements. The design and construction of even the simplest school building and its precincts should meet minimum standards of space, natural lighting, ventilation and sanitation. Those responsible for designing school buildings should be aware of the health implications, and the advice of health professionals should be sought. This also applies at community level when the villagers themselves build schools. In addition to choice of the site for a new school, factors relating to health and safety to be taken into account include the distance from the students' homes (based on the physical capacity and energy costs to the child), recreational space (especially where classrooms are used in shifts), and protection of the children from traffic hazards and commercial pollution. When health considerations are taken into account, available resources can promote health and save money by reducing disease among children and staff.

The provision, improvement and maintenance of many basic school health facilities do not, in fact, need large additional allocations. In many cases, leadership and motivation can mobilize considerable community resources and effort. The community often sees the school as a great asset for the future well-being of its children.

Higher learning institutions and health

The universities and institutions of higher learning have less reach than primary and secondary schools but, in addition to developing professional cadres and advancing scientific knowledge on health, they can promote health in several other ways.

- Health professionals should be reoriented to become health educators, by “demystifying” medical care, and sharing information with patients about the nature of their diseases.

- In the fields of professional training and higher learning the educational sector has an important role to play in evolving and developing educational structures, adapting curricula, and imparting a core of interdisciplinary knowledge to improve understanding of intersectoral linkages in development and the capacity of specialities to communicate with each other. Knowledge, training, and skills specific to intersectoral action must be imparted to workers at all the appropriate levels in the health and health-related sectors with inputs from each of the relevant sectors.

- The university student population belongs to the vulnerable adolescent age group; universities could contribute to health education for coping with risks in this crisis period.

- University teachers and students can provide community health leadership and contribute to health-related programmes that require motivation of the public or support to nongovernmental groups. The literacy programme in Burma is an example (Box 28).

- Student organizations are important resources for health promotion. The students of today are the decision-makers of tomorrow, and their early involvement in community-oriented education is essential.

The relationships between culture and health

Schooling is only one part of the life-long process of learning to be healthy. Knowledge and information on health reach the individual through numerous other channels and influence health behaviour. Promotion of the right environment for knowledge and education on health poses an enormous challenge to the health sector. At the national level, clear recognition is required of the need for health education on a broad front and for a strong policy commitment. The health sector has to be active in making the knowledge available to the public in an easily understood form.

Culture-linked health risks

Two broad areas in which health risks and hazards are strongly subject to sociocultural factors include (1) cultural practices harmful to health and resistant to health care and health promotion, and (2) life-styles, patterns of consumption, and addictions acquired during and after industrialization.

Cultural factors need to be taken into account in the planning and implementation of health programmes. Chapter 4 shows how cultural factors are often neglected in water supply schemes, and how a variety of sociological factors can affect the use and maintenance of installed facilities. But the cultural aspects of health care and health promotion in developing countries go much further than specific projects. They include deeply held notions about basic health — food, pregnancy, childbirth, lactation, diseases and sanitation practices, to cite just a few examples. Health for the most vulnerable groups would have to encompass all these. While emphasis on the sociology of health and ill health in developing countries is increasing, the health sector has yet to develop a systematic approach to the cultural dimension of health in developing countries. Such an approach should draw in the positive health-protective and health-promoting elements of the traditional culture, while examining ways of removing cultural practices that injure health. Such a task requires coordination, education, information flow, value formation, the media, religious institutions, agriculture, water, and sanitation. Using situations and processes that relate directly to people's lives, health messages can produce the necessary impact by enhancing knowledge and changing attitudes and values. These educational efforts must be linked with the non-formal and functional education programmes discussed earlier.

Health and ill health in the developed countries are even more closely linked with individual behaviour than they are in developing countries. Health risks stem from overconsumption of certain foods, the stresses of work and life-styles, family situations, isolation, sexual permissiveness, and addiction to alcohol, tobacco,

or drugs. These health risks are all related to individual action, choices and behaviour and require equally individual changes in life-style, and in values related to work, leisure, consumption, and personal relations.

In control programmes, such as anti-smoking or nutrition programmes, the health sector is one of the main actors, but several other sectors have to collaborate and take a major role. In these situations preventive strategy involves education, information and value formation. As stated in Chapter 2, the action of the agricultural sector to reduce supply of certain products has only limited impact on health. The principal means of control is to reduce demand, since knowledge and information on health hazards have to be combined with basic changes in the value placed on certain types of behaviour, consumption, and life-style.

The nutrition programme in Norway, cited in Chapter 2, page 59, demonstrated that a national consensus on nutrition goals required an education and information campaign reaching all the major participants in agriculture, industry and other relevant activities and the widest audience possible. Such a campaign requires the media to carry information; it requires diverse channels and modes of information and publicity and communication expertise that are imaginative enough to dramatize the problem and convey it effectively; it also requires community leaders, peer groups, and personalities to begin a process of discouraging and engendering disapproval of unhealthy behaviour. For example, many anti-smoking programmes have had considerable success in making people realize the effects of smoking. In many instances they have brought about measures to limit smoking in public places.

The vulnerable groups in relation to cultural change

In developed countries, two vulnerable groups require special attention — adolescents and the elderly. The problems of these groups also have relevance for developing countries, where health risks are changing with industrialization and socioeconomic changes.

Adolescence and education for life. In adolescence the individual moves from a relatively sheltered childhood to adulthood, with all the associated responsibilities and obligations. This process includes learning social skills and internalizing society's values, norms, mores and perceptions of the world. This complex task usually takes place during the teens, though individual and cultural variations are great.

To facilitate the transition to adulthood and minimize the problems of adolescence, the individual needs adequate role models. In pre-industrial society this posed less of a problem, since the geographical and social closeness of home and work made adult tasks and activities familiar and comprehensible.

With industrialization and urbanization, transition to adulthood has become increasingly complex and difficult — adequate role models are not easily available. Close relatives are also often disoriented by the sociocultural developments and, to a larger extent than ever, work outside the home in pursuits not easily understood by a child. Moreover, the adolescent today is biologically mature at a younger age than before.

Mounting evidence suggests that a growing number of adolescents risk death or disability, mainly from external causes, and that changing life-styles and mores exert a considerable influence on their physical and mental health. So too do the harsh conditions in inner-city slums in both developing and developed countries. The need for health and education professionals to address these problems together, at the level of the school, is increasingly recognized.

Recent studies in Europe show that those at greatest risk of accidents are young males aged 15–24 years. The death rate in this group is three times that of females of the same age, and their suicide rate is increasing. Adolescents with easy access to “junk food” may suffer from obesity and undernutrition; others succumb to neurotic undereating (anorexia nervosa) or bulimia. A recent survey of

22 countries, including 13 in Europe, revealed that teenage girls aged 16–18 years smoked as much as, or more than, boys of the same age. Young girls who use oral contraceptives and smoke are at risk in later life of circulatory and other disorders, including coronary heart disease. The consumption of alcohol in this age group has also increased: in some countries, 80% of 15-years-olds drink and in others parental life-styles inadvertently predispose children to alcohol abuse. Drug abuse is on the decline in some countries, but there is much room for improvement in control of the distribution of illicit drugs.

Awareness among adolescents of the hazards of unhealthy life-styles is growing, largely as a result of the massive diffusion of information via the media and their promotion of folk or national heroes (role models) who lead healthy lives — athletic, physically fit persons who eat adequate quantities of nutritious food.

Profound cultural changes are taking place in both the developed and developing worlds regarding sexuality. Early marriage remains the norm in some societies but the percentage of girls marrying at 18 or 19 years of age decreased between 1965 and 1975, and the extent of cohabitation has increased markedly. Sexuality is increasingly regarded as independent of reproduction, but unwanted pregnancies among young girls continue. Sexual promiscuity poses serious health risks and exposes young people to sexually transmitted diseases, some of which have become resistant to antibiotics. Adolescents need a better understanding of human sexuality and how to reduce its health risks. At the same time they need more knowledge of how to create lasting, satisfying and harmonious relationships among themselves at a time when social norms are in a state of flux.

Many of these problems are part of fundamental and deep-seated changes in the structure of society and its value systems. There is, however, scope for more wide-ranging and structured efforts by both the health and education sectors to help this age group to cope. Here again programmes for

disseminating knowledge and information and for promoting behavioural changes have to reach these groups in forms related to youth subculture, through personalities with youth appeal and peer groups with persuasive power. Such a programme would require orientation and retraining of cadres in both sectors.

Some societies already provide information and services aimed at easing the maturing process. Preparation for marriage and family life is characteristic of some socialist countries, and some south European countries (Portugal, Italy and, to a lesser extent, France). Sex education is given in the context of family life education and information is provided concerning sex roles, parental roles, child care and family interaction, with the aim of forming a complete and socially active personality, prepared for a happy life with a partner and family. The emphasis of such programmes should be on the

positive aspect of sexuality, planning for wanted children and achieving rewarding, loving human relationships. Such a programme is illustrated in Box. 37.

Health knowledge for the elderly. The elderly present another set of problems related to self-care and coping with the stresses of later life. In many developed countries, preference is growing for home services for the elderly over institutional care for a variety of reasons. These changes will place increasing emphasis on the special needs of the aged for health information. Apart from the degenerative diseases which lead to increasing physical and often mental disabilities, the state of health of the elderly is gravely affected by other conditions — loss of meaningful social and personal roles, separation from family and society, loneliness and inactivity, and the need to adjust to increasing disability and the prospect of

Box 37 Humanization of relations between the sexes — Montenegro, Yugoslavia

In Montenegro, "humanizing" sexual relations has become a link between all subjects in schools. "Humanization" of the relations between the sexes is not just a euphemism for sex education, which is included in its narrow form in the teaching of biology. The purpose of the project is much broader. Humanization of the relations between the sexes in literature, for instance, is meant to create awareness of sex-based stereotypes and of sex roles. Working with the project are about 25 specialists from such diverse fields as sociology, philosophy, literature, medicine and natural sciences. Increased awareness of how the everyday relations between the sexes are formed is sought at all levels of education from preschool to university. It is believed that thorough changes, although they may take some

time, are to be preferred to rapid changes which might be spectacular but would be more superficial.

The experimental curricula have been implemented in a number of schools chosen on the basis of geography, and prevailing socioeconomic status groups. The experiment covers 10% of preschool-age children, 15% of those in compulsory education and 10% of those in higher education. The experimental programme also covers between 10% and 15% of intellectually handicapped children.

Knowledge and attitudes were pre-tested in teachers, pupils and parents. After one year of teaching according to the experimental curricula, the teachers and pupils will be tested again.

Source: Lewin, B. Sex and family planning: how we teach the young. Copenhagen, World Health Organization, 1984 (Public Health in Europe, No. 23).

death. To some extent, public policies have responded to the problems of adjustment facing the elderly, e.g., through extension of the age of retirement, and programmes for involvement of the aged in social activities. But initiatives concerned mainly with the prolongation of active life do not come to grips with some of the deep inner maladjustments that affect the quality of life of the aged.

As with adolescents, many of the health problems of the aged are culture-related, brought about by the erosion of social institutions such as the family, the weakening of intergenerational bonds, and the decline in religious belief. These changes are not easily amenable to influence by programmes specific to health and knowledge about health alone. In the developing countries, social institutions and value systems continue to give important roles to elders and the framework of beliefs balances the quality of life with transcendental meaning for death. The cultural context avoids some of the deeper maladjustments seen in the aged in industrial societies. Nevertheless, the health sector needs to be aware of the relationships between health and the fundamental adjustments that human beings have to make at different times in their lives.

The culture-related health problems of the developed countries raise important issues for developing countries. Their experiences, including the positive responses they have made to many problems, embody important lessons. The knowledge and information gained form an essential component of education in health for children and the community.

Communicating health knowledge — the role of the media

The preceding discussion has shown how knowledge about health can influence behaviour. Among the most important channels of communication, both for their reach as well as for their power to influence behaviour, are the mass media — the press, television and radio. As a subject matter for the media, health is neither attractive nor sensational. An innovative and imaginative approach is therefore

required in communicating health messages. In this respect, there is a need for media and health personnel to work harmoniously with each other, sharing mutual appreciation of each other's concerns and problems.

The communications media will need to become more conscious of their role in raising awareness, stimulating public discussion, and articulating public needs in the fields of health and social development. In turn, the health sector will need to recognize what the media can do, not merely as a platform for news stories, but as a means for conveying health messages and influencing social behaviour.

Communities are often flooded with information from different development sectors, sometimes with conflicting and competing messages, usually couched in technical and bureaucratic jargon that is rarely understood by the public. The health sector should focus on making technical subjects understandable to the layman. In particular, health professionals should identify existing, credible channels of communication, including traditional ones, in order to reach the public. The media offer the public health community more than just access to air-time and newspaper space; they are also a source of the communications expertise needed to ensure the success of large-scale health promotion campaigns.

What is more, useful follow-up to media-transmitted messages can be effected by village health workers. For instance, primary health care workers can effectively enhance communication by reinforcing the messages delivered in print or over the radio, thus increasing their overall impact. In some countries, "listener-viewer-reader groups" have been created to serve as fora for discussion of information received and for follow-up actions as needed.

The media and health sectors can work together in a systematic way. Decision-makers in the media and in public health can open a dialogue to heighten awareness among media personnel about their responsibility for the health and well-being of people, and to alert health professionals to their own responsibility for ensuring that health initiatives reach all

**Box 38 Family planning in Thailand
— a social marketing approach**

In the early 1970s, family planning in Thailand was restricted to servicing through medical channels and mention of the subject tended to cause social embarrassment. Today, public discussion of, and advertisements for, family planning methods have become commonplace. This change has largely resulted from the activities of a nongovernmental organization, the Population and Community Development Association (PDA), which has shown impressive achievements in promoting social awareness of family planning and the widespread adoption of contraception.

The Association is a non-profit and largely voluntary organization with over 300 staff members and 16 000 village volunteers working from five offices.

A new understanding of social motivation, combined with a large measure of humour and audacity, has led to the development of a wide range of culturally adapted social marketing strategies, implemented through the PDA programmes. Between 1974 and 1981, one of the programmes, the Community-Based Family Planning Services (CBFPS), grew from a pilot undertaking into a network of local self-help schemes reaching over 16 200 villages in 158 districts with a population of 17 million. Its consumer-oriented approach has been adopted within the National Family Planning Programme for extending coverage and maintaining high user rates.

Since the inception of the programme, the main message has linked population growth to low standards of living, on the one hand, and family planning to economic advantages on the other.

This message is conveyed by creative use of virtually all possible communication channels, leading to a high level of public awareness of family planning and of the PDA programmes. Face-to-face education is undertaken by the village distributors, using the information, and motivational and publicity materials with which they are provided.

In addition, television and radio broadcasts are made on issues related to family planning, and many programmes of general interest close with reminders about using contraceptives. In school, children learn about family planning and may be taught, for example, a song describing the hardships resulting from having too many children.

Troupes of traditional itinerant entertainers perform puppet plays containing family planning messages in villages all over the country; T-shirts and other promotional materials carrying family planning messages have been distributed at formal state dinners and sent to foreign heads of state, emphasizing the legitimacy of the programme and the support of the government.

To convey the message through the various communication channels, it was necessary to overcome the taboos surrounding birth control techniques and the social embarrassment at discussing them openly. In Thai culture, humour and joy were found to be the best means. Carnivals, games, raffles, village fairs and weddings serve as occasions to promote family planning joyfully. Inches and centimetres are printed on contraceptive pill packets so that they can be re-used as rulers. Sheets, pillowcases, piggy banks and business cards are all printed with family-planning catchwords.

Source: Dhul, L.J. Social communication, organization, and community development — family planning in Thailand. *Assignment children*, No. 65/68, 1984.

people. To achieve the goals of health for all, the health sector needs the wholehearted support of the media.

A striking example of an imaginative programme for communicating health messages is the family planning programme in Thailand (see Box 38). Among other things it uses the techniques of mass advertising for what it describes as the "social marketing" of health. The task of developing and improving communication for health requires the aid of many sectors. The intersectoral team will vary with the nature of the health problems and audience addressed. The preceding discussion referred to the need for close collaboration between education and health. Integrated programmes of non-formal education incorporating the health component require interministerial collaboration on a wider front.

Regular health exhibitions are another obvious method. The use of popular forms of art, such as songs, plays, puppet shows and drama, promoting certain models of health-related

behaviour offer another range of possible modes for effectively communicating health messages (see Box 39).

What is vitally important is that the community should not receive health messages passively. As well as generating demand for health knowledge and information, the community should participate in the formulation and implementation of the programmes. Various community-based institutions and nongovernmental organizations with health concerns on their agenda have to take an active role in such programmes. Citizens' associations for the protection of consumers can also be mobilized to take an active part.

Many of the mechanisms and modes of communicating health knowledge and packages of health education already mentioned form part of well designed strategies for health education in many countries. The vast range of issues in this chapter indicates the different elements to be incorporated in health education and communication strategy.

Box 39 Jochim talks, people listen

Jochim Chacha is much in demand in Rajasthan (India). When a handpump is to be installed, he settles disputes about location and payment. Appealing to people with local jokes and expressions, he gets across messages on the evils of money-lending and bureaucratic insensitivity. If higher castes are practising untouchability where handpumps have been installed, he is dispatched to settle the problem amicably.

Jochim Chacha is the name of a puppet (a revered 300-year-old Muslim) who makes children go wide-eyed with awe. The creator of this puppet keeps his ears open to local gossip and disharmonies, and then uses them in the puppet's dialogue. This delights villagers, who are amazed that Chacha should be so aware of their problems. He weaves real personalities around

themes that have a direct bearing on the villagers' everyday lives. Messages that would take months to absorb through radio and television — if absorbed at all — are conveyed through a puppet show in one evening. Shows have been given in over 100 villages. With donations of 10 000 rupees, people from other states are now being trained to follow this approach.

India and other countries have many people whose communication skills could be used to reach the rural poor. Half of the 600 000 villages in India already have roving theatre groups, puppeteers, oral historians and minstrels who can reach people and convey ideas simply at little cost. The question is how to get to these people and train them — or rather, persuade them to be trained.

Source. International Drinking Water Supply and Sanitation Decade. Decade watch, Vol. 2, No. 4, 1983.

Environment—Water and Sanitation, Habitat and Industry

Background

The way that people live has a continuous effect on the physical environment. As life-styles change, some health hazards are controlled or eliminated, while new ones are generated. The relationship between environment and health must be seen in this dynamic context.

In the developed countries, control of the major communicable diseases came with the development of urban infrastructure, safe water and sanitation, and preceded advances in curative medicine and immunization. Environmental problems related to poor sanitation and inadequate or unsafe water no longer exist on a significant scale; the problems confronted today are primarily those of pollution, and health hazards associated with industrialization, urban growth, modern transport, or poor-quality housing. These affect the greater part of the population, in one way or another, with some socially disadvantaged groups being exposed to more health risks than the average.

In developing countries, the main environmental concerns are gross deficiencies in basic sanitation and problems related to national and sectoral development. The lack of safe and adequate water, facilities for safe disposal of wastes, control of disease vectors, food safety and housing of satisfactory quality are important indicators of poverty. At the same time rapid industrialization, disorderly urban expansion and the transformation of agriculture have brought about widespread use of chemicals and, in some countries, large-scale irrigation systems that affect a broader population.

Although these broad linkages are well known, insufficient action has been taken to prevent or limit the factors that adversely affect health. Such action requires important changes in national policy, yet the policy implications of these linkages have not been drawn.

The complexity of the linkages, lack of knowledge, and inadequate monitoring of the environmental and health status of the rural and urban poor are being cited less and less as reasons why the linkage issue is underplayed in practice. Despite pronouncements on the value of integrated social, cultural and economic advances, development policy, as it exists today in most countries, pursues economic growth without taking due consideration of the distributional effects. In consequence, resources are heavily concentrated on investment in the modernization and expansion of production. Social objectives are given a low priority, because their positive impact on production cannot be readily proved quantitatively. The main concern is merely to remove the most glaring negative social consequences of growth and urbanization. Emphasis is thus on remedial measures rather than preventive environmental and health policies. Poverty, overcrowding, and endemic and epidemic diseases are treated as the unavoidable price of economic "progress".

In such circumstances, little if any scope is left for evolution of alternative development styles giving greater emphasis to social objectives, preventive approaches, and strategies pursuing multiple goals. These would need to explore systematically the intersectoral linkages in general and those between health and environment in particular.

The different types of linkage require different forms of policy coordination and intersectoral action. It is possible to distinguish two sets of intersectoral policies and actions — one set directed at the improvement of the physical environment through provision of basic health-related amenities, the second aimed at ensuring that major environmental changes brought about by development do not intensify existing health hazards or create new ones. The traditional concern of the health sector has been the former, with the focus on water and

sanitation. The latter has received little attention at either national or sectoral level. The role of the health sector has generally been remedial, following the emergence of an adverse effect of development programmes and projects.

The resulting tendency is to underestimate or ignore the extent of the intervention needed to bring about significant health improvements. It is as if drinking half-safe or half-contaminated water could improve the health status of a population by 50%. Reality is much more complicated.

Policy implications

Action to strengthen links between environment and health in order to prevent or control possible health hazards requires far-reaching changes in policies and decision-making at the national and sectoral level. All development sectors contribute to environmental changes that have an impact on health. The environment–health linkage, more than any other, has to be approached intersectorally at all levels. Most countries have yet to develop policies, planning and administrative mechanisms for managing these intersectoral linkages. Ministries or agencies concerned with housing, public works, urban and regional planning and environmental protection all have important roles to play in helping to improve health status, especially that of the poorer and more vulnerable groups. Yet most countries have to develop first an understanding in each sectoral agency or ministry as to its role in improving health status, and second, the planning and administrative systems for managing inter-ministry or interagency cooperation. International agencies also often lack understanding of the need for intersectoral action to improve health and how to put it into operation.

At present, programmes and policies aimed at combating poverty and communicable disease, tend to focus on the technical and engineering components, and to neglect the community's capacity and motivation for the use and maintenance of the facilities provided. This is partly because programmes for the provision of amenities such as water and sanitation remain

sectoral in outlook, confined to their specific tasks, and are seldom planned in relation to other aspects of well-being or impact on the habitat. An example is a rural water supply project that significantly reduces the time spent by women on collection and transport of water, thus releasing time for economic activities, better household management and improved child care. Such a scheme is rarely integrated with programmes that could take full advantage of the positive effects.

Another example is a public works programme. A carefully designed and implemented public works programme maximizing use of local labour and local resources and minimizing capital equipment can create jobs, promote environmental management (for instance through inclusion of watershed management or reforestation) and contribute to improvements in health.

Environment–health linkages can be clearly perceived and their potential best realized when the programmes and policies are targeted at vulnerable groups most in need. For this, disparities in the distribution of basic amenities have to be clearly identified. The environment–health link is then perceived in the overall context of primary health care for a given community and its whole range of health-related needs. The special problems of particular groups in the rural sector, such as the landless labourers and the poorest farmers, or of the urban poor with no access to the established urban amenities, will be highlighted.

The improvement of the health environment of poor communities could include strategies for making better use of the scarce resources available locally. This would require appropriate technologies to provide such amenities as water, sanitation, housing, lighting, and energy that are adapted to such resource management, are low-cost and easy to acquire, and can have benefits for both health and economic development.

Development of non-polluting, low-waste techniques, and safe methods and materials, is essential for sustainable use of natural

Box 40 A Thousand Mayors Plant for the Future

In Colombia, INDERENA (The National Institute of Natural Renewable Resources and the Environment) works through the thousand local authorities (municipios) in the country to organize its "Green Campaign" for mobilizing the community to protect and manage the environment. The local authorities have been identified as the critical institutional link between central government agencies and the community. With the slogan "A thousand mayors plant for the future", the campaign promotes the formation of a Green Council in each municipio through which the community will actively participate in identifying local environmental problems, make an inventory of natural resources of the area, undertake an annual survey of

environmental damage, organize public hearings, and initiate preventive and remedial action. One of its immediate tasks is to establish greenhouses to provide native species of trees for protective reforestation of 10 000 hectares of land. Reforestation becomes an entry point for various multisectoral, health-oriented programmes adapted to local situations, such as prevention of erosion, flood control, protection of sources of water supply, and management of agricultural practices including use of agrochemicals. Green councils are expected to promote community awareness of environmental problems through public education and information programmes, to organize campaigns for a safe, healthy environment through competitions between neighbourhoods, and to facilitate the formation of activist groups concerned with ecological issues.

resources. These techniques are also the ones that can best promote and protect health.

Problems of the environment affecting vulnerable groups require coordinated action in many sectors. Prevailing legislation regarding standards and location of housing, land availability, title, and tenure often works against these groups and denies them access to a legitimate community life and healthy environment. Policies dealing with these problems may need to be adjusted.

Integrated approaches to management of environment – health linkages assume that local communities will participate increasingly in the planning, implementation and management of the basic amenities and physical infrastructure.

This chapter discusses these issues in relation to the links between environment and health at the level of the community and the local habitat

— water, sanitation, and housing. It also describes the linkages at the national and sectoral levels relating to industrialization, urbanization, and large-scale developments, and technological change in the agricultural sector. The discussion leads to the conclusion that if development proceeds along sectoral lines alone, some of the most important levers for simultaneously improving the environmental condition and health status will be lost.

Water and sanitation as determinants of health

Linkages between water, sanitation and health

Nearly half of the population of developing countries suffers from health problems related to unsafe water and inadequate sanitation. A survey in 1980 revealed that only 33% of the

rural population had safe drinking-water compared with 74% of the urban population; a mere 13% made use of any sanitary facilities in the rural areas, compared with 50% in urban areas. Fig. 14 shows global trends in population coverage for sanitation for the period 1970–1983. It reveals that progress has been very limited.

The health consequences of inadequate water supply and sanitation can be drastic. Infant and childhood diarrhoeas alone are estimated to cause 4.5–5 million deaths per year out of some 600–700 million episodes. It has been estimated that improvements in water and sanitation could result in a 25% reduction in morbidity. More disease-specific estimates are shown in Table 4.

Although 67 studies from 28 countries have shown that improvements in water supply and excreta disposal reduce both the mortality and morbidity from diarrhoea, the impact is far from universal and varies considerably. Improvements in water availability or sanitation have a greater impact than improvements in water quality, and the reduction in mortality and morbidity from a single cause such as diarrhoea does not adequately reflect the complex nature of the relationship between water, sanitation and health. Table 5 shows the interventions needed for diseases related to water and sanitation. The mix of interventions and the emphasis vary considerably. For some diseases, satisfactory excreta disposal is more important than water supply. Food hygiene is an important factor and is related to health behaviour, outside the field of water and sanitation. Thus the strategy for health improvement, even in the case of diseases specific to water and sanitation, requires complementary action and intervention from other sectors.

The position regarding excreta disposal is even more unsatisfactory than that for water supply. Efforts to promote improved methods of excreta disposal encounter problems related not so much to resource constraints or lack of technology, but to health behaviour and the perceptions of the communities regarding health priorities.

Table 4 Potential impact of improvements in water supply and sanitation

Diseases	Estimated % reduction in morbidity
Cholera, typhoid, leptospirosis, scabies, guinea-worm	80–100
Trachoma, conjunctivitis, yaws, schistosomiasis	60–70
Tularaemia, paratyphoid, bacillary dysentery, amoebic dysentery, gastroenteritis, louse-borne diseases, diarrhoeal diseases, ascariasis, skin infections	40–50

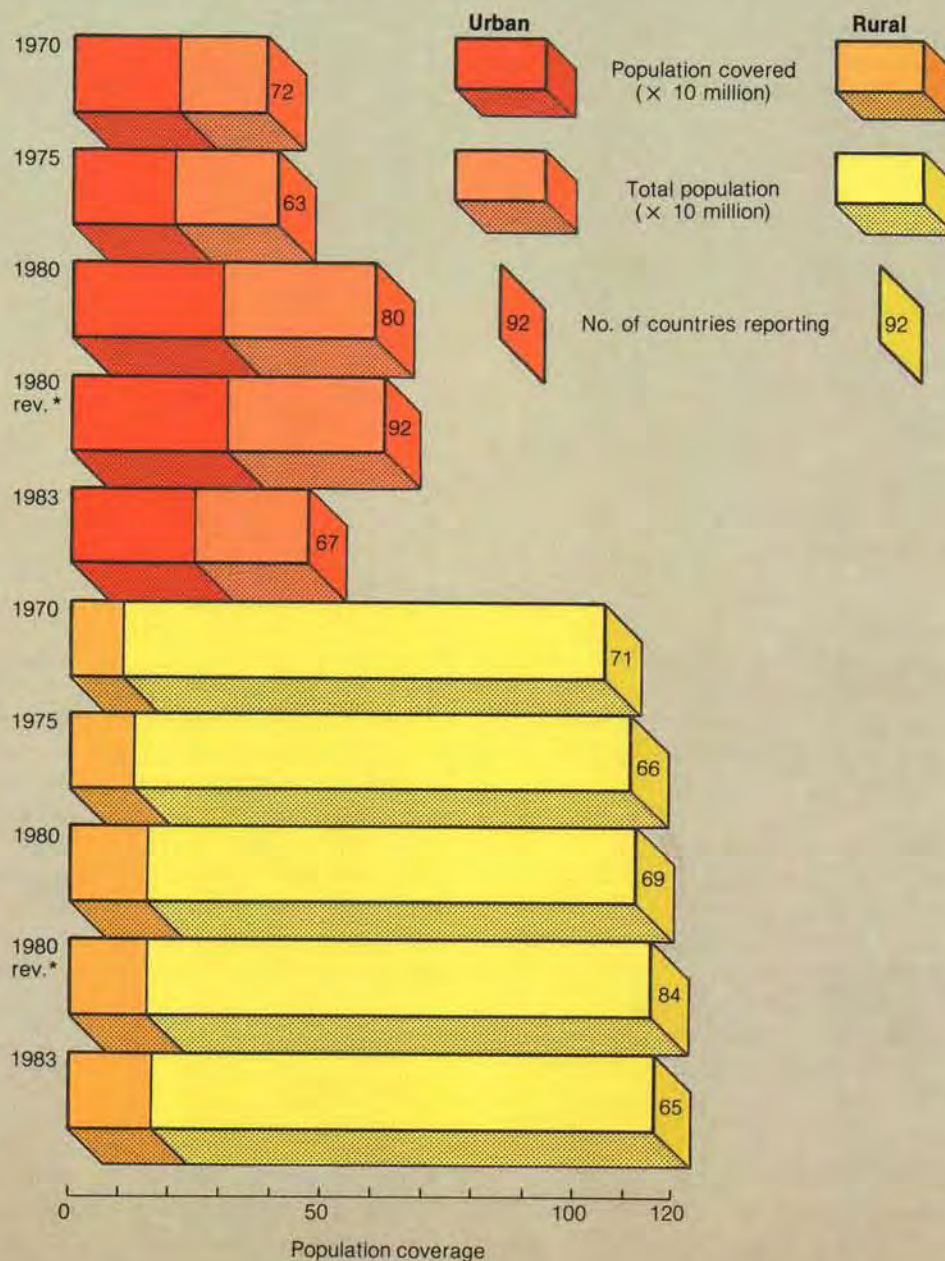
Source: *Maximizing benefits to health. An appraisal methodology from water supply and sanitation projects* (unpublished WHO document, ETS/83.7, 1983).

Using and maintaining community water supplies

A common failure of community water supply projects in the past has been to equate increased availability of safe drinking-water with improved health. But increased availability does not ensure increased access or increased utilization — the keys to achieving health benefits. The same considerations apply, with some modification, to sanitary facilities. The three objectives — increased availability, access, and utilization — raise quite different kinds of sociopolitical, cultural, ethical, technical and organizational issues. Increased utilization is the main goal of drinking-water projects, and its achievement will depend on increased understanding and acceptance by the community of the role of water and sanitation in improving health. Thus, health information and education should be an essential component of water and sanitation development programmes.

While the agencies responsible for water supply and sanitation can develop and provide the physical facilities, they are usually unable to motivate the necessary behavioural changes or impart the relevant knowledge and skills for communities to use and maintain them properly. Agencies responsible for implementation are often unable to monitor the needs for repair.

Figure 14 Sanitation: population coverage globally in the developing countries in the years 1970, 1975, 1980 and 1983



Source: *The International Drinking Water Supply and Sanitation Decade. Review of national baseline data (as at 31 December 1983)*. Geneva, World Health Organization, 1986 (WHO Offset Publication No. 92).

*Note: The 1980 revised values are based on the original 1980 (baseline) data supplemented by additional information received in 1984.

Table 5 Diseases related to water supply and sanitation — interventions for disease control

Degree of importance of intervention: . . . high . . . medium . . . low — negligible						
Disease	Water quality	Water quantity/ convenience	Personal and domestic hygiene	Wastewater disposal/ drainage	Excreta disposal	Food sanitation
Diarrhoea						
(a) Viral diarrhoea	—
(b) Bacterial diarrhoea	—
(c) Protozoal diarrhoea	—
Polioomyelitis and hepatitis A	—
Worm infections						
(a) Ascaris, trichuris
(b) Hookworm	.	.	.	—	. . .	—
(c) Pinworm, dwarf tapeworm	—	—	. .	.
(d) Other tapeworms	—	.	.	—
(e) Schistosomiasis	.	.	—	—
(f) Guinea-worm	. . .	—	—	—	—	—
(g) Other worms with aquatic hosts	—	—	—	—
Skin infections	—	—	—	—
Eye infections	—
Insect-transmitted						
(a) Malaria	—	—	—	.	—	—
(b) Urban yellow fever, dengue	—	—	. *	. .	—	—
(c) Bancroftian filariasis	—	—	—	—
(d) Onchocerciasis	—	—	—	—	—	—

* Vectors breed in water storage containers
Source: *Maximizing benefits to health. An appraisal methodology for water supply and sanitation projects* (unpublished WHO document, ETS/83.7, 1983).

These needs have to be met by other agencies, such as those responsible for health, education and community development, that have the organizational structure and sufficient skilled personnel to work with communities at the local level.

Water and sanitation projects illustrate the vital importance of close community involvement from the planning stage onwards. Water and sanitation need to be placed in the context of the other health-related needs of the community, since only complementary action by several sectors can make the projects successful. The example from Kenya illustrates all the above points (see Box 41).

Alternative technologies

Community self-reliance for improving habitat and maintaining infrastructure is central to improvement of water supply and sanitation facilities. This raises important issues concerning technology. When the problems of water and sanitation are seen in terms of available

community resources, alternative technological possibilities can lead to a higher quality of life than conventional technologies. One example of this is biogas. Biogas can improve sanitation, lighting and cooking, while providing nutrients for agriculture. Such alternative technologies might be particularly appropriate for strategies improving the well-being of the most vulnerable groups in rural and urban areas. Some of these issues are discussed further in later sections dealing with housing and urbanization.

Housing

The physical environment begins with the house, where the health risks are manifold. They stem from factors related to the structure and materials, the design, and available space. Many houses lack the minimum resources for a healthy lodging. Housing of poor quality often fails to protect against heat, cold, wind and rain, and disease-carrying insects and rodents.

Box 41 Women's self-help water projects in Kenya as part of International Women's Year (1975)

In a survey carried out during the spring of 1975, through regional and national seminars, water was established as a priority for women in Kenya. Reports from districts and provinces indicated that providing water in or near the home would considerably relieve women of a tremendous burden in their daily lives. It was also discovered that many women's groups, having experienced success in various minor projects, were now embarking on more ambitious ones, such as the purchase of large commercial farms and water supply. A number of groups had already started saving money in order to tackle the problem of having to travel long distances to fetch water.

Twelve water projects, at least one in each province, were selected for support, the only criterion for selection being that the project had been initiated by women. The frequently drought-stricken areas of Kenya were, however, given special preference. The objective was to boost the rural women's efforts to alleviate the basic problems that face them daily and that hinder their full participation in all aspects of development.

Each project was related to the specific needs of the area. In Olosho-Oibor, for

example, the Masai population had suffered a three-year drought and women had to travel over five miles, mostly uphill, to find clean drinking-water. Many animals had died, thus depriving the family diet of milk and meat. With the help of government experts, a water source was tapped in the nearby hills, to supply 13 Masai manyattas (homesteads) along the valley. The women contributed 600 Kenya shillings, the men 5000 Kenya shillings, and local nongovernmental organizations (Zonta Club and Kenya Association of University Women) provided storage tanks.

The provision of clean water allowed discussion of personal hygiene and sanitation. The Ministry of Health, officials from the Family Planning Association of Kenya, and the Cooperative Education Officer have since been holding regular educational sessions in the region.

The Ministry of Health posted a full-time nurse to the area to provide immunization and other services, and to give education in sanitation and the construction of latrines. The community constructed a clinic and a house for the nurse. A market garden was established in one of the manyattas, providing alternative sources of food and cash through the sale of vegetables.

Source: Grachukia, E. Women's self-help efforts for water supply in Kenya. Assignment children, No. 45/46, 1979.

The air may be unhealthy as a result of poor ventilation and potentially hazardous gases: materials may be easily inflammable; the site may also expose residents to flooding, external noise and air pollution. Overcrowding can intensify these health hazards. Improving the quality of housing is thus an essential part of improving the environment for health.

Houses in the rural areas of developing countries often have poor-quality structures, are built with semi-permanent materials, and are small, with one or two multipurpose rooms. The roofs are most often covered with straw, coconut leaves, or similar material. The floors and walls are mud. Such housing conditions go together with ill health.

Housing problems for the urban poor living in slums and shanty towns are even more acute. In addition to the poor quality of housing and all the associated health hazards, the habitat is frequently grossly contaminated, exposed to industrial pollution, and without access to the developed infrastructure of the main city.

Hazards in urban slums and rural villages

Among the health hazards in substandard houses are vector-borne diseases. Cracks in mud walls are breeding places for the parasite vector of Chagas' disease, a major public health problem in the tropical and subtropical areas of the American continent. Where malaria is endemic, the *Anopheles* vector has easy access to many homes for want of screening and mosquito netting in the houses of the poor. Respiratory infections and diarrhoeal diseases are often associated with houses of poor quality — particularly mud houses covered with temporary, non-durable material. Many cooking stoves are not well designed, so that children are often victims of serious burns and scalds. The hazards of high concentrations of smoke and carbon monoxide poisoning cause many deaths during cold winter nights when people keep charcoal burners lit.

The authorities in urban areas often regard the shanty town dwellers as illegal squatters. Until fairly recently, the policy has been to suppress these shanty towns and bulldoze away buildings, sometimes to protect the rich or to make way for a commercial development, a highway, or some other public structure. However, this has proved an impossible task, given the rate of the urban expansion, the number of poorly housed people waiting for better housing, and the low priority given to equity-oriented housing policies.

Improvement of the housing and the health status of poor urban dwellers calls for new governmental policies and programmes for the twin problems of massive and exponentially growing numbers of badly housed people and limited available resources. Many governments

have recognized the need for programmes to upgrade the quality of housing in urban slums, through improvements to meet basic requirements in water, sanitation, and the physical environment. The illegal status of many of these settlements is still one of the major impediments to housing improvements. They are seldom recognized as a community with rights of access to urban amenities, or given opportunities for organizing their community life. The case cited from Argentina (Box 42) illustrates the way in which such a community organized itself and demanded and obtained social recognition.

If these vulnerable groups, which constitute a significant proportion of the urban population in developing countries, are to be incorporated into social development and the health-for-all strategy, major policy changes and reorientation are required. Such policies can include granting legal right of tenure in some form to "illegal settlers" to stimulate individuals and families to improve their houses. They may include the provision of land for housing the poor; housing finance schemes that accommodate the ability of the poor to repay loans; revision of building and planning codes, including health standards, so that they are appropriate to the very limited resources of the poor; and provision of advice on how health and safety standards can be met. The involvement of local and municipal government in these efforts is important. Apart from providing essential local services, they can also support local initiatives such as the production of inexpensive building materials and fittings, community action, and experiments leading to increased self-reliance by individuals, families and community groups in improving their dwellings and neighbourhoods.

Countries should note the beneficial impact on health and on housing conditions achieved by governments that have changed their housing policy from one that seeks to "build houses for the poor" to one that supports the efforts of people and communities to build for themselves. The role of governments in this is to ensure that resources for building, such as land, building materials, and credit, are cheap and

Box 42 Habitat and health conditions in San Martín, Buenos Aires

Under the military government, which took power in 1976, lower income groups found it increasingly difficult to find accommodation in Buenos Aires. Real incomes were declining for most people while health services, which had formerly been free, now had to be paid for. A new law abolished rent control, which led to innumerable evictions of tenants. Public works programmes concentrated on such aspects as highway construction which brought little benefit to the poor, and a programme to demolish squatter settlements simply destroyed one of the few kinds of housing that was available to poorer groups.

A settlement was founded in late 1981, in San Martín, along with other squatter settlements, when thousands of families organized a mass squatter invasion of abandoned private property. The squatters carefully organized the layout of the site and left space for community facilities. Illegal connections were made to water and electricity supplies after attempts to obtain these legally had failed. However, conditions remained very bad. Although the local municipal government failed to destroy the squatters' housing, they refused to help pave the streets or install sewers or drains or provide health care. Diarrhoea epidemics, which were especially serious during the

summer months, led to the community organizing campaigns for health care. When these failed, the people themselves organized a very basic level of health care.

Finally, with the election of a democratic government, the municipal authorities have become more sympathetic to the squatters' needs. They have given some medicines, provided some vaccinations and occasionally collected garbage. The government has produced a draft law on squatter land and is prepared to open a dialogue with squatters. The community has resisted efforts to "municipalize" their first-aid centre. They feel that they should keep the responsibility for managing it, with the state providing only resources and technical support. They want to maintain control in the hands of their neighbourhood organization, so that it remains responsive to local needs. Traditionally, health centres located in hospitals have paid more attention to costly curative services, using expensive equipment and drawing on specialists. The low-income communities have a much greater need for low-cost primary health care services that give priority to prevention.

Source: Cuenya et al. Habitat and health conditions of the popular sectors: a pilot project of participative investigation in the San Martín settlements, Greater Buenos Aires (original in Spanish). Buenos Aires, Centro de estudios urbanos y regionales. October 1984.

easily available and that infrastructure and services are provided for the houses and neighbourhoods that the poor build.

Rural housing needs have often been neglected as the pressure of demand for housing in rural areas is not felt as intensely as in urban areas.

Nevertheless, the need for improvement in the quality of rural housing is urgent. Some countries have initiated programmes of flexible financing packages enabling rural households to make improvements to their houses, for example, by adding space and basic amenities. In this context it is important to ensure that

existing public health laws and standards are relevant to contemporary needs. The health sector should concern itself more actively with the health-related components of housing by collaborating with the relevant agencies in formulating housing programmes and linking them at the community level with primary health care.

Housing hazards in developed countries

Poor housing is not the monopoly of developing countries. Examples of unhealthy housing can be found in the rich industrial countries of Europe and North America and include both old and new constructions.

One health hazard associated with an increased risk for cancer is radon, a radioactive gas, which may be present in soil and can emanate from certain building materials. It is suspected that, in poorly ventilated buildings, relatively high concentrations may build up, thereby creating a hazardous exposure to ionizing radiation.

Serious and sometimes fatal accidents occurring in the home are another health hazard common to both developing and industrial countries. In the industrial countries, the main victims of serious accidents due to falls are the elderly. One of the underlying causes may be design faults in the home environment. Careful analysis of the causes of accidents in the home will be required in order to identify any such faults clearly and to take corrective measures. Sharing of information between health and housing is an essential starting point for the formulation of an improved health policy for housing.

Psychosocial health hazards are at least as important as the risks related to the physical environment in most big cities in the developed world. Therefore efforts to limit social segregation, stimulate community participation, and initiate urban renewal schemes focusing on the life to be lived in an area are of importance.

The new problems: development, urbanization, industrialization and health

The preceding section discussed some of the intersectoral linkages in improving the physical infrastructure related to health. These improvements cannot be isolated from the radical transformation taking place in the human habitat as a result of development. Industrialization is changing the living and working environment and producing new health risks. Changes in the systems of production are accompanied by shifts in the geographical distribution of the population towards the urban areas. The rural habitat itself is undergoing rapid change as a result of new technologies and large-scale development projects such as irrigation systems.

Health problems of urbanization

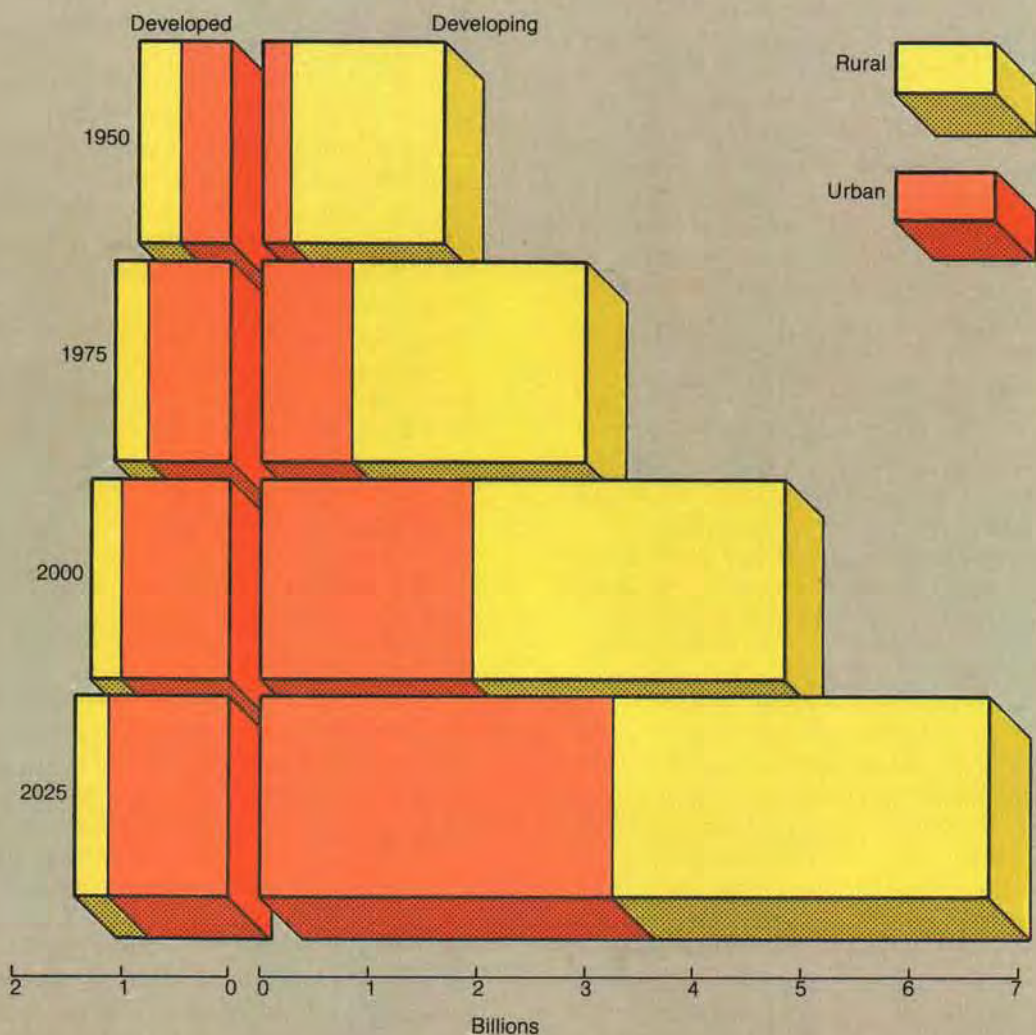
The urban explosion now taking place in many developing countries constitutes one of the most radical and rapid social transformations in history. In less than half a century, the population of Latin America has gone from being predominantly rural to predominantly urban, and by the year 2000, urban dwellers will outnumber rural dwellers three to one. This level of urbanization is comparable to Europe's, but is accompanied by a lower per capita industrial output. In Africa, the rates are changing even more rapidly (see Box 43). In Asia, the large countries — China, India and Indonesia — still keep their predominantly rural profile, while in absolute numbers their urban population grows by tens of millions. If the current trends of urbanization continue, by the year 2000 approximately 40% of the population in developing countries will be living in urban areas, many of them in large cities of several million inhabitants. A significant proportion of the urban population will be poor, living in highly contaminated environments, and in housing of poor quality.

Large cities in the developing and some industrialized countries contain contrasting elements of modernity and conspicuous

affluence and appalling living conditions in sprawling squatter settlements, shanty towns and slums. It is therefore difficult to speak of the health impacts of urbanization in general terms. The same city can provide an array of health environments for different groups of people.

The process of rapid urbanization in developing countries poses a set of health problems of growing dimensions and importance. The urban population is expanding without a corresponding expansion of the urban infrastructure; people from the rural areas move into cities in search of economic opportunities and employ-

Figure 15 The urban explosion



Global population projection (source: United Nations)

Box 43 Urbanization in Africa — the consequences

Many of Africa's large cities were small towns only 20 years ago. It is estimated that by the year 2010 there will be 77 cities in Africa with a population greater than one million. The problems of one African city will serve to illustrate the consequences of rapid urbanization for the others.

Of the total population, some 40–45% live in shanty towns, while another 30–35% live in organized settlements. For all practical purposes, both these groups are deprived of essential services, and an ambitious programme of sites and services failed. Of the first 7000 sites allocated, the majority were immediately sold by their new owners for ready cash. Fewer than 10% of the population can afford to pay for the low-cost and poor-quality housing built through official programmes, since the cost per square metre equals a worker's pay over four months.

Water supplies are extremely scarce. Only 1 family in 10 has access to piped water, while those living on the periphery have a mere 41 water points, or about 1 for 850 families. The scarcity of water is a predictable yet serious

health hazard, not only in terms of the high prevalence of diarrhoeal diseases but also in respect of the inability of the people to cultivate even small vegetable gardens to supplement their meagre daily intake of food. Eating, therefore, depends on earnings and charity. Of the total population, fewer than 40% are considered economically active and little more than one-third of this total have stable jobs. More than half of the families living in the shanty towns do not have one single person who has stable employment. 40% of the families eat only once a day.

Despite the chronic absence of basic amenities, the population continues to grow as a result of further migration from the rural areas. This is a reflection of the circumstances in the rural areas and of the impact of total public investment, which is heavily concentrated in the capital. Access to health services and education is far better than in the rest of the country. In addition, public assistance programmes are concentrated in the capital city. In terms of national development, and even survival, such urban bias can only result in more critical problems for the population. A radical departure from present trends is clearly necessary.

ment far in excess of the capacity of the urban economy. Illegal settlements proliferate. The migrant population, uprooted from its familiar environment, rarely has ready access to services and amenities in the cities, and has lost the support system it enjoyed in the countryside. Insecurity in terms of food and income for the poorest urban group can be worse than in the rural areas.

The policies for dealing with these phenomena can be directed at two objectives. At the

national level, the development strategy itself has to be corrected for possible biases in favour of industrial and commercial complexes in or around large cities. The development effort needs to be distributed so as to improve the rural poor's well-being. The experience in countries following an equity-oriented pattern of development indicates that under such a process, rural–urban migration can be better controlled and the process of urbanization slowed to match the pace of expansion of the urban economy and infrastructure. The health-for-all

strategy, with its equitable coverage of the population, reinforces a development strategy to take development to where the people are, rather than to draw people to urban centres. A national strategy to maintain a rural–urban balance will help to prevent disorderly growth in the future.

The existing problems of the urban poor require a different set of strategies. Many of these have been discussed in the section on housing and include the need to legitimize squatter settlements, organize the community life of the urban poor, and upgrade the habitat with basic amenities. A good example is to be found in Mozambique where most of the urban dwellers in Maputo have been able to afford improved

housing, and where community mobilization has transformed the slums into healthier, cleaner neighbourhoods.

There are other examples of alternative strategies that put unused resources to productive use, such as recycling of urban waste, to increase economic well-being and improve the environment. Many of these activities need to be better organized, and to make use of technologies designed to make the work safer, healthier, and more congenial.

Industrialization, technological change and health

The impact of industrialization and technological change on the environment and the

Box 44 Multisectoral approaches in the USSR

In the Soviet Union good health results from a combination of preventive, curative and health promoting measures. Legislation enacted in 1976 consolidated a policy for a comprehensive, multisectoral approach to health promotion, with participation by "all state agencies, undertakings, institutions and organizations", such as trade unions, cooperatives, the Red Cross and Red Crescent societies, and other public organizations. There is great concern for the impact of scientific and technical progress on the environment, particularly pollution, and the positive and negative repercussions on people's health.

Commissions for health and social welfare have been formed at all levels of the state system, from the local soviets to the Supreme Soviet of the USSR, to monitor and ensure compliance with safety regulations. Managers, planners, construction workers and personnel in enterprises

and public services, as well as the boards of directors of collective farms, are charged with implementing measures to prevent pollution of the atmosphere, water, and soil. The planning and construction of urban settlements must include adequate water supply, drainage, roads, green zones, street lighting, sanitary cleaning services, and other amenities. No person may be housed in premises that fail to satisfy sanitary requirements. Trade unions monitor conditions of work and safety measures in factories and ensure that both industrial and agricultural workers have adequate social protection and services, such as rest homes and eating facilities at the work place. A comprehensive set of industrial, social and medical activities directed at the work force are an integral part of the public health programme developed within the social policy of the Party and the Soviet State.

Source: Scepina, O. P., Multisectoral approach to the protection of people's health. WHO European Conference on Planning and Management for Health, The Hague, 27 August–1 September 1984.

Box 45 Occupational health in Singapore

In 1968, the Ministry of Health of Singapore established a unit of occupational health, which when transferred to the Ministry of Labour became a large, fully fledged Division of Occupational Health. In 1970, the Department of Community Medicine of the Singapore National University established a chair in occupational health and created a course leading to a Master of Science degree.

In 1980, the Economic Planning Board

decided to broaden occupational health services at the national level, by developing ergonomics and making training in occupational health compulsory for all physicians working on a full- or part-time basis in industrial establishments. Cooperation among three major sectors — labour, economic planning and the National University — has resulted in the development of modern occupational health services in practically all the workplaces in Singapore. Occupational injuries as well as work hours lost due to sickness have been substantially reduced.

health of the population can be broadly examined in three categories. First, there are the health problems of the workplace; next, those of industrial pollution in general; and finally, the health impact of large projects where man-made systems alter the environment in such a way as to have far-reaching effects on the health of the population.

The workplace and health of workers. The health problems of the workplace are generally dealt with through relatively well-established systems of occupational health in which the state, employers, and trade unions play a role. Intersectoral action in this area has a long history.

The strategies for improving occupational health are well known. In both developed and developing countries, trade unions may serve as major channels to ensure that social justice prevails. They are an important means of protecting the health of workers in the workplace and monitoring the health risks of industrial occupations. The improvement of the occupational health of workers is therefore closely associated with the political processes in a country and the place of the trade unions and

workers in the national system of decision-making.

The working-class population remains one of the more vulnerable groups in society. Even in developed countries its occupational hazards are often added to the health hazards of a poor living environment and unsatisfactory housing. Workers' health must therefore be placed in the larger context of the cumulative health hazards of a disadvantaged socioeconomic environment. This is particularly true in developing countries and for groups likely to be at greater risk than others, e.g., women workers and working children.

In terms of the working environment, however, it is the unorganized workers in the informal sector who face the highest risk. The informal sector has recently received the attention of development policy-makers as a dynamic employment-creating sector that will continue to form an important part of the economy of developing countries. It is not likely that the occupational health problems in this sector could be dealt with, as in the organized sector, by labour unions and legislation. Many of these informal sector activities are home-based, family

enterprises. The occupational health and the work environment of the informal sector, including agricultural workers, pose a new challenge to the health and labour ministries for which new strategies must be found.

Industrial pollution and the use of chemicals. The problems of industrial pollution and strategies for dealing with them are widely known. Most developed countries and several developing ones have established systems for controlling and monitoring levels of pollution. In this area, the experience of developed countries has to be appropriately transferred to the developing countries. Low priority is generally given to these problems in countries where levels of pollution are still low. The pursuit of growth objectives, policies for attracting foreign enterprise with minimum controls, and import

of technologies far in advance of the technological know-how and scientific infrastructure of the country all tend to create conditions for worsening pollution. Indiscriminate dumping of industrial effluents, the use of high-sulfur coal or oil in local power stations, and other such action, continue to pose serious health hazards. The health sector needs to collaborate with national agencies in monitoring the health impact and changing profile of health hazards in the fast-changing environment.

While we tend to think of industry as an urban-based activity, attention must also be given to the technological changes in agriculture, for example the widespread use of toxic chemicals as pesticides, as discussed in Chapter 2. In one major Asian country, for example, nearly

Box 46 Action in Indonesia

A central institute was established in Jakarta to carry out field investigations of workers' health problems, supply advisory services on control measures, and train health personnel in industry and inspectors of factories. However, the institute was unable to provide services to small-scale industries, agricultural workers and workers in construction, even though it established 10 branches throughout the country.

In 1980, however, the Ministry of Manpower approached the Ministry of Health requesting the utilization of health centres in the provincial and peripheral areas for the delivery of health care to workers in these underserved sectors. They trained public health officers in occupational health, and some of the health centres included occupational health as one of their daily functions. In 1983, the Ministry of Health

approached different industrial estates with a view to establishing occupational health units under their supervision. The Economic Planning Board (Bepanas) provided funds for setting up regional branches as well as training health officers. The Federation of Employers together with the Federation of Labour Unions participated actively in workers' health education programmes through different conferences and seminars carried out in various parts of the country, fairly regularly.

A very promising nationwide programme in workers' health is being developed, in which the Ministry of Manpower enforces legislation on occupational safety and health and the Ministry of Health supervises and delivers occupational health care to large numbers of workers in the industrial estates and plantations with the participation of private organizations. The programme is expected to grow and to expand its coverage of underserved sectors.

100 000 tons of pesticides are used each year, of which at least 70% are pesticides that have been banned or severely restricted in industrial countries on safety grounds. While these may improve overall food production, the cost to human health can be very high. An indication of the potential cost is provided by the findings of a study in a developing country of pesticide residues in food. Fifty per cent of food samples were found to be contaminated, and in 30% of these, the levels exceeded permissible limits, and were judged hazardous to human health. Another dimension of the food safety problem has been the indiscriminate use of additives and substances such as hormones to fatten animals (cattle, poultry) in both developed and developing countries

The examples of national legislation given in Box 47 illustrate the recognition by countries of the risks inherent in the use of chemicals and the need for collaboration among the sectors concerned.

The programmes of investment in developing countries often contain individual projects of such magnitude that they affect large parts of the economy and drastically alter the physical environment. These may include large-scale industrial investments, transportation systems, and multi-purpose projects for the use of water resources. Each single large-scale investment sets in motion a chain of environmental and

other health-related effects which have a far-reaching impact on health.

There have been numerous instances in both developed and developing countries where errors of design or failures in the systems of control in industrial undertakings have had catastrophic consequences for the health and life of the local population. The leak of poisonous gas from a pesticide plant in Bhopal, India, in 1984, received extensive news coverage because of the high death toll. While such a large-scale catastrophe is unusual, it illustrates the enormous potential hazards, and points to the need for surveillance and control systems. It is also important to remember that small industrial accidents are very common. The responsibility for control rests with agencies outside the health sector, but health can contribute by promoting national policies that provide for adequate systems of safeguards and surveillance.

Economic development, water resources and health

The continuing and cumulative impact that some large-scale projects have on health may require interventions of another nature, in which the health sector has to be actively involved. Large-scale water development projects, for example, while benefiting the overall

Box 47 National legislation

In the Dominican Republic there is a law that prescribes that drugs and pesticides whose sale and use are restricted in the country of origin because they are potentially hazardous can only be marketed under the strict control of the State Secretariat for Public Health and Social Welfare and the State Secretariat for Agriculture.

In Senegal two laws have been passed.

One assigns responsibility for environmental protection to the Ministry responsible for the Environment, in collaboration with the Minister responsible for Industry and in certain instances the Minister of Finance. The other law makes provision for cooperation between the Ministers responsible for Rural Development, Public Health and Industrial Development in deciding on the issue of administrative licences for the control of "agro-pharmaceutical specialities".

Table 6 Examples of increased prevalence of schistosomiasis resulting from water resource development projects

Country	Project (year completed)	Pre-project prevalence (%)	Post-project prevalence (%)
Egypt	Aswan Dam (1st) (1900)	6%	60% (3 years later)
Sudan	Gezira scheme (1925)	0%	30 – 60% (15 years later)
United Republic of Tanzania	Arusha Chini (1937)	low	53 – 86% (30 years later)
Zambia and Zimbabwe	Lake Kariba (1958)	0%	16% adults 69% children (10 years later)
Islamic Republic of Iran	Dez pilot irrigation project (1965)	15%	27% (2 years later)
Ghana	Volta Lake (1966)	low	90% (2 years later)
Nigeria	Lake Kainji (1969)	low	31% (1 year later) 45% (2 years later)

Source: Rosenfield, P.L. & Bower, B. In: McJunkin, F.E. *Water and human health*. Washington, DC, United States Agency for International Development, 1982.

population, may disturb the ecosystem leading to changes in local parasitic and infectious disease transmission cycles. This may result in serious long-term damage to the health of the population in the vicinity of the project. A notorious example is the spread of schistosomiasis (see Table 6).

It is possible, through appropriate intersectoral planning in the early stages of such projects, to introduce effective control measures and minimize the damage to human health. The examples from Brazil and Egypt (see Fig. 16 and 17 and Box 48) illustrate the benefits of such planning and the lessons to be drawn.

Large water projects can also give rise to a host of other health problems such as work accidents, malnutrition and other diseases of poverty among the displaced population, and an upsurge of malaria among the settlements that often grow up around such projects.

The cumulative health effects of small-scale projects may also be significant. In rural areas, there is often widespread construction of small

dams, ponds and impoundments. Since such water sources must be used for many purposes — fishing, drinking-water, irrigation, flood control — there is often a high degree of water contact by both humans and animals, with a correspondingly high rate of disease transmission. Many small impoundments are constructed as a result of local initiative and suffer from poor maintenance and problems such as seepage, favouring the proliferation of disease vectors.

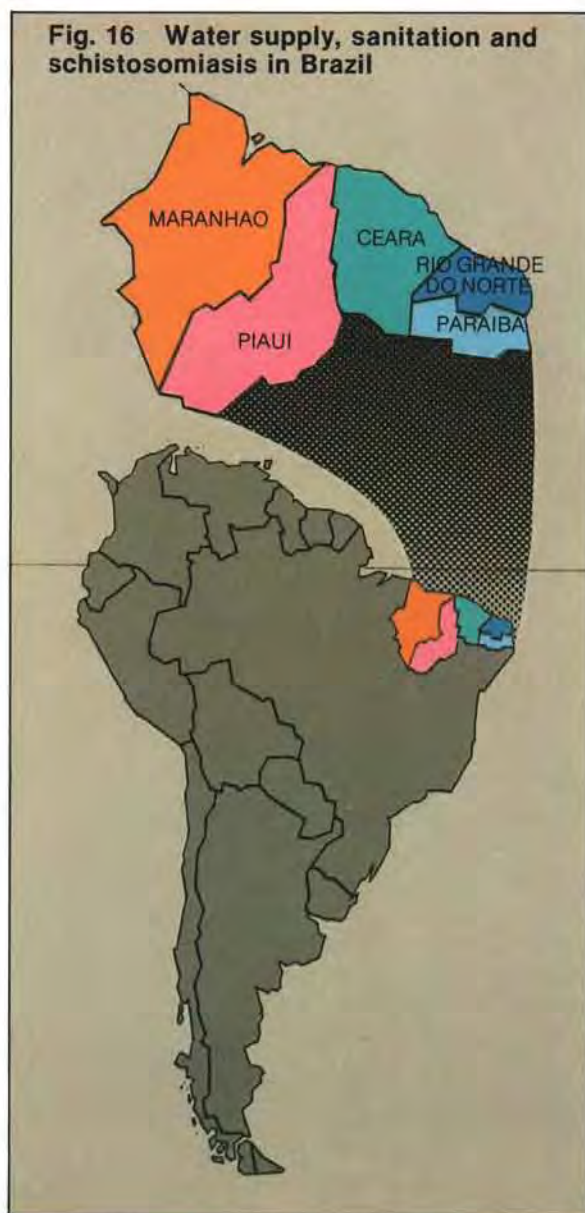
Little attention has been paid in the past to these health effects of development projects. Action has been taken only when the adverse health effects have become apparent, although methodologies are available for the prior appraisal of water projects in relation to their environmental and health impact.

It is necessary to identify the health consequences of these projects at the planning and design stage. Both international agencies financing such projects and national planning authorities in developing countries need to

make such an impact analysis an essential part of project appraisal and approval. The health sector has to participate in this process, and, where the health effects are likely to be negative, help in finding feasible alternative solutions. Such a system should also provide an effective form of health monitoring to provide early warning of emerging health hazards.

In addition, the people themselves — the beneficiaries of these projects — need to be intimately involved in the appraisal and monitoring of the impact of development projects, and to be able to introduce adjustments as required through their own initiatives. The illustration from Spain is a case in point (Box 50).

Fig. 16 Water supply, sanitation and schistosomiasis in Brazil



Control of schistosomiasis

The Special Programme for Schistosomiasis Control was initiated in 1976 under the mandate of the Council of Social Development and executed by the Ministry of Health in eight stages in the north-east of Brazil. The estimated population at risk was over 5.6 million. The aims of the Programme were to eliminate transmission and to reduce the prevalence of schistosomiasis to less than 4% in all localities. In 1981 all schistosomiasis control activities were integrated into the general programme of the Superintendency of Public Health Campaigns (SUCAM). Since 1982, the objective of SUCAM's control activities has been to reduce morbidity, particularly among schoolchildren, and to prevent the spread of schistosomiasis into new areas.

The control approach has included treatment of the entire infected population with safe drugs taken by mouth in a single dose; application of molluscicides to kill the snail vectors; health education; and improvement in water supply and sanitation. This last activity has gained importance as the programme has progressed.

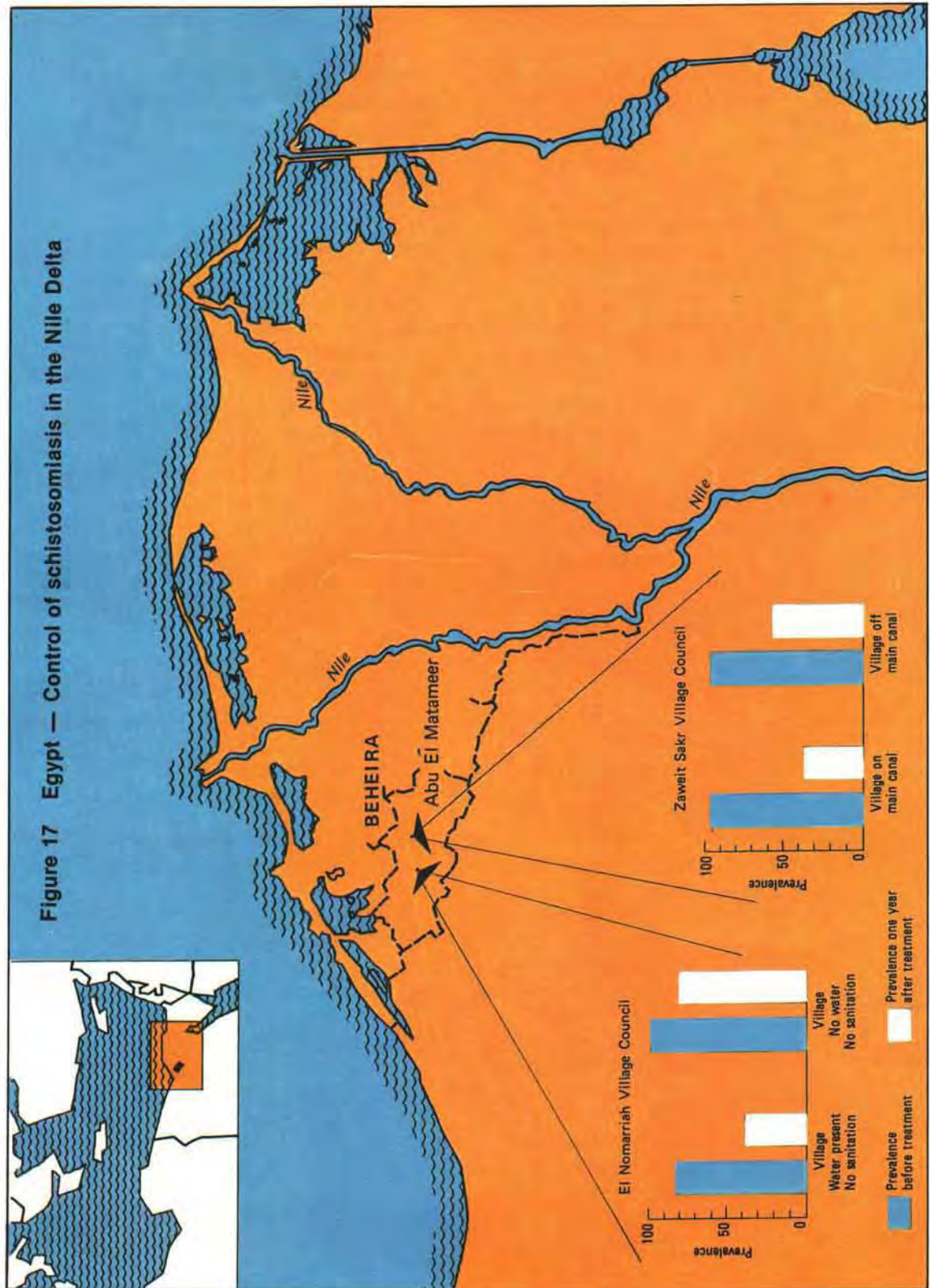
Intersectoral action: two examples

Ceara

The prevalence of schistosomiasis among schoolchildren in Ceara has been reduced by about 50% since 1976. Sanitation and water supply programmes have been designated for three municipalities in coordination with the Special Foundation for Public Health (FSESP) and the state health secretariat.

Rio Grande do Norte

The prevalence of schistosomiasis among schoolchildren was reduced from over 20% to less than 3% by 1983. Water supply systems have been designated for localities in six municipalities coordinated by the state health secretariat, the Mineral Resource Development Co. and the Water and Sewage Co. of Rio Grande do Norte — the last two are mixed private and state companies. In addition, FSESP is operating water supply and sanitation systems in four municipalities. In several municipalities community participation in labour and purchase of materials has reduced the unit costs and permitted coverage of a larger area.



Box 48 Schistosomiasis in the Nile Delta — how intersectoral action helped

The 160 000 people of Abu El Matameer district in the Beheira Governorate of Egypt's Nile Delta recognized the importance of schistosomiasis as a major health problem and hindrance to development because of its debilitating effect on the people.

A programme to control schistosomiasis was initiated in January 1983. The planning and implementation of the programme was greatly assisted by the availability of an intersectoral district mechanism for overall development programming through which both elected and executive councils could discharge their responsibilities.

Spearheaded by the staff of the local health department, the control programme screened some 29 000 schoolchildren and treated all those found to be infected — up to 90% in many schools.

An evaluation after the first round of treatment found that the number of cases of schistosomiasis had generally been reduced. However, an important finding was that there was little or no reduction in villages with no source of clean water, poor sanitation, no rural health unit and no active health education programme. These findings stimulated the village councils to press for installation of water supplies and improved sanitation, thereby ensuring more effective control of schistosomiasis and contributing to a reduction in other water-related diseases.

Box 49 Preventing the ill-effects of water development projects — an example from Ethiopia

Opening up new areas of agricultural land for food production is an urgent need in Ethiopia as in many other African countries. Success will largely depend on the development of water resources and the introduction of irrigation.

Aware of the serious health risks that such development can cause through possible increases in vector-borne diseases such as schistosomiasis, the Ethiopian Ministry of Health has spearheaded the creation of an intersectoral Committee for Inter-institutional Collaboration in order to ensure the in-

troduction and application of health safeguards in water development projects. In this committee the health, agriculture, water resources development, industrial and educational sectors collaborate.

With the support of WHO, through the Panel of Experts on Environmental Management for Vector Control, a secretariat has been established in the Ministry of Health which will serve the Committee by collecting and distributing information on environmental management, monitoring water development projects, and generally assisting the Committee in its operations.

Source: Joint WHO/FAO/UNEP Panel of Experts on environmental Management for Vector Control, PEEM Newsletter, No. 11, 1985.

Box 50 Of Spain, water and eight wise men

*In Spain, each Thursday, on the stroke of twelve, eight men, wearing the typical black blouse of the local farmers, gather to sit in a circle on stately wooden chairs. These eight men are invested with supreme authority for the irrigation of the famous "Huerta" (or "garden" of Valencia). Each represents a community of farmers using one of the eight channels of the River Turia, which irrigate a total of 17 000 hectares of land. The eight *síndicos* constitute a water tribunal. When water is plentiful the farmers can use it abundantly on their land, but when scarce, it is shared proportionately to land area so that everyone will have at least some water.*

Each commune has its own laws and when someone transgresses one of these laws he is summoned before the water tribunal. There is neither written accusation nor judgement. The sentence is carried out immediately and there is no appeal. Irrigators belonging to the channel communities on the left bank of the river are judged by the president

*who belongs to a channel on the right bank; reciprocally, the vice-president, being a *síndico* of a left bank channel, judges the irrigators of the right bank communities. Thus impartiality is ensured. Even the eight wise men, including the president, can be accused, judged and condemned, as any other irrigator.*

The law of the waters was written down for the first time in 1879 and agreed by King Alfonso XII. This law so well responded to the need to regulate a scarce resource that it inspired other water tribunals, not only in Spain but also in Latin America.

The eight wise men gathering on the open space in front of the cathedral represent the very consciousness of self-responsibility in the whole community of the Huerta and thus, having both moral authority and legislative power, can give respected oral sentences. Their word is sufficient.

Source: England, E. Appropriate technology for health newsletter, No. 14-15, 1984, p. 40.

In certain situations major health hazards can exist outside large development programmes and projects. An example is the Ganges river where the growth of industry and population and the continuing ritual use of the river and its banks have raised pollution levels. Agencies concerned with the environment and the health sector should identify such potential "danger zones" and take timely action to control the hazards, which may affect not only health but also the economy.

In contrast, action against health hazards that have prevented economic development can open up new avenues. An excellent example is the Onchocerciasis Control Programme in the

Volta River Basin Area, which from the very beginning has demonstrated the economic benefits of returning fertile river valleys to agricultural cultivation (Box 51).

It would be a mistake to believe that adequate environmental protection can be achieved by local operations alone. Many environmental problems have a cumulative, sometimes irreversible, and hence global character, once they are allowed to occur as a result of inadequate policies for prevention. This is particularly true of the pollution of large rivers, lakes and seas, which can affect populations living hundreds of kilometres from the site of the initial pollution. Acid rain is another example of

how industrial pollutants can be transported over national borders. Major and costly operations will be needed to reverse the damage caused. It is clear that remedial policies are always a poor substitute for environmentally sound overall development strategies.

Lessons learned and persistent problems

The preceding sections have referred to the nature of the policy initiatives and intersectoral coordination that is necessary in relation to the different types of intersectoral linkages between health and environment. Many of the institutional issues discussed in previous chapters are relevant here.

There are, however, some salient differences. In the area of water, for example, the multiplicity of agencies at both national and international levels has compounded the issue. In any country, there may be several agencies with some responsibility for water, including ministries of public works, hydraulics, health, agriculture, housing and regional administrations. This fragmentation prevails at the local level hindering the search for and application of relevant solutions. A global survey conducted by WHO in 1983 revealed that 93% of countries have three or more community water supply and sanitation agencies; 87% of countries have five or more; 63% of countries have seven or more; and 35% of countries have nine or more. The same survey revealed that in several countries the intersectoral policy body established for health and the equivalent institution for water and sanitation had no relationship with each other.

A similar situation is to be found in housing. For instance, "slum and squatter upgrading programmes", aimed, among other things, at improving health, have become common, but rarely is any health ministry or agency involved in designing and implementing them. Furthermore, few if any examples can be found where the health problems of the people living in the area to be "upgraded" were investigated (or even considered) before the programme was designed.

The above examples illustrate a fragmented approach to environment and health. Kuwait provides an example of a country that is overcoming this (Box 52).

From what has been said it follows that the concerns of health and environment require action on several fronts. This may require institutional and administrative reforms to:

- overcome the present sectoral and vertical bias and ensure a comprehensive approach to environment and health at both the central and local levels;
- redefine the role of sectoral administrations — the main source of expertise and specialized information — to foster cooperation in the definition of national development strategies;
- make these approaches operational at all the stages of planning — formulation of goals, implementation, and monitoring of results;
- blend the "advocacy planning" of the committed public servants and nongovernmental organizations with genuinely "participatory planning" involving the communities concerned.

Box 51 Fighting river blindness in eleven countries — disease control for economic development

Since 1974 the Onchocerciasis (river blindness) Control Programme in the Volta River Basin Area has exemplified intersectoral cooperation in practice.

Based in Burkino Faso, but spanning 11 West African countries, the programme depends on the coordinated actions of ministries of planning, finance, cooperation and development, the interior, agriculture and civil aviation as well as health. Its intersectoral characteristics are also reflected in its four sponsoring agencies — the Food and Agriculture Organization of the United Nations

(FAO), the United Nations Development Programme (UNDP), the World Bank and the World Health Organization (WHO), which is the executing agency.

Although the primary objective of the programme is to prevent blindness, its closely related secondary objective is to allow people to return to the river valleys, free from the threat of infection, in order to exploit the rich agriculture potential and thereby increase food supplies in an area of the world that badly needs them.

Already repopulation is taking place in the areas where the disease has been controlled, thereby providing the basis for economic development.

Box 52 Intersectoral action for environmental protection in Kuwait

During the past three decades Kuwait has invested revenue from oil resources not only in industrial development but also in building up a social infrastructure in terms of schools, health facilities and other social services. The high priority accorded to social development is reflected in measures taken to control environmental pollution.

In 1980 legislation was enacted to create the Council for Environmental Protection as the principal body responsible for environmental policy and programme development. The Council is

chaired by the Minister of Public Health and draws its members from the Ministries of Public Works, Commerce and Industry, Planning, Interior, Public Health, Electricity and Water, Communications and Oil, Kuwait municipality and the authority responsible for the neighbouring Shuaiba industrial area, as well as the Institute for Scientific Research.

The Council's executive arm, established under the same law, is the Environment Protection Department of the Ministry of Public Health, which in addition to general assistance follows up enforcement of the Council's orders and recommendations.

Summary and Conclusions

Equity is the unifying theme of a policy for intersectoral action for health. The main policy priorities, whether they are related to the quality of life, problems of survival in developing countries, or disease patterns in urban industrial societies, concern the disparities between and within countries. They also concern how reduction of these disparities can improve the health of vulnerable groups.

Chapter 1 of this book presents the essential elements of such an equity-oriented health strategy. The equity-oriented approach in the health sector has been firmly based in primary health care, in terms of both objectives of coverage and priorities in health care. The chapter examines the implications of this equity-oriented approach for national development strategy and sectoral policies, and stresses that equity in health cannot be achieved by the health sector in isolation. Linkages are needed with other sectors that control and influence factors that determine health — agriculture, food and nutrition, education and information, environment and physical infrastructure. The health sector should cooperate in the management of these factors for the promotion of health.

Chapters 2–4 discuss the linkages between health and the sectors of agriculture, education and the environment, emphasizing that the commitment to equity is paramount. Many of the relationships have already been recognized and, in a few instances, used successfully in pursuit of health-promoting goals in widely varying political systems. However, there is a need for more initiative by the health sector in enhancing intersectoral collaboration, and for greater response by the other relevant sectors.

Chapter 2 discusses intersectoral links as they relate to agricultural output, production, labour, land ownership, technology and decision-

making, and outlines health issues of crucial significance, including:

- how choices in output, such as between cash crops and staple foods, can influence food availability to vulnerable groups and how backward regions are often neglected in pursuit of growth;
- how high-yielding varieties of crops are substituted for the more robust varieties that people need in order to sustain their food supplies;
- how some labour-saving techniques that increase productivity and output can further impoverish vulnerable groups, and how changes in land structure can worsen or improve their access to land.

Technologies and agricultural systems that stabilize production and income and reduce seasonal fluctuations have a special importance for health. Landless farm labourers emerge as the group at greatest risk.

The chapter identifies crucial macro-economic policies that affect food prices, availability and distribution, and describes their impact on the nutritional status of the population. The options for appropriate intersectoral collaboration are considered.

Chapter 3 examines how education and health relate to the process of learning to be healthy. It focuses on the important role the education sector can play in promoting health at all levels of schooling, and emphasizes the shared responsibility of education and health agencies for protecting and promoting health, particularly among women and young people. Universal primary education is intrinsically linked to

health for all; basic education is the foundation for health education. The health sector therefore has a vital interest in promoting equity-oriented educational policies that give priority to resources for primary education, and pay special attention to the health-related problems of women. The health sector needs to participate actively in programmes of non-formal education and functional literacy, especially where female literacy rates are low.

Collaboration between health and education can best take place in the school. As a provider of health services and health education to the young, a monitor of students' health, and a promoter of the health of the family, the school will assume increasing importance as participation grows in developing countries. Schools need to be strengthened through closer collaboration between health and education, reorientation and training of teachers in health activities, incorporation of health information into the curricula, and allocation of more resources to school health programmes, so that they can realize their full potential for promoting health.

The health—education link in university education has different dimensions. The university curriculum must reorient the health professions towards assuming greater responsibility as health educators. It has to impart a base of interdisciplinary knowledge enabling health and other professionals to understand the interrelations in development, communicate with each other and collaborate on multisectoral goals. It also has to contribute to the health education of adolescents on complex problems of adjustment during a critical life phase, and to provide leadership in health promotion in the community.

Education for health can make use of a wide range of learning situations outside the school, and multiple channels of communication. In this regard, a close partnership with the mass media could be of immense benefit to health promotion by permitting regular and planned interaction, whereby the health sector can make knowledge and information available in forms understandable to the public.

Health education in general has to be viewed in the context of declining mortality, extended life-span, and changing patterns of ill health. It has to be specifically targeted to the different vulnerable population groups, whether they are females denied literacy skills, the urban poor in a period of rapid urbanization, or adolescents and the elderly in urban industrial societies. Intersectoral strategies of communication and dissemination of health knowledge are required for promotion of improved health behaviour and life-styles.

Chapter 4 discusses various issues relating to water, sanitation, housing, and development processes that result in far-reaching environmental changes such as industrialization, urbanization and the technological transformation of agriculture. The linkages are examined in two contexts — improvement of the physical infrastructure and basic amenities for satisfying health needs, and management of the large-scale environmental changes that take place as a result of development, such as water projects and the construction of industrial plants.

The chapter briefly surveys the links between water, sanitation, housing and health, and points to areas where intersectoral action can be strengthened. Water and sanitation projects have often given inadequate attention to the socioeconomic and sociocultural conditions of the communities served, the perceptions of these communities regarding water and sanitation, and their level of motivation for using and maintaining the facilities. Project evaluation has tended to neglect various additional social and economic benefits that might accrue from the projects and form the basis of intersectoral programmes that would involve the community more fully and motivate them to use the facilities more appropriately.

The link between housing and health has been relatively neglected in health strategies. The house is the primary physical environment for health and, in much of the developing world and to a limited extent in developed countries, is a major contributory cause of ill health. Improvement of the homes of the rural and urban poor is essential for the improvement of health.

The health-related priorities in housing include integrated strategies for improving the habitat through upgrading of slums and shanty towns by provision of basic amenities, legal recognition of squatter settlements so that they can organize their community and undertake improvements, revision of laws and regulations pertaining to housing norms and requirements that are beyond the reach of the poor, and introduction of housing policies that give adequate priority to rural housing needs.

The links between the processes of industrial development and health require a different set of intersectoral initiatives. First, the health sector can be closely involved in protecting the occupational health of the unorganized labour force in the informal sectors. The occupational health of vulnerable groups in the organized sector should also receive priority attention.

Second, the health hazards of industry that affect the community as a whole, such as pollution, require surveillance and safeguards. While this is normally the responsibility of national environmental agencies, the health sector needs to participate in these tasks, to ensure that appraisal and monitoring of environmental impacts take into account the health impact. This also applies to large-scale development projects with immediate as well as cumulative effects on the physical environment and the health of people living in the project areas.

Third, the rapid growth of the urban population in the developing countries has created large pockets of poverty and ill health that are assuming increasing importance in national health policies. The health-related policies dealing with urbanization need to focus on two aspects. Development policies must give adequate priority to maintaining a rural–urban balance in development, reducing rural–urban disparities that induce people to migrate to cities, and promoting an orderly process of urban growth. Next, urban development policies and programmes must give priority to upgrading the physical environment of the urban poor, particularly squatter communities and the people living in slums and shanties. Many of the initiatives needed to deal with these problems are discussed in Chapter 4.

This publication has identified some of the health-related policy components in the crucial development sectors. These components are primarily the responsibility of the sectors themselves. However, the health sector must participate in the process of incorporating health goals, defining health impacts, and avoiding negative effects (without endangering the sectoral goal). There are generally two principal reasons why such participation does not take place or is ineffective: in most countries the health sector itself is not fully equipped; and the prevailing systems of national planning and decision-making do not facilitate intersectoral collaboration, even where institutional arrangements for intersectoral coordination have been established.

The health sector should be strengthened to enable it to establish a dialogue with the other sectors on health-related policy components, and to help incorporate health goals into national development policies. This may require the establishment of focal points within health ministries, capable of maintaining the “health watch” in key health-related areas. Health workers at all levels will also need to be reoriented so as to be able to contribute adequately to fostering the main intersectoral linkages in health. Vulnerable groups and the main determinants of their health have to be identified. The health sector needs to have a clear overview of the country’s health profile in relation to socioeconomic conditions; appropriate intersectoral actions can then be identified and strengthened. New types of health-related data are needed, and the information systems of health ministries should be strengthened and adapted accordingly.

The preceding chapters have referred to various mechanisms, institutions and other instruments established for intersectoral coordination in relation to health. These include national health councils, national health development networks, food and nutrition councils, national agencies for water supply and sanitation, and central authorities for the environment. The present institutional framework builds on the sectoral structure, each sector being entrusted with the task of intersectoral

coordination in relation to its own principal goals. Such a structure reflects the allocation of narrowly defined responsibilities common in national systems. These mechanisms for coordination, however, need not create their own sectoral boundaries, if sectors can interact continuously and be interlinked through representatives who have the right type of interdisciplinary awareness and commitment. The national development planning system itself has to make these linkages a central concern of planning, and manage them as strategic elements for improving well-being and accelerating development. It is within such a structure and process of development planning that health can become a goal of development in both national and sectoral policies. Such structures and processes can be repeated at the various subnational levels to strengthen coordinating mechanisms where they exist and establish them where they do not.

Community participation has been identified as an important means of overcoming sectoral barriers. The role of community participation and its various forms have also been discussed. It is the community and its involvement that best motivate collaboration between sectors; through the community, health goals can be linked to, and reinforce, other goals of well-being. This has been repeatedly demonstrated in community-level projects that have incorporated health in multisectoral programmes, whether it is in the field of nutrition, water supply and sanitation, or health education. Community participation is the means by which additional resources available within the community are mobilized for health. It may not be easy to motivate the community to participate or to sustain such participation. Support is needed from community-level workers and all sectors to promote and develop self-reliant community-level organizations that can form the base of the institutional framework.

Another dimension of community involvement is the participation of nongovernmental organizations active in health or health-related issues. Chapter 3 referred to the key role played by these organizations in initiating intersectoral programmes for health education and health promotion.

Another issue basic to the realization of health goals concerns the allocation of resources to the health sector. First, the priority for health in the national allocation of resources has to reflect the priority accorded to health as a goal of development. The health sector should participate actively in defining this priority and collaborate in working out health targets and the resources needed to meet these targets. Budgetary allocations for programmes in other sectors with health-related components should give due consideration to these targets. Second, these basic principles should guide the adjustments made during periods of economic crisis. The health sector should collaborate in working out the policy package so that adjustments take account of the nutritional and other health needs of vulnerable groups. At the level of national resource allocation and related adjustment, the health sector has a set of well-defined health-related issues and tasks to which it must address itself.

The field of intersectoral action for health is vast and wide-ranging. This publication has attempted to focus on selected areas that are of strategic importance for health. It is of crucial importance to determine priorities in relation to available resources. In doing so, however, the focus has to be both on tasks that are urgent and that have to yield results in the short term, and on long-term goals. Both efforts have to be combined and sustained within an overall national development effort if the goals of health for all are to be achieved.

Recommendations

The Thirty-ninth World Health Assembly Technical Discussions on the role of intersectoral cooperation in national strategies for health for all were held on the mornings of 7, 8, and 9 May 1986. The keynote statement was delivered by Mr Léopold Sédar Senghor, former President of Senegal. More than 500 people participated, including many government ministers and high level decision-makers from areas of critical importance to health. There were four working groups: equity and health; agriculture — food and nutrition; education, culture, information and life patterns; and environment — water and sanitation,

habitat and industry. Each working group met separately on 7 and 8 May to discuss the topics that had been identified as of major importance to the promotion of health among people everywhere.

A rich and constructive dialogue ensued, and resulted in agreement on a set of priority actions that should be taken at country and international level in order to promote intersectoral action for health. The recommendations emanating from the Discussions are set out below.

Equity and health

1

Member States should:

take action to ensure that national strategies for health for all are developed and implemented as an integral part of an equity-oriented development strategy. The systems of planning and decision-making should enable the health sector to collaborate with other sectors in formulating and implementing appropriate strategies, and in carrying out the necessary institutional improvements at the national, sectoral, and local levels.

The World Health Organization should:

ensure that the component of equity is included where appropriate in all its programmes. Intersectoral action efforts should be based on these Technical Discussions and on the past experience of WHO and its Member countries. All relevant information, including that from health-related sectors, should be analysed and the lessons learned should be widely disseminated. Special studies should be undertaken on the essential linkages between the social sectors and the rest of the economy. In particular, the process of allocation of resources should be analysed in relation to intersectoral action for equity in health.

2

Member States should:

clearly identify the vulnerable groups in their societies on the basis of a profile of the disparities in health between these groups and the general population. In developing countries, these groups are likely to include farmers with inadequate resources, landless agricultural labourers, and the urban poor in slums and shanties; in developed countries, the corresponding groups are the unemployed, migrants, and workers in high-risk occupations. Countries should seek to identify the social and economic conditions associated with the greater health risks of these groups. Health and

other sectors should jointly set targets for improving the health and well-being of these groups. Progress in achieving these targets should be monitored by all the sectors involved, and used as an indicator in evaluating national development.

The World Health Organization and other sponsoring agencies of the Technical Discussions, should:

support efforts to identify vulnerable groups in the population on the basis of indicators of their health status. They should support countries in monitoring changes in the health situation over time.

3

Member States should:

■ *develop and strengthen their institutional mechanisms and decision-making processes to ensure that the health sector collaborates with other sectors in determining how their policies affect health, in incorporating health goals and health criteria into their policies and programmes, and in undertaking a systematic health impact analysis and monitoring of the major development projects of those sectors;*

■ *strengthen and promote institutions and processes that decentralize decision-making, so as to enable local communities, and particularly vulnerable groups, to participate effectively in the formulation and implementation of intersectoral programmes for the improvement of their health and well-being;*

■ *promote and support the reorientation and training of personnel in health-related sectors to develop the methodologies and skills they need to assess the effects of their actions on health. Member States should also ensure that the training of health workers at all levels includes development of knowledge and skills for coordination and administration of intersectoral action for the realization of health goals;*

■ *seek to ensure that the training of health professionals incorporates a population-based epidemiological approach and that health manpower planning is aimed at producing the numbers and kinds of health workers needed in a health care system based on primary health care and the health-for-all goals.*

Multilateral and bilateral donor agencies should:

- *support the strengthening of national development planning mechanisms that ensure adequate consideration of the health impact of global economic, industrial, agricultural, public works, and other sectoral policies and projects.*
- *incorporate health impact analysis into their feasibility studies of industrial, agricultural, public works, and other projects, and on the basis of the results of these studies, undertake the necessary adjustments to avoid adverse health impacts and include necessary funding for complementary actions.*
- *provide direct support to countries for intersectoral projects aimed at improving the health and well-being of the population, for studies of the intersectoral linkages with health, and for training of personnel in the analysis of intersectoral impact on health.*

The World Health Organization should:

communicate to the World Bank and other multilateral development-financing institutions the conclusions and recommendations of the Technical Discussions of the Thirty-ninth World Health Assembly, particularly with respect to the inclusion of health impact analyses in all feasibility studies of agricultural, industrial, public works, and other projects.

The Regional Offices of WHO should:

communicate to the respective multilateral development-financing institutions within each region the conclusions and recommendations of the Technical Discussions, urge support for intersectoral action at the country level and the inclusion of health impact analyses in the feasibility studies by the institutions of industrial, agricultural, public works, and other projects.

The World Health Organization and other sponsoring agencies of the Technical Discussions should:

- *support collaborative actions by health and other sectors in Member countries to study intersectoral linkages, to train personnel in the various sectors of government in the intersectoral aspect of health, and to carry out cooperative intersectoral efforts aimed at improving the health of the population, with specific concern for the vulnerable groups.*
- *strengthen relations among themselves as well as with other international organizations for the promotion of intersectoral actions to improve equity in health. They should consider the feasibility of promoting intersectoral strategies on the lines recommended by the Technical Discussions in selected countries with the necessary political commitment to such strategies.*

4

Member States should:

■ use the primary health care strategy to ensure that the whole population has access to the health service system; the system should be structured so as to ensure that the best possible care is available to the largest number of people with the most cost-effective use of available resources. Governments should make a greater effort to reduce resource allocation to high-cost

technologies that serve small segments of the population.

■ give greater attention to the decentralization of the health effort, including planning, staffing, managing and, where possible without impinging on the goal of equity, funding at the local level. They should seek the involvement of the community, with efforts concentrated on basic sanitation, education, preventive medicine and environmental protection together with a balanced system of health services.

5

Member States should:

ensure that economic adjustment policies, and macroeconomic policies generally, take into account the implications for the health and nutritional condition of the population and incorporate measures to ensure their protection with special attention given to the most vulnerable groups. Guiding principles should be formulated for the allocation of sufficient resources to the social sectors so as not to erode the social base for development.

International financial agencies:

in the design and implementation of adjustment policies, should recognize the importance of the health and nutritional status of the population and should ensure the protection of minimum levels of health and nutrition for vulnerable groups.

Multilateral and bilateral donor agencies should:

support countries undergoing severe adjustments to their economies in order to avoid adverse impact on the health conditions of the population, and in particular, should support programmes designed to protect the minimum levels of health and nutrition of vulnerable groups.

The World Health Organization should:

communicate to the International Monetary Fund and other international financial institutions the conclusions and recommendations of the Technical Discussions of the Thirty-ninth World Health Assembly, particularly with respect to the need for economic adjustment policies to take into account their potential impact on the health of the population and for these policies to incorporate measures for the protection of minimum levels of health and nutrition for vulnerable groups.

Agriculture — Food and Nutrition

6

Governments should:

formulate comprehensive agriculture and health policies, covering all aspects of development of human and natural resources and actively supported by coherent strategies including:

- *joint diagnosis of the food and nutrition situation from agricultural and health points of view;*

- *explicit statement of health goals in agricultural development plans and programmes, particularly when there is likely to be a conflict between health and production objectives;*
- *systematic analysis and assessment of the nutritional and health impact of agricultural policies and projects and of the process of resource allocation*

7

Member States should:

recognize the special importance of the equity-oriented component in agriculture for achieving health goals; in formulating and implementing the national strategy for health for all, they should strengthen the links between health and this component in agriculture.

Towards this objective, a number of basic principles should be borne in mind:

- *there is a need for equity and the fair distribution of goods and services, especially to targeted groups;*

- *the effects of different agricultural and other development policies on vulnerable groups, for example, women, children, the rural poor, and refugees, should be given primary attention. Landless farm labourers form a group at high risk;*
- *agricultural development strategies should promote employment as well as food availability and security;*
- *food and nutrition activities should be incorporated in the implementation of the Strategy for Health for All by the Year 2000 through the primary health care approach.*

8

All countries should:

establish systems for monitoring nutritional status and for assessing the relationship between dietary intake and disease, as a reliable basis for policy-

and decision-making. This should be done at national, regional, and local levels for all socioeconomic groups. The systems should have the technical and administrative capacity, in addition to the political visibility, to enable them to stimulate prompt policy and programme responses to nutrition problems.

9

At country level:

the role of food aid programmes should be carefully analysed by Member countries at individual country and project levels for their positive and negative effects on socioeconomic development, human welfare, food production, and dietary practice. Donors should collaborate with, and support, national governments in this task.

At international level:

a world nutrition map, accurately defining dietary traditions, patterns and needs, should be prepared as a guide to those who provide food aid in the choice of appropriate commodities for a given country or region. Efforts should be made to use surplus commodities from neighbouring developing countries.

10

All countries should:

if intersectoral action is to be effective, strengthen and/or develop the overall institutional framework and promote the skills needed to appreciate the relationship between the various sectors and health. The analytical tools for assessing the impact of agricultural policies and actions on health need to be improved. Appropriate training will have to be given for both policy analysis and implementation at the various levels. These efforts should be supported by further research into the linkages between agriculture and health and the development of an adequate data and information base on agriculture–health linkages.

The international multilateral and bilateral development agencies should:

as far as possible, adopt fully integrated approaches in order to promote intersectoral action and to minimize the

difficulties that countries often have in absorbing the different types of technical and financial support that are made available to them.

Governments should:

exchange information and know-how on agriculture-related health development, in the spirit of technical cooperation among developing countries.

The World Health Organization and the Food and Agriculture Organization of the United Nations should:

promote intercountry sharing of experiences and technical resources in the field of intersectoral action relating to health and agriculture. WHO and FAO should collaborate in providing checklists of data needed for a better understanding of the impact of agriculture on health, as well as simple analytical tools and quantitative methods that can be easily applied to the currently available data.

Education — Culture, Information and Life Patterns

11

Universal primary education should be recognized as essential for the achievement of health for all. Educational personnel should be aware that their efforts to expand access to education, particularly for women, will have a lasting benefit on the health of the community. Equally, efforts of health personnel to improve community health status will increase educational efficiency. Policy-makers and field workers in the two sectors should collaborate to promote female participation in education, to reduce drop-out rates in the early years of schooling and to improve the health environment in schools and home.

The health sector should:

collaborate with and support other sectors in integrating education for health

with non-formal education and programmes of functional literacy. Particular emphasis should be placed on literacy programmes for vulnerable groups.

Education and health personnel should:

act jointly to strengthen the school as a focal point for health education and health service delivery. Such joint action should include teacher training, the incorporation of relevant health topics in school curricula, provision of school meals, and the strengthening of the school health services and health monitoring systems.

12

Countries should:

develop programmes of education and training to produce professional and other cadres, at all appropriate levels, with the interdisciplinary approaches, knowledge, and skills required for the formulation and implementation of intersectoral strategies and programmes for development. These programmes should include the development of appropriate educational structures, curricula changes, and innovations in higher education, as well as training and reorientation of workers in health and health-related sectors.

Health strategies in both developed and developing countries should take account of the impact of the sociocultural factors that affect health, identify the major culture-related health problems, and strengthen efforts to provide information, to retain positive cultural values, and to promote education and value formation favouring the required changes in health behaviour, values and life patterns. Special attention has to be paid to groups at risk, such as adolescents, the elderly, the illiterate, disadvantaged groups, especially women, and culturally displaced or isolated groups; such as migrants.

Close and systematic collaboration between the health sector and the mass media should be promoted, in order to make full use of the potential of the media for increasing public awareness concerning health and for promoting desired changes in health-related behaviour. Health and media personnel should be oriented and trained for such

collaboration. Communications experts should ensure that mass media health messages effectively reach the local community and vulnerable groups. An international symposium on these issues could be useful in promoting collaboration and understanding between the health sector and the mass media.

Environment — Water, Sanitation, Habitat and Industry

13

Countries should:

identify the role of each sectoral ministry or agency in improving health, and seek the most appropriate institutional mechanism for coordinating sectoral action.

International agencies should:

have a major role in advising on and supporting national intersectoral action and in promoting regional and national discussions as to how this can best be achieved. International agencies must also improve their own intersectoral coordination.

14

All countries should:

develop and use methods and mechanisms for the integrated assessment, prediction and monitoring of the impact of economic development activities on health and the environment to minimize damaging effects as well as to assist in raising health, environment and social well-being in the order of priorities for allocation of resources.

The United Nations agencies should:

collaborate in developing composite indicators of the quality of life, to take into account not only the classical biostatistical indicators but also elements such as environment, habitat, educational status, employment, income, food supply and other aspects, within the competence of the various agencies. Indicators measuring people's access to social and physical services might also be included.

15

All countries should:

renew and strengthen the collaboration between the health sector and both national and local authorities responsible for the quality of air, soil, water, sanitation and the disposal of domestic and industrial waste. This is essential for achievement of targets set by the International Drinking Water Supply and Sanitation Decade, which recognizes that "water and sanitation for all" must form an essential part of the strategy of health for all. Three elements should be given special attention: the sociocultural factors affecting the use and maintenance of water supply and sanitation services; the provision of services to the groups most vulnerable to health risks among the rural and urban poor; and the development and application of appropriate cost-effective, non-polluting, non-waste or low-waste methods and systems that maximize local control and local resource use and promote equitable access to the services.

The health agencies and agencies responsible for housing, public works, and physical planning should:

collaborate in identifying the health-related component of programmes to upgrade housing, especially among low-income groups, and formulate and implement intersectoral programmes to address health needs. The rural and urban poor living in tenements, cheap boarding houses, and squatter settlements are especially disadvantaged in this respect and health problems related to their physical environment deserve special attention. Special attention should be given to the problems of indoor air pollution arising from stoves, open fires or unhealthy building materials; these problems impinge most heavily on women and children. For those living in illegal settlements, security of tenure is important since insecure tenure means that people have little motivation to improve the quality of their housing or to work together to improve the neighbourhood.

16

All countries should:

review existing codes and regulations on the built environment to see how their emphasis can be changed to provide advice, support and technical assistance to people in low-income groups, who are constructing their own houses, to ensure that basic health and safety standards are met. In addition, governments should assess the extent to which health and safety standards in other areas might be raised through education, technical advice, and incentives.

Reforms in land-use planning and providing land with secure tenure should be enacted and technical, material and financial assistance should be provided to the most disadvantaged groups of the population in order to facilitate improvement in living accommodation.

Planning for increased provision of shelter should emphasize the use of safe, locally available materials. Housing designs, while remaining within the reach of the underprivileged, should incorporate safety features that will eliminate important health risks. Simple,

affordable, appropriate technologies for cooking, heating, water supply, waste disposal, etc., should be introduced where feasible.

The cooperation of community-based voluntary organizations should be sought to ensure effective community participation in formulation and implementation of solutions to local environmental and health problems.

17

Countries should:

review the extent to which local authorities have the power, resources, and trained personnel to enable them to play a major developmental role as communicators of local needs to higher levels of government, as mobilizers of local resources, as coordinators of the inputs of the many sectoral agencies seeking to improve health, and as managers of newly installed equipment and services. In these areas, councils of experts can provide much needed technical advice.

Governments and international agencies should:

give priority to projects and programmes that seek to improve health status, especially for poorer and more vulnerable groups. Integrated rural development programmes that combine employment creation, increased economic growth, establishment of infrastructure, and improvement of living conditions are examples of successful approaches to intersectoral action for health.

International aid agencies should:

be encouraged to incorporate criteria and impact analysis in their project

appraisals, to take into account health benefits in cost-benefit, cost-effectiveness or pre-investment analyses.

Projects and policies for economic and social development and management of natural resources should be subject to systematic appraisal of their impact on natural resources. A sustained "watch" on the environment—health linkage should be organized to assess the impact of new initiatives on health as well as to monitor health impacts of programmes and projects with potentially high health risks.

WHO, UNEP, Habitat, and other related organizations should:

cooperate to develop simple, easy-to-apply methods for cost-benefit and cost-effectiveness analyses, to evaluate the positive role of health and environmental protection in strategies, policies, and programmes to promote growth in productivity and production.

A limited number of countries — who are prepared and willing to do so — should be invited to test such methods in their ongoing and/or planned health and environmental protection activities.

18

Countries should:

encourage systematic collaboration between local government health and social workers and those working in the informal sector to try to improve health and safety standards by promoting collaboration between employers, employees, and local government. Such efforts should combine education in occupational health, training, extension services, and appropriate supervisory and regulatory measures, and should bring together representatives of trade

unions, employers' associations and local government.

Aid should be provided to local authorities in developing public works programmes that promote health, increase production, and safeguard the environment with minimum capital costs and maximum use of local labour and local resources. When integrated into wider social and economic development programmes and projects, these programmes can help populations in rural areas and slow migration to the cities, particularly among young persons.

19

All countries should:

give priority to training technical staff to improve their understanding and knowledge of the intersectoral nature of environment and health.

Governments can better understand local needs and better support local efforts if they receive information from trained health workers and social

workers in the villages and urban sub-districts. In addition, the work of professionals is made much easier if the help and support of local community leaders are elicited in formulating, implementing and monitoring projects and programmes.

Appropriate legislation should be established or consolidated, aimed at improving health and human environment.

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