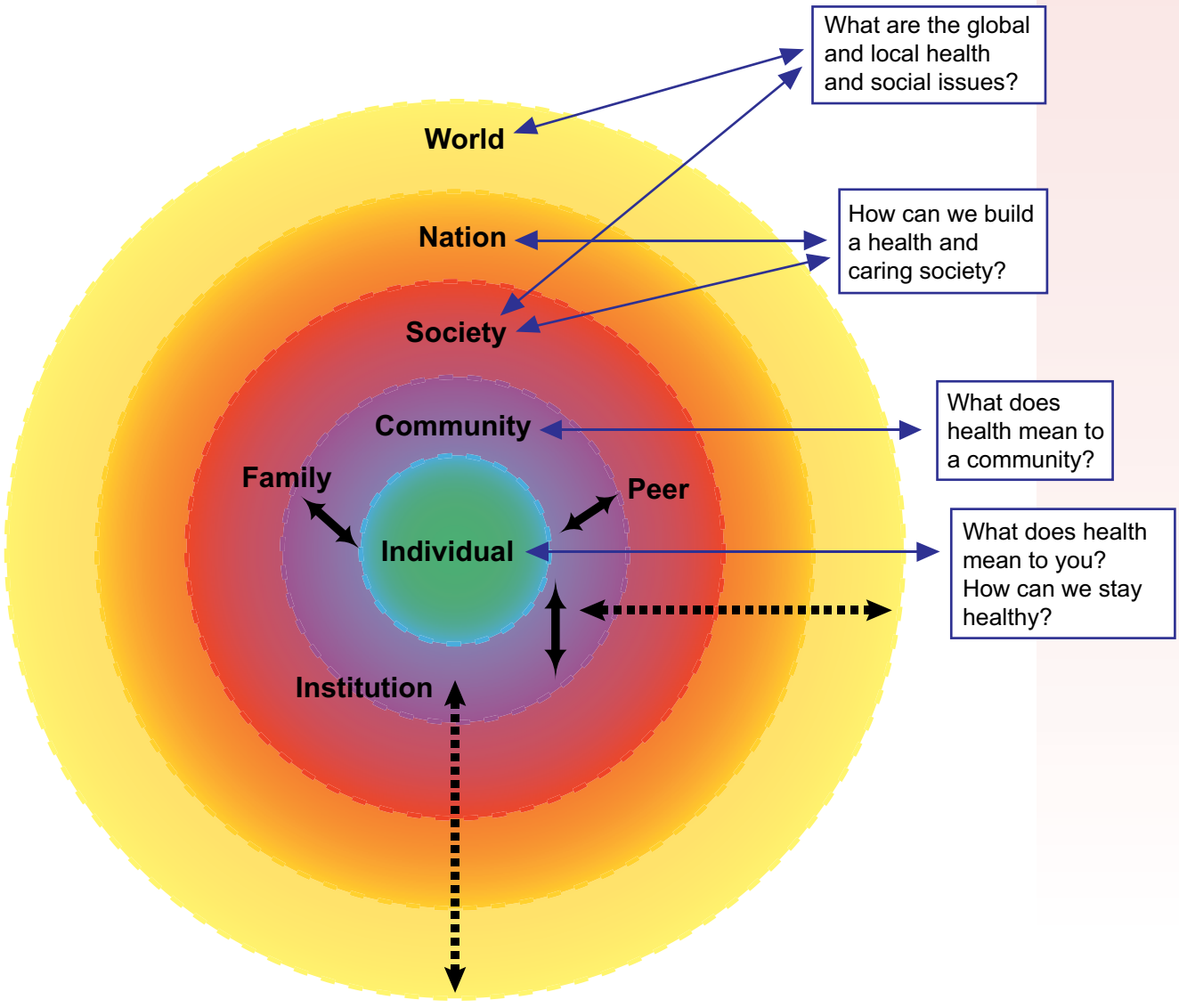
8
Ecology and Health

Health Management and Social Care (Secondary 4-6)

Health Management and Social Care Booklets

The design of the HMSC curriculum rests on the notion of the interconnectedness of the various levels at which phenomena related to health and sickness, well-being and ill-being, and personal and community care are to be understood. The curriculum aims to enable students to explore all of these levels as well as the relationships between them. The different levels can be interpreted as the individual, the family, the peer group, the community, the institutional setting, society, the nation and the world (Figure 1).

Figure 1 The Various Levels and Essential Questions of HMSC



This part includes 19 booklets of learning and teaching reference materials for teachers. The topics and information in these booklets are selected and organized based on the five essential questions from various levels mentioned in the curriculum design in Chapter 2 of the Health Management and Social Care Curriculum and Assessment Guide (Secondary 4-6)(2007). The booklets facilitate teachers to develop an overall framework of HMSC and identify the key concepts of the curriculum so that their students will be more able to critically assess the relevant issues. Details of these booklets are as follows:

Levels	Essential Questions	Booklets	
Individual, Family and Peer	What does health mean to you?	1	Personal Needs and Development across Lifespan
		2	Health and Well-being
	How can we stay healthy?	3	Physical Well-being - Healthy Body
		4	Mental Well-being - Healthy Mind
		5	Social Well-being - Inter-personal Relationship
Community	What does health mean to a community?	6	Healthy Community
		7	Caring Community
		8	Ecology and Health
		9	Building a Healthy City
Society	How can we build a healthy and caring society?	10	Health Care System
		11	Social Welfare System
		12	Medical and Social Care Professions
		13	Health and Social Care policies
		14	Social Care in Action
Local and Global Societies	What are the local and global health and social issues?	15A	Health and Social Care Issue - Ageing Population
		15B	Health and Social Care Issue - Discrimination
		15C	Health and Social Care Issue - Domestic Violence
		15D	Health and Social Care Issue - Addiction
		15E	Health and Social Care Issue - Poverty

Each booklet will start with the essential questions. The expected learning outcomes in terms of knowledge, skills, value and attitude as well as the content outline will be listed as an overview. Teachers are advised to adapt and flexibly use the materials based on school or community situation, background of students, interest, learning skills and the prior knowledge of students. Social issues as well as the graphic organizers that illustrated in Booklet 3.1.5 can be used to help student organize and analyze complex and abstract concepts, construct their knowledge effectively and achieve deep understanding.

What Does Health Mean to a Community?

There are different meanings of community. A community can be referred to as a group of residents who are living in the same geographical area, sharing a common living environment and quality of life. It can be also referred to as a group of people who have common lifestyles, beliefs, backgrounds, interests or functions. In addition, a community can also be a social network in which people care for each other. In this regard, a healthy community refers to a healthy environment, a group of healthy citizens with healthy lifestyles and competence in disease prevention and a support network which promotes health and social care.

Apart from individual, family and social groups, the community and its environment are also factors affecting physical, mental and social health of their inhabitants. A healthy community helps promote the people's physical health and strengthen their adaptability and mental health in adversity and at different life stages.

What does health mean to a community?

In 1986, the World Health Organization (WHO) proposed the healthy cities project. Healthy cities are concerned about issues beyond the physical health of an individual. They are also concerned about the cultural life, the living environment, the social life and the community participation etc. A healthy community is also a sustainable community, having a sustainable environment, living style and resources. All of these are closely related to health.

There are four booklets under the essential question 'what is a healthy community?'. They are: Booklet (6) – Healthy Community, exploring the communicable and non-communicable diseases and how they affect community health so that students are able to build a healthy community through establishing a healthy lifestyle; Booklet (7) – Caring Community, exploring the social factors such as social support which affects health so that students are able to suggest how to build a caring community or society to promote personal and community health; Booklet (8) – Ecology and Health, analyzing the relationship between health and the environment so that students are able to cultivate and maintain a healthy environment for the community; Booklet (9) – Building a Healthy City, introducing the concepts of healthy cities and how it is applied to different settings to promote health and build a caring community.

The topics of the Health Management and Social Care Curriculum and Assessment Guide included in the Booklet 6 - 9 are listed in the following table:

Booklet		Topics in HMSC Curriculum and Assessment Guide
6	Healthy Community	Compulsory part 2C Recent increases in vulnerability and exposure due to lifestyle changes, globalization and family changes 3A The notion and practice of health promotion, health maintenance, ill-health prevention, social care, welfare and community services 4A Disease prevention (primary, secondary and tertiary) and using precautions in our daily living patterns and lifestyles
7	Caring Community	Compulsory part 2A Structural issues related to health, social care and personal and social well-being 2C Recent increases in vulnerability and exposure due to lifestyle changes, globalization and family changes
8	Ecology and Health	Compulsory part 3A The notion and practice of health promotion, health maintenance, ill-health prevention, social care, welfare and community services 3B Developing health and social care / welfare policies 4C Aspects of risk assessment and health management
9	Building a Healthy City	Compulsory part 4B Health and safety 4C Aspects of risk assessment and health management

8 Ecology and Health

Contents

Learning Targets

Through the study of the topic on ecology and health, students are expected to:

Values and attitudes

- Appreciate the importance of a healthy ecology
- Appreciate equity and equality
- Appreciate national and international social justice

Knowledge

- Analyse interrelationships between ecology and health from the ecological perspective
- Recognise ecological factors that influence personal and social health
- Explore interventions required to minimize the effects of the adverse ecological factors
- Identify the relationships between the developed and developing countries
- Analyse the impact of public health policies and government regulations on environmental health and community health

Key Questions

To achieve the above learning targets, teachers may use the following questions to enhance understanding:

- How does ecology affect our health?
- What is a healthy ecology?
- How can we build and maintain a healthy ecology?

8.1 Ecology and Health

Although maintaining personal health is regarded as an individual's responsibility, there is an increasing awareness of the influence of ecosystems and environmental risks on our health. Meanwhile, from the perspective of the environmental model, health is determined by the quality of a person's adaptation to the environment as conditions change. Unlike the medical model, which focuses on diseased organs and biological abnormalities, the environmental model focuses on conditions outside the individual that affect his or her health. These conditions include the quality of air and water, living conditions, exposure to harmful substances, socioeconomic conditions, social relationships, and the health-care system.

In addition to a healthy and caring environment, a community also needs a sustainable environment. This booklet focuses on the environmental risks and how these risks are hazardous to health. Government intervention, the ecological model of health promotion and different Charters of the World Health Organization (WHO) will be introduced to outline how we can maintain our health from an ecological and environmental perspective.

Our health is closely related to the environment we live in. A human being is part of the ecosystem. Human activities, resulting from urbanisation and industrialisation as mentioned in Booklet (7), also affect the environment and disturb the equilibrium of the ecosystem. We have to pay for it.

Ecosystem in Biology

From the biological perspective, ecosystem refers to a natural unit consisting of living and non-living organisms within a specific area. There is no fixed size for the ecosystem. Both a small pond and a whole forest are ecosystems. In the Amazon River basin in South America, a tree can be an ecosystem as most of the animals cannot live without this tree.

The term 'ecology' means the study of relationships between organisms and their environment. Not only does it relate to the biophysical environment; but it provides a way of looking at any system by focusing on the interrelationships and inter-dependencies both within the system and between the systems and the broader environment.

Ecosystems are the life-support systems for the human species and all other forms of life. The ecosystems satisfy our human fundamental needs for food, water, clean air, shelter and relative climatic constancy. The ecosystem closely affects human health and well-being. The following are some examples of components in the ecosystem:

(A) Fresh Water

We cannot live without water. Water is not only essential for life; it is also important to environmental hygiene, cleaning work, irrigation, farming and transportation etc. Water was also the origin of civilization. The history of mankind developed around the places with reliable water sources together with appropriate weather.

The world's water cycle is regulated by the natural functions of ecosystems and associated geophysical processes (e.g., evaporation). Fresh water is essential for human health. It is used for growing food, drinking, personal hygiene, washing, cooking and the dilution and recycling of wastes.

Human intervention, like deforestation, farming, irrigation, river damming etc., may affect the supply of water. Water shortages will endanger human health and bring about detrimental effects on food production, economic activities and political stability. The shortage of fresh water in the developing countries may affect personal hygiene and have a negative impact on health.

The recently released 2nd United Nations World Water Development Report states that almost one-fifth of the world's population lacks access to safe drinking water and 40% lack access to basic sanitation. These people are among the world's poorest. The World Health Organization also states that partly due to the water pollution, over 1 billion people lack access to safe water supplies. A total of 2.6 billion people lack sanitation.

Natural disasters also lead to the lack of fresh water in developing countries. According to statistics on disasters in recent years, 90% of the world's natural disasters are related to water, such as the tsunami in South Asia in 2004 and current droughts in different countries in East Africa. The agriculture and animal husbandry in Ethiopia, Kenya and Somalia etc are affected by the consecutive years of drought. Both children and adults are experiencing chronic hunger as a result of serious food shortages. There is also a rise in water-related diseases such as malaria and diarrhea.

In the developing countries, people tend to dig deep underground for wells. This causes a high level of risk of arsenic contamination which is a serious pollutant of underground water. Meanwhile, the quality of surface water is poor in almost all the developing countries. Due to the lack of capacity for sewage treatment, the safety of water is questionable in most developing countries.

In China, the Global Environment Outlook Year Book 2007 of the United Nations points out, with the rapid economic development, the quality of water supply in urban cities has gradually deteriorated. In the survey on 600 cities, it was reported that 2/3 cities have inadequate water supply and 1/6 are in shortage. Industrial waste and domestic sewage are discharged into the surface water that leads to a serious problem of water pollution. The investigation on the seven major rivers has revealed that nearly 1/3 of the rivers can only reach the minimum level in the standard of water quality. This poor quality of water cannot be used for any purpose, including irrigation.

Source: WHO Ecosystems and human well-being: Health synthesis
http://www.who.int/globalchange/ecosystems/ecosysq1.pdf

(B) Food

Ecosystems provide food to humans. In poor countries, especially in rural areas, people's health is highly dependent on the services of local productions of food because people do not have the capacity to purchase food elsewhere. In these countries, local food production is critical for eliminating hunger and it becomes the income for most households.

Although aggregate food production is sufficient to meet the needs of all, over 800 million of the world population consumes insufficient protein and calories to meet minimum requirements. From 2000 to 2001, the average consumption of grain for each person in developed countries was 580 kg whereas the average in developing countries was 245 kg (FAO, Summary of Food and Agricultural Statistics 2003). Ironically, while those people are experiencing nutrient deficiencies, in richer urban countries, there is an increasing percentage of the population who are overfed, i.e. through consuming diets that are higher in energy and lower in a variety of fruit and vegetables.

Meanwhile, as the increasing demand has to be met by intensive production of livestock such as chickens and pigs, this increase in production contributes to a range of risks to ecosystems and human health, such as the outbreaks of infectious diseases like SARS and avian flu.

Source: WHO Ecosystems and human well-being: Health synthesis
http://www.who.int/globalchange/ecosystems/ecosysq1.pdf

(C) Timber

Demand for timber has led to widespread deforestation in tropical rainforests. After decades of huge deforestation, in 2000-2005, the forest areas of Latin America and the Caribbean lost at the year rate of 4.74 million hm^2, which was 37% of the total forest area. Most of the loss concentrated in the South American region. The deforestation in Brazil alone accounted for the loss of 70% of the forest area.

This is associated with the spread of infectious diseases such as malaria among workers and families in the Amazon rainforest. In the longer term, this will lead to the transmission of vector-borne diseases from the forest to domestic environment. Thus, in 2004, the government in Brazil started the Amazonia Protection Program to protect the Amazon, which sanctions the illegal loggers and land developers in order to reduce deforestation.

Meanwhile, due to the scarcity of water, the increasing demand for agricultural land and urbanisation, the forests in West Asia are also under considerable pressure. In 2002-2007, although the total area of forests in West Asia did not change, a large area of forest degradation occurred. This was mainly due to forest clearing, illegal logging, overgrazing, fire and development of tourism. The Chinese Junipers in the Arabian Peninsula have shown signs of degradation in which the trees are gradually weakened, with most young shoots and branches dying unusually. People also clear the forests of Chinese Junipers to develop agriculture, build roads, houses and recreational facilities. This changes the shape of the basin which is part of the natural drainage system. These practices, together with the over-harvesting, overgrazing and the use of wood as charcoal fuel, make the climate no longer favourable to tree growing.

Unfortunately, over half of the world's population relies upon solid fuels for cooking and heating. The shortage of the local supply of wood can lead to a variety of health impacts including increased vulnerability to illness from exposure to cold, and the increased vulnerability to food and water-born diseases from improper heating of food and water.

(D) Climatic Changes

The release and atmospheric accumulation of greenhouse gases such as carbon dioxide, methane, chloroflurocarbons, and ozone cause drought, flooding, severe storms and extreme temperatures. Such conditions lead to a big worldwide problem known as global warming.

The ecosystems are sensitive to climatic conditions. These changes may further lead to an increased incidence of certain communicable diseases; lack of clean water and shelter; poor nutritional status, and adverse impacts on mental health.

1. Reduced Food Production

However, the causal links between climate change and human health are complex. Most people consider that climate change is associated with reduced food production and the spread of insects, pests and infectious disease vectors. The reduced availability of water for irrigation, desertification, or a rise in the sea level could substantially reduce agricultural productivity. The most widespread effect would probably be local shortages of food. This would cause deprivation and malnutrition which would particularly affect children and pregnant women and it could possibly lead to large-scale migrations.

2. Distribution of Communicable Diseases

Another indirect effect of global warming could be a change in the distribution of communicable diseases. Those transmitted by vectors dependent for their survival on tropical or subtropical environments would spread as their traditional areas of distribution expand. Typical examples of vector-borne infections include malaria and dengue fever, which peak in the warmer months. Warmer average temperatures combined with increased climatic variability alter their pattern of exposure to thermal extremes and resultant health impacts, in both summer and winter.

3. Extreme Weather Events

Extreme weather events including heat waves and sea-level rise are anticipated to increase as a result of climate change. People have to adapt to the gradual increase in temperature. The greater the increase of frequency, intensity, and duration of heat waves, the more profound the consequences, especially on the health of the youngest and the oldest populations, as well as those with serious diseases. Severe heat stress may lead to a rapid deterioration in health, with effects ranging from mild syncope to fatal heat stroke. The direct health effects of changing weather patterns are most pronounced in the very young, the very old and the chronically sick, all of whom are placed at additional risk from cardiovascular and respiratory conditions exacerbated by heat stress.

(E) Disasters

Natural disasters include tsunamis, storms, floods, droughts, landslides, forest fires and so on. They lead to death, psychological trauma and they are global threats to the environment. Therefore, they can be great hazards to health. The following are descriptions of some disasters:

1. Floods

Immediate effects of floods are largely death and injuries from drowning and being swept against hard objects. These effects are, followed by flood damage to roads and transport; problems with drainage and sewage; and damage to the water supply system. There is a risk to health if the floodwater becomes contaminated with human and animal waste. A study in populations displaced by floods in Bangladesh in 1988 found that diarrhea was the most common illness, followed by respiratory infection.

2. Droughts

The health impacts of droughts on populations occur primarily due the decrease in food production. Famine often occurs when a pre-existing situation of malnutrition worsens: the health consequences of drought include diseases resulting from malnutrition. Moreover, in times of shortage, water is used for cooking rather than hygiene. This increases the risk of diarrheal diseases (due to faecal contamination) and water-related diseases (trachoma, scabies). Malnutrition increases susceptibility to infection.

3. Forest fires

The direct effects of fires on human health are burns and smoke inhalation. Air pollution from fires is linked to increased risk of hospital and emergency admissions.

4. The health impacts

The health impacts caused by disasters include:

- Physical injury;
- Deficiency in nutrition, especially for children;
- Increases in respiratory and diarrhoeal diseases due to crowding of survivors, often with limited shelter and access to potable water;
- Increases risk of water-related and infectious disease due to disruption of water supply or sewage systems, population displacement and overcrowding;
- Release and dissemination of dangerous chemicals from storage sites and waste disposal sites into flood waters;
- Impacts on mental health.

Exposure to natural disasters can lead to psychological and mental health problems associated with loss, disruption and displacement as well as cumulative mental health impacts from repeated exposure to natural disasters. These impacts are compounded by the vulnerability of individuals and communities, the appropriateness of emergency responses and the resources available to providing support and rebuild.

Despite cultural differences between individuals, groups and communities, there are some common patterns of responses to disasters such as acute traumatic stress. Some survivors will continue to experience post-traumatic stress disorder, grief, depression and anxiety disorder etc. A proposal is to provide a recovery environment by creating the conditions of security and safety, reuniting families, creating foundations for work etc. Communities with socioeconomic disadvantages may suffer more as the disasters may have an adverse impact on the economic systems and cost of living, creating financial hardship to those vulnerable groups.

8.2 Environmental Hazards to Health

We are all subject to the influences of our environment. No matter how much effort a person puts into maintaining his/her personal health, he/she is still subject to hazards existing in the environment in the form of contaminated drinking water, polluted air, and urban-caused stress factors, such as noise and overcrowded living conditions.

Abnormal changes in the environment may lead to physiological, functional or even pathological changes in human beings if the environmental changes are beyond the human's capacity to adapt. These environmental changes include water pollution, air pollution, noise pollution and crowded living condition. According to the WHO definition, environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing diseases and creating health-supportive environments.

(A) Chemical Pollution

Hazardous chemicals that pollute our environment include not only toxins deposited in our air and waterways but also pesticides sprayed on crops, chemicals transported along our railways and highways for use in industry and those contained in commonly used household products.

Toxic substances released in the form of pollution may enter the body through the respiratory and digestive systems. They can also penetrate through skin and other means. When they enter the human body, they can be transported to various tissues and organs depending on the type of toxic substance. Long-term deposition of toxic substances is called accumulation. Some toxic substances can be excreted through the kidneys, digestive tract and respiratory tract. Some of the toxins may be excreted through secretions such as sweat, milk and saliva. Others may leave the human body through the hair or during the metabolism of skin. However, those which are not able to be excreted will accumulate in the body and become hazards to health. For example, in 2008, some milk powder in China was found to be contaminated by melamine. Melamine accumulating in the human urinary system can cause bladder and kidney stones and may induce bladder cancer.

In addition, toxic substances can penetrate into the blood of the fetus through the placenta, which may affect fetal development and lead to increased chances of congenital poisoning for babies having some inborn abnormalities. When pregnant women eat vegetables with pesticide residue, harmful substances such as phosphorus and chlorine may be transmitted from the mother to the fetus and hinder the development

of the brain, neurological and endocrine systems of the fetus. This will further hamper the development of the child's growth and learning and even induce the occurrence of cancer.

In past decades, the harm caused by the widespread use of chlorinated hydrocarbons such as DDT as pesticides was not fully recognized. These chemicals have been restricted or banned because they may cause cancer, birth defects, neurological disorders, and damage to wildlife and the environment. They are persistent, sometimes remaining in the environment for as long as fifteen years before degrading. Although worldwide food production needs to be increased to meet the demands of a growing population, extensive use of pesticides can cause great harm to environmental health in the process. These chemicals can damage the human reproductive and nervous systems. Therefore, the use of pesticides must be limited and controlled in order to protect all inhabitants of our ecosphere.

(B) Radiation

(Source of Information: Hong Kong Observatory http://www.hko.gov.hk/)

Radiation is everywhere in our environment. Even our body is radioactive. We are therefore constantly exposed to different kinds of radiation. Individuals are exposed to radiation daily both from natural sources, such as sunlight, and man-made sources. The man-made sources of radiation are of most concern.

1. Natural Radiation

All matter is made up of tiny units called atoms. Radiation is mainly released from atoms. Radiation is everywhere in the universe. Since the inception of time, lives on earth have been exposed to radiation in the natural environment.

2. Non-ionizing and Ionizing Radiation

Radiation can be classified as non-ionizing and ionizing. In general, the energy of the non-ionizing radiation (such as light and radiowaves) is low and not sufficient to change the chemical properties of a substance. On the other hand, ionizing radiation (such as alpha and beta radioactive particles) has energy high enough to remove electrons from an atom to create an electrically charged ion. This ionization process often results in chemical changes in living tissues, which can lead to injury in the organism. Ionizing radiation is generally referred to as harmful radiation.

3. Impacts on Health

While the use of ionizing radiation and radioisotopes brings huge benefits to human society, its potential hazards are also gradually becoming apparent.

With limited knowledge of radiation's detrimental effects and due to other restrictions in the research environments, doctors and scientists paid a price or even lost their lives in their early work with x-rays and radionuclides. Marie Curie, who discovered radium, died of a malignant blood disease probably because of the radiation exposure to her bone marrow during her lengthy research work with radionuclide.

The widespread use of x-rays in medical diagnosis and treatment for some diseases in the early 30's without realizing its harmful effects led to cases of radiation dermatitis and chronic ulceration, eventually resulting in radiation induced cancers. Following these, various radiation induced malignances surfaced one after another, drawing attention to the detrimental effects due to radiation.

We might be affected by radiation through the following two exposure pathways:

- Plume exposure pathway - inhalation of radionuclides, direct irradiation from airborne or deposited radionuclides.
- Ingestion pathway - intake of contaminated water or ingestion of contaminated food.

In a nuclear accident, released radioactive materials behave in the same way as a cloud of smoke called a radioactive plume, dispersing into the atmosphere following the winds. Inert gases such as xenon and krypton will travel downwind while diluting rapidly. Some of the volatile substances, such as iodine, caesium and tellurium, will have already condensed into particles by the time they reach the atmosphere. These particles will be deposited in areas affected by the plume, with the amount of deposition decreasing with distance. Rainfall will greatly enhance the deposition rate. When radioactive materials are deposited onto the ground or into the sea, they will be absorbed by crops, livestock and marine organisms and enter our food chain. We will then be affected by consuming these contaminated crops and livestock.

Although radiation can cause damage to living tissues, human cells however can repair the damage through natural metabolic processes if the absorbed dose is not high. Recovery of cells depends on the degree of initial damage and may be different for different individuals. Alpha and beta radioactive particles do not easily penetrate the human body, but gamma radiation does. Gamma rays are

much like X rays. If an individual is exposed to a high-enough dosage of gamma radiation, several adverse effects occur, ranging from nausea, hair loss and diarrhea to cell mutation, anemia and death of cancer.

(C) Water Pollution

1. Sources of Pollution

Urbanisation is one of the major factors leading to pollution. When the rural population move to cities and live in concentrated areas, the problem of pollution becomes more serious. For example, in India, more than 200 million tons of industrial waste water is discharged into rivers, lakes and underground everyday, resulting in a large area of contamination in underground water. The chemical substances contained in the water seriously exceed the acceptable level. The lead content is 20 times higher than that of the waste water with better treatment in the industrialised countries. In addition, the problem becomes worsened when people directly discharge their waste water after domestic use.

Marine pollution due to industrialisation has recently resulted in an increasing trend of chemical food poisoning from seafood. For example, ciguatera fish poisoning has been reported in Hong Kong from time to time in recent years, sometimes as large outbreaks. The ciguatera fish is found in tropical waters. In Hong Kong, cases of ciguatera fish poisoning has been related to live coral reef fish imported from areas such as the Nan Sha Islands and the South Pacific.

The oil slicks of recent years have been widely publicized. The devastation to birds and fish has been apparent. The oil coats the gills of fish, thus killing them. Oil-covered beaches are also expensive to clean and the public loses recreational areas.

2. Impacts on Health

The Ganges River in India is regarded as the most polluted river in the world. However, the local residents still rely on the water for drinking and cooking. The contaminated water has led to many health problems such as diarrhea, hepatitis, typoid and cholera. In 2005, WaterAid and TearFund, the two charity funds for the provision of safe domestic water, sanitation and hygiene promotion, reported that there were 12 kinds of soft drinks containing excessive levels of harmful residues being sold in the Indian market. Some soft drinks even contained pesticide residues which exceed the standards in Europe by 10 times to 70 times.

Besides, polluted water can be responsible for transmitting many pathogens. For example, typhoid fever, dysentery, cholera and parasitic worms. Viruses from human waste carried in contaminated water can cause hepatitis. Bacteria found in polluted water can cause intestinal disorders. Other materials found in polluted water, such as asbestos fibers, can cause cancer.

The following are health impacts of water pollution :

Contaminant	Source	Health Impact
Pathogens	✧ Animal waste from surrounding catchment ✧ Cross-contamination of untreated sewage	✧ Diarrhoeal disease ✧ Intestinal worms
Persistent Organic Pollutants (POPs)	✧ Bio-accumulated in aquatic (and other) food chains	✧ Cancer ✧ Nervous system disorder
Lead	✧ Mobilised through acidification of water	✧ Cumulative nerve poisoning (young children particularly vulnerable)
Arsenic	✧ Industrial effluent ✧ Naturally occurring constituent of soil	✧ Cancer ✧ Peripheral neuropathy ✧ Vascular disease
Nitrites	✧ Fertilisers ✧ Industrial waste	✧ Impede oxygen carrying capacity of blood (identified risks to bottle-fed infants in underdeveloped countries)

(D) Noise Pollution

Noise pollution is a problem in most urban areas. It is a great concern among people living near airports, employees working in manufacturing or industry and commuters who must endure hours of noise each week traveling in cars, trains, buses and subways. The higher the frequency and volume of sound, the greater the damage will be on hearing. The impact may even be greater when the noise appears irregularly but frequently.

Since different people have different abilities to adapt to the noise in the same environment and the settings are different, the impact of noise on people will not be the same. When people need to concentrate on their work, they may be distracted easily by even minimal sounds such as music or chatting. Some noises may have little effect on people working in workplaces which are very noisy but may greatly disturb the hostels and families nearby. Besides, people are less sensitive to noise during the daytime but are more sensitive at night. Some noises may disturb patients more easily. Therefore, it is difficult to determine what decibel (dB) level is hazardous to health. Generally speaking, when the intensity of sound exceeds 80-85 decibels, it can cause hearing damage. The damage is initially reversible. With continued exposure, the damage becomes permanent.

The hearing sensitivity can be temporarily declined under the effect of noise. When people leave from the noisy environment to a quiet environment, their hearing sensitivity resumes shortly. This change in hearing sensitivity is a kind of physiological adaptation to noise. However, with the long lasting effect of noise, the hearing loss increases. It results in a longer time for a person to resume from the noise effect. In long term, when the hearing sensitivity fails to recover and fully restored from the effect of noise, permanent hearing loss will be resulted. Many detrimental effects apart from hearing impairment can occur due to noise because of its stressful nature. Headaches, difficulty in sleeping, increase in anxiety and elevated blood pressure are just some of the examples.

- **Impact on the Nervous System:** Long-term exposure to noise will stimulate the cerebral cortex and result in homeostatic imbalance, cerebral vascular tension and nerve cell damage. It may also result in disorders in the nervous system, such as headache, nausea, tinnitus, insomnia, palpitations, fatigue, memory loss, as well as body weakness and other symptoms. In medical terms, these symptoms are called neurasthenia.

- **Impact on the Circulatory System:** Noise will stimulate the sympathetic nervous system, leading to rapid heartbeat, arrhythmia, hypertension and arteriosclerosis. The higher the decibel level, the more intense the blood vessels will contract. Heart diseases may be closely related to noise.

- **Impact on the Digestive System:** As early as the thirties, people started realizing that long-term work in a noisy environment significantly affected the functioning of the digestive system. Studies pointed out that employees who worked in a noisy factory environment were more likely to suffer gastrointestinal ulcers than those who worked in a quiet environment. The incidence of their onsets of illness was five times higher. Experiments also proved that working in an environment with noise not more than 80 decibels, intestinal peristalsis would be reduced by 37%. This shows that noise can cause problems in digestion.

- **Impact on the Reproductive System:** The stimulation caused by noise can alter the endocrine function of the human body, especially the gonads. According to a survey on the noise impact of the Osaka Airport conducted by Japanese scholars, it was found that pregnant women living near the airport suffered more miscarriages and the birth weight of the infants declined on average.

- **Psychological Impact:** Noise is annoying to many people. They may not be able to concentrate on their work in a noisy environment. This may affect work efficiency and the quality of rest. It may also cause serious psychological problems or self-destructive behaviour. Although noise seldom leads to irrational behviour, it may trigger off conflicts between neighbours.

(E) Air Pollution

1. Sources of Pollution

The increased emission of air pollutants is one of the consequences of the modernization of our lifestyles, and it occurs more in the cool season in Hong Kong. The amount of air pollutants in Hong Kong rank highly compared with other metropolitan cities. Hong Kong has been facing two air pollution issues. One is local street-level pollution. The other is the regional smog problem. Diesel vehicles are the main source of street-level pollution. Smog, however, is caused by a combination of pollutants from motor vehicles, industry and power plants both in Hong Kong and in the Pearl River Delta region.

Motor vehicles, especially diesel vehicles, are the main cause of high concentrations of **respirable suspended particulates** (RSPs) and **nitrogen oxides** (NOx) at street level in Hong Kong.

Pollutants
Source: Environmental Protection Department – http://www.epd.gov.hk

- **Respirable Suspended Particulates**
  Respirable Suspended Particulates (RSP) are the proportion of total suspended particulates of a size smaller than 10 micrometres and they have the ability to penetrate deeply into the lungs. Depending on their source and the existing meteorological conditions, RSP can be made up of a number of different constituents.

✧ **Nitrogen Oxide**
Nitrogen oxide (NOx) typically refers to any binary compound of oxygen and nitrogen, or to a mixture of such compounds.

The many chemical species of the oxides of nitrogen are collectively termed as nitrogen oxides (NOx). This group of gases usually enters the air as a result of combustion processes which involve high temperatures, such as those produced by power plants and vehicular engines.

✧ **Nitric oxide** (NO)
Nitric oxide is the main NOx emitted during combustion and it can be converted into nitrogen dioxide.

✧ **Nitrogen dioxide** (NO_2)
Nitrogen dioxide is a corrosive and highly oxidising light brown gas which has a characteristic pungent smell at high concentrations. It is the reaction of nitrogen dioxide with reactive organic substances, such as Volatile Organic Compounds (VOCs), in the presence of sunlight that produces ozone. Nitrogen dioxide is, therefore, an important part of urban haze or photochemical smog.

2. Impacts on Health

Air pollution negatively affects such respiratory illnesses as coughs, colds, asthma, pneumonia, and bronchitis, as well as cancer and even heart disease. Those individuals who are most sensitive to air pollution are usually older adults and people who have chronic respiratory or cardiovascular conditions. There have been increased hospital admissions for circulatory diseases, especially in the elderly population due to interaction of pollutants in winter. Significant associations have been found between hospital admissions for respiratory and cardiovascular diseases, chronic obstructive pulmonary disease and heart failure. Those aged 65 and above are at a higher risk than other age groups. Besides, younger age groups also suffer a lot from asthma due to the increasing exposure to air pollutants recently.

8.3 Developed and Developing Countries

(A) The Challenge of Ecosystem Decline and International Justice

The *Global Environmental Outlook Year Book 2007* of the United National Environmental Program pointed out that the challenge of ecosystem decline has become even more evident in subsequent years. The landmark findings of the Millennium Ecosystem Assessment (MA) were released by the United Nations in 2005. The MA concluded that over the past half century humans had altered ecosystems more rapidly and more extensively than in any comparable period of time in human history. The MA noted that while the changes made to ecosystems had contributed to substantial net gains in human well-being, they had also led to growing costs, including the degradation of many ecosystem services. The MA concluded that given current trends, the degradation of ecosystem services could grow significantly worse during the first half of this century. Importantly, the MA has also noted that this degradation of ecosystem services is being borne disproportionately by the poor.

Air pollution is one of the examples. The following table shows the emissions of carbon dioxide in different countries per day. The increasing emission is due to modernization and the rapid development of industry, commerce and transportation in developed countries such as the United States and European countries. It has become a global problem.

Emission of Carbon Dioxide in 2003
Compare the (1) total emission and (2) per capita emission

Country	Total emissions of carbon dioxide (Billion Metric Tons)	Per capita emissions of carbon dioxide (Tons)
United States	5788.2	19.9
European Monetary Union	2535.8	8.2
China	4143.5	3.2
Russian Federation	1493.0	10.3
Japan	1231.3	9.6
India	1273.2	1.2
Hong Kong	37.8	5.6
Bangladesh	34.6	0.3
Kenya	8.8	0.3
Ethiopia	7.3	0.1
Burundi	0.2	0.0

(Source : World Bank and Oxfam Hong Kong)

The emissions of carbon dioxide in the developed countries are causing global warming. The residents in the developing countries rely heavily in farming, husbandry and fishing for their living. These activities depend a lot on natural resources. They bear most of the cost of the changes to the environment and natural resources brought about by climate change. In Kenya, Africa, the population lived on the rivers for small-scale farming in the past. In the past ten years, rainfall has been greatly reduced and the dry reason has become longer than before. Thus the water level of rivers has continuously declined. This has forced the farmers to abandon their agricultural land which they depended on for their livelihoods.

The residents in Tuvalu, a small island in the Pacific Ocean, have relied on fishing and tourism for their livelihoods. Climate change has brought an increasing number of typhoons and the coast has been seriously eroded. The flattened terrain and the melting of glaciers lead to a rise in sea level. It threatens the lives of over 10,000 residents on the island and the country is facing the prospect of disappearing from the world.

The accumulation of greenhouse gases in the atmosphere has been a result of the rapid development in the developed countries. This has caused climate change, in which the cost is borne by the developing countries. Consequently, the inequalities and disparities between the developed and developing countries grow, further resulting in the problems of poverty and social conflict.

Under globalization, the scale, mode, location and technology of economic production have been changed. Due to the rapid development of the transportation and logistics industry, both basic necessities and luxury goods can be transported far away to meet the needs of people around the world. For example, raw materials such as wood may be provided by one country for production in a second country and sales and consumption in the third country. In many developing countries, especially those in Asia, growing trade and foreign investment has led to economic growth through creating employment opportunities for local people, building infrastructure, increasing the income of citizens and helping millions of people out of poverty. However, these benefits are also accompanied with the problems of pollution and environmental degradation.

For example, some developed countries have exported their waste to developing countries. Ironically, this practice is regarded as ‘mutually beneficial’ because: in the developed countries, the cost is lower than handling the waste within their own countries even when the expensive shipping costs are factored in; in the developing countries, the imports of waste help solve the problem of hunger by providing jobs, and a small group of people can even make a fortune by importing the waste. This is one of the consequences of globalization. Some countries fall into the ‘poverty trap’, i.e. the excessive use of environmental resources due to poverty that leads to further poverty.

(B) Sustainable Development

In most industrialized countries, environmental problems such as pollution and excessive use of resources and energy are not caused by poverty, but by the affluence and economic development of the society. All these countries need to do to solve the problem of local and global resource depletion and pollution is to reduce the rate of economic development and the use of resources and energy, instead of indulging in their endless pursuit of economic growth.

In 1972, the United Nations Conference on the Human Environment issued a declaration in Stockholm stating that while environmental problems are generally related to industrialization and technological development in the industrialized countries, most environmental problems were caused by under-development in developing countries. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. It calls for the international cooperation between developed and developing countries.

In 1973, the United Nations Sudano – Sahelian Office was set up in an effort to curb desertification in West Africa. However, the overall environment has continued to deteriorate with the problems of global warming, ozone depletion and water pollution problems becoming more and more serious. The natural resources have been destroyed at an alarming rate.

The World Commission on Environment and Development was convened by the United Nations General Assembly in 1983 to help people understand the importance of having a new concept of development. The concept of 'sustainable development' proposed in 1987 refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It has been substituted for the view of development that focuses on uncontrolled economic growth.

Reference

- United Nations《Agenda 21》(18 April 2002)
  http://www.un.org/esa/dsd/agenda21/

- Global Environmental Outlook Year Book 2007
  http://www.unep.org/geo/yearbook/yb2007/

8.4 Environmental Protection for Health

(A) Individual Level

Today, more and more people are becoming aware of the negative impact human activity has had on the environment. Many of the negative changes that have occurred did not have to happen. Certainly, most do not have to keep getting worse. We can no longer plead ignorance about how our activities affect the world in which we live. We also are increasingly recognizing our responsibility toward protecting the environment and preserving our natural resources for future generations. There are some simple actions that all of us can participate in:

- **R**educe: Use or buy only what we really need - there is no waste to treat when there is nothing to begin with.
- **R**euse: Don't throw away items that are reusable. Reduce waste by making the full use of any item.
- **R**ecycle: Give items you don't need to people in need; recycle broken but recyclable items so that the resources can be recycled into usable items.
- **R**eplace: Adopt eco-friendly goods or lifestyles, such as using handkerchiefs instead of tissues, travel by public transport instead of private cars.

Green Tips to Save Water
(Source: EPD – Green Tips to Save the Earth - http://www.epd.gov.hk)

- Remember to turn off all taps after use.
- Use a container for washing, brushing your teeth or shaving than rinsing in running water. You can save up to five litres of water each time.
- Don't wash clothes or vegetables under running taps.
- Do not use an excessive quantity of detergent when washing clothes or household utilities as more water is needed for rinsing them off.
- Water your plants only when necessary.
- Change fish tank water only when necessary. Use a better filtering system to maintain water quality.
- Water can be used again. Save your bath water to wash the floor.
- Be economical with your washing machine and dishwasher. Save for a bigger wash and cut down the rinse cycle.
- Remember that water is not for games.
- Install low-flow taps.
- Install flow restrictors, self-closing taps, sensors, etc.

- By taking a shower instead of a bath, you use only one fifth of the water.
- Do not flush unnecessarily. Eleven litres of water are used every time you flush the toilet. A large family may waste up to 100 litres every day.
- Adjust the flushing water of your cistern to a minimum required level.
- Use waste water instead of drinking water to flush the toilet if there is no supply of sea water for flushing.
- Install a two-flow flushing system on your cistern to reduce water use.

(B) Community and Society Level

1. Radiation Assessment and Protection

The Hong Kong Observatory began monitoring radioactivity in the atmosphere, rain and drinking water in the 1960s. This was expanded into the Environmental Radiation Monitoring Programme in 1987, with the objective of measuring the environmental radiation levels in Hong Kong prior to and after the operation of the Guangdong Nuclear Power Plant at Daya Bay. Air, water, soil and food samples are regularly collected for radioactivity measurement. A Radiation Monitoring Network reporting real-time ambient gamma radiation levels in Hong Kong is in operation. Averaged 24-hour values at various locations in Hong Kong are released to the mass media daily.

The Low-level Radioactive Waste Storage Facility at Siu A Chau was purposefully built by the Environmental Protection Department for the safe storage and handling of low-level radioactive wastes. Its designed storage capacity is sufficient to accommodate the existing waste and waste arising in Hong Kong for the next 100 years. It comprises a 55 m long jetty, a shielded waste storage vault, a fully-equipped laboratory, an automatic control room, an advanced wastewater treatment plant and specially-designed waste reception and processing areas. The radiation levels inside and outside the Facility are continuously monitored to ensure the safe operation of the Facility.

2. Chemical Waste Management

The Waste Disposal (Chemical Waste) (General) Regulation provides for the definition of chemical waste, the registration of persons producing chemical waste, and the control of the possession, storage, collection, transport and disposal of chemical waste. In addition, the Waste Disposal Ordinance provides for the licensing of waste collection, transport and disposal activities and the control on import and export of chemical waste. The Environmental Protection Department (EPD) is the enforcement authority for the control. The main objective of the scheme of control is to ensure that chemical waste is properly managed by all parties, from the source of production through to the place of final disposal.

3. Tackling Water Pollution

The government has a three-pronged approach for dealing with the problem: controlling pollution at source, providing sewers, and collecting and treating sewage.

Controlling at its Source

The Environmental Protection Department (EPD) controls waste water discharge through the Water Pollution Control Ordinance. Operators are required to ensure their discharge meets standards specified by the EPD, and these specifications are contained in licenses allowing them to discharge their waste water into receiving water bodies. The EPD regularly inspects operators, responds to complaints and will prosecute offenders.

Providing Sewers

All sewage should be discharged into sewers, not stormwater drains which are only meant to carry rainwater into the sea. The EPD is trying to extend the public sewer networks in the NT and new development areas. The sewerage master plans and the works are carried out by the Drainage Services Department.

Collecting and Treating Sewage

The Harbour Area Treatment Scheme (HATS) is a strategy for collecting and treating sewage from both sides of Victoria Harbour. Stage 1 intercepts sewage from Kowloon and part of Hong Kong Island and delivers it to the Stonecutters Island Sewage Treatment Works for chemical treatment. Stage 2 will provide additional facilities to convey all sewage from the northern and south-western areas of Hong Kong Island to the Stonecutters Island Sewage Treatment Works for chemical treatment, disinfection in and biological treatment. Elsewhere, a collection and treatment system in Tolo Harbour has resulted in a drop in red tides.

Hong Kong shares its waters with Guangdong. It makes sense, therefore, that pollution control efforts be matched by both sides. Through a joint working group, a 15-year plan has been set to clean up Deep Bay and to reduce pollution from existing sources and control future pollution.

4. Tackling Noise Pollution

Traffic Noise

In Hong Kong, there are two sources of traffic noise. One is from new roads, the other from existing roads. More than 30 kilometres of barriers and screens have been erected along new roads since 1990. Low-noise surfaces are also commonly used. The EPD also advises on the design of new roads and buildings to reduce noise. As a last resort, insulation may be provided. Noise from existing roads is more difficult to tackle. Some 655 roads generate noise greater than 70 decibels. Barriers or low-noise surfaces could be applied to 101 of these roads. Other solutions are being investigated for the remainder, such as traffic management and alternatives to motor vehicles.

Construction Noise

In the past, pile-drivers operated 12 hours a day in urban areas, affecting one in 12 people. The Noise Control Ordinance came into effect in 1989 and included controls on construction noise that have been progressively tightened. Piling is limited to three to five hours a day in built-up areas, quieter piling equipment must be used, and other forms of noisy activities are controlled.

5. Tackling Air Pollution

The government has an important role in protecting the environment. It has to establish legislation and regulations for the general public, as well as industries and trades which generate pollution during their operation, to follow.

Reducing Emissions from Vehicles

To tackle this problem, the key measures include:

- adopting tighter fuel and vehicle emission standards
- adopting cleaner alternatives to diesel where practicable
- controlling emissions from remaining diesels with devices that trap pollutants
- strengthening vehicle emission inspections and enforcement against smoky vehicles
- promoting better vehicle maintenance and eco-driving habits

Reducing Emissions from Industrial Sources and Power Plants

The Air Pollution Control Ordinance and its subsidiary regulations provide for the control of emissions from power plants, industrial and commercial sources, construction activities, open burning, asbestos, petrol filling stations and dry-cleaning machines. A regulation introduced in 1990 limiting the sulphur content of industrial fuel has reduced sulphur dioxide pollution to very low levels.

Reducing Volatile Organic Compound (VOC) Emissions

VOCs are found in a lot of products such as solvent-based paints, printing inks, many consumer products, organic solvents and petroleum products. Other than motor vehicles, the use of these products releases VOCs which cause air pollution and smog (VOCs and Smog). To reduce VOC emissions, the Government has implemented control measures to recover petrol vapour released during petrol unloading and refueling at petrol stations, and to tighten emission standards of motor vehicles in line with the European Union standards. The VOC Regulation, effective from 1 April 2007 under the Air Pollution Control Ordinance, controls the VOC content in architectural paints/ coatings, printing inks and six broad categories of consumer products (i.e. air fresheners, hairsprays, multi-purpose lubricants, floor wax strippers, insecticides and insect repellents); and requires emission reduction devices to be installed on certain printing machines.

VOCs mean **volatile organic compounds** and are found in a wide variety of products such as solvent-based paints, printing inks, many consumer products, organic solvents and petroleum products. In addition to motor vehicles, the use of these VOC-containing products releases VOCs that eventually cause air pollution and smog.

Tackling Regional Air Pollution

Vehicles, industry and power plants in Hong Kong and the Pearl River Delta region all contribute to a regional air pollution problem, commonly seen as smog. The Hong Kong and Guangdong governments are working on a joint plan to reduce the total amount of emissions and stop air quality from further deteriorating as soon as practicable; and in the long term, to achieve good air quality for the whole region.

Useful Website
Environmental Protection Department
http://www.epd.gov.hk/

8.5 The WHO Ecological Approach to Health Promotion

The World Health Organization (WHO) is the directing and coordinating authority for health within the United Nations (UN) system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

The WHO recognizes that people form an integral part of the earth's ecosystem, and therefore their health is fundamentally interlinked with the total environment. In order to survive, all animals, including human beings, require a certain amount of high quality air, water, food and shelter. If people are deprived of any essential environmental factors, or if the environment is polluted with toxic substances, health is adversely affected.

The WHO conducts health research with the developing countries. These studies range from epidemiology to the genetic monitoring. One example of this is the Special Programme for Research and Training in Tropical Diseases of the WHO (http://apps.who.int/tdr/).

(A) Health for All

Rapid globalization and urbanization not only lead to the environmental degradation, but also wider health gaps between the developed and developing countries, as well as within a country and a society. Health inequity has become an issue for most of countries.

In 1977, the World Health Assembly (WHA) proposed: "To enable all of the world's citizens to enjoy by 2000 a level of health that would allow them to lead a socially active and economically productive life". This social target of "Health for All " (abbreviated "HFA") emphasised the attainment of the highest possible level of health by societies as a basic human right, and observing ethical principles in health policy making, health research and service provision. Formulation of policies and strategies should be guided by principles of equity and solidarity, and active attention should be given to gender-specific perspectives and aspirations.

In September 1978, the WHO's First International Conference on Primary Health Care was held in Alma-Ata. The Alma-Ata Declaration was signed and it reaffirmed that health was a fundamental human right and that primary health care was the key to attaining HFA. More information about primary health will be covered in Booklet 10.

Health for all has become the basic principle of health policy around the world.

(B) Roles of the World Health Organization (WHO)

World Health Organization: http://www.who.int

The WHO copes with the above global changes through the following six-point agenda:

1. Promoting development

During the past decade, health has become a key driver of socioeconomic progress. More resources than ever are being invested in health. Yet poverty continues to contribute to poor health, and poor health anchors large populations in poverty. When health development is directed by the ethical principle of equity, access to life-saving or health-promoting interventions should not be denied for unfair reasons, including those with economic or social roots. Commitment to this principle ensures that the priority of health improvement is given to the poor, disadvantaged or vulnerable groups to attain the health-related Millennium Development Goals, preventing and treating chronic diseases and addressing the neglected tropical diseases.

2. Fostering health security

The WHO takes collective action to tackle health security threats. One of the greatest threats to international health security arises from outbreaks of emerging and epidemic-prone diseases. Such outbreaks are occurring in increasing numbers, fueled by such factors as rapid urbanization, environmental mismanagement, the way food is produced and traded, and the way antibiotics are used and misused.

3. Strengthening health systems

To make use of health improvement as a poverty-reduction strategy, health services must reach poor and under-served populations. Health systems in many parts of the world are still unable to achieve this goal. Thus, the WHO gives a high priority to the strengthening of health systems addressing the provision of adequate numbers of appropriately trained staff, sufficient financing, suitable systems for collecting vital statistics, and access to appropriate technologies including essential drugs.

4. Harnessing research, information and evidence

The WHO generates authoritative health information, in consultation with leading experts, to set norms and standards, articulate evidence-based policy options and monitor the evolving global heath situation.

5. Enhancing partnerships

The WHO develops partnerships with UN agencies and other international organizations, donors, civil society and the private sector. The WHO encourages partners to implement programs within countries and to align the priorities established by countries.

6. Improving performance

The WHO participates in reforms aimed at improving its efficiency and effectiveness, both at the international level and within countries. The WHO aims to ensure that its strongest asset - its staff - work in an environment that is motivating and rewarding.

(C) Global Conferences on Health Promotion

Reference: **Global Conferences on Health Promotion**
http://www.who.int/healthpromotion/conferences

1. Ottawa Charter for Health Promotion

Ottawa is seen as the formal birthplace of health promotion. The first International Conference on Health Promotion, meeting in Ottawa in 1986, presented the Charter for Action to achieve Health for all by the year 2000 and beyond. This conference was primarily a response to growing expectations for a new **public health** movement around the world.

The Ottawa Charter defines five health promotion action themes as follows:

- Building healthy public policy
- Creating supportive environments
- Strengthening community action
- Developing personal skills
- Reorienting health services

Each theme will be discussed in more details in Booklet (9).

These themes commonly become the framework for many health promotion strategies at local, regional, and national levels. In this Charter, the WHO stresses that the fundamental conditions and resources for health are peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity. Improvement in health requires a secure foundation in these basic prerequisites. To achieve equity in health, health promotion action aims at reducing differences in current health status and ensuring opportunities and resources to enable all people to achieve their fullest health potential. This includes a secure foundation in a supportive environment, access to information, life skills and opportunities for making healthy choices (WHO, 1986).

2. Adelaide Recommendations on Healthy Public Policy

Since the 1986 Ottawa conference, the World Health Organization (WHO) has organised a series of follow-up conferences focusing on each of the five health promotion action themes. Building a healthy public policy was explored in greater depth at the Second International Conference on Health Promotion in Adelaide, Australia in 1988. The Adelaide Recommendations on Healthy Public Policy called for a **political commitment to health by all sectors**. Four priority areas for action were identified. They are:

- Supporting the health of women
- Improving food security, safety, and nutrition
- Reducing tobacco and alcohol use
- Creating a supportive environment for health

3. The Third International Conference on Health Promotion in Sweden

The focus of the Third International Conference on Health Promotion in Sundsvall, Sweden, in 1991 was creating supporting environments. Rapid population growth, inadequate food, lack of means of self-determination and degradation of natural resources were among the environmental influences identified at the conference as being damaging to health. The Sundsvall Statement on Supportive Environment for Health stressed **the importance of sustainable development and urged social action at the community level**, with people as the driving force of this development.

4. Jakarta Declaration on Health Promotion

The Fourth International Conference on Health Promotion held in Jakarta, Indonesia in 1997 reviewed and evaluated the impact of health promotion, identified innovative strategies to achieve success in health promotion and facilitated the development of partnerships to meet global challenges. In the Conference, five priorities for health promotion were identified and presented as the Jakarta Declaration on Health Promotion into the 21st Century. The five priorities for Health Promotion in the 21st Century are:

- Promoting social responsibility for health
- Increasing investments for health development
- Consolidating and expanding partnerships for health
- Increasing community capacity and empowering the individual
- Securing an infrastructure for health promotion

5. Mexico Ministerial Statement for the Promotion of Health

Despite the progress and developments in health promotion over the previous decade, two important challenges still remain. The first is to demonstrate and communicate more widely, particularly to developing countries, that health promotion policies and practices can make a difference to health and quality of life. The second is that health promotion action can achieve greater equity in health and can close the health gap between population groups. Dealing with these challenges, the Mexico Ministerial Statement for the Promotion of Health: From Ideas to Action affirms the contribution of health promotion strategies to the sustainability of local, national, and international actions in health. It also pledges to draw up country-wide plans of action to monitor progress made in incorporating strategies that promote health into national and local policy and planning.

6. New Bangkok Charter for Health Promotion

A new Bangkok Charter for Health Promotion was adopted in 2005. The Charter highlights the changing context of global health and the challenges faced in achieving its aims, including the growing double burden of communicable and chronic diseases which include heart disease, stroke, cancer and diabetes. There is also the need to address and harness the health effects of globalization such as widening inequities, rapid urbanisation and the degradation of environments.

The Bangkok Charter gives new direction to health promotion by calling for policy coherence, investment and partnership across governments, international organisations, civil society and the private sector to work toward four key commitments. The four key commitments are to make the promotion of health:

- Central to the global development agenda
- A core responsibility for all governments
- A key focus of communities and civil society
- A requirement for good corporate practice

To make the key commitments successful, actions for all sectors and settings include:

- Advocating for health based on human rights and solidarity
- Investing in sustainable polices, actions and infrastructure to address the determinants of health
- Building capacity for policy development, leadership, health promotion practice, knowledge transfer and research, and health literacy
- Regulating and legislating to ensure a high level of protection from harm and enable equal opportunity for health and well-being for all people
- Partnering and building alliances with public, private, nongovernmental and international organisations and civil society to create sustainable action.

Learning and Teaching References

Education Bureau
HKSARG