Health and Sustainable Development: Addressing the Issues and Challenges

WHO Background Paper
prepared for the World Summit
on Sustainable Development

Johannesburg, South Africa
26 August – 4 September 2002

World Health Organization

Health and Sustainable Development: Addressing the Issues and Challenges

WHO Background Paper
prepared for the World Summit
on Sustainable Development

Johannesburg, South Africa
26 August – 4 September 2002

World Health Organization

Introduction

The emergence of the concept of sustainable development as a guiding principle for policy formulation, the adoption at the UN Conference on Environment and Development (UNCED) in 1992 of Agenda 21, and subsequent adoption of the Programme for the Further Implementation of Agenda 21, have been important stimuli at international, national and local levels, for innovative programmes of action to address current environment, health and development problems. The Rio Declaration, for example, states that, "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." Further, Chapter 6 of Agenda 21 emphasizes the fundamental commitment within sustainable development to "protecting and promoting human health".

Recent international meetings have reinforced the importance of health, environment and development issues on the international development agenda. For the first time, meetings of the G8, the United Nations Security Council, the World Economic Forum, the OECD, as well as follow-up to major international conferences have explicitly addressed health issues requiring attention as development or security issues. Health has, in effect, become recognized as a central concern in development – both as a resource for, and as an indicator of, sustainable development.

The Commission on Macroeconomics and Health, appointed by WHO, has assembled powerful evidence suggesting that the role played by health in determining the economic prospects of the world's poor communities has been significantly underestimated. Recent evidence shows how disease undermines economic progress. Major diseases, such as HIV/AIDS, malaria and TB directly affect the poorest countries' ability to develop. They function as a drag on economic growth and they perpetuate poverty. Childhood illnesses and maternal morbidity and mortality keep the most vulnerable groups trapped in vicious cycles of deprivation and despair.

A major shift in thinking regarding the role of health in poverty reduction and development is occurring. Health is far more central to poverty reduction than previously thought, and that realization is now beginning to shape governments' and global policies. It has been known for years that people who are poor are more likely to get sick. But now knowledge is accumulating about how ill health

creates and perpetuates poverty, triggering a vicious cycle which hampers economic and social development and contributes to unsustainable resource depletion and environmental degradation. Evidence suggests that health gains trigger economic growth: if the benefits of that growth are equitably distributed, this can lead to poverty reduction.

The Millennium Declaration, adopted unanimously by world leaders in September 2000, sets a number of inter-related goals and targets which are based on principles of sustainable development and are aimed at making further progress in eradicating poverty and advancing healthy and sustainable human development. In addition to these commitments, health, sustainable development and poverty reduction is being addressed at country level in comprehensive development strategy and planning tools such as the United Nations Common Country Assessments (CCAs) and the United Nations Development Assistance Frameworks (UNDAFs).

The Need for Intersectoral Action

Countries face a myriad of health-related problems relating on one hand to poverty and a lack of access to basic services/resources, and on the other to large-scale, rapid industrialisation, urbanisation, demographic change, and technological development. The problems facing the health sector today are increasingly complex, multidisciplinary in nature, often ill-defined, and have uncertain solutions. While the health sector itself is changing to respond to many of these challenges, it cannot address these problems on its own. Many of the key determinants and solutions to health and disease lie outside the direct realm of the health sector, in sectors concerned with environment, water and sanitation, agriculture, education, employment, urban and rural livelihoods, trade, tourism, industrial development, energy and housing. Addressing the underlying determinants of health through intersectoral efforts is key to ensuring sustained health improvements and ecologically sustainable development.

The main health goal of governments and of WHO was declared in 1977, to be: "Attainment by all the people of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life." However, various trends, including globalization of trade, travel and technology, urbanization and the growth of megacities, widening gaps between rich and poor, the continuing burden of infectious diseases, the rise in non-communicable diseases, and growth in environmental threats, made a reassessment of this "Health for All" (HFA) strategy necessary in 1995.

The renewed "Health for All in the 21st Century", strategy adopted at the World Health Assembly in 1998 set out global priorities and targets for the first two decades of the 21st century, which aim to create the conditions for people worldwide to reach and maintain the highest attainable level of health throughout their lives. The strategy is based on the principles of social justice, equity and human development, and emphasises the prevention of ill-health, minimisation of health risks and promotion of population health. Conceived in these terms, the improvement of health requires more than the services delivered by the health sector alone; the contribution of other sectors is explicitly recognized as vital for improving the health and well-being of the population.

This is emphasised in WHO's corporate strategy which establishes the goals of building healthy populations and communities and combating ill-health through the adoption of four strategic approaches:

- Reducing excess mortality, morbidity and disability, especially in poor and marginalized populations.
- Promoting healthy lifestyles and reducing factors of risk to human health that arise from environmental, economic, social and behavioural causes.
- Developing health systems that equitably improve health outcomes, respond to peoples' legitimate demands, and are financially fair.
- Developing an enabling policy and institutional environment in the health sector, and promoting an effective health dimension to social, economic, environmental and development policy.

Intersectoral Planning at National Level

While there are shared global and transnational problems, each country, region and community faces its own unique problems, the solutions to which are determined by many factors, including resources, customs, institutions and values .This implies that a combination of global, national and local strategies are needed, which must be harmonized in order to integrate health, environment and development concerns.

Created as a dynamic programme of action within the UN's global partnership for sustainable development, Agenda 21 called for new planning approaches in order to achieve sustainable development. Specifically, it emphasized the integration of environmental and developmental concerns, integration of the social sector, including health, into the process of development planning, the development of plans for priority actions based on cooperative planning between the various levels of government, NGOs and local communities.

Agenda 21 emphasised a number of elements which are necessary for the integration of local and national health concerns into environment and development planning. These are:

(1) identification and assessment of health hazards associated with environment and development,
(2) development of environmental health policy incorporating principles and strategies for all sectors responsible for development,
(3) communication and advocacy of this policy to all levels of society and,
(4) a participatory approach to implementing health-and-environment programmes.

Chapter 6 of Agenda 21 specified that countries should set priorities for action based on cooperative planning by various levels of government, non-governmental organisations and local communities. This provided an important opportunity for health authorities to influence planning at a national level, and to reverse the trend of environmentally-damaging and health-threatening development. Such planning, oriented to the prevention of health and environmental problems and involving all levels and sectors, is essential for achieving "Health for All" and sustainable development.

Many countries have instituted new policy and planning frameworks, and have developed tools to make health and environment concerns an integral part of the planning process. On a world-wide basis, measures to incorporate health and environment issues into national plans and programmes have varied from country to country, depending on priorities, planning mechanisms, and the way in which planning responsibilities are divided. This has led to a wide variety of approaches being adopted including:

- Preparation of health and environment plans for inclusion in the national plans for sustainable development.
- Integration of environmental protection and health plans into national economic and social development plans.

- Review and modification of sectoral plans to include health and environment concerns.
- Incorporation of health considerations into national environmental action plans.
- Intersectoral input into national health policy and plans.

Of particular interest is the development of National Environment and Health Action Plans (NEHAPs), which aim to incorporate health and environment issues into national action plans (See box 1).

Box 1.

National Environment and Health Action Plans: worldwide developments

National Environmental Health Action Plans (NEHAPs) emerged after the adoption of Agenda 21 in the mid-1990's, and were first developed by a number of pilot countries in Europe. The NEHAP planning process has also been adopted in other regions of the world.. In developing countries, NEHAPs were often preceded by World Bank-promoted National Environmental Action Plans (NEAPs).

NEHAPs have encouraged a process of intersectoral consultation and collaboration. This in turn has led to a greater understanding of the importance of environment and development issues within Health Ministries, and a greater understanding of the importance of health issues within Environment and other Ministries. Reviews of the NEHAP planning process have identified a number of strengths, among which are:

- increased awareness and understanding of health, environment and development problems;
- increased focus on prevention;
- adoption of broader approaches;
- improved collaboration between sectors; and
- formation of viable partnerships.

Adoption and implementation across the world has nevertheless been uneven, and weaknesses still remain. These include:

- gaps in data availability and quality;
- difficulty in detecting health and environment trends;
- poor linkages between health and environment data;
- emphasis on symptoms, rather than causes of problems;
- little focus on analysis of management structures;
- lack of capacity for implementation; and
- lack of clarity regarding priority-setting processes.

Inter-sectoral Planning at Local Level

Key to the Agenda 21 process has been the development of initiatives on the local/municipal level through dialogue between local government and its citizens, organizations and private enterprises and the subsequent formulation of strategies based on information gathered through the consultation process. Local Agenda 21 and related activities include, among others, the WHO Healthy Cities Movement, and UN Habitat and UNEPs Sustainable Cities Movement. Local planning initiatives which address health and environment concerns in sustainable development have been collectively referred to as "Local Environment and Health Action Plans" or "LEHAPs". These include local Agenda 21 initiatives, which address health issues and/or involve the health sector in local development planning, as well as "Healthy Cities" types of approaches (See box 2).

Box 2.

The Healthy Cities Movement: a worldwide success

The Healthy Cities Movement started as a small-scale project of the WHO European office in 1987. It has now become a major movement, involving thousands of cities throughout the world. Key successes of the Healthy Cities type approaches include:

- efforts to place health higher on the agenda of local decision makers in cities and other settings;
- building a strong local lobby for public health concerns;
- dealing with health, environment and development problems through local participation,
- ensuring that all development sectors and agencies, including those dealing with housing, local government, industry, transport and planning, address health issues in their work.

The Healthy Cities concept and approach has been translated in different ways in different places: Healthy Cities in Europe and Africa, Healthy Islands in the Western Pacific Region, Healthy Municipalities and Communities in North America, Healthy Villages in the Eastern Mediterranean, as well as healthy "settings" which encompasses schools, marketplaces and many other sites and settings where people live, work and recreate.

Preventing Disease through Intersectoral Action

Inter-sectoral approaches and partnerships have been developed to tackle particular diseases, both communicable (infectious) and non-communicable. Communicable diseases were the focus of Chapter 6 of Agenda 21 as they occur mainly in developing countries, where poverty and poor environments greatly increase the risk of disease. The poorest billion people in the world are particularly vulnerable to such diseases. This fact poses great challenges to

development, economic and human security, and also threatens sustainable development.

Evidence shows that communicable diseases can be controlled in the world's poorest countries. Effective tools are available and many low-income countries have shown that by using these tools wisely, the disease burden can be reduced dramatically. Increasingly, policies and programmes to combat communicable diseases focus on integrated strategies. Such strategies simultaneously address the underlying causes of disease, often found in the broad socio-economic, cultural and physical environment, as well as addressing issues relating to the treatment of the disease condition itself.

- *HIV/AIDS*

Of those infectious diseases that contribute to, and deepen the poverty of the world's poorest people, HIV/AIDS has the greatest potential and actual impact, on individuals, families, sectors and nations (See box 3).

Box 3.

The impact of HIV/AIDS in developing countries

- About 40 million adults and children are now living with HIV/AIDS, 95% of whom are in developing countries.

- HIV/AIDS has had its most severe impact on the most vulnerable groups (as identified in Agenda 21), including the poor, women and children.

- In Sub-Saharan Africa, for example, over 25 million people are infected with HIV/AIDS. More than 12 million Africans have died of AIDS, and many millions orphaned as a result.

- HIV prevalence rates of 10-15% can translate into a reduction in growth rate of GDP per capita of up to 1% per year.

Through its widespread impact on demography, households, communities, sectors and the economy, AIDS is now seen as more than a health crisis. It is recognised as a threat to development and security throughout the world, and the Secretary-General of the United Nations has highlighted the fact that the devastation wrought by HIV/AIDS is now so acute, it has itself become one of the main obstacles to development

Twenty years' experience of the HIV/AIDS epidemic have provided evidence that it is technically, politically and financially feasible to harness the epidemic, and reduce its spread and impact. The key lesson learned is the critical importance of political leadership, both in increasing the visibility of the epidemic and decreasing the stigma associated with HIV/AIDS. There is also a greater understanding of the policies, programmes and partnerships between government and civil society that are needed to better respond to the epidemic across all social and economic sectors.

Despite enormous obstacles still to be overcome, there have also been successes from which valuable lessons can be learned. Proven effective measures include:

- Accessible, inexpensive condoms
- Immediate treatment of other sexually transmitted infections
- Voluntary counselling and testing
- Prevention of mother-to-child transmission
- Promotion of harm reduction to reduce HIV infection in drug users
- Sexual health education in school and beyond
- Accelerating access to care, support, and treatment, including psychosocial support, home and community-based care, and innovative new partnerships to provide sustainable and affordable supplies of diagnostics and medicines.

Case study 1.

Thailand's HIV prevention programme

In Thailand, government determination to enforce 100% condom use in brothels and to ensure wide access to HIV prevention campaigns through schools, the mass media, and the workplace have been key factors in lowering HIV infection rates. The broad-based campaign, launched in 1991, with high political commitment at both national and regional levels and cross-sectoral cooperation, has led to:

- an increase in condom use – reported condom use in brothels increased from only 14% of sex acts in 1989 to over 90% by 1994
- a reduction in visits to sex workers – Thai army recruits visiting sex workers fell from almost 60% in 1991 to about 25% by 1995.
- a dramatic reduction in HIV infection rates – HIV infection rates among 21-year-old military conscripts peaked at 4% in 1993 before falling steadily to below 1.5% in 1997.

Case study 2.

Senegal's broad-based response to HIV/AIDS

In Senegal, a rapid broad-based response to the HIV/AIDS epidemic has succeeded in holding the spread of HIV at much lower levels than in many other African countries. The government acted swiftly:

- putting sex education on the timetable in primary and secondary schools,
- providing treatment for sexually transmitted infections, and
- actively promoting the use of condoms.

As a result the rate of HIV infection rates in Dakar has stayed below 2%, over 60% of men and 40% of women aged 15-24 are now reported to be routinely using condoms with casual partners, and the condom distribution rate has soared from 800,000 a year in 1987 to over seven million by 1998.

Tuberculosis

About eight million people develop active tuberculosis (TB) every year, and the disease kills over 1.5 million people per year. Increasing poverty, poor living conditions and the HIV virus have contributed to the resurgence of this disease. In India, the estimated economic cost of TB is US$3 billion per year The costs to the patient for diagnosis and successful treatment average US$100 to US$150, more than half of the annual income of a daily wage labourer.
In Uganda, a study showed hat 80% of wage earners had to stop work because of their illness. In Bangladesh, some locals call TB the "King's disease"- because only kings can afford to contact it. By the time patients presented for treatment in the public TB clinic in Bangladesh, some had already spent US 130 USD for private sector treatment and lost an average of 14 months of work time.

Overcrowded, impoverished dwellings are a breeding ground for TB, which thrives on immune systems weakened by other chronic infections and by malnutrition. The Stop TB Initiative, launched by WHO in 1998, is working to accelerate the control of this disease by greatly expanding the global coalition of partners, pushing TB higher on the international public health agenda, and increasing significantly the investment in control.

Malaria

Several hundred million people continue to be infected annually with malaria, resulting in almost 300 million clinical cases world-wide each year. Malaria is increasing in many countries, partly because of deterioration in public health infrastructure, but also because of climatic and environmental changes, conflict-related human migration, widespread poverty, and the emergence of drug resistant parasites. Africa's GDP would probably be in the region of US $100 billion higher if malaria had been tackled 30 years ago, when effective control measures first became available. Even today, half a billion cases of malaria each year lead to the loss of several billion days of productive work. The estimated costs of malaria, in terms of strains on the health systems and economic activity lost, are enormous. In affected countries, as many as 3 in 10 hospital beds are occupied by victims of malaria.

In Africa, where malaria reaches a peak at harvest time and hits young adults especially hard, a single bout of the disease costs an estimated equivalent of 10 working days. Research indicates that affected families clear only 40 per cent of land for crops compared with healthy families. Knowledge about malaria is often markedly low among affected populations. In one recent survey in Ghana, for example, half the respondents did not know that mosquitoes transmit malaria. The failure of past efforts is due to a large extent to inadequate collaboration of malaria control programmes with non-health sectors and insufficient attention paid to the political, economic and social aspects of people's experiences of malaria.

In malaria endemic parts of the world, a change in risk of malaria can be the unintended result of economic activity or agricultural policy that changes the use of land (e.g. creation of dams, irrigation schemes, commercial tree cropping and deforestation). Global warming and other climatic events such as " El Niño" also play their role in increasing risk of disease. Successful malaria control efforts have involved contributions from community members and people working in education, environment, water supply, sanitation and community development. For success to be sustained, control efforts should be an integral part of national

health development and community action efforts, supported by intersectoral collaboration at all levels and by monitoring, training and evaluation.

"Roll Back Malaria" (RBM), launched in 1998, is a global partnership founded by the governments of malaria-afflicted countries, WHO, UNDP, UNICEF and the World Bank. It is committed to halving the global malaria burden by 2010, and is now beginning to see positive results. It is based on an integrated strategy that addresses the health, environment and sustainable development interface by tackling the underlying causes of malaria, and by strengthening capacity to manage diagnosis and treatment of malaria. Six key elements form the basis for success:

- effective management of malaria, including malaria outbreaks;
- rapid diagnosis and treatment of those who are ill;
- multiple and cost-effective means of preventing infection;
- focussed research to develop, test and introduce new products;
- a well-coordinated movement through stronger capacity to health sector and community level effort;
- a dynamic global partnership supported by a coalition of partners working within a common approach.

Case study 4.

Malaria control in Viet Nam

Government commitment to malaria control in Viet Nam, largely through the supply of free insecticide-treated bednets, and the use of locally produced high quality anti-malarial drugs, has had a dramatic impact on malaria deaths and cases. Over a five-year period from 1992 to 1997, the death toll from malaria was reduced by 97% and the number of cases fell by almost 60%. Epidemics of malaria declined by over 90%, with only 11 small outbreaks recorded during 1997.

The concerted drive against malaria has involved major investment in training and disease reporting systems, the use of mobile teams to supervise health workers in malaria-endemic areas, and the mobilization of volunteer health workers.

Case study 5

Integrated Vector Management in Kheda District, Gujarat State

Malaria is endemic to India, where 3 million cases are currently reported every year. A project was implemented in the Kheda District, with the following objectives:

- To field test an integrated vector management project.
- To efficiently treat people with the disease
- To reduce vector numbers by eliminating vector breeding sites.

The community was enlisted to implement various malaria control activities which included aggressive case detection and treatment, and community based ecological vector control measures. Vector control related income generating schemes enhanced the sustainability of the program. Extensive health education programmes were implemented which included teaching about malaria breeding patterns in houses and villages. Health educators made door to door visits to teach women how to store and manage water in a malaria control friendly fashion. Over 70,000 people were reached through these activities

A laboratory and related infrastructure for malaria detection were established. The MRC and State Health Department initiated a sustained program of aggressive surveillance to diagnose and treat malaria cases in which community health workers were trained to take on site blood samples as well as prescribe preliminary treatment to patients.

Intra domestic survey teams composed of experts in entymology, support staff, daily wage workers and voluntary laborers surveyed mosquito breeding sites. The breeding sites were classified into two major groups: within houses (intradomestic sites) and around houses (peridomestic sites). Intra-domestic areas included overhead and underground tanks, garden tanks, earthen pots. Peri-domestic areas included village ponds, polls, canals, irrigation channels, borrowpits, and low lying areas.

After identification the elimination of these breeding areas was attempted. Whenever mosquitoes were found breeding in the house, householders were shown how to prevent this. Uncovered tanks , for example, were covered with mosquito proofing, domestic containers were emptied weekly, perennial water sources, ponds, were stocked with larvorous fish and in some cases polystyrene beads were added to underground tanks or small water pits to prevent access of mosquitoes to water. In order to maintain villager interest in the malaria control programme, two income generating activities were carried out: food fish culture and social forestry.

The great volume of work in this programme was only achievable through intersectoral collaboration. The Public Works Department for example constructed drains to prevent water logging while the schools, village leaders, national scouts helped maintain community participation. Public health centres provided technical and surveillance personnel. Social forestry departments provided guidance in the raising of saplings and implementing the income generation component of the project. Various NGO's contributed voluntary labour, health education and money. The Gujarat Energy Development Agency provided solar cookers and improved stoves as incentives for participation.

Factors in the success of the programme were that the interventions were sophisticated but low tech, and the cooperative structure in Kheda provided an excellent basis for community participation. Also, the bio-environmental control strategy was cost effective because mosquitoes had shown resistance to pesticides.

New Resources and Partnerships for Infectious Disease Control

While there are practical and achievable ways of improving health, alleviating poverty and furthering sustainable development, many obstacles are still hampering effective efforts in the prevention and control of infectious diseases. These include:

- lack of funding;
- lack of attention to health impacts of activities in other sectors;
- weak health systems;
- low priority given to health;
- lack of political commitment.
- Lack of intersectoral action

Specific diseases of childhood illustrate well the benefits of an integrated approach. Every year some 12 million children die before reaching their fifth birthday, many of them during their first year of life. Of these, 70% are killed by one of five causes: diarrhoea, pneumonia, measles, malaria or malnutrition, or a combination of more than one. Because their signs and symptoms may overlap, recognizing which of these conditions is present in a sick child can be difficult, and a single diagnosis is often inappropriate. Treatment of the sick child may also be complicated by the need to combine therapies for several conditions. In response, WHO in collaboration with UNICEF, has developed the "Integrated Management of Childhood Illness" (IMCI) initiative (See box 4).

Box 4.

The Integrated Management of Childhood Illness Initiative

This approach gives due attention both to prevention of childhood disease as well as to treatment, emphasizing immunization, Vitamin A supplementation (if needed), and improved infant feeding (including exclusive breastfeeding).

Integrated management has presented several key advantages:

- more accurate diagnoses in outpatient settings;
- more appropriate and, where possible, combined treatment of major illnesses;
- speeding up the referral of severely ill children;
- greater efficiency in training, and in the supervision and management of outpatient health facilities;

reduced wastage of resources such as intravenous fluids and antibiotics, by treating sick children with the most cost-effective intervention for their condition, avoiding the duplication of effort that may occur in a series of separate disease control programmes.

Case Study 6

Brazil is one of the 19 countries in Latin America and the Caribbean that have adopted Integrated Management of Childhood Illness (IMCI). As part of a community-based family health programme, teams of health professionals comprising a doctor, nurse, nurse's aide and 5-6 health agents work with communities to ensure that families know when and where to seek help or advice on health issues such as antenatal care, immunization, child nutrition, or treatment for diseases such as malaria and diarrhoeal diseases. Since 1998, the family health team is being trained in the IMCI approach in some states in the north-east. The results have been dramatic. In Camarigabe, in the poor north-eastern state of Pernambuco, infant mortality dropped from 65 per 1000 live births in 1993 to 17 per 1000 live births in 1999. Elsewhere, the number of cases of diarrhoeal disease was halved within a year – a drop that was helped by an increase of almost 100% in the number of mothers who exclusively breastfed their babies.

The Global Alliance for Vaccines and Immunization (GAVI) is another example of an international coalition of partners including WHO, UNICEF and the World Bank, national governments, foundations, the private sector and research and public health institutions (See box 6).

Box 6.

The Global Alliance for Vaccines and Immunisation

This initiative is based on the premise that immunization is a key element of public health, a prerequisite to economic and social development and a crucial element in enabling every child to reach his/her full physical and intellectual potential. It has five strategic objectives:

- Improve access to sustainable immunization services;
- Expand the use of all existing safe and cost-effective vaccines;
- Accelerate the introduction of new vaccines;
- Strengthen research efforts on vaccines and related products specifically needed by developing countries; and
- Make immunization coverage an integral part of the design and assessment of international development efforts, including deep debt relief.

Addressing the Emerging Agenda for Global Health

- *Non-communicable Diseases*

While many countries continue to see their development efforts hampered by the burden of infectious diseases, at the same time they are faced with the rising incidence of non-communicable diseases (NCDs). NCDs were not highlighted in Agenda 21, yet it is clear that they represent an increasing threat to sustainable development. In 1999, NCDs were estimated to have contributed to almost 60% of deaths in the world, and 43 % of the global disease burden. Based on current trends, these diseases are expected to account for 73% of deaths and 60% of the disease burden in the year 2020.

The rapid rise of NCDs is threatening economic and social development as well as the lives and health of millions of people. They represent a major health challenge to global development in the coming century. Low- and middle-income countries suffer the greatest impact, and the rapid increase in these diseases disproportionately affects poor and disadvantaged populations; contributing to widening health gaps between and within countries. Four of the most prominent NCDs – cardiovascular disease, cancer, chronic obstructive pulmonary disease and diabetes – are linked by common preventable risk factors related to lifestyle: tobacco use, an unhealthy diet and physical inactivity.

- *Tobacco*

The alarming growth rate of tobacco consumption threatens sustainable development everywhere. In 1999, there were over 1.25 billion smokers in the world (representing one-third of the world's population aged 15 and over), and tobacco consumption was responsible for four million deaths. Recent trends in tobacco consumption indicate rising prevalence rates, especially among children, young people and women. The globalization of tobacco consumption restricts the capacity of countries to unilaterally control tobacco within their borders. Trans-national tobacco control issues (including trade, smuggling, advertising and sponsorship, prices and taxes, control of toxic substances, tobacco package design and labelling) require multi-sectoral cooperation and effective action at the global level.

The global approach to tobacco control adopted by WHO and its partners offers a powerful example of an integrated, cross-sectoral strategy. The United Nations Ad-Hoc Inter-Agency Task Force on Tobacco Control, created by the Secretary General of the United Nations in 1998, has intensified a joint United Nations response and has galvanized global support for tobacco control. Development of an international legal instrument, the Framework Convention on Tobacco Control (FCTC), represents the first time that WHO Member States have enacted their constitutional right to develop binding international legal instruments to protect and promote global public health. Formal negotiations of the Convention began in October 2000 and it is targeted for adoption in 2003.

Box 7.

The Framework Convention on Tobacco Control (FCTC): a tool for change

The FCTC process is a catalyst for multi-sectoral cooperation, as well as supporting national action to develop comprehensive tobacco control policies. Within national governments, the creation of the FCTC has provided the opportunity for the tobacco control debate to expand to ministries other than health, including foreign affairs, trade and agriculture. Countries as diverse as Brazil, Thailand, and the US have established formal multi-sectoral committees to prepare for the FCTC negotiations.

In the Philippines, where no national tobacco control legislation exists, the FCTC process has encouraged the creation of a new Tobacco Control Secretariat in the Department of Health and a joint project between the Senate, the Department of Health, and WHO to produce a tobacco control policy paper.

- *Food and Nutrition*

Hunger and malnutrition continue to dominate the health of the world's poorest nations. Nearly 30% of the world's population suffer from one or more of the multiple forms of malnutrition. Almost 50% of the 10 million deaths among children under five each year in the developing world, are associated with underweight malnutrition. At the same time, rapid changes in diets and lifestyles (for example, increased consumption of diets high in fat and sugar, and low in fruit and vegetables, as well as a more sedentary lifestyle) arising from industrialization, urbanization, economic development and global marketing, are having a significant impact on the nutritional status of populations, especially in rapidly industrializing and industrialized countries. A massive global epidemic of obesity is emerging in children, adolescents and adults. More than half the adult population is affected in some countries, the consequences of which include increasing death rates from heart disease, hypertension, stroke and diabetes.

Food is a major source of exposure to pathogenic agents, both chemical and biological (viruses, parasites and bacteria), which may pose a substantial health risk to consumers as well as resulting in severe economic burdens for individual communities and nations. There has been widespread publicity of a number of extremely serious outbreaks of foodborne disease in recent years. Public concern has also been heightened by episodes of chemical contamination of foodstuffs, the bovine spongiform encephalopathy (BSE) outbreak and the emergence of vCJD (variant Creutzfeldt-Jakob Disease), all of which raise questions about the sustainability of current approaches to food production. WHO, in collaboration with FAO (notably within the FAO/WHO Codex Alimentarius Commission), is working to develop sustainable, integrated food safety systems for the reduction of health risk along the entire food chain (See box 8).

Box 8.

The Global Environment Monitoring System — Food Contamination Monitoring and Assessment Programme

This programme has informed governments, the Codex Alimentarius Commission, and other relevant institutions, as well as the public, about levels and trends of contaminants in food, their contribution to total human exposure, and significance with regard to public health and trade.

The programme is being implemented by WHO, in cooperation with a network of WHO Collaborating Centres for Food Contamination Monitoring and participating institutions located in over 70 countries around the world. It has played an important role in national and international efforts to provide assurance regarding the safety of the food supply, and provides the basis — where appropriate — for remedial actions, standards development, industry and public education and resource management.

- *Chemicals*

Concern is mounting about the safety of chemicals. A number of useful partnerships have been built, including the Intergovernmental   Forum on Chemical Safety (IFCS), formed in 1994 as a non-institutional   arrangement in which national governments, intergovernmental   organizations and NGOs can meet to consider issues associated with the   assessment and management of chemical risks. An example of how this   mechanism has borne fruit was its efforts to develop recommendations on   Persistent Organic Pollutants to UNEP's Governing Council, which   subsequently led to the negotiation and adoption of the Stockholm   Convention. Another partnership example is the Inter-Organization   Programme for the Sound Management of Chemicals (IOMC), which was formed   in 1995 as a mechanism to coordinate the work of intergovernmental   organizations active in chemical safety - UNEP, WHO, ILO, FAO, UNIDO,   UNITAR and OECD. The successes of this partnership have been numerous,   including a globally harmonized system for classification and labelling   of chemicals, increasing the numbers of risk assessments developed, and   work to address the dangers of chemical accidents."

Box 9

Chemicals

The chemicals revolution of the last century has changed our lives and contributed greatly to our well-being. Today there are some 70,000 –100,000 different chemicals on the market with 1,500 new ones being introduced every year. But many have now been found to be a threat to human health and the environment. Some of the most toxic chemicals are persistent organics - two examples are dioxins and furans, existing only as by-products with no commercial use. Also receiving global attention are some persistent inorganic chemicals, for example lead and mercury compounds. Exposure to high levels of metallic, inorganic or organic mercury can permanently damage the brain, kidneys and developing foetus. Lead is another toxic, persistent chemical which is highly mobile - once in the atmosphere, it can be dispersed over thousands of kilometres. Lead and its compounds are especially dangerous to children and the unborn child. A major source of exposure has been through lead in gasoline. Although developed countries have largely phased out the use of lead in gasoline, developing countries have yet to achieve this. In common with mercury, it is the more economically and socially disadvantaged people who tend to be more exposed and at risk from lead.

A similar situation exists with respect to some pesticides. Millions of people are poisoned each year using pesticides that are too dangerous to be handled safely. The death, disability and birth defects affect not only agricultural workers directly, but also their families and the consumers of the products. There is a major economic impact from lost work-years, as well as social consequences.

- *Air pollution*

Air pollution, both indoors and outdoors, is a major environmental, health and economic problem, affecting developed and developing countries alike. An estimated three million additional deaths occur each year as a result of air pollution. Worldwide, it is estimated that as many as 1.4 billion urban residents breathe air that exceeds WHO air quality guidelines. These guidelines have provided background information that enables countries to set their national or regional air quality standards in the context of existing environmental, social, economic and cultural conditions. The Air Management Information System (AMIS) of WHO, which assesses trends in ambient air pollution, has been planned as a component of WHO's Global Air Quality Partnership. This partnership brings together a variety of UN agencies, international and governmental institutions and programmes, research/academic bodies as well as NGOs in collaborative information sharing among members, as well as increasing air pollution management capabilities.

The objective of AMIS is to transfer information on air quality management (air quality management instruments used in cities, indoor and ambient air pollutant concentrations, noise levels, health effects, control actions, air quality standards, emission standards, emission inventories, dispersion modelling tools) between countries and cities. In this context AMIS acts as a global air quality information exchange system. AMIS programme activity areas include:

- Coordinating databases of information on air quality issues in major and megacities;

- Acting as an information broker between countries;

- Providing and widely distributing technical documents on air quality management;

- Publishing and widely distributing Annual Trend Reviews on air pollutant concentrations;

- Providing training courses with respect to air quality monitoring and management;

- Running Regional Collaborative Centres to support data transfer activities, perform training courses and implement twinning projects.

Comprehensive air pollution control programmes that adopt a multidisciplinary approach, and that are based on the collaborative efforts of different entities, both private and governmental, are increasingly called for. Various technical, legal, and economic instruments being used to control pollution, in combination with improved administrative and jurisdictional arrangements that aim at more coordinated and integrated air pollution control. This approach is achieving some success; nevertheless the various sectoral responsibilities for aspects of control at different tiers of government must be clarified, and communities and the private sector must become more involved in development and implementation of control strategies.

There is now fairly consistent evidence that biomass smoke exposure indoors also increases the risks from a range of common and serious diseases of both children and adults. Potential solutions to the problems associated with domestic fuel use in poor countries are highly dependent on the local context, and the specific needs of a particular household energy system. Measures taken to address the problem have included improved stoves, cleaner fuels, housing modifications and behavioural change measures. The benefits of such actions extend beyond direct health gains associated with reductions in exposure to indoor air pollution, and include health and economic benefits from time saved collecting fuelwood, increased educational opportunities and income-generating activities, as well as ecological benefits resulting from less deforestation, soil erosion, and accompanying losses in soil fertility.

Box 11

Household Energy and Health: Policy Action and Intervention Measures

While nearly 3 billion people still rely on traditional biomass fuels (wood, charcoal, animal dung, crop wastes) and coal-burning for household energy needs, a wide range of interventions is available which can reduce the impact of household energy on human health.

These include changes to the source (improved stoves, cleaner fuels), home environment (better ventilation) and user behaviour (keeping children away from smoke during peak cooking times). These can be delivered through policies operating at national level (supply and distribution of improved stoves, cleaner fuels), and local level (through community development).

For example several hundred improved stove programmes are in place in over 50 countries ranging from entirely local, non-governmental advocacy such as the ceramic stoves program in Kenya, to national initiatives reaching millions of households - as has been achieved in rural China.

Initial cost - benefit studies conducted on interventions to reduce indoor air pollution indicate that for mortality, benefits may outweigh costs by a factor of around ten or more. In terms of the costs per DALY saved, data from India suggest that improved biomass stoves may save 50-100 USD per DALY, and use of kerosene and LPG stoves in rural areas may result in 150-200 USD per DALY.

Well-targeted and locally relevant interventions that include financial support for technical development and production, as well as for infrastructure for marketing and transport (through income generation and/or micro-credit), accompanied by 'joined up' decision-making by international players and national governments, are likely to have a major impact. Successful implementation however will require participation by local people, collaboration between sectors with responsibility for health, energy, housing, planning etc and an emphasis on market sustainability.

- *Water and Sanitation*

Globally, 1.1 billion people are without access to improved water supply, and 2.4 billion are without access to improved sanitation. This situation has resulted in a severe health burden to developing countries. The Water Supply and Sanitation Collaborative Council (WSSCC), formed in 1996, is an example of an alliance of professionals working in water supply, sanitation and waste management. Their aim is to enhance collaboration among developing countries and external support agencies to accelerate provision of sustainable water supplies, and sanitation and waste management services, particularly to the poor.

The WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM) is a partnership that was brought together to address the vector-borne disease problems that can result from water resources development projects, as well as urban management and waste water use. Development policy adjustment, health impact assessment, field research to classify specific health risk factors in water resources development and to test the effectiveness

of environmental management interventions, are important aspects of PEEM's work, as well as capacity-building to strengthen health sector input into the national development dialogue.

There has been massive investment in water supply since 1980, but the health benefits have been limited by poor progress in other areas, especially in the management of human excreta. The lack of good excreta management is not only a major cause of sickness and disease, it is a major environmental threat to global water resources. Four major challenges face the water supply and sanitation sector in the years to come

- keeping pace with a net population growth of more than a billion people over the next 15 years,
- closing the coverage and service gap, with emphasis on sanitation (which lags considerably behind water supply),
- ensuring the sustainability of existing and new services, and
- improving the quality of services.

Lack of involvement of communities in technology selection has been a major constraint. Various approaches and techniques have been developed to encourage local participation in identifying problems, and ways to solve them. These participatory approaches need to be applied more intensively to increase the effectiveness of implementing water supply and sanitation.

Box 12.

The Participatory Hygiene and Sanitation Transformation (PHAST)

This approach encourages local participation in defining problems and solutions related to water, sanitation and disease control. The community itself analyses its own beliefs and practices, and then decides what needs to be changed. Outside experts, such as local health personnel, water and sanitation engineers and social scientists, also participate and share information with the community.

The PHAST approach was developed when it became clear that traditional health education techniques were not very effective in the water supply and sanitation sector. It is based on the following principles of adult learning and community development:

- Communities can and should determine their own priorities for disease prevention.
- Communities possess a huge store of health-related experience and knowledge, often including both traditional and modern wisdom.
- When people understand why improved sanitation is to their advantage, they will act.
- All people, regardless of their educational backgrounds, are capable of understanding that faeces carry disease and can be harmful, and can learn to trace and describe the faecal-oral route of disease transmission within their own environment.
- Communities can identify appropriate barriers to block disease transmission.

- ***Global Environmental Threats***

Global environmental change is occurring via numerous mechanisms. As a result of driving forces at local and regional levels including regional and global trade arrangements and market demands, environmental change is gradually becoming globalised. Major examples of global environmental change include: climate change, stratospheric ozone depletion, trans boundary air and water pollution, acid precipitation, loss of biodiversity, desertification and deforestation.

Global climate change is caused by the accumulation of greenhouse gases in the lower atmosphere. The global concentration of these gases is increasing mainly due to human activities, such as the combustion of fossil fuels and deforestation. It is estimated that global mean surface temperature will rise by 1.5-3.5 C by 2100. The results of this rate of warming may include large changes in precipitation (both increases and decreases), changes in the frequency and intensity of weather events such as storms and floods, and rising sea levels. Global climate change would have a wide range of potential health impacts - some resulting directly from increases in heat waves and increases in floods, droughts and storms. The transmission of many infectious diseases are particularly sensitive to climate or weather conditions, especially those that are transmitted by mosquitoes, e.g. malaria. Other health impacts would be secondary to the impacts of climate change upon ecological and social systems, and would include changes in local food production and the various health consequences of population displacement and economic disruption.

There are two responses to global climate change. The first concentrates on mitigation including interventions or policies to reduce the emissions or enhance sinks of greenhouse gases. The current international legal mechanism for countries to reduce their emissions is the United Nations Framework Convention on Climate Change. The second concentrates on adaptation including responses to climate changes (e.g. acclimatization in humans, or changes in species distributions) and policies to minimize the predicted impacts of climate change (e.g. building better coastal defences).

Significant stratospheric ozone depletion has occurred at middle and high latitudes, catalysed by trace amounts of hydrogen, nitrogen and halogen free radicals. These chemical compounds occur naturally but their concentrations have increased greatly in recent years due to industrial activities. There is great uncertainty about future trends in atmospheric ozone. Antarctic holes and large ozone depletions have occurred recently that were not predicted in any of the ozone depletion models. Decreased ozone levels will persist for many years to come and corresponding increases in ultraviolet radiation (UV) intensities will result in significant health effects in sections of the population for many decades to come. The resultant UV will increase the incidence of various skin cancers, accelerate cataracts and other eye diseases, and possibly adversely affect a person's ability to resist infectious disease.

The trans boundary movement of hazardous wastes and long-range transport of air pollution are two environmental problems of great international concern. Both of these issues have been the subject of international negotiations resulting in the adoption of international conventions, including the Basel Convention on the Control of the trans boundary movement of hazardous wastes and their disposal.

The main concern relating to long-range transport of air pollution is deposition of harmful substances and reduced air quality in locations far removed from the original sources of pollution. Acid deposition leading to acidification of water bodies and soils, while largely an environmental threat, may also affect human health owing to the mobilisations of heavy metals.

If global environmental change continues at its current rate, future generations may be unable to sustain healthy and productive lives. Scientists must therefore adopt both a descriptive role and a predictive role. They must not only monitor and characterize the impacts of humankind's current activities on ecosystems, but also anticipate and quantify the consequences of its future activities with respect to ecosystem health. In view of the vast health inequities found in many parts of the world today, the most acceptable ways of dealing with expected future problems might well be those that also deal with current problems including strengthening health systems and disease surveillance, improving environmental health monitoring and integrating public health concerns in development and economic planning. Solutions to global environmental problems require increased international co-operation, particularly through implementation of international laws and conventions. International agencies such as WHO are playing an important role in creating consensus on how global environmental health problems can be tackled best.

Strengthening Health System Performance

Health systems must be able to respond to the health and social needs of people throughout their lives. Building on primary health care, sustainable health systems need to guarantee equity of access to essential health functions. These functions include:

- making quality care available across an individual's life span;
- preventing and controlling disease, and protecting health;
- promoting legislation and regulations in support of health systems;
- developing health information systems and ensuring active surveillance;
- fostering the use of, and innovation in, health-related science and technology;
- building and maintaining human resources for health; and
- securing adequate and sustainable financing.

In 2000, WHO carried out the first ever global analysis of the world's health systems, that is all organizations, institutions and resources devoted to producing health actions (i.e. any effort, whether in personal health care, public health services or through intersectoral initiatives, whose primary purpose is to improve health). Five performance indicators were used to measure performance of health systems in 191 member states in trying to achieve three overall goals: good health, responsiveness to expectations of the population, and fairness of financial contribution.

It was found that progress towards these goals depends crucially on how well systems carry out four vital functions: service provision, resource generation, financing and stewardship. Special emphasis was placed on stewardship, which has a profound influence on the other three aspects. The ultimate responsibility for the overall performance of a country's health system lies with government, which in turn should involve all sectors of society in its stewardship function. This is a major challenge for ministries of health.

Moving Beyond the Health Sector

It is increasingly recognised that many of the key determinants of health and disease – as well as the solutions – lie outside the direct control of the health sector, in sectors concerned with environment, water and sanitation, agriculture, education, employment, trade, tourism, energy and housing. Addressing the underlying determinants of health is key to ensuring sustained health improvements in the long-term, and ecologically sustainable development.

As examples throughout this document illustrate, much progress has been made in forging closer links between health and other sectors, particularly through:

- local and national intersectoral health and development planning,
- increased use of planning tools such as health impact assessment procedures,
- integrated monitoring and surveillance systems,
- improved health information systems and indicators.

The policies of all sectors that affect health directly or indirectly need to be analysed and aligned to maximize opportunities for health promotion and protection. This will require health professionals to be more responsive to the primary motivations of professionals from these other sectors, and to be willing to negotiate for policies that are mutually beneficial.

Stronger joint action by health systems and the education sector could contribute substantially and rapidly to the overall improvement of the health status of populations, and to a long-term reduction in health and economic inequalities between groups. Economic and fiscal policies can significantly influence the potential for health gains and their distribution in society. Fiscal policies that contribute to health – for instance, those that discourage use of harmful products and stimulate consumption of nutritious foods and the adoption of healthy lifestyles – should be encouraged. Such policies, when combined with appropriate legislation and health education programmes, can retard and even reverse negative trends, particularly increases in non-communicable diseases and trauma.

Agricultural policies can incorporate specific disease prevention measures in irrigation schemes, actively promote integrated pest management to minimize the use of toxic chemicals, establish land-use patterns that facilitate – rather than discourage – human settlements in rural areas, encourage substitution for crops that harm health, and ensure the production of safe and sufficient foods.

An energy policy that favours health should support the use of cleaner energy sources. It should ensure that less hazardous and toxic waste is produced, that cleaner and more energy-efficient transport is available and that buildings are designed to be energy-efficient. The cumulative impact of such policies can be substantial. Their enactment can ensure that health is not sacrificed for narrow short-term sectoral or economic gains.

The Need for New Planning Tools

Health, environment and sustainable development policies and programmes depend on convenient access to information about a large variety of hazards, ranging from biological hazards in food and water, to chemical hazards such as pesticides, to various physical and social factors. This is necessary if health authorities are to effectively discharge their responsibility to protect public health. But it also serves to clarify the extent to which health hazards are attributable to environmental conditions and/or to the activities of sectors other than health.

Environmental monitoring systems need to be designed to ensure that the exposure information collected is relevant to health concerns, and not merely used to monitor effectiveness of environmental control measures. Currently, few monitoring systems are set up with the aim of comprehensively assessing the various exposure routes (such as air and water) of potential contaminants. Moreover, integrated pollution control mechanisms are usually lacking.

In general, knowledge of environment and health risks is segmented, and incomplete. Mechanisms to ensure coordination at national, regional and local levels regarding health effects assessment and the development of adequate reporting systems, are commonly lacking. Equally, mechanisms are frequently not in place to ensure that such information, once obtained, is transmitted to the various relevant sectors for action. Integrated databases on development hazards, environmental exposures and health, are urgently required. Well-developed health-and-environment information systems, based on relevant data sets, are essential if scientific monitoring information is to be provided in support of policy and decision-making, planning and evaluation.

Conclusions and Lessons Learned

In the past decade a number of lessons have been learned, which are key to ensuring healthy sustainable development:

The first and foremost lesson is that, for development to be sustainable, it must benefit the health and well-being of both present and future generations. Development policies and economic strategies must be aligned to health objectives, as sustainable development is not possible where health is sacrificed for short-term sectoral or economic gains.

It is also clear that political commitment at all levels of government is a prerequisite to success. Where there is such commitment, health, environment and sustainable development issues may move higher up on the international development agenda. Successful strategies and policy measures have been shown to have a number of elements in common, namely they:

- focus on diseases, health conditions and risk factors, both present and future, that threaten sustainable development;
- focus on the broader determinants of health and disease;
- focus on good governance and sustainable health systems;
- forge partnerships with sectors outside of health

Fundamental to ensuring healthy sustainable development are the following factors:

Making vertical linkages. Environment and development issues need to be addressed at all levels simultaneously, so that national policymaking is informed by what is happening on the ground, and local initiatives can move forward in a supportive policy and legislative environment.

Making horizontal linkages. Many of the examples in this report show that neither environment and development issues, nor disease conditions can be addressed successfully in isolation. Linkages between sectors, between initiatives and between government and civil society are key in broad-based, integrated and cross-sectoral approaches that address the underlying determinants of health and sustainable development.

Strengthening capacity at national and local levels, building on local knowledge and expertise. While there is more acceptance now of links between health status outcomes and the determinants of health, particularly those arising from the activities of sectors other than health, there are still problems in acting upon this knowledge. Greater attention needs to be paid to developing managerial, administrative, institutional, human resource, legal, and financial capacities to address health, environment and development linkages, and to work in an integrated fashion both between and within sectors.

Using tools to track progress. A wide range of epidemiological and social science tools are available to assist countries and communities in assessing environment and health situations, in monitoring progress in implementation and evaluating process and outcomes. Integrated databases with indicators which are understandable and usable by a wide range of sectors and by communities,

are essential for effecting change and tracking progress, as well as for building the evidence base for effective health, environment and development policies. Multiple stakeholders need to be involved from the beginning in the development and use of different tools and indicators.