Chapter 5

Health determinants
Still life of fish (Antoine Sita)
**Key points**

- Some countries have taken the right steps towards addressing the social determinants of health by conducting qualitative reviews of the determinants affecting the health of their populations and setting up national coordination bodies to address them.

- National nutrition programmes that combine all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level, are able to protect people from the effects of food insecurity, an underlying cause of stunting.

- Several countries in the Region have made considerable efforts to update and strengthen their food safety systems and infrastructure in recent years. This includes restructuring food control systems for better coordination and integration of services.

- Household water treatment and safe storage interventions, particularly low-cost technologies such as chemical or solar disinfection, have proven to be highly cost effective for the provision of safe drinking water. Synergy between indoor air and drinking-water quality improvement interventions at the household level has shown promising results by combining household water treatment and delivery of improved cooking stoves.

- Countries have taken steps to strengthen their resilience to the adverse effects of climate change by establishing multisectoral country task teams and by assessing environmental risk factors affecting human health and vulnerability to climate change. Country task teams provide opportunities for experts from different sectors to work together in the development and implementation of national adaptation plans.

- Efforts are being made to reduce risk factors related to lifestyle by, among other things, accelerating implementation of the WHO Framework Convention on Tobacco Control, increasing alcoholic beverage taxes and prices to reduce overall alcohol consumption and heavy drinking, and by developing and implementing national guidelines on healthy diet and physical activity for prevention and control of NCDs.

- An emergency response framework (ERF) has been put in place to help guide an effective response to acute public health emergencies triggered by natural disasters or conflicts. The Framework describes a set of emergency management procedures and functions, including leadership, information management, technical expertise and core services.
5. Health determinants

Introduction

This chapter discusses the key determinants of health in the Region, including social determinants, food and nutrition, the physical environment, and risk factors related to lifestyle. Understanding the significance of broad health determinants is essential, given the wide range of potential risk factors in African countries, and the increasing number of people exposed to them. Health status improves when actions are taken on the key determinants of health; that is, the societal conditions in which people are born, grow, live, work and age and the systems put in place to deal with illness to produce health.

In the 1980s and 1990s, most parts of sub-Saharan Africa witnessed increasing economic deprivation and poverty, diminishing food security, environmental destruction, increasing unemployment, and general reversal of human development indicators. In the past decade, fewer conflicts, and more stability and investment have seen some of these negative influences mitigated, but those earlier years of instability and insecurity have had a powerful, determining effect on the health of the people.

Confronting high levels of poverty, malnourishment and inequity, a large fraction of the population faces major health problems without the means to treat them. The poor face greater health risks and pass them on to the next generation. They also have lower survival rates. Breaking this vicious circle requires reducing economic and social inequalities, thereby serving the cause of justice as well as that of health and development. Health is a driver of poverty reduction, and vice versa.

This chapter discusses the key determinants of health in the Region, including the social determinants, food and nutrition, the physical environment and risk factors related to lifestyle.
Social determinants

The circumstances in which people grow, live, work and age, and the systems put in place to deal with illness, determine health outcomes. These conditions, in turn, are shaped by political, social and economic forces and policies.

Africa is rapidly urbanizing, leading to greater overcrowding, poor-quality housing, and inadequate and unsafe water supplies. In 2009, 62% of African people were living in informal settlements in slums and rural areas, with little access to health services. Only 38% were living in urban areas and had good access to health services.

While Africa is enjoying a surge in economic growth, the number of formal sector jobs has not increased proportionately to the rate of economic growth. Between 2000 and 2012, employment in 49 lower income countries increased by just 2.9% – well below the average economic growth of 7% during the same period.

Social determinants are a major part of the MDGs. The MDGs are compacts between rich and poor regions of the world to tackle poverty and inequities. Progress towards achieving the MDGs has been slow but perceptible in the Region. Although reliable data are scarce, the information that is available suggests that progress towards reducing poverty (MDG 1) is slow. Most countries are likely to achieve universal primary education (MDG 2) by 2015, while 10 countries had already achieved gender parity in primary and secondary education (MDG 3) by 2005. However, it is expected that most of the MDG targets will not be met, even in those countries that are making some progress. Thus, the situation is unlikely to change for the poorest and most vulnerable groups in the Region. Consequently, there is a need to address the social determinants of health in the Region to ensure that the poor are not left behind.
The Rio Political Declaration on Social Determinants of Health 2011 identified five priority action areas. These are:
- action area 1: adopt a “health in all policies” approach and foster intersectoral action for health;
- action area 2: promote social participation in policy-making and implementation;
- action area 3: further reorient the health sector towards reducing health inequities;
- action area 4: align global and national priorities and stakeholders;
- action area 5: monitor progress and increase accountability.

A strategy for addressing the key determinants of health

The regional strategy for addressing the key determinants of health in the Region encourages countries to set up a task force for social determinants of health and establish coordination units at all levels of government and across all sectors. The strategy assists Member States to promote actions to reduce health inequities through intersectoral policies and plans to effectively address the key determinants of health, for example education, urbanization, trade and governance. It also urges countries to undertake equity analyses to address local issues and reduce health inequities. Mozambique has taken several steps towards achieving this, setting up a national coordination body to address the social determinants of health. The Seychelles has performed a detailed qualitative review of the social determinants affecting the health of its population.

Health in all policies

The health in all policies approach applies knowledge of ways to take intersectoral action to address health, health equity and its determinants. The structural drivers influencing inequities in the Region include education, trade, globalization, employment and working conditions, food security, housing, water and sanitation.

South Africa took an intersectoral approach – working with academics (who provided the evidence) and industry – to develop a sodium reduction in foodstuffs policy to tackle their high rate of hypertension. South Africa is the first country in the world to regulate sodium consumption at the manufacturing level for several industries.

Ghana has been using microfinance as a vehicle for promoting intersectoral action on health, and Kenya introduced an intersectoral economic stimulus plan that included establishing fish farming to improve both nutrition and opportunities for economic development (Box 5.1).

Box 5.1. Changing the diet in Kenya

Fish farming makes a difference in Kenya.

The government has embarked on an Eat More Fish Campaign, while at the same time encouraging fish farming. Today aquaculture, which takes many different forms ranging from small hand-dug kitchen ponds to fairly large earth ponds of 1000 m², is now popular among poor peasant farmers.

Production has increased more than tenfold, from 4700 metric tonnes in 2007 to 48 790 metric tons in 2013, valued at about US$ 21 million. There are now more than 150 000 fish farmers. Under a programme known as the Fish Farming Economic Stimulus started in 2009, the government has invested approximately US$ 70 million in pond construction and provision of fish fingerlings and feeds to farmers. Local universities have also introduced courses on aquaculture for farmers as well as regular students.

Aquaculture in Kenya now produces nearly six times more fish than marine capture fisheries. In addition, it has created employment for over 500 000 and indirect employment for over 1 million Kenyans, according to Kenya’s Department of Fisheries.
Social participation and dialogue in policy-making and implementation

Social participation and dialogue concerning priority health interventions have been used to develop national policies and create public awareness on determinants and risk factors. Priority programmes that have benefited from social participation and dialogue include immunization, HIV/AIDS, and disease outbreak investigation and response.

Occupational risks to health

Most workers in sub-Saharan Africa are engaged in what is defined as vulnerable employment – own-account workers and contributing family workers. In 2009, 77% of workers were engaged in vulnerable employment. Workers in such employment have little control over their working conditions or job security. In 2010, WHO, in collaboration with the International Labour Organization, developed a new tool known as HealthWISE. This is an action-oriented and practical tool for introducing changes in the workplace through combined efforts from both management and employees, to ensure the sustainability of the changes. This approach to improving working conditions in the health sector provides examples of smart, simple and low-cost practices that can be applied in any workplace setting. In 2010 and 2011, the draft HealthWISE tool was applied in Senegal and the United Republic of Tanzania and effectively identified the links between working conditions and productivity. This contributed to the empowerment of employees, was low cost and adaptable to local context, captured and documented improvements, and strengthened employer networks through sharing of good practices.

Food and nutrition

Nutrition

Although the Region is one of the world’s most food-insecure regions and is burdened by malnutrition, it is also facing a newer but growing obesity and diet-related chronic disease burden. Nutrition problems persist in many countries. Twenty of the 34 countries with the world’s highest burdens of malnutrition, accounting for 90% of the global burden, are in the Region and child undernutrition causes 45% of all deaths in children less than 5 years of age. There has been little change in the prevalence of stunting (i.e. being under the expected height for age) in the Region – estimated at 41.6% in 1990, 35.6% in 2011 and 35.0% in 2012. The prevalence of being underweight for age among children less than 5 years of age went down from 23.6% during the period 1991–2001 to 17.5% during the period 2002–2012, a slow but significant decrease.

Undernutrition, obesity and diet-related chronic diseases are all rooted in nutritional health during the first 1000 critical days of a child’s life. Therefore, the importance of maternal and child nutrition cannot be overemphasized (also see Chapter 3). In the Region, years of nutritional neglect have led to a cycle of malnutrition and poor health, beginning in utero, continuing throughout childhood and adolescence, and transferring to the next generation with the birth of a malnourished, low-birth-weight baby. Malnourished children are less likely to go to school, less likely to stay there, more likely to struggle academically, and earn less than their better-fed peers.

The underlying causes of most nutrition problems in the Region are chronic poverty; food insecurity – an inadequate supply of safe and nutritious food in quantity and quality; poor access to health services; an unhygienic environment; and poor quality water and sanitation. The HIV epidemic has also had a fundamental effect on infant and young child feeding. Without preventive interventions, approximately one third
of infants born to HIV-positive mothers contract HIV through mother-to-child transmission, becoming infected in the womb, during birth, or while breastfeeding. Recently, urbanization has led to changes in the dietary patterns and lifestyles of individuals, not all of them positive, further complicating nutrition issues in the Region. These factors are compounded by low levels of education, especially for women, cultural taboos and suboptimal feeding patterns.

**Situation analysis dashboard**

Renewing Efforts Against Child Hunger (REACH) dashboards, developed by the REACH partnership, are tools used to assess data related to nutrition and to use the results to provide an early warning system. These enable countries to use data effectively to avert nutrition emergencies and improve nutrition overall. The example in Table 5.1 is a generic version used to identify stunting. Countries adapt the dashboard to their specific population's characteristics and needs but the aim is to portray indicators from all sectors relevant to nutrition. The stoplights are informed by existing public health thresholds, building on the existing scientific consensus.

REACH dashboards have been drafted for Ethiopia, Ghana, Mozambique, Niger, Rwanda, Uganda and the United Republic of Tanzania. Dashboards for Chad and Mali are underway.

**What works?**

**National nutrition programme**

Some countries have launched national nutrition programmes, combining all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level. Box 5.2 shows the case of Ethiopia, which has effectively protected people from the effects of food insecurity, an underlying cause of stunting. Between 2006 and 2010, the number of months during which people were food secure increased significantly in the areas covered, as did the number of meals children consumed during the lean seasons.

**Table 5.1. Situation analysis dashboard – Renewing Efforts Against Child Hunger (REACH) dashboard**

<table>
<thead>
<tr>
<th>Existing categories of public health significance</th>
<th>REACH stoplight classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical: ≥ 40% stunting</td>
<td>Red: urgent problem requiring urgent action</td>
</tr>
<tr>
<td>Serious: 30–39% stunting</td>
<td>Red: urgent problem requiring urgent action</td>
</tr>
<tr>
<td>Poor: 20–29% stunting</td>
<td>Yellow: requiring action</td>
</tr>
<tr>
<td>Acceptable: &lt; 20% stunting</td>
<td>Green: not currently a serious problem</td>
</tr>
</tbody>
</table>


**Box 5.2. How Ethiopia used a comprehensive national strategy to reduce undernutrition**

Although Ethiopia depends mainly on rain-fed agriculture, making the population vulnerable to drought and food insecurity, it has managed to reduce stunting and mortality in children less than 5 years of age over the past decade. Between 2000 and 2011, under-five mortality fell from an estimated 139 deaths per 1000 live births to 77 per 1000 live births. Rates of stunting among children less than 5 years of age also decreased during this period, from an estimated 57% to 44%.

This programme has been enhanced by Ethiopia’s robust social protection strategies which include:

- A safety net programme covering more than 7 million people in the poorest areas of the country. The safety net programme targets poor households.
- Community-based nutrition interventions have been integrated into health services through the health extension programme, which has increased primary health care coverage from 77% of communities in 2004 to 92% in 2010.

Evidence from evaluations suggests that services have improved and people have changed their behaviour. In 2011, 71% of children aged 6–59 months were provided with vitamin A supplementation and 52% of children aged 0–5 months were exclusively breastfed.
The health of the people: what works

Food security

The recent global food crisis has worsened the already precarious food situation in the Region. The greatest threat is in the Sahel region where, in 2011–2012, more than 18 million people were food insecure and over 1 million children were at risk of severe acute malnutrition. Despite better agricultural production in 2012 and good conditions for pastoralists, the situation in the Sahel remains critical. This is mostly due to the continuing effects of the 2012 crisis exacerbated by floods and the Mali conflict. In 2013, an estimated 10.3 million people were food insecure, with over 1.4 million children at risk of severe acute malnutrition.

Despite this, food and nutrition security and food safety are not adequately reflected in national development plans and policies, and there is insufficient intervention. There is a need to translate policies into action by including nutrition into national budgets, as most financial support for improving nutrition currently comes from international partners. As agriculture remains the backbone of economies in the Region, a strong food security and safety control system is essential to protect both imported and exported food markets. However, the human capacity and resources needed to achieve this are lacking in most countries and the problem is compounded by the fact that food laws are often incomplete or outdated. The intersectoral nature of food security and the difficulties this poses for coordinating effective policies and actions across sectors is a major reason for the lack of coherent action.

What works?

In the past 5 years much has been achieved in the area of setting up policies to bolster agriculture, food and nutrition security and food safety in the Region. The Kenya Food and Nutrition Policy (2011) is an example. One of the commitments by the Government of Kenya was to continue to advance appropriate measures to increase quality food production to meet the needs of its citizens at all times. To ensure a sustainable increase in food production, the Government undertook to support the production of nutrient-rich foods (crops, livestock, fisheries) by promoting diversification and exploring biofortification options (Box 5.1). However, much still remains to be achieved and the coordination of interventions that are based on country priorities is critical. In particular, African governments must take responsibility and provide leadership to address food insecurity and hunger by providing the required resources for development. They also need to implement appropriate policies, strengthen capacity for food control, including those for nutrition and foodborne disease surveillance, and undertake health promotion to ensure that consumers make informed safe, healthy and nutritious food choices.

Food safety

In most countries of the Region consumers have little opportunity to assess the safety of the food they eat. Frequent outbreaks of cholera, foodborne zoonotic diseases such as typhoid and shigellosis, konzo (an acute paralysis caused by consumption of high cyanide cassava) and acute aflatoxicosis continue to occur in many countries. Worrying developments are the presence of chemical contaminants in food and the development of multidrug-resistant strains of the causative agents of foodborne diseases, due to their misuse in health care and animal husbandry.

Certain bacteria, for example Salmonella spp. and Listeria monocytogenes, survive for prolonged periods in sewage sludge commonly applied to agricultural soil as fertilizers. Unhygienic handling of fresh produce at markets exposes it to more contamination. Handling of crops, especially vegetables and grain during harvest, and sorting at ground level also exposes food to dust and mud. Limited water supplies mean produce tends not to be washed with clean water before arriving at the markets or being eaten.
Lack of appropriate storage, including refrigeration, means food products are displayed at high ambient temperatures that permit bacterial growth. Inappropriate drying and storage of cereals and pulses increases the risk of aflatoxicosis.

Inadequate coordination between ministries and agencies, overlaps between food regulatory authorities, and the lack of national policies on food safety has compounded the problem. Food safety experts, and the training institutions needed to produce them, are in short supply.

**What works?**

**Food safety control systems**

Several countries in the Region have made considerable efforts to update and strengthen their food safety systems and infrastructure in recent years. This has included restructuring of food control systems for better coordination and integration of services. For instance in Mali, a national food safety agency was established by law in 2003, and a national food safety council was created to coordinate food safety activities, including technical and scientific support, risk assessment, supporting surveillance activities, epidemiological networks and risk communication. In Gabon, Ghana and Kenya, efforts to coordinate food safety responsibility have begun by creating working groups and coordination bodies.

**Consumer involvement**

Consumer activism is important for ensuring food safety. In Nigeria, for example, the government has established a consumer protection agency, located in the Federal Ministry of Commerce. The agency is represented in the National Codex Committee, councils of the National Agency for Food and Drug Administration and Control, the Standards Organization of Nigeria, and their technical committees. In Benin, it is...
The health of the people: what works

reported that the number of consumer associations has increased since 2001. The two most important associations Que choisir (/What to choose) and Ligue pour la défense des consommateurs/ (Consumer Defence League) are members of the National Codex Committee.

Quality assurance
The Kenyan horticulture sector is an example of how investments in quality assurance and food safety have enhanced the ability to meet external market food safety requirements. By investing in improved sanitation and storage systems, Kenya’s major fresh vegetable producers have reaped significant economic benefits. In the period 1991–2005, the value of Kenya’s fresh vegetable exports increased significantly.

The physical environment
The 2008 Libreville Declaration on Health and Environment in Africa is the framework African countries and their development partners use to address the environmental determinants of human health. A 2013 evaluation of the Declaration revealed that the major health and environment challenges remain provision of safe drinking water, sanitation and hygiene services; management of water, soil and air pollution; vector control; management of chemicals and wastes; food safety; and health in the workplace. These are exacerbated by the negative impacts of climate change, unplanned urbanization, uncontrolled rapid population growth and urban migration, all of which increase pressure on already overburdened health systems.

Water, sanitation and hygiene
In 2011, only 64% of people in the Region had access to an improved drinking-water source, with levels of access varying from 47% in Mozambique to 100% in Mauritius. While the Region has shown substantial progress in meeting the MDG target for drinking water (MDG 7 target C), this figure hides huge discrepancies between urban (85%) and rural (52%) coverage.

Access to improved sanitation facilities (improved toilets) is very limited in most countries of the Region. The regional average is only 33% (Fig. 5.1), with country coverage of improved sanitation varying from very low levels in South Sudan (9%) and Niger (10%) to 97% in the Seychelles. With only 26% of the rural population using improved sanitation, rural areas lag far behind urban areas, where the rate is 47%. By 2011, only four countries in Africa were on track for meeting the MDG sanitation targets. Open defecation continues to be a major concern in sub-Saharan Africa, with the number of people compelled by lack of any alternative to use this

Fig. 5.1. Percentage of the population using improved sanitation facilities by WHO Region, 2000 and 2012

<table>
<thead>
<tr>
<th>Region</th>
<th>2000</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>29</td>
<td>38</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>33</td>
<td>60</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>33</td>
<td>70</td>
</tr>
<tr>
<td>Americas</td>
<td>68</td>
<td>84</td>
</tr>
<tr>
<td>European</td>
<td>91</td>
<td>93</td>
</tr>
</tbody>
</table>

practice increasing in absolute numbers from 188 million in 1990 to 200 million in 2011.

**What works**

**Household water treatment and safe storage**

Provision of safe drinking water is fundamental to protecting and improving the health of people in the Region. An assessment of water safety plans in Kenya, South Africa, Uganda and the United Republic of Tanzania found that there is a general lack of technical capacity in African countries (with the exception of South Africa) to develop and implement such plans. However, household water treatment and safe storage interventions, particularly low-cost technologies such as chemical or solar disinfection, have proven to be highly cost-effective. Recently, emphasis has been laid on integrating these interventions with wider health priorities, such as preventing cholera and indoor air pollution reduction mechanisms.

**Improving personal hygiene**

The Global Handwashing Day raises awareness of the importance of using handwashing with soap as a means of disease prevention. Many African countries hold Handwashing Day events, which have increasingly grown in size and scope. Celebrations in several countries such as Ethiopia, Ghana and Mali have been linked to broader initiatives, such as promoting handwashing in schools (Box 5.3).

**Indoor air pollution**

Indoor air pollution from household use of solid fuels (e.g. wood, crop waste, animal dung, charcoal and coal) is one of the most important environmental contributors to the global burden of disease. In the Region, most households (83%) lack access to cleaner cooking fuels.

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**Box 5.3. Improving access to drinking water, sanitation and hygiene in health-care facilities during emergencies in northern Mali**

Since 2012, Mali has been facing a serious humanitarian crisis causing displacement of over 300,000 people. This large influx of people from conflict zones in the north has affected health-care facilities, overwhelming their capacity to provide drinking water and maintain good sanitation. In the conflict zones the water supply has been interrupted frequently, contributing to degradation of the sanitation in health facilities.

WHO worked with the Mali Ministry of Health and a local nongovernmental organization (Groupe de Recherche pour l’Amélioration des Initiatives) to assess the water, sanitation and hygiene situation in health facilities in the districts of Gao and Ansongo and provide interventions to improve conditions where needed. Such interventions included provision of equipment and products (bleach, water treatment kits); development of communication materials (posters and leaflets); and education on hygiene practices. A post intervention evaluation found:

- The percentage of facilities with safe drinking water (treated water) increased from none to 77% and those with safe water storage increased from 26% to 100%.
- The problem of wastewater around the facilities improved considerably, from 42% with wastewater in 2012 to 0% after the intervention. Fewer facilities had stagnant water around their water points also. There were fewer signs of open defecation (this decreased from 32% in 2012 to 8% after the intervention).
- Management of medical wastes also improved. The number of facilities with adequate rubbish bins increased from none to 92% but waste segregation did not improve, despite the provision of colour-coded bins for sorting.

This experience is now being applied to water and sanitation interventions in conflict zones in South Sudan.
The health of the people: what works

In rural areas of sub-Saharan Africa, only 11% have access to electricity and 5% to other cleaner cooking fuels, such as gas.

The health burden associated with indoor air pollution in the Region is substantial, calculated in 2004 at 551 000 deaths from child pneumonia, chronic obstructive pulmonary disease and lung cancer. Slightly more than half of these deaths (53%) are from child pneumonia.

Specific health risks posed by the type of cooking fuel (solid fuel such as wood, crop wastes, charcoal, coal and dung) and method used (such as open fires and leaky stoves) are being evaluated in 44 countries in the Region.

What works?

Integrating indoor air quality and water treatment at the household level

Improved stoves and household water treatment are two environmental interventions that can play an important role in health protection by preventing diarrhoea and respiratory diseases. To establish synergy between indoor air and drinking-water quality improvement interventions at household level, projects in Cameroon and Kenya have shown promising results by combining household water treatment (checking storage conditions and improving water quality at household level) and delivery of improved cooking stoves, some still using biomass fuels, some using gas. A preliminary assessment of the projects found:

- Significant reductions in the amount of fuel used (around 30%) and associated costs (26%), and some evidence of reduced time spent cooking (10%) but no difference in the total time the stove was used during the day.
- Cost savings were realized because stoves and household water treatment was provided at the same time, by the same personnel, who also provided training and information on use of the new equipment.
- Delivery of interventions and messages through community health workers proved effective as they established trust, and bridged the divide between implementers and the community.

Climate change

Climate change has been recognized as a major 21st century global health threat. Its effects will be greatest in settings with scarce resources, limited technology and frail infrastructure, including many parts of the Region. Sub-Saharan Africa already bears a heavy burden of infectious diseases, many of them climate sensitive (e.g. malaria, dengue fever, schistosomiasis, cholera and meningococcal meningitis). It is expected that climate change will widen the geographic spread of these climate-sensitive infectious agents and thus increase their impact on human health.

An analysis of country climate change adaptation plans revealed that the health components were very weak. Most were focused on agriculture, the environment and fisheries but had not taken health into consideration. WHO worked with African countries to strengthen their resilience to the adverse effects of climate change by establishing multisectoral country task teams in 34 countries. The main sectors represented in a country task team include health, environment, agriculture, academia, research, and management of water resources and other related areas such as local governance, civil society organization and nongovernmental organizations. In addition, country task teams were supported to assess their environmental risk factors affecting human health, including the management systems, as well as their vulnerability to climate change. The country task teams provide opportunities for experts from different sectors to work together to strengthen country resilience by developing and implementing health national adaptation plans. To date, 42 countries (i.e. all regional countries except Algeria, the Democratic Republic of the Congo, Rwanda, South Sudan, and the United Republic of Tanzania) have developed such plans, which are now being implemented in several countries (e.g. Ethiopia,
Ghana, Kenya, Malawi, Mali and the United Republic of Tanzania) in projects investigating the impact of climate change on specific conditions such as diarrhoeal- and vector-borne diseases and malnutrition. These projects aim to enhance understanding of the local health effects of climate change and to generate evidence on appropriate local adaptation measures. The example from Kenya (Box 5.4) illustrates the potential of climate information to improve operational disease surveillance and early warning.

**Toxic substances**

Management of chemicals remains problematic in the Region, leading to intoxication, fatalities and environmental contamination on a large scale. Chemical incidents arise from poor control over the use, recycling and disposal of chemicals in many countries. Although chemical substances are used in almost all workplaces, their use is particularly widespread in agriculture. In agricultural settings, cheaper pesticides may be used, creating greater hazards than when safer but more expensive alternatives are used.

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**Box 5.4. Strengthening national adaptive capacity to prevent epidemic highland malaria in Kenya**

The distribution and intensity of malaria transmission are strongly influenced by climate and environmental factors. Rainfall and temperature are the major factors affecting epidemiological patterns of malaria. Rainfall leaves surface water in which malaria-carrying mosquitoes breed, and temperature affects the biology of both mosquitoes and the malarial parasites. In Kenya, communities living at altitudes greater than 1100 m, especially those in the western highlands, are more vulnerable to malaria epidemics due to lack of immunity, lack of preparedness and climate variability. At present up to 20 million Kenyans are at risk of malaria. This is expected to increase as climate change facilitates malaria transmission in the highlands.

In response to this, the Ministry of Health in Kenya is working with WHO on a 4-year climate change adaptation project (which started in October 2010) to address malaria. It aims to strengthen capacity to prevent malaria epidemics in the western highlands.

The project compiled 10 years of baseline retrospective data (clinical- and laboratory-confirmed malaria) and climate data (temperature and rainfall) to develop a 3-months-in-advance national malaria epidemic prediction model and decision support tool. This user friendly early warning tool is based on a simple algorithm that correlates malaria data and meteorological data. District health officers have been trained in the use of the tool, and automatic weather stations have been installed with the necessary software. The malaria early warning tools enabled the national malaria control programme to plan response activities, including prepositioning commodities, capacity-building and community sensitizations in epidemic-prone settings such as Kericho, Kisii and Nandi zones. WHO is currently supporting Kenya to further develop the malaria early warning tool for use in other countries with similar malaria patterns.

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**Box 5.5. Identification and management of mass poisoning by bromide in Angola**

On 24 October 2007, Angolan health authorities detected an outbreak of acute neurological disease affecting more than 40 people in the Cacuaco Municipality, Luanda Province. Signs suggested a toxic etiology.

Site surveys revealed toxic chemicals around the community. Reference laboratories detected high levels of bromide in blood samples taken from affected people and high levels of sodium bromide in table salt samples collected from the homes of people with symptoms.

WHO coordinated several partners to eventually identify the largest outbreak of bromide poisoning ever reported, with 458 cases recorded between 19 October and 5 December 2007.

The identification of bromide proved challenging for different reasons, in particular because of the atypical presentation of this intoxication, resulting from cumulative exposure to bromide over a period of several days. This mass poisoning highlights the need to implement effective national chemical and food safety programmes.
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In 2004, an estimated 346,000 people died worldwide from unintentional poisoning and more than 90% of these fatal poisonings occurred in low- and middle-income countries. Unintentional poisoning also caused the loss of over 7.4 million years of healthy life in 2004. In Africa, poisoning causes approximately 7500 deaths per year, with the main causes being pesticides; household products, particularly kerosene; pharmaceuticals; venomous snake bites; traditional medicines and plants; and foodborne intoxication (Box 5.5 gives an example from Angola). To date, only seven countries in the Region have a poisons centre: Algeria, Ghana, Kenya, Madagascar, Senegal, South Africa and Zimbabwe.

WHO has been working with six countries (Cameroon, Kenya, Madagascar, Mozambique, Senegal and the United Republic of Tanzania) to strengthen their management of pesticides. All the project countries have established national regulatory frameworks to improve pesticide registration procedures and have strengthened post-registration monitoring, evaluation and control of pesticides such as dichlorodiphenyltrichloroethane (DDT) used for public health purposes. Personnel from all relevant sectors, particularly health and agriculture, and the industrial pesticide registration authority have been trained in pesticide management issues, enabling the health sector to influence pesticide management policies in other relevant sectors.

Lifestyle risks

In recent decades, NCDs have become a significant problem in the Region, adding to the longstanding burden of infectious disease. NCDs tend to be caused by lifestyle factors, and in the Region the rise can be attributed to three main factors: population ageing, rapid urbanization and globalization. However, other factors such as alcohol abuse, drug abuse and tobacco use are high on the list of critical factors affecting health in the Region. Only a small number of countries have alcohol control policies or advertising regulations in place, and very few have any in-depth understanding of the nature and extent of drug use. Health services and interventions for those affected are scarce.

Changes in work patterns and increasing urbanization are leading to lower levels of physical activity and rising levels of obesity. These factors are contributing to a rise in hypertension (high blood pressure), and a rise in blood sugar and cholesterol levels. These in turn are leading to a rise in cardiovascular diseases and diabetes. It is not uncommon to find multiple risks in the same individual.

Harmful use of alcohol

Disease caused by harmful use of alcohol is rising in the Region. Between 2000 and 2004, the estimated percentage of deaths attributable to the harmful use of alcohol was 2.1–2.4%. More recent evidence indicating a relationship between heavy drinking and infectious diseases suggests that the percentage of alcohol-attributable deaths is considerably higher. Surveys of alcohol use in the Region reveal great variety in levels of use, ranging from high levels of abstention in some countries to high volumes of consumption, with the associated negative health and social consequences, in others.

Despite the significant damage heavy alcohol use inflicts on health, few countries have adequate alcohol policies. In surveys carried out in 2008–2009, only 10 countries in the Region reported having recent alcohol policies in place, and only 16 had any advertising regulations.
Many countries still do not operate systematic surveillance and monitoring systems. Few countries have hospital or outpatient facilities offering interventions or management of alcohol abuse and dependence. Reasons for this include low or non-existent budgetary allocations, the general weakness of health systems, and lack of public health infrastructure.

Interventions focusing on population-based community education on the harmful effects of alcohol, provision of recreation alternatives, use of taxation to increase the cost of alcoholic beverages, and enforcement of public laws are likely to reduce the harmful use of alcohol. In South Africa, an increase in alcohol beverage taxes and prices reduced overall alcohol consumption and heavy drinking.

**Substance abuse**

Drug use disorders are associated with increased risk for other diseases and health conditions, including HIV/AIDS, tuberculosis, hepatitis, suicides, overdose deaths and cardiovascular diseases.

Trends in use of the most common illicit drugs (heroin, cocaine and amphetamines) suggest that they are increasing across the Region. Differences in drug use patterns are primarily determined by local availability. This increase is linked not only to rapid economic and social change, but also to the prevailing political instability in many African countries, which leads in turn to poor law enforcement mechanisms, corruption, and the poverty that increases vulnerability to drug markets.

Significant increases in the availability of illicit drugs have been recorded in coastal areas. A wide range of western African countries, including Benin, Cameroon, Côte d’Ivoire, Ghana, Guinea-Bissau, Liberia, Nigeria, Senegal and Togo, are used as transit platforms for the transport of cocaine. In eastern Africa, an increase in heroin trafficking has also been reported in the coastal regions of countries such as Kenya, Mauritius, Mozambique and the United Republic of Tanzania. There are indications that Ethiopia, Uganda and Zambia are vulnerable to becoming new drug-transit countries. The above-mentioned 16 countries from eastern and western Africa account for approximately 53% of the total drug-using population in the Region.

The prevention and treatment of drug dependence are essential to the reduction of demand for illicit drugs and prevention of drug-related harm. The current limited understanding in African countries of the nature and extent of drug use hampers a targeted response. Absence of surveillance systems also limits the identification of emerging drug use patterns.

Inadequate funding, insufficient skilled health professionals, poor laboratory facilities, inadequate treatment facilities, and lack of political will are some of the impediments to controlling substance abuse in the Region.

Resources invested in formal control measures need to be combined with measures to prevent drug use and treat drug dependence. To address these shortcomings, the United Nations Office on Drugs and Crime and WHO have agreed to undertake a joint programme, strengthening their collaboration on drug dependence treatment and care, sharing intervention networks, and interacting with other intergovernmental organizations and Member States.
Tobacco use

Intensification of marketing efforts by the tobacco industry and rapid population growth in sub-Saharan Africa have led to a rise in availability of tobacco products in the Region. To counter this, efforts are being made to accelerate implementation of the WHO Framework Convention on Tobacco Control and countries in the Region are now developing and implementing tobacco control policies.

South Africa used an intersectoral process to address its tobacco use epidemic through legislation. The economics of tobacco played a significant role in tobacco legislation, and country-specific research and econometric models measured the costs and benefits of tobacco consumption. Public opinion polls complemented quantitative data and revealed that the majority of South African citizens supported all forms of tobacco regulation. As a result of the multifaceted evidence and attention focused on the issue, the Government of South Africa passed the Tobacco Products Control Act in 1993, which among other things increased taxation on tobacco products. Strong political will was an important part of this process. In 1993, the South African president indicated his strong commitment to regulating tobacco products, engaging various stakeholders in a dialogue on tobacco control. This was sustained when in 1998 the Minister of Health committed to enacting stricter regulations.

What works?

Banning smoking in public places

Banning smoking in indoor and in semi-covered public places effectively protects members of the public from exposure to second-hand smoke. Twenty-eight countries have banned smoking in public places and five have comprehensive 100% smoke-free environments. These countries require the posting of no smoking signs prominently in all public places.

Banning advertising

A comprehensive ban on tobacco advertising, promotion and sponsorship is highly effective for reducing the initiation of, and current, tobacco use. Most countries in the Region either ban or restrict tobacco advertising, promotion and sponsorship. Ten countries have a comprehensive ban on tobacco advertising and two countries have a comprehensive ban on tobacco promotion and sponsorship. Ghana’s president made a personal commitment to achieving strong tobacco control legislation and in July 2012 the Public Health Act, a consolidation of nine separate public health laws that included a series of tobacco control measures, was passed. Among other measures, this law bans all tobacco advertising, promotion and sponsorship, including at the point-of-sale.
Pictorial health warnings

Pictorial health warnings communicate the health risks of tobacco more effectively than text-only warnings. Thirty-three countries in the Region require health warnings on packages of tobacco products and five of these now require pictorial health warnings. In these countries the tobacco pack is no longer a vehicle for free and continuous publicity for the tobacco industry but a means of positive health communication to the public. In July 2012, the Government of Madagascar adopted regulations requiring pictorial health warnings on all tobacco packages. The health warnings cover 50% of both the front and the back of tobacco packages, with a pictorial warning on the front and a text warning in the Malagasy language on the back.

Taxation

Increasing the retail price of tobacco products through higher taxes is an effective intervention being used widely in the Region. When taxes on tobacco products are increased, prices will increase and consumption will subsequently decrease. Although all countries have various taxes on tobacco products, the form that most effectively raises retail prices is the excise tax. About 90% of countries in the Region levy excise taxes on tobacco products.

Monitoring and surveillance

Monitoring and surveillance of tobacco use and tobacco control policies are critical for assessing the effects of tobacco control initiatives. Forty-five countries in the Region conduct youth surveys to track trends in tobacco use and evaluate the impact of tobacco control interventions over time. Countries have also begun to insert questions about tobacco use into existing national population surveys.

Physical inactivity

Physical inactivity is a risk factor for diabetes and heart disease that is a growing but largely unrecognized problem in the Region. While the average level of physical inactivity (28%) is lower than that for most other regions, there are very wide differences between and within countries. Women are particularly inactive, reporting higher levels of inactivity than men in almost every country of the Region (Fig. 5.2). In Swaziland, 72.1% of women are physically inactive (for men the rate is 65.9%) while in Namibia, 65.9% of women are physically inactive, compared with 51.9% of Namibian men.

In Africa, most physical activity is associated with occupational activities, especially in rural areas. With urbanization increasing rapidly and with occupations changing from manual labour to more sedentary, office-based activities, physical inactivity is an increasingly important risk factor.

Several countries, including Cabo Verde, Lesotho, Rwanda and Togo have developed, or are developing, national multisectoral strategies to address risk factors in line with the Global Action Plan for the Prevention and Control of

Fig. 5.2. Prevalence of physical inactivity among adults aged 15 years or older (%) by sex and WHO region, 2008

Prevalence of physical inactivity (%)

<table>
<thead>
<tr>
<th>Region</th>
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<th>Male</th>
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<td>24</td>
<td>31.8</td>
</tr>
</tbody>
</table>

The health of the people: what works

Noncommunicable Diseases 2013–2020. These strategies support some of the following actions:

- development and implementation of national guidelines on physical activity for health;
- introduction of transport policies in cooperation with relevant sectors that promote active and safe methods of travelling to and from schools and workplaces;
- ensuring that physical environments support safe active commuting, and creation of space for recreational activity; for example, Mauritius has set up free gymnasiums and developed health tracks where people can walk or jog safely to enable people of all ages to do regular physical activity.

Unhealthy diet

Eating unhealthy food is an important risk factor for NCDs. Unhealthy diets are those high in saturated and trans fats, salt, sugar and calories but low in nutrients obtained from fruits and vegetables. There is a paucity of data on population intake of fats, sugar, salt and calories in the Region. Data from the WHO STEPwise approach to Surveillance (STEPS) (a simple, standardized method developed by WHO for collecting, analysing and disseminating data in member countries) and other surveys carried out in the Region over the past decade show low consumption of fruits and vegetables in most countries. The consumption of unhealthy foods is associated with factors such as rapid urbanization and globalization and the persistence of poverty and underdevelopment.

In several countries of the Region, overweight and obesity levels have reached epidemic proportions, especially among women. According to STEPS survey data, 59.4% of women in Mauritania were classified as overweight or obese and numbers were similar in Lesotho (58.2%). Around half of the women in the over-weight/obese category were obese.

High blood glucose and cholesterol levels may be caused by diets rich in sugars and fats and poor in fruits, vegetables and nutrients, and by physical inactivity. Persistently raised blood glucose may lead to diabetes, and high levels of blood cholesterol may lead to heart disease and strokes. Ill health due to these factors contributes significantly to mortality in low- and middle-income countries. It has been predicted that diabetes will become the seventh leading global cause of death by the year 2030. Total deaths from diabetes are projected to rise by more than 50% in the next 10 years. In countries where STEPS survey data on fasting blood glucose are available, between 5% and 15% of the population has been found to have diabetes.

Only a small number of African countries document national cholesterol levels. These are generally low except for in Mauritius and the Seychelles, where elevated cholesterol levels have been found in 31.5% and 59.7% of the population. Several governments are working to reduce excessive levels of sugar and salt in foods sold to their people, either through dialogue with the industry or outright bans. Mauritius has banned the sale of sugar-sweetened soft drinks and juices and unhealthy snacks (high in calories, salt, fats and sugar) in school canteens and introduced a tax on sugar found in sugar-sweetened beverages. The Mauritian Government has also begun a dialogue with the food industry, aiming to achieve a voluntary reduction in the salt content of bread and processed foods. South Africa regulates salt in processed foods and the use of trans fat in food production processes.

Sexual behaviour

Sexual behaviour varies greatly between countries and regions. Unsafe or unprotected sex increases a person’s chances of contracting HIV, other sexually transmitted infections and unwanted pregnancy.

Of the 2.7 million new HIV infections worldwide in 2010, 70% (1.9 million) were in sub-Saharan Africa. Most newly infected people
in this region acquire the virus during unprotected heterosexual intercourse. The prevalence of HIV infection among young women in sub-Saharan Africa is disproportionately higher than among young men. In 2010, 71% of people living with HIV aged 15–24 years were women and one quarter of all new HIV infections globally were in young women aged 15–24 years. This is attributed to women having a sexual debut earlier than men, and fewer numbers using condoms than men (42% versus 63.6%) during the sexual act, sexual violence against women and girls and biological factors. In addition, adolescent girls have an increased risk because they are often married to older partners, who are more likely to have been exposed to HIV. For example in one study, the husbands of adolescent girls were found to have HIV 30% of the time, while the male peers of these girls had only a 12% HIV rate.

Several other infections result from risky sexual behaviour. HPV, which is responsible for almost all cervical cancer, is sexually transmitted. Cervical cancer is the leading cause of cancer deaths in the Region. Other sexually transmitted infections such as syphilis, gonorrhoea and chlamydia are entirely attributable to unsafe sex, and still occur in several African countries.

**Disasters – including conflict**

Conflicts and emergencies test all the elements of a public health system. Routine health services are disrupted, health personnel displaced, attacked and killed. In 2011, 35 countries in the Region reported emergencies, defined as threatening conditions that require urgent action. In 2012, more than 27 countries reported emergency situations (Fig. 5.3)

An emergency often escalates into a disaster, which is defined as serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses exceeding the ability of the affected community or society to cope using its own resources.

Recent disasters in the Region include:
- 2007–2008 post-election violence in Kenya that displaced over 300 000 people;
- large cholera outbreak in Zimbabwe in 2008 with more than 11 000 cases and high mortality;
- 2009 Horn of Africa drought that affected about 13 million people;
- November 2010 post-election violence in Côte d’Ivoire that displaced over 900 000 people;
- 2010–2011 floods in nine countries of southern Africa that affected around 150 000 people and destroyed farmlands, housing and social infrastructure, including health facilities;
- 2011–2012 Sahel food crisis (involving nine countries in western Africa);
- 2012 floods in Cameroon, Comoros, Congo, Mozambique and Nigeria;
- 2012 cholera outbreaks in Congo, Democratic Republic of the Congo, Sierra Leone and Uganda (95 000 cases);
- 2012 Ebola virus disease in the Democratic Republic of the Congo and Uganda;
late 2013, armed conflict developed in the Central African Republic and South Sudan, requiring an integrated response by WHO and other partners;
- 2014 Ebola virus disease outbreak in western Africa, which has since evolved into the largest, most severe and most complex outbreak in the history of the disease.

**What works?**
The WHO Emergency Response Framework at work

The strategy on disaster risk management for the health sector in the Region was endorsed by Member States in 2012. While the strategy aims at building country capacities for risk management in the longer term, strategies are constantly needed to manage the ever-changing public health emergencies. The Emergency Response Framework (ERF) was published by WHO in 2013 to guide WHO’s effective response to acute public health emergencies, triggered either by natural disasters or conflicts. The ERF describes a set of emergency management procedures and the critical functions of WHO for an effective response to acute public health emergencies. These functions are: leadership, information management, technical expertise and core services.

On 5 December 2013, there was an upsurge of violence in the Central African Republic that led to the killing of more than 1000 people in 1 week, and the displacement of more than 400 000 people in Bangui alone. The looting and destruction of health services and the killing of health workers resulted in the complete collapse of the health system. More than 2.5 million people were directly affected by the crisis with no access to health care. On 16 December 2013, the Director-General of WHO declared a humanitarian crisis in the Central African Republic, a Grade 3 public health emergency (the highest level of crisis). ERF procedures were immediately activated. In less than 1 week, WHO deployed a senior health emergency leader with a strong response team. In the course of the following weeks, more than 20 public health emergency staff were deployed for response operations in the field. WHO effectively coordinated the health partners, helping to assess the critical needs, mobilizing resources and planning for delivery of basic primary health services. Emergency measles and polio vaccination campaigns were organized, reaching approximately 40 000 children. Essential medicines and supplies were distributed to meet the needs of 180 000 people for 3 months. A disease surveillance and early warning and response system was established as well as an emergency referral system, which continue their operations to date. The activation of ERF procedures helped to save hundreds of lives in the Central African Republic.

In conclusion, the determinants of health in the Region are multiple and complex, requiring committed leadership to address the threats posed to social and economic development and, ultimately, human health. However, opportunities exist to take coordinated actions to halt or reverse the negative impact on both health and development in the Region.

This chapter shows that some countries have set up a national coordination body to address the social determinants of health after performing a detailed qualitative review of the social determinants affecting the health of their populations. They are striving to reduce health inequities and inequalities across population groups by (i) the integration of health into all policies and legislation to protect the health of the population; and (ii) the participation of individuals, families and communities in the health services delivery process.

Countries have also taken an intersectoral approach and launched national nutrition programmes, combining all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level. Still others have shown promising results by combining household water treatment and delivery of
improved cooking stoves to improve the physical environment of households. Efforts are also being made to accelerate implementation of the WHO Framework Convention on Tobacco Control by developing and implementing tobacco control policies, including through an intersectoral process to address the tobacco use epidemic through legislation. However, key to accelerating the response to addressing the basic determinants of health are: a strong health system that is responsive to the needs of poor populations (see Chapter 6); monitoring implementation and gathering evidence; and a strong partnership to mobilize technical and financial resources.

Bibliography


