Intersectoral Action for Health

Technical discussions
Geneva, May 1986

Background document

World Health Organization
Intersectoral Action for Health

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

Background document for the Technical Discussions, Thirty-ninth World Assembly May 1986
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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). The new strategy reordered the priorities in the health sector, made primary health care its main focus, and moved from a perspective of health which was dominantly disease-oriented and curative to one which 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 well-being of the population and increasing its possibility to live a healthy life.

The linkages between health and development have been amply demonstrated by both the experience of developed countries and 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 that have been mentioned, health development became part of a strategy which 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 Declaration called for the coordination of health-related activities of the different sectors. In response, both the World Health Organization and 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. The chapters that follow highlight 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 which adequately takes into account the impact which sectors other than health are continuously making on the health of the population — an approach which would enable the health sector to collaborate with these 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 sectors. This isolation is reinforced by the continued perception of health as 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 intersectoral linkage in health. Any socioeconomic sector producing 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. 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 moving 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 factors which can interact to influence the outcome in health 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 which 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 which can be implemented within well-defined sectoral boundaries with the minimum of interaction between sectors. The intersectoral cooperation that is envisaged here relates to the factors which have a major impact on health. Intersectoral cooperation defined in this manner emerges as the cooperation which produces the best possible outcome in health, at the lowest possible cost. Such cooperation requires more extensive forms of policy coordination than those 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 health status of a population and the prevention of ill-health and control of disease are among the important prerequisites for economic development, the priority for health as a development goal does not lie in any causal relationship between health and economic growth. The importance of the changing health situation of a country is that it provides 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 have major implications for health, both positive and negative — e.g., agricultural policies which affect food availability, a large irrigation project which increases agricultural output and at the same time becomes a major transmitter of disease, female education which can have a dramatically positive outcome for child survival, or environmental pollution from industrial projects.

The promotion of health and prevention and control of diseases require health strategies which 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 at the same time 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 articulated.

This will require significant changes in the processes of development planning, resource allocation and budgetary procedures — sometimes made difficult 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.

Articulating the health-related policy component of relevant sectors is a collective task in which the relevant sectors must work closely together, with the health sector playing an active role. The chapters which follow examine some of the main health-related issues both in the overall development strategy and in areas which have strong linkages with health.

The intersectoral cooperation required goes beyond what has been typical of current efforts where 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 are anticipated and countered, and the positive impact on health is strengthened and promoted. When health goals are in conflict with other sectoral goals, special efforts must be made to find a solution which does not have adverse effects on health. Under 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 which might be needed are clearly stated.

To undertake such a task, health and related sectors would need 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 socioeconomic 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 character of intersectoral cooperation which has been hitherto achieved could be partly attributed to the fact that while the health sector has generally recognized the importance of groups at risk, it has seldom approached the health problems through a systematic identification of vulnerable population groups and the conditions of risk in which they live. Such an approach immediately confronts 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 hard-core 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 hard-core ill-health, health strategies would have to rely heavily on the health-related contributions of other sectors. The chapter on "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 which focuses on and defines the disparities in health that prevail in the popu-
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lation as a whole, and systematically identifies 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 document has, therefore, focused on four clusters of intersectoral links which are known to have a major impact on health — equity and health (Chapter 1), agriculture, food and nutrition (Chapter 2), education, culture and information/communication (Chapter 3), and environment, habitat, water and sanitation (Chapter 4) — in each case providing illustrative examples. No attempt, therefore, has been made to cover the entire spectrum of intersectoral linkage and health.

Thus, Chapter 1 sets out a tentative sequence of health situations which indicate different combinations of priorities, with equity as an overriding factor and depending on levels of poverty, female literacy, and other related variables. They include one situation where problems of survival demand the first priority; another in which the problems of morbidity and malnutrition persist after the dramatic reductions of mortality; and a third, where the transition in health results in an accelerated decline in mortality and a higher quality of life. The examples cited suggest that countries would need to learn continuously from each other’s experience.

The transitions in health that have been described need to be taken further, to the profile of ill-health that has emerged after industrialization. The profile of ill-health in the developed countries is closely associated with living conditions, and for some diseases, with life-style typical in industrialized societies, as well as with the prolongation of life. The health strategies which developed countries are evolving are now giving increasing attention to the intersectoral aspects of health. This becomes essential for dealing with the major health risks in these societies; their reduction primarily depends, for example, 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 are facing, these countries cannot neglect the future health scenario. They need to examine how they can avoid where possible, or mitigate, the health risks which have been part of industrialization and development. Such a long 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 which health receives in the national allocation of resources. Linked to it 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, 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, as in the recent widespread economic recession, these criteria would have to guide macro-economic policies to ensure that the essential health needs of the population are satisfied. These policy reorientations at the national level, and their implications for
international assistance as well as for the conditionality 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 the final chapter. It examines the information needs and institutional framework for intersectoral action, as identified in the discussion in the substantive chapters. Among the many institutional arrangements and mechanisms that are surveyed, related mechanisms at three levels must act as the main levers for intersectoral cooperation: at the national level, the national health council/board (or similar body); at the intermediate or district level, the district development committee (or similar body); and at the community level, the community development committee (or similar body).

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 same is true at the intermediate or district levels, which in many countries are instrumental in the formulation and implementation of intersectoral strategies.

The greatest potential for intersectoral cooperation is, however, often found at the community level. It is at this level 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 of empowering and enabling communities to participate in development and improve their health and well-being.
Chapter 1

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 member of a given society 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, as inequalities in health prevent this universal right from becoming a global reality.

Equity is thus fundamental to health for all. But the wide disparities in health within and between countries reveal what health problems still exist. 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 disparities can show the differences in health status in global terms, and socioeconomic and demographic conditions nationally. In uncovers the factors and conditions producing these disparities and is therefore indispensable for formulating health strategies and defining health priorities.

Reduction of such disparities implies an equitable distribution of health-related resources to bring health within reach of vulnerable groups. This requires 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 in order to remove the causes of disparities in health. This can only be achieved by intersec-
toral actions involving different sectors such as agriculture, education and environment. The way in which they act on 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 is intrinsic to the issue of equity in health. This depends on how the health goal is incorporated into national strategy as a goal of development. Yet while health contributes to other sectors and supports growing productivity and economic well-being, it is also a goal in its own right, and should not have to demonstrate a direct effect on economic growth.

The health of vulnerable groups is the best measure 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 the trap of high mortality and low income. These demonstrate the importance of the intersectoral relationship combining major macro-social and macro-economic policies to enhance well-being, particularly among the disadvantaged groups, and reduce disparities in health.

2. How can the combination of essential factors improve health in countries moving through different stages of health and development?

3. How can vulnerable groups be identified in both developed and developing countries and health strategy be reoriented towards equity goals using disparity analysis methodologies?
developed countries, countries, shown within countries... 

Disparities in health between and within countries

The global distribution of health and ill-health

The inequalities in health in some countries are shown 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, one out of eight newborn children die before they are one, while in Japan, it is one in 142, and in Scandinavian countries, one in 125. Thirty-three developing countries with a population of nearly 550 million have an average life span of about 50 years, about two-thirds that of people in the developed countries of Western Europe and North America. The death rate of children 1-4 years of age is around 20 per thousand in sub-Saharan Africa; in developed countries it is less than one.

The 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. The targets of the health-for-all strategy are themselves an expression of the global commitment to reduce these glaring inequalities quickly. And these intercountry comparisons are important for another reason, for they mark the different points at 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 the health risks of the 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, sickness and 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. The age group 1-4 is among the age groups with the lowest risk of death. 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. Early death and the risk of mortality for the very young in the developing countries stem from diseases which have almost disappeared or have been brought well under control in developed countries. In the latter, the elderly is the group most vulnerable. In the former the main causes of mortality and morbidity are the communicable diseases, the gastrointestinal and respiratory infections, and parasitic diseases, while in the latter it is the diseases of adult life, the diseases of the circulatory system, cancers, and degenerative disorders of aging.

The causation and mode of transmission of disease in each is very different. In the developing countries the main diseases are caused by living conditions created by poverty and often transmitted by human contact, insects, animals, water, poor shelter, and inadequate sanitation. In developed countries, morbidity and early death are caused by poor working environment, unemployment, diets that increase the risk of cardiovascular disease and cancer, health hazards of traffic and habitat, psychosocial stress factors, excessive consumption of alcohol, and smoking.
Figure 1  The death rate one year after birth

<table>
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<tr>
<td>JAPAN</td>
<td>one in one hundred and forty two</td>
</tr>
<tr>
<td>SCANDINAVIA</td>
<td>one in one hundred and twenty five</td>
</tr>
<tr>
<td>CUBA</td>
<td>one in fifty</td>
</tr>
<tr>
<td>HAITI</td>
<td>one in nine</td>
</tr>
<tr>
<td>BANGLADESH</td>
<td>one in eight</td>
</tr>
<tr>
<td>SIERRA LEONE</td>
<td>one in five</td>
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These differences show the link of affluence and poverty to health. Developed countries have diseases of “affluence” (though those most exposed are often the socially disadvantaged). These diseases strike in adult life, since in the early period of growth, immunity and resistance have been acquired to the diseases of the very young. Adequate food and nutrition, good water and sanitation, and a high capacity for preventive and curative health care at the family and community level have succeeded in reducing health risks to the young, controlling an entire range of communicable diseases, and increasing the resistance to disease of the whole population.

At the same time, however, the possibilities of a healthy life differ significantly between various socioeconomic and occupational groups. Generally speaking, workers and low-paid civil servants run a much higher risk of becoming ill, and living shorter lives, than those in other occupational categories. These inequities in health can usually be explained by different living conditions rather than lifestyle. Thus, within developed countries the most common diseases are not diseases of affluence, but of inadequate living and working conditions.

This linkage 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, since the very young are most exposed to health risks.

Demographic situations in the two groups of countries also play a role in health status. In the developed countries, much of the population is urban — approximately 78%. Fertility is low, with populations growing at less than 0.5% a year. In these conditions, the health status of women and children, the traditional vulnerable groups, is far superior to that in the developing countries. In countries with less than US$ 400 per capita income, the urban population is on the average only 22% of the total. For countries with incomes between US$ 400 and US$ 1310, the share is 36%. It is only in the rapidly industrializing countries of the developing world that the urban population is in the majority. Altogether 70% of the population in developing countries, or 2400 million people, live in rural areas where the social and economic infrastructure, including health services, is greatly inferior to what is available to the urban population. Within this setting, 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 developed countries, the health risks are concentrated among the very young and the 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 enhancing the capacity for 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, this discussion will show 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 some developed countries, on the other hand, will require macro-economic and sectoral linkages which are related to living and working conditions. These include environmental health hazards at work, social policies that include, for instance, guaranteed minimum income, assurance of the right to work, and active outreach services.

The inequalities in health within countries
While inequality exists at the global level, the health disparities 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 are distributed within the countries, including access to health facilities and services, education and income-earning opportunities. But there are also disparities within the rural areas.

In some countries it is possible to identify the poorest rural regions, which have been bypassed by development and where the infrastructure in health and other services such as education and transport is far less developed than elsewhere.

Nevertheless, 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 the 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. But this process is difficult to repeat in less industrialized countries, where the slums and shanty towns, with their disorderly expansion, are deprived of a healthy environment. Thus, ethnic minorities and socioeconomic groups living near relatively prosperous areas have far poorer access to resources and a healthy life than the average. And people living in peri-urban slums tend to have the poor health profile of deprived rural areas. Nevertheless, many African and Asian countries will continue to have a major share of their populations in the rural areas at the end of the century. As a result, health development is a priority in the rural areas, in part to influence a pattern of structural change related to the level of resources available.

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

**Equity and health in the poorest countries**

**Income levels, food availability and health status**

Defining and measuring poverty in relation to health needs raises a number of important issues for policy-makers. Such issues become critical for identifying target groups and defining priorities for health strategies.

There is no doubt that a correlation between low per capita income and poor health indicators is very strong. Of 42 countries with an

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

<table>
<thead>
<tr>
<th></th>
<th>Year of survey</th>
<th>Urban</th>
<th>Rural</th>
<th>Rural population as % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>1980</td>
<td>65.0</td>
<td>124.0</td>
<td>76</td>
</tr>
<tr>
<td>Congo</td>
<td>1980</td>
<td>107.0</td>
<td>172.0</td>
<td>45</td>
</tr>
<tr>
<td>Mozambique</td>
<td>1975-1980</td>
<td>130.0</td>
<td>183.0</td>
<td>83</td>
</tr>
<tr>
<td>Senegal</td>
<td>1975</td>
<td>71.4</td>
<td>136.8</td>
<td>66</td>
</tr>
<tr>
<td>Somalia</td>
<td>1975</td>
<td>146.0</td>
<td>174.0</td>
<td>67</td>
</tr>
<tr>
<td>Peru</td>
<td>1970-1975</td>
<td>73.6</td>
<td>158.2</td>
<td>33</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>1976-1979</td>
<td>43.0</td>
<td>67.0</td>
<td>52</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>1980</td>
<td>50.0</td>
<td>80.0</td>
<td>86</td>
</tr>
</tbody>
</table>

infant mortality rate of over 100, 26 have per capita incomes below US$ 400, 9 have per capita incomes from US$ 400 to US$ 670, and only an exceptional few with per capita income above US$ 800 have an infant mortality rate above 100\(^1\).

When adequacy of food supply is taken together with income, the incidence and distribution of poverty produces a somewhat different configuration, more relevant for measuring the satisfaction of health needs. In 1982, the daily calorie 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 which was below 90% of the norm, as shown in Fig. 2.

On this basis it is likely that nearly 800 million people in these "food deficit" countries live in extreme poverty and are denied normal nutritional requirements. 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 significantly sized social groups in similar conditions. In all, it is likely that about a thousand million people are exposed to health risks in extreme poverty, living 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 the various resources from health related sectors that enhance 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

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\(^1\) 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," owing to 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

Figure 2  Countries with calorie insufficiencies in 1982

- 90-100% of daily calorie requirement
- Less than 90% of daily calorie requirement
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 reduction in crude death rates for low-income developing countries, excluding China and India, have been in the region of 26% during the period 1965-1983. For the sub-Saharan low-income countries it has been 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%. Low-income developing countries, excluding China and India, had lowered infant mortality by nearly 32% during the same period. Looking to the future, the infant mortality rate in this group of countries should reach an average of about 83 per thousand at the turn of the century. This average will include several countries that will continue to have rates over 100. Thus, the pace of health improvement as reflected in past trends 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 a
Equity and Health

marginal 0.7% per year, and for sub-Saharan African countries in the low income category it has been negative. But the economic growth in these countries would have little impact in alleviating absolute poverty. 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, school enrolment in primary education for both males and females increased from 40% of the relevant age groups in 1965 to 69% in 1983 (see Fig. 3). For females, it had grown 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 from 28% to 56% for females.

Despite slow income growth, the progress in health indicators shown by countries indicates the positive impact of factors other than income. These include the expansion of health care facilities and rising levels of literacy and education. In both sectors there has been an equity-oriented thrust to provide more widely distributed access to health and education. These developments, supported by other sectoral policies, can lead to future health improvements.

The lessons of the special cases

In this context, cases which stand out from the normal correlation of income and health depicted in Fig. 4 are perhaps most relevant. They denote two types of exceptions. In one, very low levels of income have not been a barrier to dramatically declining mortality and increasing life expectancy; in the other, 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 health of the relatively poor are China, Sri Lanka, and the Indian state of Kerala. Even at income levels below US$ 350, life expectancy at birth for China and Sri Lanka in 1983 was estimated at 69 years and 67 years respectively — higher than the average life expectancy of 65 years for the up-

per middle income group of countries with an average per capita income of US$ 2050.

The mix of policies followed in these examples 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 constraints of relative poverty and, second, how strong intersectoral linkages made exceptional improvements in health possible.

The health strategies in these examples were conceived and implemented within the equity-oriented macro-economic and macro-social framework described above. The success of the health strategies and the dramatic improvement in the health of the population could have been achieved only with the complementary advancement in many health-related sectors. These advancements 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 which improved housing, water, sanitation and transportation facilities, including ready access to health services. All these improvements created the capacities within households which enabled them to lift themselves out of the condition of absolute poverty and the cluster of health risks it created.

Within this framework, all three at an early stage directed resources at 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. Groups of nursing and midwifery staff and local health workers were expanded and the base of community health was strengthened. The distribution of resources in
Figure 4 A comparison between the infant mortality rate and the median GNP per capita, 1983

- Paraguay
- Jamaica
- Costa Rica
- Thailand
- Philippines
- Lower middle income groups
- Viet Nam
- Sri Lanka
- China
- Middle income
- Upper middle-income
- High income oil exporters
- Industrial market economies
- East European nonmarket economies

<table>
<thead>
<tr>
<th>Country</th>
<th>Infant Mortality Rate (aged under 1), 1983</th>
<th>Median GNP per capita (in thousands of dollars, 1983)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraguay</td>
<td>60</td>
<td>7500</td>
</tr>
<tr>
<td>Jamaica</td>
<td>50</td>
<td>8500</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>40</td>
<td>9500</td>
</tr>
<tr>
<td>Thailand</td>
<td>35</td>
<td>10500</td>
</tr>
<tr>
<td>Philippines</td>
<td>30</td>
<td>11500</td>
</tr>
<tr>
<td>Cuba</td>
<td>25</td>
<td>12500</td>
</tr>
<tr>
<td>Korea, Dem. Rep.</td>
<td>20</td>
<td>13500</td>
</tr>
<tr>
<td>Lebanon</td>
<td>15</td>
<td>14500</td>
</tr>
<tr>
<td>Mongolia</td>
<td>10</td>
<td>15500</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>8</td>
<td>16500</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>6</td>
<td>17500</td>
</tr>
<tr>
<td>China</td>
<td>4</td>
<td>18500</td>
</tr>
<tr>
<td>Middle income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper middle-income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil exporters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial market economies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East European nonmarket economies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

In all these cases there was a strong commitment to the goals of equity and concerted efforts at ameliorating the conditions of the disadvantaged and poorer social groups. In all important sectors, the development strategies contained elements for 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 Sri Lanka and Kerala, 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 biases 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 containing the internal migration to metropolitan areas.

The political processes were designed to articulate demands at the community level and to respond to them. In China this was achieved with its structures of decentralized decision-making through the communes and lower units. In Sri Lanka and Kerala 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, the drive for food self-sufficiency through programmes for the improvement of peasant farming and small-scale fisheries in Sri Lanka.

In all three examples high priority was given to education. The strategies which were pursued brought education within the reach of the whole school-going population through a school system which heavily subsidized education or provided it free. Here again, policies 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 the primary stage was 97% in 1982; in Sri Lanka, it was 101%.* 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 ranged from 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), to land reform to provide scope for food production in small allotments (Kerala).

* Note: 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.
the health sector ensured that health facilities were within easy reach of the poor.

In all three cases, 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 it created an environment for accepting 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 made the health care system 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 the sociopolitical context, the mix of policy instruments, and the weight of their various components has been unique. This may argue against transferring these models to other national situations. But, in very different sociopolitical structures and systems of decision-making, each has reached a health status which is comparable. This suggests that the main policy ingredients common to all three provide the basis for intersectoral strategies which can lead to rapid improvement of social well-being and health.

As has been shown in these three cases, the three health-related sectors in which equity-
Box 2 Kerala and West Bengal — urban bias and rural well-being

Commitments to equity goals can in practice pursue strategies which 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. Data on availability of calories indicate that the daily calorie intake per head 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, education and other 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 compared to 6.7 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 was directed more towards satisfying the demand for education up to higher levels, and was oriented to serve the needs of the urban elite. While primary level education received about 58% of the total allocation for education in Kerala, in the 1970s. It was 32% in West Bengal 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 had a greater number of public vehicles, including taxis.

The better health status in Kerala no doubt reflects the differences in the complex interaction of sociocultural, political and economic factors in each case. Kerala enjoyed the advantage of higher levels of female literacy from a long period in the past. For example, it is reputed that by the end of the nineteenth century every village in Kerala had a school, whereas in West Bengal it was only one out of five. But the differences 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 which improved social well-being seems to have been more effective.

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 thousand 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 continued to remain high. Between 1960 and 1980 the disparity between the poorest region, the northeast, and the richest, the central region, has widened. In 1979, the per capita income in the northeast was 40% of the national average and approximately one-sixth of that of the central region. The main pockets of poverty are in the northeast 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.

oriented approaches have been critical for health are food and agriculture, education, and the infrastructure related to environment and living conditions. Joining these elements to 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 development goal.

Several important lessons emerge from these experiences:

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

— The cluster of health risks associated with poverty calls for 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 mutually reinforce each other in order to provide the health-related resources improving the capacity to cope with and reduce health risks associated with conditions of poverty, and absolute poverty in particular.

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, Sri Lanka and Kerala. Thailand’s “basic minimum needs” strategy illustrates how health goals have been added to social goals in a larger social development programme to improve the quality of life for the less advantaged. It 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 Sri Lanka of China, but comparable rates of male and female literacy, the decisive factor for a major improvement in health in Thailand would be the equitable distribution of income and health-related resources.

The cases cited can be perceived in a sequence of health development illustrating the way a combination of socioeconomic factors works in different phases. The United Republic of Tanzania offers another example of an equity-oriented health strategy. 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 threshold where the impact of literacy and equity-oriented development in rural areas can combine with the health strategy based on primary health care to attain a health status equal to Kerala, Sri Lanka and China. During the last two decades, it has been able to reduce infant mortality by 30%. The country’s approach to health formed 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 into another health situation. In their cases, the development processes stressing satisfaction of basic needs of the population as a whole have led to an interaction of social and economic improvements and a dramatic reduction of mortality. But at the same time, where data on the quality of life are readily available, these cases indicate that 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 overcome unless at the same time it is capable of generating rapid growth and further increasing 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 the post-survival 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 policies 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 to social development**

Costa Rica, Jamaica, and Cuba are three countries in the middle income range with per capita incomes between US$ 1020 and US$ 1300 which have achieved a health status above other countries at their income levels. Costa Rica, with the advantage of a higher level of resources and well-being, was able to advance further. By the beginning of the 1970s, the cumulative impact of social improvements in Costa Rica produced conditions favourable to another dramatic improvement in the nation's health status. Costa Rica exploited this situation effectively and reaped even more health benefits from its equity-oriented strategies. While achieving a remarkable reduction in mortality and increase in life expectancy within the time-span of a decade, it reduced malnutrition to relatively negligible levels and provided its people with the opportunity for a healthy life.
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 a 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 a radius of five kilometres from 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, Tanzania had a rate of 98% in 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 Tanzania’s health experience there are many of the elements which characterized the experience of the most successful cases which were cited. The country appears to have created some of the preconditions for the health revolution that was witnessed in those cases — a social base which is equity-oriented, including equitable access to health and education, a strategy which 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 enter the 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 not comparable to that of the other regions. In these areas, infant mortality was 50% to 70% higher than the national average in certain districts. 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.

Box 5  Costa Rica

The accelerated decline in mortality in Costa Rica in the period 1970-1980 was unusual since infant mortality rate declined from 66 per thousand in 1970 to 20 in 1980 while life expectancy increased from 65 to 72 years. The dramatic health improvements in the period 1970-1980 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 thousand in 1940 to 95 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 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 in 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 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 stage. 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 for 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.

The Costa Rican example helps to place health initiatives among important developments in health-related sectors that precede and prepare the ground for health initiatives, or act concurrently, meeting in 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 per household 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 insight 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 enhance the well-being of vulnerable groups, and that the health strategy must find the critical links with those processes. The principal means of doing so are through the specific identification of the disparities in health, together with the vulnerable groups that are involved, and placing these in their different socioeconomic contexts.

Categories for identifying inequalities in health status

The national profile of health and disease has to be examined in terms of a number of important categories to identify the inequalities in health status. These include age, gender, location (such as rural, urban, and region), socioeconomic group, ethnic group, occupation, and family status. In each of these categories the variations in health status are frequently quite wide. The disparities of one category are 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. The configurations of health disparities will vary according to the level of socioeconomic development of countries and other demographic characteristics, such as fertility rates, age structure, and urbanization.
A well-known tool for analysis of disparities in health are age-specific morbidity and mortality rates. These are useful for discovering the pockets of ill-health, but they are often not available, particularly in the developing countries, at the levels of disaggregation needed for effectively targeted health programmes. If 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 age 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. This knowledge will bring understanding of the conditions that both intensify, as well as minimize, the health risks, and help to formulate 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 for identifying some of the acute

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 critical 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 — with people teaching people. 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 thereafter, 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 which compare favourably to and sometimes 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 thousand in 1965 to 20 per thousand by 1983, and child death rates from 4 to 1, 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.

Box 7  Peru — reduction of disparities a national priority

Infant mortality in Peru has averaged 127 per thousand live births. But in the Department of Lima, it is only 55 per thousand and, in the wealthier residential districts of the capital, drops to 15 per thousand — virtually indistinguishable from the rates in the most developed countries of the world. 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 thousand. In the isolated rural communities of those provinces, the rate reaches 500 per thousand, or one death for every two live births.

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

Source: PAHO/WHO Regional Office for the Americas.

conditions of deprivation in health. Data in developed countries reveal that workers in a variety of occupations who were in a relatively better position in terms of income were still poorer in terms of health, when compared with persons in certain other occupations. For example, fishermen in Norway earning average incomes higher than 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 exposing them to higher health risks, and a sociocultural milieu of health-damaging habits and life-styles that reduce their capacity to cope with such risks. Discriminatory structures in some multi-ethnic societies mas also deny people equal access to a healthy life. Peru provides yet another example of socio-economic and culturally based disparities now being addressed.

These problems go beyond the hazards of the immediate working environment which are the concern of occupational health. Therefore, in searching for categories suffering from health deprivation, and identifying health disparities prevalent in a society, health policies must take into account, and respond to, the complexity and diverse character of the health deprivation.

Health disparities between the sexes

The health status of women and the disparities in health between genders is often a critical indication of health equity in a society. For a variety of factors, the overall improvement in the health of a population, along with the decline in fertility and reduced stress of reproduction, appears to extend the female life-span beyond that of the male by five to seven years. Significant deviations from this norm suggest an imbalance in the distribution of health risks between males and females. In the case of developing countries in the low-income category, female life expectancy on the average is higher by only two years. In middle-income countries, the average rises to four years. In the high-income oil exporting countries, the differential is three years. The low differentials in male and female life expectancy go together with high birth rates, high rates of maternal mortality, and low levels of female literacy. They reflect the status of women, and the total social and personal care they receive. Using these criteria, problems of health are ex-
Intersectoral Action for Health

cceptionally acute for the female population in four Asian countries — Pakistan, Nepal, Bhutan and India — where the average female life-span is in each case lower than that of males by about two years.

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 South Asia and Africa. The high health risk of the female population in the reproductive age group in the developing countries has perhaps the most pervasive impact on the health of the total population. Factors contributing to these health risks are diverse; they range from the hazards of frequent pregnancies to the allocation of time for work, household duties, and maternal care. The risk factors have their source in the systems of production and resource use in poor communities, as well as in the social structures discriminating against women. Reducing the

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**Box 8 Bulgaria: women, equity and health**

Bulgaria has progressed rapidly over the past 40 years through mobilizing 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 the 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 enhanced educational status (the share of women in higher institutions was 52.3% in 1981, one of the highest in the world), particularly in the scientific fields.

The health services extended 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 under 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 preoccupation of the health programme is that children be 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 pre-school 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.

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 has improved dramatically in a country at the threshold of becoming a developed socialist economy.

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

Progressive welfare policies have decreased 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 as compared with those of high income during the 1930s, is now almost the same (7 per thousand) in all socioeconomic groups. The general trend for most diseases is still, however, an increasing prevalence of disease with decreasing social class.

In Finland, for example, the proportion of the population suffering from certain chronic diseases was (1976) 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 are also found — e.g., in Denmark — as regards the socioeconomic background of disability pensioners. The typical pattern then found was that they had been exposed to a significantly larger number of physical and chemical hazardous working environment factors.

Looking at specific diseases, facts such as these are found:

Cardiovascular diseases: An examination of 25,000 men in Oslo indicated that men of the two lowest socioeconomic classes had a two to three times greater risk of dying from cardiovascular diseases than men who were functionaries or professionals. In-depth studies in Sweden show 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, high lung cancer frequencies were 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: Fatal accidents among men (35-64 years) were in Finland (1971-1975) three times as common among "unskilled blue-collar workers" as among "upper white-collar workers".

Disparities in developed countries

Inequalities in health are also a major problem in some developed countries, as stated, for example, in the health-for-all strategy for Europe. The differences between socioeconomic groups within countries are reflected in different life expectancy. Several studies have also shown more than a two-fold difference in infant mortality and mortality from accidents, poisoning and 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-collar workers. Similar variations have been found in morbidity and disability studies.

Inequalities in life expectancy, primarily related to income, social class and occupation, subgroups in special situations of health risk emerge in the course of the analysis.

The facts about the socioeconomic and occupational distribution of certain diseases presented above illustrate the magnitude of the inequities in health status within an industrial country. They do 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

<table>
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<th>Box 10 Sweden — a recent health study</th>
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<td>A recent study of the health situation in Sweden enumerates several such groups:</td>
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<td>— 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;</td>
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<td>— 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;</td>
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<tr>
<td>— Foreign nationals — in particular, women — tend to have an elevated risk for pain and mental problems, compared with those born in Sweden. The immigrants also tend to have more hectic and monotonous work and more perceived health problems;</td>
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<tr>
<td>— 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.</td>
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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 quality of well-being. There are considerable differences in life expectancy, primarily related to income, occupation and social class as represented in social groups. The distribution of ill-health in terms of the major diseases prevalent in these health risks, or at least improved capacity for coping with them. This requires efforts beyond remedial measures to achieve effective prevention and health promotion. As the risk-generating and risk-intensifying factors often lie in the domain of a number of sectors, the preventive and health promotion effort, from the inception, has to be conceived in intersectoral terms. The role of the health sector would
have to be defined in each situation. In this sense, the equity-oriented approach to health is intrinsically intersectoral.

Several features in this type of disparity analysis in developed countries are relevant to health-for-all strategies of all countries. First, the health sector would need to collate the nationally available socio-economic 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 effect is not likely to be more than indicative, with the type of information available, but it could still provide a starting point for developing needed methodologies and improving the profile for both coverage and adequate level of disaggregation.

Disparities at the household level

When a national profile of disparities in health is available in terms of the different groups at risk, it is necessary to proceed to the household level, where exposure to health risks and the various factors contributing to them are clear. 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 and adequate level of well-being. The household seeks the satisfaction of the needs as a composite interdependent whole. The deprivation of one basic need affects the satisfaction of another; this is particularly true of health needs. Therefore, when the health status is examined in terms of the household, the intersectoral dimension of health is strikingly demonstrated.

Various national socioeconomic surveys conducted periodically in countries 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. Periodic socioeconomic surveys currently conducted could be further improved together with data on use of health services, for such a health classification. 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 readily 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 sec-

Box 11  The Netherlands' "scenario" for health

Another approach is the "scenario" technique 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, and away from the unisectoral planning for health care. Scenarios are being worked out for all major health issues, starting with cardiovascular diseases, cancer, aging and "life-styles".

ond directs attention to health hazards increasing 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 policy links as regards the need for intersectoral actions for health.

**Resources for health and adjustment in times of crisis**

**Priority for health in the allocation of resources**

The countries which need most to improve their health have the least amount of resources allocated for this task. Table 3 represents the level of expenditure devoted to health by governments of countries with different levels of income. The proportion of the national income which governments are able to appropriate for expenditure by the state is highest for the group of developed countries and is lowest for the countries in the lowest income group — 30.1% as against 18.0%. The proportional constraints imposed by their 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 will have to determine the allocations to the sectors. The room for manoeuvre for both 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 on the one hand, and the levels of development in different sectors on the other.

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

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<th>Table 3. Health expenditure in developing and developed countries, 1982</th>
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<td><strong>Health expenditure as % of total expenditure</strong></td>
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<tr>
<td>Low-income countries</td>
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<tr>
<td>excluding China and India</td>
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<tr>
<td>Sub-Saharan Africa</td>
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<tr>
<td>Lower middle-income countries</td>
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<tr>
<td>Sub-Saharan Africa</td>
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<tr>
<td>Upper middle-income countries</td>
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<tr>
<td>High-income oil-exporting countries</td>
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<td>Developed countries with market economies</td>
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portions of central government expenditure devoted to health are also the largest in the richest countries, and smallest in the poorest — 11.7% in the former and 4% to 5% in the latter.

These disparities reflect broad global income disparities. In the poor countries they are most often the consequence of inescapable con-

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1 These 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 sub-national levels which are not reflected in the central government budget. As averages for groups of countries, however, they are adequately indicative of the levels of expenditure and the disparities between them.
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 would depend a great deal on the perception of sectoral priorities at the level of national planning and budgeting. National health plans in overall development plans, in which targets for health improvement are incorporated as an integral part of the goals of development, would have greater capacity 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 on a more limited scale available from several countries illustrate this. The health programme implemented in Costa Rica in the 1790s stands out. The mass health campaigns in China demonstrate how particular health goals are elevated to the level of mass participation on a national scale, mobilizing the capacities available in the entire system within a limited time to achieve a specific objective. In the anti-malaria 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 to health planners and policy-makers as to how health goals and the priority for health in development could be articulated within the overall priorities, and thereafter, in the process of resource allocation. There is much that could 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 the Costa Rican case, 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 the health strategy with emphasis on primary health care has been accepted by WHO's Member States. However, the new approaches have to establish themselves within a health system which in the past, in most countries, has been heavily biased towards curative services, and which was concentrated in urban localities. The restructuring of the existing system and retraining and development of cadres needed for an equity-oriented system largely working in the rural sector would obviously be quite extensive. This restructuring must also include conscious reallocation of resources according to the need of the population within the health sector itself, directed at strengthening primary health care, given the expenditure that has already been built into the system and cannot be avoided.

Above all, a cost-effective health strategy using the maximum resources available for health will need to pay special attention to intersectoral linkages. The impact of developments in other sectors can increase the cost to the health sector through health-damaging effects and new health hazards, or through activities counteracting efforts of the health sector, as in the case of special programmes for control of particular diseases. The impact can significantly reduce the cost to the health sector by providing health-related resources enabling people to improve their nutritional status, take greater preventive care, increase their resistance to disease, and better cope with their health problems. The chapters that follow discuss some of these issues in detail in relation to selected sectors.

Equity and resources for health in times of crisis
The adjustments many countries, and particularly the developing nations, made to the widespread economic recession of the early 1980s have adversely affected the social well-being of their populations. In many countries, these are likely to have medium- and long-term consequences for their social and economic development. They pose several issues with important implications for health.
The recession halted a decade of positive growth for the world economy as a whole. For the developing countries, the annual growth rate in per capita real incomes declined from 3.3% for the period 1973 to 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 experiences sharp declines in total output. For Africa average per capita incomes fell to levels prevailing at the beginning of the 1970s, and in the case of Latin America to those of the mid-1970s. Even in Asia, a group of least developed countries did not share in the satisfactory performance for the region as a whole.

Even as recovery took place in 1984, there has been 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 positive 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 that region suffered a total reduction in average living standards of nearly 5% over these three years.

The crisis led to three factors 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 reasonably acceptable rates for several countries to Bolivia's rate of 1682%. Inflation not only raised the general level of prices and depressed real incomes, but also altered the structure of relative prices.

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, more than 42% of the workforce was considered underemployed in 1980, even before the crisis. By 1984, estimates show, in some cities, such as Lima and Belo Horizonte in Latin American and Jakarta and Bombay in Asia, underemployment reaching 50% to 70% of the labour force.

Third, even as the economic recession resulted in the contraction of the economies and lowering of output, the accumulated debt of many of these 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 Brazil, Chile, Bolivia and Ecuador in Latin America, where the proportion increased from between 15% and 30% of exports to a level between 30% and 60%. In many African countries, which included Niger, Malawi, Ivory Coast 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 benefiting 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 factors both external and domestic is reducing the capacity of these 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 which employed three types of policy instruments. These were mainly directed at stabilizing the economy at the lower level of resources available, and laying the basis for stable growth in the future.

First were policies to reverse the deterioration in the balance of payments and direct it towards some degree of equilibrium. These normally included currency devaluation or administrative restriction of imports, all of which led to a severe contraction of imports. Second came the budgetary policies cutting government expenditure. These on the one hand became inevitable owing to the fall in government revenues with the decline in the economy and the drop in imports and exports, and on the other, to avoid any forms of expansionary financing of the budget 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 at the same time often lowering investment.

In almost all developing countries, the adjustments made as a consequence of the external shocks of the widespread recession have required the application of part or all of this policy package. Each of the three components imposed austerities adversely affecting living conditions. During 1979-1984 the volume of imports in many African countries shrank to less than two-thirds of imports in 1976-1978. For Latin America the worst impact of the adjustments was felt in 1982-1984, when countries such as Brazil, Chile, Argentina and Mexico had to impose drastic reductions in imports, ranging from an annual rate of 12.6% for Venezuela to 24.8% for Argentina. This steep and sudden reduction 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 still growing population, and when the capacity of households for private expenditure on health was at its lowest point in many years. In studies made of selected countries in Latin America and the Caribbean, 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 have, since 1978-1979, 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 expenditures in 1982 (in 1970 shillings) were 145 million 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 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 squeezing demand have as a rule been most severe on the consumption needs of the poor. In the overall price increase, relative prices have generally moved in the directions unfavourable to the basket of essential goods — in many cases, the inescapable consequence of austerity measures.

Within each country, it was the poor, the disadvantaged, the victims of a continued structural discrimination, who suffered most. In Africa, rural poverty was 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 point 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 on 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 six months to three-and-a-half years double from 1980 to 1983. In Zambia, chronic and acute malnutrition increased among children under 15 years according to comparative data available for the early 1970s and early 1980s. The deterioration in the health of the younger generation can have permanent and long-term effects, to the detriment of these societies, and be difficult to reverse.

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. At least minimum levels of welfare for those groups need to be part of the recognized goals of those designing national adjustment policies, if the burdens of adjustment are to be distributed equitably within the countries.

When incorporating health goals into adjustment policies, in all three examples of such policies that have been discussed, governments could identify those policy components most sensitive to the health and well-being of the population, 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 which minimize its health-damaging impact, and protect the most vulnerable groups against the adverse impact of austerity. 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 which satisfy health needs, or budgetary cuts on welfare and the health sector. There would have to be closer 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 commitment 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 over time, and positively 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 optimal strategies in which available resources produce the most equitable health outcome. The constraints themselves provide the opportunity for reinforcing two major reorientations in health policy which were emphasized in the Alma-Ata Declaration. First, this implies a further strengthening of preventive health and the primary health care approach. That means a redirection of resources to improving 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 in health. 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 consider 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 for maintaining 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.

Summary

The facts and experiences presented above call for explicit goals and strategies to reduce inequities in health and are at the core of the Strategy for Health for All. The reduction of inequalities in health will require first and foremost the general availability of the basic prerequisites for health and the reduction of risks related to living conditions and lifestyles.

There is no simple way to tackle the cumulative health hazards and thus reduce morbidity and mortality. But experience shows that in both a historical and global context major improvements in health and reductions in inequalities have been and can be achieved in the future.

In the health-for-all targets for WHO’s European Region, the very first target is thus to reduce inequalities in health: “By the year 2000 the actual differences in health status between countries and within countries should be reduced by at least 25% by improving the level of health of disadvantaged nations and groups.” Equity targets such as these present a real challenge for both developing and developed countries.

It must be recognized that this will not be easy amid international and national constraints unless the political will and commitment is enhanced by broad international cooperation and a reallocation of resources. Furthermore, the realistic approach in developing and developed countries alike involves intersectoral actions in which all health-related sectors analyse how they can reduce health hazards and promote healthier living conditions. The health sector can provide facts and experiences useful for estimating the potential and actual health impacts of various development programmes. One driving force in this work is active community participation, as well as a greater awareness in society of existing health hazards and ways of reducing them by individual and community actions.

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Intersectoral Action for Health

The challenge confronting an individual, especially a vulnerable individual, in his effort to live a healthier life, is depicted in Figure 8.

There is thus an urgent need for community-oriented actions — structural changes — in order to level the terrain and ease the climb towards health for all. This downward shift, making the struggle a little easier, is at the very heart of any equity-oriented strategy.

In order to illustrate this, some examples of intersectoral actions for health — as related to agriculture — food and nutrition; environment — water and sanitation, habitat and industry; education, culture, information and life patterns — are presented in the following chapters.

Figure 8 Health hazards: individual and community-oriented preventive actions

Individually oriented preventive actions, e.g., health education

Community-oriented preventive actions

Source: From a lecture by Professor Peter Hjort, of Norway. Used by permission. 1985.
Agriculture and health — the interrelations and issues

The link between agriculture and health in developed and developing countries

Agricultural policies, products and processes are a major determinant 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. For poor and vulnerable groups, the proportions are typically over two-thirds. The health of most people is linked integrally with the agricultural sector, and agriculture dominates life in the rural areas. Their 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 food they eat. For these countries, the development of agriculture is therefore a decisive factor in the movement from one level of health to another, and increases in agricultural output and productivity are essential for their well-being and improved health.

In contrast, only about 6% of the populations in developed countries derive their income from agriculture. However, public policies affecting the production, distribution and use of health-promoting food, and which control 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 over-consumption of certain foods.

The processes of agricultural development affect health in diverse ways. Even raising output may create new health hazards and exacerbate existing ones. Agricultural strategies can disregard equity, and their benefits can 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 staples and traditional crops and cause food shortages. Choices of technology can lead to loss of employment and access to land.

The two main causes of death and disease, and the policies and actions to 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 Asia, Africa and Latin America, particularly among children aged 0-5 years.

The second main cause of death and disease operating, as yet, mainly in Europe, North America and Australia 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.

Impact of agriculture on health

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

Agriculture involves transforming inputs (soils or land, sun, rain, irrigation water, labour, draught-power, agrochemicals and seeds), through technologies and structures of work and ownership, into foods and other outputs. All four elements of this process define agriculture, and directly or indirectly affect the nutritional requirements, food availability and the health of farmers, farm labourers, and their families. Also, all four components, especially
Intersectoral Action for Health

the amount, volume and type of food outputs 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 increasingly well documented. We know how decisions or lack of decision by 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.

Agricultural professionals are generally not well trained to take account of health factors in the process of project design. Nor are the health professionals able to influence decisions, partly because they may lack the power to do so, but also because they have generally not developed the skills and data at the local or national level 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, farm families are better able to risk experiments with new crops and increase productivity. But while agricultural policy-makers collaborate readily in the elimination of known, existing, and clearly visible health risks which can slow agricultural growth, equal effort is 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. Health professionals are often not actively involved in finding solutions to such problems.

**The policy response to mutually reinforcing relationships**

It is in these interrelationships which mutually reinforce and support each other’s goals that the health and agricultural sectors need to work together. Such action requires a capacity to analyse the implications of macro-agricultural policies and strategies on health. These range from production goals, output mix, and major agricultural projects, to choice of technology, changes in agrarian structure, and policies of food security for the needy. Their impact on the poorest 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 which agricultural processes have on the health of vulnerable groups in particular and the farm 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 and health**

The product mix in agriculture and the agricultural policies directed towards it raise several questions for the health sector. Should production of staple food items or other non-food commodities be emphasized? Should production effort go into regions with high productive potential, or backward poor regions? Should priority be given to more expensive, high-quality products, such as foods rich in protein and micro-nutrients, or 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 of 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 need to be articulated clearly 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 shortages on local markets. Cash cropping may also generate employment for those who lack production inputs, improving their nutrition and health. But 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, at the cost of the nutrition of the most vulnerable groups. The intensity of cash cropping also increases the energy needed for work, and is sometimes met by reallocating family resources, especially at the expense of 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 optimum for many farmers would be to have access to a mix of both cash and food crops, providing both food and a secure income.

Another set of issues revolve around seasonal considerations, dependent on storability and credit markets, and considerations of gender, such as 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-cropping which can have a major effect on health is the shift in consumption, even among vulnerable groups, for example in some African countries, from locally grown millet and sorghum to maize meal processed in cities, and to imported wheat flour in parts of Africa and much of Asia. Increasingly, developing countries, even before overcoming the agriculture-related health problems of poverty, are acquiring those of affluence, often without the resources to treat either. Food security can be greatly endangered, especially if food stocks are small, remote from areas of need, reliant on scarce foreign exchange for replenishment, and/or unsupported by plans for non-commercial emergency relief. The impression that "self-sufficiency" is nearing in a country because net imports of the traditional main staple are diminishing (while neglecting the fact that they are being replaced by a new import, e.g., rice by wheat in Sri Lanka) dangerously reduces political awareness of new nutritional hazards.

These dangers are greater where tastes are developed for imported crops which cannot easily be grown locally. The concentration of research, credit and especially marketing upon 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.

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 Sri Lanka, Costa

Box 12 Maize or ground-nuts?
In Zambia, for example, the profitability of growing maize (a male-controlled crop) propelled many male farmers into increasing the amount of land under maize at the expense of other crops. Wives, 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.
Rica and several other countries), to home gardens and small livestock.

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 denied to the poor and vulnerable because their purchasing power is static, then health considerations dictate that extra investment should go to the poorest areas even if inefficient. 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 downward fluctuations of 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 scarce resources used up in production. But 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. Emphasis on research for proteins, and even more for cooking and aesthetic quality, may well be misguided.

The neglect of poor people’s 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 soybeans, has damaged their health and nutritional status. This refers especially to cassava, which has major health advantages as a robust food reserve and can be stored easily until needed. In urban areas of Latin America, a similar research 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 costly animal products, and lose when land and farmworkers are diverted from the former to the latter, though they may on occasion gain as owners of one or two milking animals.

General neglect of traditional crops — especially local roots, beansprouts, 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.

An “international” crop-mix issue concerns food aid. It is better if such aid comprises grain rather than dairy products that are bound to be much costlier per calorie once marketed.

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 necessarily compete with cereals. Newly developed early-maturing

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1 The 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, the FAO Committee on Agriculture (18-27 March 1985) passed a special resolution on the research needed in respect these crops.
varieties of cow peas 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, ranging from moderate to kwashiorkor or marasmus, even if food is available locally. There is 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 illustrates the conditions in which the special intervention of the health sector is 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.

**High yields or dependability?**

The major long-run strategy for unpromising agricultural areas has usually involved a search

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

The use of cereal-legume mixtures was popularized for weaning foods on a small scale in a few countries and, beginning in 1982, on a larger scale in Ghana. 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 only known 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. In expanding 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 in future be self-sustaining.
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. The “agricultural establishment” generally gives priority to growth, especially of food surpluses, over stabilizing 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 set of issues pertaining to agricultural output are crops which contain elements endangering life or health. Agricultural strategies seldom attempt to isolate unhealthy components of agricultural output systematically, nor has the health sector forcefully expressed the importance of such a task. Most problems are dealt with on ad hoc basis after ill-health has reached a scale demanding attention.

Foods with direct health hazards

Nearly all agricultural food products have 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. Low-cost varietal and post-harvest innovations, methods of preparation and storage and safer substitutes can be introduced to eliminate or reduce risks.

Diets deficient in nutrients

Another type of health risk pertains to diets consisting of a limited number of staple foods. Cheap staples occasionally drive out foods richer in other nutrients, such as root crops replacing 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 land available. A home garden programme can provide the complementary nutrients without attempting to make 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 relatively higher well-being consume too much refined sugar, saturated fats (including coconut and palm kernel oil), and low-fibre foods. This drives out essential food items, and leads to obesity and its diseases. Here too, there is a need for the agricultural sector to develop healthier varietal and crop mixes. As in the Norwegian example (see Box 15), this intervention must also form part of a larger food policy including the food processing industry and several other sectors.

Agricultural products and addiction 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 corps that laws and incentives alone are unable to reduce supply significantly. Other measures are needed, as illustrated by a narcotics control project in Buner, Pakistan.

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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.
Box 14  More food, less poppy

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

The campaign complemented strict law enforcement measures, assured markets and profits, and the economic and technical viability of the crops and cropping systems. It assured adequate infrastructure, such as roads, 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 inter-agency Meeting on Coordination in Matters of International Drug Abuse Control (1985), which focuses on crop substitution.

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

The case of tobacco is much more complex. While killing addicts, it saves the lives of many children, 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 substituted for food crops. For regulatory interventions to be effective, farmers must have other income-providing crops or other sources of employment such as agro-industry, and 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 collaboration 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 due to poverty is much rarer, although there is, paradoxically, a significantly high incidence among the elderly. The balance of agricultural products and government subsidies, together with policy towards processing and demand for farm products, determines whether consumers are offered more or cheaper saturated fats, opiates, 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 with the support of production and processing.
Box 15  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 to be immune. The aim was to influence dietary changes by using measures at hand, including: (a) encouraging healthy dietary habits; (b) formulating policy in accordance with 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) decreasing the proportion of fat in the diet gradually 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 was the responsibility of the National Nutrition Council, with its several subcommittees. An Interministerial 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. Approximately US$ 100,000 per year was earmarked for public information. Although too small, this sum still 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 implementing 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 use 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% consist 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 another 14.4 years. A decrease in life expectancy for men now seems to have turned upwards, approaching the level of the early 1950s. Positive changes in risk factors other than nutrition of course also contribute to the improvement. Ten years after the Norwegian Parliament adopted the food and nutrition policy the conclusion seems to be: it works — but slowly.

Farm labour, land systems, and technology

An equity-oriented agricultural strategy

Agricultural development affects health mainly through farm incomes and incomes of agricultural wage labour. The agricultural sector has long been aware that agricultural projects can make important and sustained contributions to health and nutrition by increasing and stabilizing income, food production, and secure access to food throughout the year.

The goals of the agricultural sector are usually identified in terms of crops and output targets for crops related to national needs. They are seldom conceived in terms of the different groups of agricultural workers, families and households, and of increasing their productivity and income. Such an approach is essential if health goals are to be worked into 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 selectively saving human effort and increasing productivity without major displacements of labour; extending 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 income and employment fluctuations. Although the health sector has little direct influence in this range of policies, it can inquire how and where equity-oriented components are incorporated. It can track 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 labour

Work-related health problems of agricultural workers exceed conventional boundaries of occupational health. Four main problems of farm labour strategy can and should be addressed while promoting health for all.

Energy-saving innovations. The caloric requirements of farm labour are high. Long periods of strenuous work, travel to work or in
Figure 9 Norway: links between consumption and mortality

Mortality from myocardial infarction, coronary heart disease and sudden death (410, 411, 412.0-3, 782.4, 795)

Nutrition policy recommendations

Consumption per capita, compared with nutrition policy recommendations

Mortality from cerebrovascular diseases (430-438)

From:
Health Statistics 1983
(Central Bureau of Statistics, Norway 1985)
Annual Report of the National Nutrition Council, 1984
search of new work, and the rise in basal metabolic rate resulting from continuous hard work all deplete energy. Travel time and effort to purchase food, fuel gathering, water hauling, and cooking and feeding time for mothers who work in the fields are important factors. 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”, impeding 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 labour to much wealthier farm owners (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, heatstroke, 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 in 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 ignoring the special needs of women farmers. Debate continues, however, whether “more work for women” is good or bad for their or their children’s nutritional status, despite the knowledge that improving women’s status and their children’s well-being depend on women’s access to income and power.

The situation becomes 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 increased female-headed farm households dramatically, 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 to both projects and households.

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

A study in Calcutta showed that the extra income of women’s work improved their children’s nutrition, though less than proportionately. In eight Bangladesh villages, the results of 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 birthweights and growth — a finding reversed only if it was earned (a) outside the home (or home farm), (b) by the poorest households, and (c) in the slack season. In these extremely difficult circumstances, all of which must occur at the same time to be valid, the mother’s absence from home endangered child care more than the income she earned helped it. This important finding nevertheless underlines the nutritional importance of ensuring that a mother’s work is compatible with child care in hungry times.

Home gardens and livestock are of particular importance to women and mothers while they care for children, since they can provide work and income in cultures where males dominate draught and agricultural land preparation. Prices increase, infections prevail, and the demands on health services are high. Agricultural projects supported by food aid try to fill these gaps through community-level income, and though achievements are sporadic, they are increasing. Those showing a satisfactory performance involve sound local structures that successfully include 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.

Box 17  Food aid 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 conditions of the poorest in the most disadvantaged parts of the country through large-scale development projects seeking durable benefits, increasing employment, improving human capital formation, and strengthening the role of women in development. Its marked success significantly reduced the number of people below the minimum level. Food aid played an activating role in bringing this about. Internal and external conditions can determine whether launching and implementation of projects receiving food aid are favourable or unfavourable. Among the favourable, available, trained human resources, nutrition and health services, and continuity and coherence in planning are major external factors, while data availability, particularly statistics, the integration of food aid into priority projects, and adequate, competent supervisory personnel are major internal factors.

What is needed are extension services and pricing policies which favour such activities.

The seasonal pattern of extra work greatly affects the outcome for nutrition, especially for the poorest households 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, purchased food

Box 18  Labour, health and wages

Health problems can be improved through higher agricultural employment possibilities and increased wages. A switch towards more labour-intensive patterns of farm innovations in some developing countries promoted productivity and agricultural efficiency, and hence labour income, better nutrition and health. The modern varieties of cereals, for example which have changed the formerly immutable times of planting and harvest, have improved farming systems in Bangladesh and northeast India by distributing the demand for labour much more evenly over the year, with great benefits to nutrition and health of both small farmers and agricultural labour.
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 operational land holding. One study (Kenya) tested the link between land holding per person and stunting and wasting, and showed that wasting had a strong correlation with land poverty\(^3\). The health sector needs to be concerned with land redistribution policies which increase poor people's income and raise agricultural output, especially of inexpensive foods for home consumption. Shifting farmers, squatters, and those with traditional and uncodified 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" uses 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 reserve 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 to about one-fourth of the children in communal areas. By tracking the nutritional patterns of children on plantations, remedial action can be indicated and planned.

Urban expansion increases competition between the rural and urban areas for land, water and fuel. Improper disposal of urban waste and agricultural residues further contaminates 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 the process, such as land reservation for individual or group home gardens and smallstock, and by site-and-service schemes.

The health impact of technology choices

Choices in farm technology include: hydraulic, mechanical, chemical, and biological. The choice of technology is important in determining agricultural productivity and health. Problems arise where increased productivity has been obtained at a high price to health.

Hydraulic technologies. Irrigation systems have been established to secure a supply of water and to open up unproductive lands to agriculture. These same systems are a major source of ill-health via malaria and schistosomiasis. Technical and economic considerations, such as regular availability of water and better cost-benefit ratios, favour large projects, which often fail to benefit a large segment of the farming population. Little attention is given to micro-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 technologies simplify labour, reduce effort, and in some instances replace human labour. The negative consequences of the latter have already been touched upon. The health consequences of labour-simplifying technologies have not been extensively explored, although more attention is being given to "appropriate technology", i.e. technology that is useful, within the scale of the system in which it is applied, is affordable, and offers less risk to the user in addition to requiring less energy (human and/or fuel) input. This is of particular importance to women who carry a heavy work overload.

In some countries almost all the hoeing and weeding is done by women. When this co-

\(^3\) A major exception to the "land shortage, poverty, ill-health" nexus occurs where land is very bad, lacks water, and where the occupants are forced to depend on off-farm income sources.
incides with peak work loads and wet seasons, 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 illustrates how women’s time and energy constraints can be relieved, and the hours saved productively used.

**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 of 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 had 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 generating plans for the new hours each day that were “added to their lives”. These included 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”.

**Chemicals** here are of three types: naturally occurring soil chemicals and organic and inorganic fertilizers. Neither the health implications of the mix of chemicals, nor those 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. Such incidents could affect people who regularly apply pesticides and/or ingest contaminated food or water. 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 amount and strength of pesticides, is 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 has been prepared which 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 to all those engaged in the regulation, distribution and use of pesticides. The Code should be par-

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1Adopted at the twenty-third session of the FAO Conference, Rome, November 1985.
ticularly useful to countries which do not yet have an effective system of registering and controlling the use of such products.

*Biological technologies* improve the quality of the 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 what new foods can affect the nutritional status of the undernourished and how they do so. Thus, biological research needs to focus more on crops grown and eaten by the least well-off, and on related factors of production, profitability and safety in consumption. It is noteworthy that such research — and indeed all bio-research on root crops, sorghum and millet — is much weaker in national research systems, especially in Africa, than in international systems.

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 need to be more aware of mutual interests. It is not sufficient for health authorities to decry the negative fallout 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 outcome of the health-related issues examined in the preceding sections. First, 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-promotive products. Pricing and subsidy policy, for example, may shift consumption from one staple to another. On the other hand, agricultural credit schemes which 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 inac-

cessible to farmers with very small holdings. Second, the package of policies will determine the purchasing power of vulnerable groups and their consumption levels. 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.

One example: does state action to stabilize or lower average food prices improve health? If almost all poor households in a typical year 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 Java, Bangladesh, and Eastern India — 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 is 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 both growth and equity. Experience has shown that in many countries,
such as the Republic of Korea, Sri Lanka, Egypt and Costa Rica, 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 the fish products from exports to food for local consumption.

A food policy which provides food security at a minimum level 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 here, ranging from pricing policies in food, state trading in staple food, and food reserves to stabilize prices and distribution to outright state subsidy schemes for staple foods and feeding programmes for vulnerable groups and the needy. In many cases food subsidies as well as feeding schemes have been the critical income support and food supplement for vulnerable groups that have been too poor to afford proper nutrition. The main problem with most of these schemes has been the deficiencies in targeting them to the groups that are most in need.

Knowledge and action — 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 in current national systems enabling health 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 this to take place, the health sector would have to be appropriately involved at the stage of agricultural planning and strategy, and participate early in designing individual projects.

Box 20 Peru: fishing for food rather than fertilizer

For 30 years, out of every 100 tons caught only one was used to feed hungry 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.


A food policy which provides food security at a minimum level 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 here, ranging from pricing policies in food, state trading in staple food, and food reserves to stabilize prices and distribution to outright state subsidy schemes for staple foods and feeding programmes for vulnerable groups and the needy. In many cases food subsidies as well as feeding schemes have been the critical income support and food supplement for vulnerable groups that have been too poor to afford proper nutrition. The main problem with most of these schemes has been the deficiencies in targeting them to the groups that are most in need.

Plans and strategies find expression in specifics which are introduced and adapted from time to time — policies on farm prices, incentives, subsidies, and agricultural research priorities. The effects of centrally made policies for large projects on health, and particularly that of vulnerable groups, are well known but as yet largely ignored, although a well-developed methodology now exists for an assessment of impacts. A flagrant 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 health and agricultural workers’ tasks, 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. Development planning, at sectoral and national levels, approaches intersectoral relationships largely on the basis of inputs and outputs, to achieve 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 a higher quality of the habitat. 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 even though broader socioeconomic issues have been on the agenda of some of them.

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

Such 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 and 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.

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 playing an important role. In agriculture these are 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 nutrition and health of vulnerable groups.

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 socio-economic 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. These efforts do not, as yet, appear to have had much effect.
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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 health, food, agriculture and irrigation, home and panchayat, education and finance sectors, 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 malnutrition control, and to put its own house in order first, 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 establishing 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.

To improve the health effects of decisions related to agriculture, health planners must contribute more effectively to the analyses preceding policy formulation. Research into these effects, particularly on the nutritional impact on vulnerable groups, has produced well-documented findings, often of general applicability. Nevertheless, many such findings are bound by time and space, and refer to situations that may not be relevant in a particular country or region. One prerequisite for health planners to interact effectively with other sectors is that the minimum essential information on the nature and range of the findings of ongoing research and field experience be available, updated regularly, and in easily communicable form.

Improving the health information system

Innovations to improve agriculture-health policy linkage have a much better chance of success if accompanied by appropriate "reform" in the health information system. At least until capacities improve, a strong case exists for reducing the range of data routinely collected, making them relevant to high priority issues. WHO's own development of basic indicators to follow progress in achieving health for all by

Box 22 Agricultural and health collaboration 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 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.
the year 2000 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 for tracking agriculture-health linkage.

The most essential indicators are those that measure the main causes of ill-health among vulnerable groups — the nutrition-infection syndrome. Here, the most revealing indicator would be the adequacy of the caloric 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 monitor 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 death due to the drought was kept under full control.

Subnational policy-making, administration and politics

At the district level, the health and agriculture sectors should be effective 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 can best involve 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 analyse the impact of agricultural activities on health and deal with them systematically.

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; (b) delegation, or transferring managerial responsibility outside the regular bureaucracy; and (c) devolution of authority in response to demands from below the subnational 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 of the poor and vulnerable are best promoted through popular participation, or "pressure from below". This has much backing, especially in the health sector, since people’s participation is essential for primary health care. Moreover, 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 health.

Local people have lived through a lifetime of seasonal variations; they know better than out-
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siders how seasons affect labour demand, 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 introduces participation in information gathering and analysis, and demands a broad change of perspective. Such participation breaks down sectoral rigidities and enclosures, since perceptions of households, families, and local communities are inherently multisectoral. If “participation action research” is successful, people are more likely to combine policies and decisions made in a far-away capital with local realities, and to generate pressure to implement 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 groups whose members recognize each other as sharing a similar situation, perhaps with outside funds. The Grameen Rural Bank for the Poor in Bangladesh is a case in point.

The agriculture-health linkages at community 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.

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 purposes, 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; eliminate exploitation by money-lenders; create opportunities for self-employment among the poor; bring the disadvantaged into a structure they can understand and operate and find sociopolitical and economic strength in 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.
Chapter 3

Education, Culture, Information and Life Patterns

Background

Education and health in a given society have to be understood in the wider context of its culture, with its own structures of knowledge concerning health and its own processes of learning. Such education takes place in everyday living even more than in formal teaching. All learning possibilities can therefore be explored in order to provide the populations concerned with the required 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 workplaces, 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 low. What is the first priority then in health and basic education? In developed countries, where the vulnerable groups are older, especially adolescents and the aged, what is the importance of life-styles to personal health and the quality of life? How do health education and information influence these life-styles and behaviour?

Second: do existing educational institutions, both formal and informal, promote critical health knowledge relevant to peoples’ lives? Formal education has 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 communication, information and knowledge about health, and where does this take place?

Third: 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 many 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 which 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 among the developing countries in Figs. 10 and 11 highlights the close relationship between education and health. In a global ranking of income and mortality, countries giving priority to
Figure 10

Thirteen countries where infant mortality rankings exceed income rankings


Figure 11

Thirteen countries where income rankings exceed infant mortality rankings

Oman, Angola, Saudi Arabia, Iran, Libyan A. J., Algeria, Iraq, Yemen, Morocco, Afghanistan, Côte d'Ivoire, Senegal, Sierra Leone, Cambodia.
primary schooling (see Fig. 10) have low mortality rankings. Even though all but three have per capita incomes under US$ 1100, only one has an infant mortality rate as high as 100 per thousand births, and four have rates below 50. Half have life expectancy at birth of over 60 years, while Cuba has a level comparable with the industrialized countries. Not only is past (or parental) education a better indicator of mortality levels than income levels, it is a better predictor of the child mortality rate and, unexpectedly, an equally good indicator of life expectancy at birth.

In contrast, Fig. 11 shows 13 countries whose mortality rate rankings are markedly worse than their 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, with both child mortality and expectation of life at birth.

The mortality rankings are also compared with level of participation in primary schooling. The mortality ranking corresponds closest to female participation in primary education. Furthermore, female school enrolment in 1960 becomes the key variable, and comes closest to the mortality ranking in 1983. Primary education of females was having its impact with the expected time lag as school cohorts 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 microstudies on the health behaviour of individuals and families. A number of important findings clarify the nature of the health-education link and how it works:

— Parental education, particularly of mothers, is strongly related to improved health care for children. Several studies indicate that

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**Box 24 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 get this right from 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 mothers-in-law or husbands identify the child's problem, and very few will take action on their own without them making the decision. But the educated woman's attitudes and changed decision-making situation have ramifying effects. She is more likely to provide her child meals on a par with adults and daughters with sons, often through 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 also an element of commonsense in child care, which is probably an education-induced belief that she is responsible and must ward off danger. Certainly, she acts more decisively to prevent accidents and to assure her children's hygiene. This aspect of child care was identified over 50 years ago on the Tyneside in north-east England and related there at least partly to education. The Ghana, Nigeria and Sudan World Fertility Survey evidence suggested that maternal education went a long way to overcome deficient water and toilet facilities.

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 practices of child care. This behaviour is related more to the confidence she has acquired through new experiences and methods than to what she was 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 relate to 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, emphasizing World Fertility Survey (WFS) data, 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 which have migrated there if the mother is illiterate and does not readily use such facilities. The WFS study noted that a decline in mortality accelerated as mothers proceeded from primary to secondary education. Some other studies, such as the one from Nigeria cited below, conclude that child mortality continued to decline progressively as years of parental education increased.

— The evidence available also points to a close relation between educational levels and acceptance of family planning. Education has a

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**Box 25 Parental education and infant mortality in Nigeria**

In 1973-1974 two populations in rural Nigeria of similar economic level were studied, 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. Where mothers had been to school, only 60% as many children died as where they had not. 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, more so than the father's education. The residential area within Ibadan city mattered only for the poor and uneducated, probably because they had greater difficulty in travelling the distances to health facilities. 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, such as parents eating 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 on child survival of parental education, and of the multiplicative effect of the education of both parents.

One of the ways women's education affects child health is through family planning. Women with schooling tend to marry later, delay childbearing and are more likely to practise family planning. They generally have fewer children, with a 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 risk of dying 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.
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).

As the evidence accumulates it becomes increasingly clear that in developing countries where the main population group at risk consists of mothers and children, the health-education link is strongest in female education. Without a minimum level of education for women and appropriate health information, the benefits of available health services will not reach the full population, and the investment on health promotion will be partly wasted.

Interaction between health and formal education

Educational policies which can most contribute to health are those which 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.

It was pointed out in Chapter 1 that the developing countries as a whole have been able to make considerable headway in primary education, and that rates of female school enrolment have shown substantial increases. Nevertheless, for the low-income developing countries as a whole, excluding India and China, 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 with middle income, it was below 50%, and in nine below 25%. Adult literacy rates for women are much lower than the enrolment rates as they include the older generations who 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, they are both equity-oriented, and they seek to provide universal access to facilities for the satisfaction of two basic needs. While the health of children is essential for universal primary education, universal primary education is essential for the improvement of health of the population. Since universal primary education includes female education, 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 education, 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. While educational policies consider the importance of basic education in promoting health, the health content of formal education, particularly in the primary but also in later stages, must be an important and continuing concern of the educational sector and its educational 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 not only because of their intrinsic worth but because it leads to the best use of available resources and facilitates the absorption of and access to the new knowledge imparted to these groups. This and the creative role which the school can play in accelerating the improvement of the health status of the community will be discussed later.

Non-formal education and health

A number of non-formal health and nutrition education programmes have incorporated in their design and implementation communication techniques to develop and deliver health educational messages. In the successful health education programme in the countries cited below, a community-based approach deter-
minded their educational messages and materials. They have focused on changing behaviours and practices as well as imparting new knowledge in promoting practical solutions to locally specific health problems.

In Honduras and Gambia, 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 27).

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 successfully integrated face-to-face education with mass communication techniques.

**Box 27  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 acceptable enough for rural Indonesian women to use everyday. Messages were transmitted through multiple channels of communication including village volunteer workers, radio and action posters. Evaluation of this project showed that the target group children had grown more significantly than children in the control area. Furthermore, the food intake of children in the target group was also greater, reflecting a newly acquired ability of mothers to make better use of family food for feeding young children.

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 what oral rehydration therapy is and how they can 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 a year and a half.

In Gambia, after only eight months of the 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.

**Functional literacy and health**

If female education is the strategic factor in accelerating declining mortality, communities with high adult female illiteracy are most vulnerable and at greatest health risk.

The prevailing situation regarding female literacy demands a much greater effort at imparting functional literacy and non-formal education which includes health. Such programmes concern concrete life situations of illiterate women, the efficiency of their household and resource management in conditions of scarcity, their work, whether on farm or elsewhere, and their skills for family care. Chapters 2 and 4 refer to situations such as problems of nutrition and diet in conditions of poverty, and the management of the allocation of time by women to various activities, all of
which have links with both education 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 and Burma.

Many elements of non-formal education programmes with health components and 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) cited below shows the scope for highly rewarding forms of intersectoral cooperation where health and education interact closely on methodology and content (see Box 30).

While primary education has first priority in many developing countries, the health sector should recognize the continuing link between health and formal education. As already noted, secondary education accelerates the reduction in mortality. The sequence of health development described in Chapter 1 indicates how pro-

### Box 28 Audiothèques for communities

The first audiothèques (or sound libraries) were created in Mali 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 for Oral Knowledge (Comité de Savoir Oral), 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 treated by resource persons 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 pieces of information and knowledge 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, and are sometimes recorded. 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.

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

(a) to freely 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.
gressively higher levels of education can promote a higher quality of life.

**The creative role of the school in health improvement**

The school, particularly the primary school, brings people together with others pursuing the same activities more than at any other time in an individual’s life. Immunity from disease and good health during this period of childhood therefore lays the foundation for a long span of healthy living. Three aspects of the relationship of school to health which are fundamentally important for the health and education sectors are the school as a centre for organizing and providing health care for the young and for educating them in healthy living, and as a focal point for community health.

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**Box 29  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 organization of 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, peasants’ and workers’ councils, the mass media, administration officials and social workers. A similar organization exists at district and village levels.

Experience shows 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 monitoring and evaluation. Most problems uncovered by the monitoring and evaluation system were solved at village level through consultation with the villagers.

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**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 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 to prevent disease and ease demand on other health services. The concern of education for school-based health services is based on the evidence linking health and nutritional status to learning ability and school achievement, and the impressive increase in school enrolment. But school health services are contingent upon existing material and technical resources, and most activities involve screening and record-keeping. Overall ad-
Box 30  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: 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. Time and meeting places were adapted to the learners' needs. But several formidable constraints were encountered, such as seasonal employment at harvest time, temporary migration towards employment opportunities, and the heavy work load. There was also hostility shown by some upper-class residents to the rising awareness among the poor. One centre was shouted out of existence, and two others were forced to close by more subtle means.

Nevertheless, the programme as measured 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 which 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. But 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, the programme should be continued, and efforts be made to provide another opportunity for dropouts. Neighbouring villages also requested adult education programmes.

In respect to functional learning, about 45% acquired facilities for poultry or dairy production, small businesses, self-employment or jobs in the public or private sector. But 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.
ministrative 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, much more collaboration is possible 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 as well as detect various physical disabilities or mental/ emotional disturbance and alert health services. 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 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 viewed as interrelated programmes show how intersectoral collaboration can be most effective.

Health education in schools provides wide scope for joint training and initiatives by the health workers and teachers and should be designed more as an in-school activity than one coming 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, especially in developing countries, far exceeds health coverage.

Teachers can deliver knowledge and information on health and the promoting of 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 by health professionals or research workers to the existing school curriculum, such as language arts, hygiene, biology, environmental and social studies. In Paraguay, a health teaching programme used imagination to incorporate a variety of subjects, 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 mentioned in the case of non-formal education programmes, school health education programmes should relate to the learning processes and the child’s traditional cultures 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".

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 ex-

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 activities.

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

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

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

As a result, teachers 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. Topics to be discussed are often chosen by the pupils and in most cases the sessions take place in the school, and 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 mainly 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 always inspected, and a regular knowledge of the menus and visits to kitchens and dining-halls give rise, when necessary, to advice and comments directed to those responsible. 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 vertebral 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 which may have some influence on the quality of their lives, both in and out of school.


exploiting the environment as a sum of its parts. Panama provides one such example in which three different ministries, guided by the Ministry of Health, met this challenge by setting up innovative schools in rural, relatively isolated 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 the fundamentals of nutrition, basic health needs, water and irrigation, as well as reading, writing and arithmetic. The concept promoted community gardens and nutrient-rich food needed by the communities, as opposed to cash crops. Buildings were very rudimentary, similar to the children’s homes, but very hygienic. Everything was geared

### Box 32 Teaching about sanitation in Paraguay

Schools in some rural areas of Paraguay are now teaching basic sanitation in primary schools using materials like poems, slides and films. The local water board, school superintendent, health educator, headmasters, teachers, parents and students work together to teach how to assure 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 like how many children under five died, and why? And what are water sources and their availability to their homes? 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.

towards improving life conditions without major changes alien to the local setting.

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 were developed for school children in Mozambique, Angola, Guinea-Bissau and Cape Verde, for example using children’s drawings to convey the health message.

**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 school children in Mozambique, Angola, Guinea-Bissau and Cape Verde. The book builds on traditional beliefs and uses every-day experiences to show how children and adults contract the most prevalent infections such as schistosomiasis, malaria, amoebiasis and tuberculosis — and how congenital syphilis is transferred to the fetus.

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

**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. This dimension is present in examples from Panama, Jamaica and Indonesia. In developing countries, and particularly rural areas, schoolchildren are often more educated than parents. In such a context, school health care and health education become the means of introducing behavioural changes and basic health concepts to the homes of pupils. Thus a twin-faceted relationship between children, teachers, parents and health workers could enlarge health programmes as did the home-based nutrition project in Jamaica. Finland has shown how a health care programme in a developed country can organize community action and reach out to other groups including pre-school children. Education and health are both sectors which can motivate parental involvement and, acting together through the established institutional base of school health, they can generate effective forms of community participation and well-being as well.

**Disease transmission via the host vector**

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

- improving training in health education for primary and secondary school teachers 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, adult education and other community-based education;
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 based on community research, the goal is to improve reading skills and promote nutrition and health-related behaviour changes. The programme followed seven stepping stones: 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 developing teaching materials; orienting teachers and parents to enhance their support of the project 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.

— 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 can illustrate a healthy environment and promote concern for environmental health. But some problems exist. In poor countries, schools receive the bare minimum required for basic educational tasks, and are ill 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 also becomes the place for easy transmission of disease and infections, especially if overcrowded. Children exposed to the health risks in school require vigilance and special attention by both teachers and health workers and collaboration of the health and educational sectors to assure a healthy environment.

To meet basic needs of health, 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 can meet minimum standards of space, natural lighting, ventilation and sanitation. Even overcrowding slows learning. 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 villagers 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 a reasonable walking distance (based on the physical capacity and energy costs to the child), recreational space (especially where classrooms are used in shifts), and protection 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.
Box 35 Improving Finnish children's dental health through intersectoral cooperation

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

The most important target group applying these methods were expecting parents, including the fathers, in cooperation with school teachers 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 youth, free of charge, through a coherent national programme.

Implementing the oral health care programme for expecting 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 MCH work and the other primary health care personnel knew practically nothing on oral and dental health. Health workers then communicated the same message to parents, teachers, local politicians, 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.
Providing, improving and maintaining many basic school health facilities do not, in fact, need large additional allocations. In many cases, the required 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, apart from developing professional cadres and advancing scientific knowledge on health, can promote health in several other ways. Four areas where they can make a significant contribution are:

1. Reorienting health professionals to become health educators as well, by "demystifying" medical care, and sharing information with patients about the nature of their diseases;

2. Promoting interdisciplinary knowledge for health and other specialties by teaching professionals to understand the merger of different sectors in achieving development goals;

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

4. University teachers and students can play an important role and provide community health leadership as well as contribute to health-related programmes which require motivation of the public or support to nongovernmental groups. The literacy programme in Burma is an example.

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 reaches the individual through numerous other channels and influences health behaviour. Promoting the right

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

In Jordan, a school-based health programme was supported by WHO, the United Nations Relief and Works Agency for Palestine Refugees and the Unesco department of health, which upgraded school facilities and sanitary conditions and, more recently, expanded and improved health education programmes. All new students are medically examined and given necessary immunization boosters. 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 classroom teachers — usually science instructors — for a one-year in-service health education course that trains them to become health tutors and assume responsibility for organizing health education. School health committees work with them and outside advisers to identify specific problems amenable to change through education. Once identified, each school prepares a school health action plan including 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 cleanliness of classrooms, toilet facilities, canteens and school yards, visiting local health centres and meeting community health workers.

*Source: Unesco.*
environment of knowledge and education for health poses an enormous challenge to the health sector: at the national level, it requires clear recognition of the need for health education on a broad front, including other relevant sectors and channels of communication and a strong policy commitment, and the health sector has to be active in making the knowledge available to the public in accessible form.

Two types of culture-linked health risks
Two broad areas in which health risks and hazards are strongly subject to sociocultural factors include cultural practices harmful to health and resistant to health care and health promotion; and life-styles, patterns of consumption and addiction acquired during and after industrialization. How can education play its vital role in coping?

Cultural factors need to be taken into account in the planning and implementation of health programmes. Chapter 4 shows how cultural factors are neglected in the case of water supply schemes, while a variety of sociological factors 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 problems. While emphasis on the sociology of health and ill-health in developing countries is increasing, the health sector has yet to develop a systematized 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 coordinating education, information flows, value formation, the media, religious institutions, education, agriculture, water and sanitation. Using situations and processes which touch 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 lifestyles, family situations, lack of community or personal isolation, sexual permissiveness, and addiction to alcohol, tobacco and drugs. These health risks have in common individual action, choices and behaviour and require equally individual changes in lifestyle, and in values related to work, leisure, consumption, and personal relations, to remove them.

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 has only limited impact on health. The principal means of control is reducing 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 lifestyle.

In control programmes, such as an 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. The nutrition programme in Norway cited in Chapter 2 demonstrated that a national consensus on nutrition goals required an education and information campaign reaching all the major actors in agriculture, industry and other relevant activities and the widest audience possible. Such a campaign requires the media as the main actor for carrying information; it requires diverse channels and modes of information and publicity and communication expertise which 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 it has 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 both developed and developing countries where the main health risks are emerging with industrialization and socioeconomic changes.

**Adolescence and education for life.** In adolescence the individual moves from a relatively sheltered childhood to the totally new status of being an adult, 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 relatively limited differences between geographical and social closeness of home and work make 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. Moreover, the adolescent today is biologically mature at a younger age than before. Close relatives are also often disoriented by the socio-cultural developments and, to a larger extent than ever, work outside the home in pursuits not easily understood by a child.

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 15-24 years old, whose death rate is three times as high as that of females, and that their suicide rate is increasing. Adolescents exposed to the "junk food syndrome" suffer from obesity and undernutrition; others succumb to neurotic undereating (anorexia nervosa) and 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 contraception and smoke are at risk in later life of circulatory and other disorders, including coronary heart disease. The consumption of alcohol has also increased (in some countries 80% of 15-year-olds had already started drinking and in others parental life-styles inadvertently expose children to eventual alcohol abuse). Drug abuse is on the decline in some countries, but there is much room for improvement in controlling the procurement and distribution of illicit drugs.

Development of awareness among adolescents of the hazard of unhealthy life-styles is, however, 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 marriages remain the norm in some societies but the percentage of girls marrying at 18 or 19 years has 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 to better understand 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 values 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 inducing necessary behavioural changes have to reach these groups through 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 in knowledge content as well as the communication skills.

In light of the growing difficulty for a child to become adult, it becomes more important that society provide information and services 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). It connects a widely accepted notion of sex education with preparation for future marital and parental worlds. Sex education is placed within family life education and provides information 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 a sound family. The emphasis of programmes should be on the

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**Box 37 Humanization of relations between the sexes — Montenegro**

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 as a subject 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 fields as different as sociology, philosophy, literature, medicine and natural sciences. Increased awareness of how the every-day relations between the sexes are formed is sought at all levels of education from pre-school 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 by stratification on the basis of geography, nationality and socioeconomic status. The experiment covers 10% of pre-school children, 15% of those in compulsory education and 10% of those in higher education. The experimental programme also covers something between 10% and 15% of intellectually handicapped children.

Knowledge and attitudes were pre-tested in teachers, pupils and parents of pupils. After one year of teaching according to the experimental curricula, the teachers of 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).
**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 mentioning it tended to be a cause of 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 bureaux.

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 links 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, motivational and publicity materials with which they are provided.

In addition, television and radio broadcasts are made on family planning related issues, 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 family planning 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, and family planning T-shirts and other promotional materials 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 desensitize 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. Birth control carnivals, games, raffles, village fairs and weddings serve as occasions to promote family planning joyfully. Inches and centimetres are printed on birth control pill packets so that they can be re-used as rulers. Sheets, pillow-cases, piggy banks and business cards are all printed with family-planning catchwords.
positive aspect of sexuality, planning for wanted children and achieving rewarding, loving human relationships, as illustrated in the example from Montenegro, Yugoslavia (Box 37).

Health knowledge for the elderly. The elderly present another set of problems relating to self-care and coping with the stresses of later life. In many developed countries, preference for home services for the elderly over institutional care is growing, for a variety of human and psychosocial reasons. These changes will place increasing emphasis on the special needs for health knowledge and information to the aged. 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, coping with loneliness and inactivity, and adjusting to increasing disability and the prospect of death. To the same extent, public policies have responded to the problems of adjustment facing the elderly, e.g., extension of the age of retirement, and programmes for purposeful involvement of the aged in social activities of various types. But initiatives which are 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.

Health and life paradigms
In the discussion of the risks to adolescents, the importance of the ongoing societal changes were mentioned. Many of the health problems of the aged are similarly culture-related — the erosion of social institutions such as the family, the weakening of intergenerational bonds, the decline in the belief in religious experience and in transcendental realities. These changes no doubt are related to changes in the paradigms of knowledge, and the conception of the human being in relation to the universe and reality. They 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. As yet the health of the elderly is part of a different cultural context, which avoids some of the deeper maladjustments in the life of the aged in the industrial societies. These differences are significant in health terms in both developed and developing countries in their strategies for dealing with the problems of the changing profile of health. The health sector needs to work with the awareness of these relationships between health and the fundamental adjustments which human beings have to make to the crises at different times in their lives. Education for health has to be perceived as part of the life-knowledge of a total character.

The culture-related health problems of the developed countries raise important issues for developing countries. Their experience, including the positive responses they have made to many problems, embodies important lessons, and such knowledge and information form an essential component of education in health for children and the community. In this task the schools and the media will play a major role.

Modes of communicating health knowledge — the role of the media
The preceding discussion has shown how knowledge about health can be communicated to 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. In the preceding section attention has been repeatedly drawn to the role that the media can play in health education as related to a diversity of health situations and different vulnerable groups. The communications media will need to become more aware of their own role in raising awareness, stimulating public discussion, and articulating public needs in the fields of health and social development. In turn, the health sec-
Education, Culture, Information and Life Patterns

tor will need to recognize what media can do, not merely in serving as a platform for news stories, but in employing popular channels of communication as a means for conveying health messages and influencing social behaviour.

The health sector should focus on making technical subjects digestible and 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 and transmit technical information about health to a mass audience.

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 delivering the same messages delivered in print or over the radio, thus increasing their overall impact.

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 alert health professionals to their own responsibility for ensuring that health initiatives reach all people. To achieve the goals of health for all, the health sector needs the wholehearted support of the media.

Box 39  Jochim talks, people listen

Jochim Chacha is much in demand in Rajasthan. 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 despatched to settle it 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 their 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 were given in over 100 villages. With donations of 10 000 rupees, people from other states are 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 with the art of reaching people and conveying ideas simply at little cost. The question is how to get to these people and train them. Or rather, persuade them to be trained.

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 special elements of pedagogy in health education that require close collaboration between education and health. Integrated programmes of non-formal education which incorporate 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. The community can generate both the intelligent demand for health knowledge and information as well as participation in the formulation and implementation of these programmes. Various community-based institutions and nongovernmental organizations with health concerns on their agenda have to be drawn actively into such programmes. Citizens’ associations for the protection of consumers can 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 incorporate in health education and communication strategy. Beginning with the health-related priority of formal education and the links between education and child survival, the chapter deals with the school and university, and discusses the types of health knowledge pertaining to culture-related problems of health. These define how communication and interaction between health and education can help promote health.
Chapter 4

Environment—Water and Sanitation, Habitat and Industry

Background

How people live has the effect of continuously changing the physical environment, controlling or eliminating some health hazards while generating new ones. The relationship of environment and health must be seen in this dynamic context.

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

In developing countries, the main environmental concerns are gross deficiencies in basic sanitation and environmental problems related to national and sectoral development. The lack of safe and adequate water, facilities for safe disposal of human faeces and solid wastes, control of disease vectors, food safety and housing of satisfactory quality are important indicators of poverty characterizing the hard core ill-health of the extremely poor. 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 factors adversely affecting health. Such action requires important changes in national policy, yet the policy implications of these linkages have not been drawn. Why?

The complexity of the linkages, lack of adequate 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. Development policy, as it exists today in most countries, despite pronouncements on the value of integrated social, cultural and economic development pursues single-tracked 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 instead of preventive environmental and health policies. Poverty, overcrowding, endemic and epidemic diseases are treated as the unavoidable price of economic “progress”.

In such circumstance, little if any place is left for evolving alternative development styles giving greater emphasis to social objectives, preventive approaches and multigoal-pursuing strategies. These, to be effective, should systematically explore the intersectoral linkages in general and those between health and environment in particular, in order to identify measures bringing about benefits on more than one count.

The different types of linkage require different forms of policy coordination and intersectoral action. It is possible to distinguish between two sets of intersectoral policies and actions —
Intersectoral Action for Health

one directed at the improvement of the physical environment by providing basic health-related amenities, another ensuring that major environmental changes caused 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. But the health benefits of such linkages have often not been fully realized, and the latter has received little attention at either national or sectoral level. The role of the health sector has been generally remedial, following the emergence of an adverse impact on 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 and realize their true potential for health promotion and prevention or control of health hazards requires far-reaching changes in policies and decision-making at the national and sectoral level. All important development sectors contribute to environmental changes which have an impact on health. The environment-health linkage, more than any other, cuts across vertical sectoral boundaries and has to be approached intersectorally at all levels. Most countries have yet to develop policies, planning and administrative mechanisms for managing these intersectoral linkages.

The programmes and policies against poverty and communicable disease raise other issues. Current approaches tend to focus on the technical and engineering components of physical facilities, and neglect the community's capacity and motivation for their use and maintenance. This is partly because programmes for the provision of amenities such as water and sanitation remain sectoral in outlook, confined to their specific task, and seldom planned in relation to their linkages with other aspects of well-being or impact on the habitat. An example is a rural water supply project which significantly reduces the time spent by women on collection and transport of water, releasing time for economic activities, better household management and improved child care. The rural water supply scheme is rarely integrated with programmes which take full advantage of the positive linkages.

Environment-health linkages can be clearly perceived and their potential best realized when the programmes and policies are targeted to 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 total context of primary health care for a given community and its whole range of health-related needs. The special problems of groups in the rural sector such as the landless labour and poorest farmers or 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 managing and 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 which are adapted to such resource management, are low-cost and easy to acquire, and can have combined benefits for health and economic development.

Problems of the habitat and environment affecting vulnerable groups require co-ordinated action in many sectors. Prevailing legislation regarding standards of housing, location of housing, land availability, title and tenure 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.

More integrated approaches to managing environment-health linkages assume that local communities will be able to participate increas-
ingly in the planning, implementation and management of the basic amenities and physical infrastructure.

The sections that follow discuss 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. They also describe the linkages at the national and sectoral level 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 one-half of the population of developing countries suffers from health problems related to unsafe water and inadequate sanitation. In spite of progress, a 1980 survey revealed that only 33% of the rural population had safe drinking-water in comparison to 74% of the urban population, while 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 can be drastic. Infant and childhood diarrhoeas alone are estimated to cause about 4.5 to 5 million deaths per year out of some 600-700 million episodes. It has been estimated roughly 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. Im-

### Table 4 Potential impact of water and sanitation improvements

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Estimated % reduction in morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholera, typhoid, leptospirosis, scabies, guinea-worm</td>
<td>80-100</td>
</tr>
<tr>
<td>Trachoma, conjunctivitis, yaws, schistosomiasis</td>
<td>60-70</td>
</tr>
<tr>
<td>Tularemia, paratyphoid, bacillary dysentery, amoebic dysentery, gastro-enteritis, louse-borne diseases, diarrhoeal disease, ascariasis, skin infections</td>
<td>40-50</td>
</tr>
</tbody>
</table>


Improvements in water availability or sanitation have a greater impact than improvements in water quality, and the reduction in mortality and morbidity due to a single disease 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. In one group excreta disposal has higher priority 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.

**Using and maintaining community water supplies**

A common failure of past community water supply projects has been equating health im-
Figure 14  Sanitation: population coverage globally in the developing countries in the years 1970, 1975, 1980 and 1983

1970  Urban  Population covered  72  Rural  50  Population coverage
1975  63  92  Total population
1980  80  92  No. of countries reporting
1980  92  92  rev.
1983  67  92


*Note: The 1980 revised values are based on the original 1980 (baseline) data supplemented by additional information received in 1984.
**Table 5  Water and sanitation diseases — interventions for disease control**

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Water quality</th>
<th>Water quantity/convenience</th>
<th>Personal and domestic hygiene</th>
<th>Wastewater disposal/drainage</th>
<th>Excreta disposal</th>
<th>Food sanitation</th>
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</thead>
<tbody>
<tr>
<td>Diarrhoeas</td>
<td></td>
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<td></td>
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<tr>
<td>(a) Viral diarrhoea</td>
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<tr>
<td>(b) Bacterial diarrhoea</td>
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<td>(c) Protozoal diarrhoea</td>
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<tr>
<td>Poliomyelitis and hepatitis A</td>
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<tr>
<td>Worm infections</td>
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<tr>
<td>(a) Ascaris, trichuris</td>
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<tr>
<td>(b) Hookworm</td>
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<tr>
<td>(c) Pinworm, dwarf tapeworm</td>
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<tr>
<td>(d) Other tapeworms</td>
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<tr>
<td>(e) Schistosomiasis</td>
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<tr>
<td>(f) Guinea-worm</td>
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<tr>
<td>(g) Other worms with aquatic hosts</td>
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<tr>
<td>Skin infections</td>
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<tr>
<td>Eye infections</td>
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<tr>
<td>Insect-transmitted</td>
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<tr>
<td>(a) Malaria</td>
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<tr>
<td>(b) Urban yellow fever, dengue</td>
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<tr>
<td>(c) Bancroftian filariasis</td>
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<td>(d) Onchocerciasis</td>
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</tbody>
</table>

*Vectors breed in water storage containers


Improvement with increased availability of safe drinking-water. But increased availability does not ensure increased access or increased utilization, the key 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 a 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.

Although 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 effectively. These needs can be met by other agencies, such as those responsible for health, education and community development, which 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 within the total context of the other health-related needs of the community, since only complementary action by several sectors can make the water and sanitation projects succeed and realize their full benefits. The example from Kenya illustrates all the above points (see Box 40).

**Alternative technologies**

To increase water and sanitation facilities, community self-reliance for improving habitat and maintaining infrastructure is central. 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. The example of biogas has been cited. It 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 as part of the physical environment for health

The physical environment for health begins with the house, where the health risks are manifold. They stem from factors related to structure and

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**Box 40 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 both 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 other 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 try to solve the problem of having to travel long distances to fetch water.

Twelve out of 15 water projects were identified, at least one in each province, the only criteria for selection being that they were initiated by women. The frequently drought-stricken areas of Kenya were, however, given special preference. The objective was to boost rural women's efforts to alleviate the basic problems that face them daily and hinder their full participation in all aspects of development.

Each project was related to the specific needs of a given 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 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 Ksh. 600, the men Ksh. 5000, 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, as well as for 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 quality onions and other vegetables.

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, disease-carrying insects and rodents, and unhealthy air due to poor ventilation and potentially hazardous gases; materials may be easily inflammable; the bad siting may also expose residents to flooding, external noise and air pollution; and overcrowding can intensify health hazards. Improving the quality of housing then becomes 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, preventing allocation of separate space for different functions such as cooking, eating, sleeping and so on. 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 hard core 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 health hazards that have been described, 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. In the malaria areas throughout large parts of the developing world, the Anopheles vector has easy access to 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. Cooking stoves are not well designed, so that many children are 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 keeps 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 some profitable commercial development or for a highway or some other public structure. But this has proved an impossible task, given the rate of the urban explosion, the backlog 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 ill-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 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 which accommodate the ability of the poor to repay loans; revision of building and planning codes, including health standards, so 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, motivating and supporting community action, and experiments leading to increased self-reliance by individuals, families and community groups in improving their dwellings and neighbourhoods.

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 incremental improvements to their

Box 41 Habitat and health conditions in San Martín, Buenos Aires

Under the military government which had taken power in 1976, lower income groups had 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. But 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.

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 and within reach of the majority of the poor. The health sector has to 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 housing that is both old and new.

New technologies seem to generate new health problems, for instance, the formation of mould, which can be a factor related to a higher incidence of allergy problems, and general changes of the indoor climate which might cause headaches and tiredness.

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

Serious and sometimes fatal accidents occurring in the home are an example of another health hazard common to 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 can be design faults in the home environment. Careful analysis of the causes of accidents in the home will be required in order to identify them clearly and thereby design corrective means. A 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 equally 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 rather than only providing a place to live 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. The process of industrial production is changing the living and working environment and producing new health risks. These changes in the system of production are accompanied by shifts in the geographical distribution of the population, whereby the share of the population in the urban habitat increases rapidly. The rural habitat itself undergoes rapid change as a result of new technologies and large-scale development projects such as irrigation systems.

Health problems of urbanization
The urban explosion in many developing countries constitutes one of the most radical and rapid social transformations in history. In less than half a century, the ratio of urban to rural population in Latin America has been inverted, and by the year 2000 urban dwellers will outnumber rural dwellers three to one. This rate of urbanization is comparable to Europe's, but with a lower per capita industrial output. In Africa, the rates are changing even more rapidly (see Box 42). 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
megacities of several million each. A significant proportion of the urban population will be poor, often living in highly contaminated environments, and in housing of poor quality.

Large cities in the developing and some industrialized countries contrast elements of modernity and conspicuous affluence with 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 provides an array of health environments for different groups of people.
Those most exposed to the health risks of the urban environment will be the groups living in squatter settlements and overcrowded housing districts. In the case of these groups, the health hazards of both the working and living environment are high.

The process of rapid urbanization in developing countries, therefore, will pose a set of health problems of growing dimension and importance. The urban population expands without a corresponding expansion of the urban infrastructure; population from the rural areas moves into cities in search of economic opportunities and employment far in excess of the capacity of the urban economy. Illegal settlements proliferate and grow. The migrant population, uprooted from its known 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

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**Box 42  Urbanization in Africa — the consequences**

Many of Africa's large cities were small towns only 20 years ago. However, it is estimated that by the year 2010 there will be 77 cities in Africa with populations 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 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. Less 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 one 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 and thereby supplement their meagre daily intake of food. Eating, therefore, depends on earnings and charity. Of the total population it is estimated that less than 40% are considered economically active. However, little more than one-third of this total have stable jobs and more than half of the families living in the shanty towns do not have one single person who is stably employed. 40% of the families eat once per 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 an illustration of the circumstances in the rural areas but also 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, even survival, such urban bias can only result in more critical problems for the population. A radical departure from present trends is clearly necessary.
has to be corrected for strong biases in favour of industrial and commercial complexes in or anount large cities and then middle and upper income groups who live there. The development effort needs to be distributed so as to improve the rural poor's well-being rapidly. 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 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 taking development to where the people are, rather than a process which tends to draw people to urban centres. A national strategy to maintain a rural-urban balance would help to prevent disorderly growth for 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 deal with 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. By enabling most of the urban dwellers in Maputo to afford improved housing, and through community mobilization, slums have been transformed into healthier, cleaner neighbourhoods.

There are other examples of alternative strategies putting unused but available

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**Box 43 Multisectoral approaches in the USSR**

In the Soviet Union good health results from a unity of preventive, curative and health promotive measures. Legislation enacted in 1976 consolidated 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, the positive and negative repercussions on people's health, and particularly pollution.

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 which 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 feeding facilities at the work place. A comprehensive set of industrial, social and medical activities directed to the work force are an integral part of the public health programme developed within the social policy of the Party and the Soviet State.

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, safer and healthier, with technologies devised to make the work safer and more congenial.

Industrialization, technological change and health
The impact of industrialization and technological change on the environment and the 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 and have far-reaching effects on the health of the population.

The workplace and health of workers. The health problems of the workplace have been covered in 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 work place and monitoring health risks of industrial occupation. 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, however, remains one of the more vulnerable groups in society, and 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 of the developing countries and of groups at greater risk than others — women workers and working children.

In terms of the working environment, however, it is the unorganized workers of 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 which will continue to form an important part of the economy of

Box 44 Occupational health in Singapore

The Ministry of Health established a unit of occupational health in 1968, 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 compulsory training in occupational health of all physicians working on a full- or part-time basis in industrial establishments.

Cooperation among three major sector — labour, economic planning and the National University — has resulted in the development of modern occupational health services in practically all the work places in Singapore. Occupational injuries as well as work hours lost due to sickness were substantially reduced.
developing countries. It is not likely that such occupational health problems 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 and constitute a silent majority. 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 also 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 given to these problems in countries where levels of pollution are still below the level of concern. 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 pollution 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

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**Box 45 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. But 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, almost on a regular basis.

A very promising nation-wide 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 or agriculture plantations. Private organizations are involved. In the forthcoming years, it is hoped that through primary health care workers in the underserved sectors will be reached.
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 100,000 tons of pesticides are used each year, and at least 70% contains pesticides banned or severely restricted in industrial countries on safety grounds. While they can 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 of these, 30% exceeded permissible limits, and were judged hazardous to human health. Another dimension of the food safety problem has been the indiscriminate use of substances such as hormones to fatten animals (cattle, poultry) and other additives in both developed and developing countries for increasing profits at the expense of human health.

The following examples of national legislation 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 result in significant changes that affect large parts of the economy and drastically alter the physical environment. These 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 are numerous instances in both developed and developing countries where errors of design or failures in the systems of control have had catastrophic consequences for the health and life of the population. The example of Bhopal (India) received extensive news coverage because of the high death toll. While such a large-scale catastrophe is unusual, it illustrates the enormous potential hazards to life in the surrounding, densely populated human habitats, and points to the need for surveillance and control systems ensuring greater security. It is also important to remember that small industrial accidents are very common, both in the developing and industrialized countries. Sometimes these accidents result in death, while in others the risk to health has been so great that substantial numbers of people have had to be evacuated from their homes. The responsibility for control rests with agencies outside the health sector, but health can contribute by promoting national policies which provide for adequate systems of safeguards and surveillance.

**Box 46 National legislation**

_In the Dominican Republic there is a law which 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".
Economic development, water resources and health

The continuing and cumulative impact which some large-scale projects have on health requires interventions of another nature, in which the health sector has to be actively involved. Large-scale water development projects, whether to provide irrigation or hydroelectric power, can benefit the overall population while causing a series of ecosystem disturbances involving parasitic and infectious disease transmission cycles, and 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).

But this need not be so. While the economic benefits of large-scale water resources development are well recognized, projects such as the Aswan Dam have shown that benefits can far outweigh the ill-effects on the population. Nevertheless, it is possible through appropriate intersectoral planning in the early stages to introduce effective control measures and minimize the damages to human health. The following examples from Egypt and Brazil (see Figs. 16 and 17 and Box 47) provide good illustrations of such planning and the lessons to be drawn.

Large water projects also give rise to a host of other health problems such as work accidents, malnutrition and other deseases of poverty among the displaced population, and an upsurge of malaria among the unplanned colonies of people who grow up around such projects.

While the health hazards grow with large schemes, the cumulative effects of small-scale projects are also significant. In rural areas the construction of small dams, ponds and impoundments is often widespread. Since such water sources must be used for many purposes, such as fishing, drinking-water for humans and animals, irrigation and flood control, there is often a high degree of water contact by 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 important disease vectors.

Little attention has been paid in the past to these health effects of development projects. Most of the action taken has been remedial, after the projects have had their negative health effect, although methodologies for the

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

Figure 16  Egypt

Village Council: Zaweit Sakr

Water present: No
Sanitation: No

Prevalence before treatment vs. one year after treatment.
appraisal of water projects in relation to their environmental and health impact are available.

It is necessary to identify and track down 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 impact analysis and essential part of project appraisal and approval. The health sector has to participate in these and, where the health effects are likely to be negative, help in providing feasible alternative solutions. Such a system should also provide an effective form of health monitoring to provide early warning of emerging health hazards.

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 aim was to eliminate transmission and 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 avoid the spread of schistosomiasis into new areas.

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

Intersectoral action: two examples

Ceará

The prevalence of schistosomiasis among schoolchildren has now 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 had been reduced from over 20% to less than 3% by 1983. Water supply systems have been designated for localities in 6 municipalities coordinated by the state health secretariat, the Mineral Resource Development Co. and the Water and Sewage Co. of Rio Grande do Norte — the latter are mixed private and state companies. In addition, FSESP is implementing water supply and sanitation systems in four municipalities. In several municipalities community participation in labour and individual purchase of materials has reduced the unit costs and permitted coverage of a larger area.
Box 47  Schistosomiasis in the Nile Delta — how intersectoral action can help

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 ability of people to work productively.

A programme to achieve control of 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 cases of schistosomiasis had generally been reduced. However, an important finding was that there was little or no reduction in those 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, not only ensuring more effective control of schistosomiasis but also contributing to a reduction in other water-related diseases.

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

In certain situations major health hazards can exist outside large development programmes and projects. This would apply to natural waterways and localities such as mangrove forests and holiday resorts which suffer loss of much-needed tourism because of health hazards resulting from the cumulative effect of demographic and other socioeconomic changes in the entire region. 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 environment and the health sector should identify such potential “danger zones” and take timely action to control environmental and health hazards. These do not only affect health but certainly affect the economy also.

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, based in Burkina Faso, which from the very beginning has emphasized the economic benefits of returning fertile river valleys to agricultural cultivation.

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 a global character once they are allowed to occur as a result of inadequate preventive policies. This is particularly true of the pollution of large rivers, lakes and seas, affecting entire regions and countries, and penalizing populations living hundreds and thousands of kilometres from the site of the initial pollution. Acid rain, which has been destroying life in freshwater lakes through industrial pollutants transported over many national borders, is another example. Only major and very costly operations may eventually reverse the damage. These should not be
restricted to remedial policies, which are a very 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 would be 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. One finds in the same country 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 and perpetuates the status quo, preventing 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.

A similar situation is to be found in housing. For instance, “slum and squatter upgrading programmes” have become common, much of their justification being the improvement of health. 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 problem.

From what has been said it follows that the concerns of health and environment require ac-

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**Box 48 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 which this 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 introduction 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.

tions on several fronts. In most countries this may require institutional and administrative reforms which:

- 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 bring about cooperation in the definition of national development strategies (as distinct from a juxtaposition of sectoral programmes);

- make these approaches operational at all the stages of planning — goal formulation, implementation, monitoring and social control of results;

- blend the “advocacy planning” of the committed public servants and nongovernmental organizations with genuinely “participatory planning” involving the concerned communities.

**Box 49 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 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 one of the eight channels of the River Turia that have been working for 2000 years and irrigate 17,000 hectares. The eight síndicos constitute a water tribunal. All the farmers using one of these channels represent a community of irrigators called comuneros because they own one thing in common: water. They can use the water proportionately to the surface of their market garden. When it is plentiful they can use it abundantly on their land, but when scarce, it is shared proportionately so that all will at least have some water.

Each commune has its own laws and when someone transgresses one of these laws he will be summoned before the water tribunal by the guardian on the following Thursday. There is neither written accusation nor judgement. The sentence is immediately carried out 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 and, 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, whether or not president, can be accused, judged and condemned, as any other irrigator. The sentences are pronounced in the indigenous language, the Valenciano.

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 necessities of regulating 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.

It is impossible to conceive of an institutional framework for intersectoral action in environment and health which will apply uniformly to all countries. In most cases the framework will evolve from existing institutions. But the main elements, ranging from development planning and policy-making processes at the national level to community-level organization and participation, including the technology needed, will in one way or another form part of an effective institutional framework for intersectoral coordination.
Chapter 5

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 emerging in urban industrial societies, concern the disparities between countries and within them. Also, they concern how these disparities can be reduced to improve the health of vulnerable groups. In order to achieve the goals of health for all, the health strategy must be applied equitably in terms of these priorities.

Chapter 1 presents the essential elements of such an equity-oriented health strategy. The foundation for 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 policy, and stresses that equity in health cannot be achieved if isolated from them. It must be an integral part of policy and strategy in those sectors which control and influence factors determining health — agriculture, food and nutrition, education and information, environment and the basic amenities for improving physical infrastructure. The chapter on equity and those that follow argue that the health sector should attempt to influence these factors and help manage them to promote health. Approaches to accomplishing these tasks are delineated.

The health sector can promote equity and intersectoral action by systematically identifying vulnerable groups and their health risks, tracking the influence of socioeconomic factors, and developing methodologies and information systems. Health should also work with other development sectors to identify their impact on health, and help in the formulation of policies and programmes that will improve rather than hinder health-promotive goals.

The chapters that follow discuss agriculture, education and the environment, emphasizing that the commitment to equity is paramount. Policies and programmes relating to health and its improvement are examined. Many of these relationships have already been recognized and in a few instances used successfully in pursuit of health-promotive goals in widely varying political systems. But analyses show the need for even more initiative by the health sector in enhancing intersectoral collaboration, and greater response by the other relevant sectors.

Chapter 2, on agriculture, food and nutrition, discusses intersectoral links as they relate to the mix of agricultural output, production, labour, land ownership, technology and decision-making, and outlines health issues of crucial significance, including:

- how choices in output, such as cash crops or staples, can adversely influence food availability to vulnerable groups and how backward regions can be neglected in pursuing growth;

- how choices of high-yielding varieties are substituted for the more robust varieties people need to sustain their food supplies and whether unhealthy products such as tobacco can be replaced;

- how some labour-saving techniques that increase productivity and output can further improve health groups, and changes in land structures either worsen or improve their access to land.

Technologies and agricultural systems stabilizing production and income and dependence on seasonal conditions have a special importance to health. Landless farm labourers emerge as the group at greatest risk, and policies which promote employment and food availability are thus emphasized.
The chapter identifies crucial macro-economic policies which affect food prices, availability and distribution, and their impact on the nutritional status of the population. The options in each case provide room for manoeuvre to protect both health and other sectoral goals, unlike current systems that afford little scope for intersectoral collaboration.

Chapter 3, on education, has examined how education and health relate to the process of learning to be healthy. It has focused on the important role education plays in promoting health at all levels of schooling, and emphasized the responsibilities education and health agencies share for protecting and promoting health, particularly among women and young people. With the goal of universal primary education as the educational focus of health for all, it is concluded that a basic education becomes the foundation for health education. The health sector therefore has a vital interest in promoting equity-oriented educational policies giving priority to resources for primary education, and special attention to the health-related problems of female participation in schooling. It must concentrate on strategies of non-formal education and strengthening feedback from schools to families, 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 to the young, monitoring of students' health, and health education, and a promoter of the health of the family, the school assumes increasing importance as school participation grows in developing countries. Schools need to be strengthened through closer collaboration between health and education, reorienting and training teachers in health activities, incorporating health information relevant to individual and community living into the curricula, and allocating more resources to school health programmes to realize their full potential for promoting health.

The health education link in university education has different dimensions. The university must reorient the health professions towards assuming greater responsibility as health educators; it has to impart a base of inter-disciplinary knowledge enabling health and other professionals to understand the inter-relations in development, communicate with each other and collaborate on multi-sectoral goals: it has to contribute to the health education of adolescents on complex problems of adjustment during a critical life phase; and it has to relate to the health of the community and provide leadership in health promotion.

Education for health can use a wide range of learning situations outside the school, and multiple channels of communication. Among these, the media can best reach a mass audience. A close partnership could be of immense benefit to health promotion through a more regular and planned process of interaction, in which the health sector makes knowledge and information available in forms understandable to the public and relevant target audiences.

Health education has to be viewed within a context of declining mortality, prolongation of life, and changing patterns of ill-health. It has to be targeted to different vulnerable population groups as they emerge, whether they be 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 promoting improved health behaviour and life-styles.

Chapter 4, on environment, discusses a cluster of issues relating to water, sanitation, housing, and development processes which 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 the large-scale environmental changes taking place as a result of development, such as water projects and the construction of industrial plants.

The chapter briefly surveys the links between water and sanitation, housing and health, and points to areas where intersectoral action can
be strengthened. Water and sanitation projects have often suffered from 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 housing-health link 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. Improving 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 slums and shanty towns by providing 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 which are beyond the reach of the poor, and housing policies which give adequate priority to rural housing needs and promote housing improvements.

The links between the processes of development and health require a different set of intersectoral initiatives. First, the health sector can be involved closely in protecting occupational health of the unorganized labour 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 affecting the community as a whole, such as pollution, require surveillance and safeguards normally the responsibility of national environmental agencies. The health sector, however, needs to participate in these tasks and contribute to them, to ensure that appraisal and monitoring of environmental impacts have adequately incorporated the health impact. This would also apply 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 which 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, which consist most often of recent migrants to the cities, and the people living in slums and shanties. Many of the initiatives that are needed to deal with these problems have been discussed in this chapter.

This document has identified in a preliminary way the health-related policy components in the crucial development sectors. These policy components are primarily the responsibility of the sectors themselves. However, in the process of incorporating health goals, defining the health impacts, and finding solutions to removing the negative ones (without endangering the sectoral goal), the health sector must participate actively. These tasks are not performed adequately for two principal reasons: in most countries the health sector has not fully equipped itself; and the prevailing systems of national planning and decision-making processes do not ease such a process of intersectoral collaboration, even if institutional arrangements for intersectoral coordination have been established.

The health sector should be strengthened to acquire the analytical capability necessary to establish a dialogue with the other sectors on health-related policy components, and to help incorporate health goals into national develop-
ment policies. This may require focal points within health ministries, capable of maintaining the "health watch" in key health-related areas, and reorienting and retraining health workers at all levels to contribute adequately to fostering the main intersectoral linkages in health. To enhance health planning, 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 changing health profile in relation to socioeconomic changes; intersectoral actions can then be identified and strengthened. New types of health-related data are needed to perform this task; 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 one entrusted with the task of intersectoral coordination in relation to its own principal goals. Such a structure reflects the allocation of narrowly defined responsibilities inevitable within a national system. It might, therefore, retain some of the limitations of the sectoral outlook.

These mechanisms for coordination, however, need not create their own sectoral boundaries, if sectors can continuously interact with each other and be interlinked through representatives who have both the right type of interdisciplinary awareness and commitment. The national development planning system itself has to make these horizontal intersectoral 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 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. The community must enter as an important actor in any institutional framework designed for intersectoral coordination. It is the community and its involvement that best motivates 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 which have incorporated health in multisectoral programmes, whether it be 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. Nevertheless, motivating the community to participate and sustaining such participation is not easy. It requires support from community-level workers and all sectors to promote and develop self-reliant community-level organizations. Such organizations must 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. The section dealing with communication and health education referred to the key role played by these organizations in initiating intersectoral programmes for health education and health promotion. The institutional framework for intersectoral coordination must include these organizations.

The document raises another set of connected issues basic to the realization of health goals — issues concerning resources allocated to the health sector. First, the priority for health in the national allocation of resources has to be guided by the priority accorded to health as a goal of development. The health sector has to participate actively in defining this priority and collaborate in working out national commitments to health targets and the resources needed to meet these targets. Budgetary
allocations for programmes of 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 agenda in the field of intersectoral action for health is vast and wide-ranging. The document has attempted to focus on selected areas which 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 which are urgent and which have to yield results in the short term, and on long-term goals where a beginning has to be made. 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.
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