

# **DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA**

## **National Health System Profile**

### **1. TENDS IN POLICY DEVELOPMENT**

Democratic People's Republic of Korea (DPR Korea) is located in the far east of Asian continent and its territory consists of the Korean Peninsula extending southward and 4,198 islands around it. The area of DPR Korea is 120,538 sq. km. Mountains account for almost 80 percent of the whole territory and the cultivated area is only 17 percent.

The core of the public health policy of DPR Korea is to realize the policy of preventive medicine in all health activities and to strengthen the perfect universal free medical care. The household doctor system responsible for the healthcare of all population is enforced in the country. The DPR Korea government shows special care and great concern for the health of women and children. The preventive medicine was already initiated under the leadership of the president Kim II Sung in the 1930s and during the 1950s of socialist construction; the social medicine was formulated as a preventive medicine, thus serving as a basis for the public health policy.

The priorities in the public policy are the protection and promotion of health of people. Its typical examples are the whole public advocacy and support for public health, conducting public health work as mass movement, policies not allowing the negative effect on health of population even if the development is very important. Such popular health system and policies were the major factors for the improvement of almost all health indicators to reach the global advanced standard.

Consequently, the success achieved in the health and well-being of the population were severely damaged, the unknown malnutrition and communicable diseases newly emerged, and mortality increased; all these made the DPR Korea appeal to the humanitarian cooperation of the international community. WHO and other international organizations and the humanitarian associations provide necessary material and financial support to improve public health.

DPR Korea is sharing borders with remote parts of China and Russia in the north and with South Korea in the south. The nearest major city in Russia to DPRK is Vladivostock. The West Sea of Korea (Yellow Sea) and the East Sea of Korea (Sea of Japan) form the western and eastern frontiers of the DPRK.

The climate is temperate with four distinct seasons. The temperatures can reach extremes with January temperatures often falling well below zero and summer maximums at 27 degree Celsius. Rainfall is concentrated in the summer months with highest average daily rainfall in August.

The combination of geographical isolation, political and physical separation has not only physically cut off DPRK from regular interrelationship with international development in technical and scientific practices but also created problems of transport, communications,

overall nutrition and health problems due to economic difficulties in the country (UNICEF, 1999).

## **2. TRENDS IN SOCIOECONOMIC DEVELOPMENT**

### **2.1 Economic trends**

Recently, the economy in DPR Korea began to restore from the economic crisis of 1990s. In the beginning of the 1990s DPR Korea was faced with major economic difficulties, which led to a massive contraction in the size of economy. As compared with 1993 when GDP per capita was US \$ 991, the Korean economy in 2000 was below half its size with GDP per capita of US \$ 463. The GDP per capita in 2001 was US \$ 477 with an increase of 3.02 percent.

The national budget by economic sectors in 2003-04 showed that 23.3 percent was allocated for economic development, 40.5 percent for the popular policy including public health, education, social insurance and the social security system. Even in the difficult economic situations, the government provided employment and possible working conditions to the productive adults.

### **2.2 Demographic trends**

In 2004, the total population of DPR Korea was 23.6 million among which nearly 12.1 million are males and 11.5 million females, and the natural growth rate of population was 0.71 percent. During 2000-2003, the crude birth rate decreased from 17.5 per 1,000 populations to 15.6 per 1000 population and the crude death rate increased from 8.8 per 1,000 populations to 9.1 per 1000 population. The total fertility rate in 2003 was 2.03.

According to population estimates by age in 2003, the population under 15 years was 26.2 percent, 60 years and above was 12.3 percent, and population in the age group of 15-59 was 61.5 percent of total population (Central Bureau of Statistics, DPR Korea). In the next decade, population of elderly people is expected dramatically increase with high growth of 4 percent. The reason of rapid growth of elderly is mainly associated with the public policy related with protection of the elderly.

In early 1990s, the average life expectancy was 74.5 years and DPR Korea was one of the highest life expectancy countries in the world. Many health indicators deteriorated in second half of 1990s, the average life expectancy being one of them. The trend in improvement of health indicators started again in 2000. In 2003, the average life expectancy was 67.6 years, with 63.5 years for male and 71.4 years for females.

The infant mortality decreased from 21.8 per 1,000 live births to 21.13 per 1000 live births in 2000-03 due to the priority given for protection of mothers and children even in difficult conditions.

There are two features of urbanization in DPR Korea; firstly, the increase in total population maintains stable level in urban areas and secondly, the large-sized urban

population is located in a few cities (only Pyongyang has one million population), and most of all urban cities are of medium or small size and fairly distributed nationwide. The composition principle of urban population is to avoid the excessive urban density and to distribute adequately the medium and small size cities. This gives a positive effect on the national universal health development including the decrease of the regional gap in public health. About 60 percent of country's population is urban, which is one of the highest internationally.

### **2.3 Social trends**

Today, the adult literacy has reached 100 percent level. The nine-year compulsory technical education system and the ten-year compulsory secondary education system were introduced and the universal compulsory eleven-year education was fully instituted from 1975. The rate of school enrolment is 100 percent in the period of compulsory education. Various schools for the blind and disability children are established and the teachers seek to provide the education for the children who are not able to go to school. There is no gap between males and females as school enrolment is 100 percent and adult literacy has reached 100 percent level.

DPR Korea had 23,851 educational institutions for Kindergarten, primary and secondary school education with 218,000 teachers. In addition, the country has Universities and Institutions for training of talented personnel. Today, the number of technicians and specialists are about 2 millions (UNICEF, An Analysis of the Situation of Children and Women in the Democratic People's Republic of Korea 2000).

The state has social insurance for the elderly, who are unable to work, disabilities and calamities insurance for human indemnity, and the property insurance system for property damage compensation.

The population groups needing special social protection including the children, women, especially pregnant women and elderly, are protected by law and the state pays attention to increase the social concern for them. This contributes to decrease in the mortality of children and pregnant women and to improve their health indicators.

### **2.4 Food supply and nutritional status**

In 2002, the rate of low-birth weight at delivery (below 2500 g) was 6.7 percent. In 2002, the rate of low weight for age was reported to be 20.2 percent among children under 7 years.

Third Multiple Indicator cluster Survey 1998 (UNICEF) showed that 31.7% of 6-84 months of age were anaemic. Further, among children of 6-84 months, female children had significantly higher prevalence of goitre (5.4%), compared to male children (3%).

Among pregnant women, anaemia was 34.7 percent (MICS, 1998, UNICEF).

The percentage of children aged 4 months who are exclusively breastfed was 96.5 percent (MICS, 1998, UNICEF). The breastfeeding rate of children of 1-2 years was 61.9 percent. There was nearly no rural-urban gap in breastfeeding (urban 95.4 percent and rural 95.3 percent).

## **2.5 Lifestyle and Risk Factors**

The relatively high smoking prevalence among DPRK's population is the main factor of emergence of non-communicable diseases. The nationwide sample survey of smoking conducted in 2002 showed the smoking prevalence of male adult was 59.9 percent and the average age of starting smoking was 23.0 years. The average daily consumption of number of cigarettes was 15.3. The groups with highest smoking prevalence were dependent men and farmers.

The smoking rate of university graduates was 5 percent lower than the graduates of secondary school. On 15 January 1989, the government took a decision "To stop smoking in the whole nation" and conducted the national activities against smoking and the damage that smoking causes to health. Massive movement against smoking and the research on decrease of smoking prevalence are going on. Thus, the awareness on smoking damage and the efforts to quit the smoking are increased among the population. For example, the awareness rate of smoking damage is 80 percent in adults. The farmers have the highest smoking rate. Seventy-two percent of the smokers decided to quit smoking. The government will persistently lead the activities against smoking to dramatically decrease the smoking in a short period.

Today, increase in hypertension and the heart diseases are the major factors of death in DPR Korea. For example, in 1960s, the mortality due to hypertension and cerebral haemorrhage accounted for 3.8 percent of total death, but it increased to 24.9 percent in 1991. The mortality due to heart disease increased from 7.1 percent to 18 percent.

The morbidity of cardiovascular diseases in 2002 was 172.1 per 10,000 populations. The ageing population, changes in feeding habits, and the increase in population engaged in intellectual/mental work, has lead to rapid emergence of hypertension and heart diseases. According to the initiative of Ministry of Public Health, the government activity propagates on the prevention of chronic diseases through the various propagation means including the health services and education network, encouraging of the rational feeding habit among the population, and attempting to decrease the lack of exercise and also stress through walking and interval exercises in all enterprises. This work is now one of the social traits.

## **3. HEALTH AND ENVIRONMENT**

### **3.1 General protection of the environment**

The DPR Korea directed great efforts to avoid the disordered economic activities and migration – the main factor of the environment pollution and kept the environment

protection as the main principle of the state activity to provide the independent and creative life environment for the population. Environment Protection Law in DPR Korea was formulated in 1986, and the Ministry of Land and Environment Protection, which was established in 1990, ensures the work of environment protection legislatively and administratively.

The government designated every May and November as the months of protection of land and environment, and mobilized entire people and the whole society to stage vigorous social actions to keep up the environmental quality of road, rivers and streams, the forestation and soil in all rural and urban areas, and directed attention to acquire the habit of keeping house, village, street and workplace clean.

The government constantly monitors the effects of harmful environment on people's health. Although DPR Korea has land full of graceful gold, silver, copper and valuable mines, its development is strictly forbidden when it pollutes the life environment of population and produces damage to natural beauty. When factories and the enterprises, hospitals and houses are to be constructed, the state takes an active part in examining how they are designed on the consideration of construction plan and sanitary standard.

The government takes foresighted measures in the consideration of effects of population growth on the country's life environment. The government will do its best to provide the supportive environment for the health of population based on the detailed analysis of the correlation of health and the environment development.

### 3.2 Water supply and sanitation

The government pays great attention to provision of clean drinking water to the people by controlling the water sources. The government set up the water quality standard system of river, streams, and drinking water and routinely monitor the water quality at public appointed inspection spots.

The following table shows the water quality of country's main rivers and streams:

| <b>Rivers and streams</b> | <b>River basin</b> | <b>Ca</b> | <b>Mg</b> | <b>Na K</b> | <b>HCO3</b> | <b>SO2</b> |
|---------------------------|--------------------|-----------|-----------|-------------|-------------|------------|
| Daedonggang               | 16581              | 26.0      | 7.2       | 6.0         | 106.4       | 11.0       |
| Chongchongang             | 59331              | 11.9      | 2.6       | 7.7         | 49.0        | 6.7        |
| Changzagang               | 51559              | 9.7       | 1.8       | 8.9         | 43.1        | 5.0        |
| Changzingang              | 69200              | 8.8       | 3.4       | 4.2         | 28.1        | 8.6        |
| Heochongang               | 51400              | 12.0      | 4.8       | 4.4         | 50.5        | 7.9        |
| Sodusu                    | 2392               | 8.0       | 3.4       | 3.3         | 38.9        | 4.0        |
| Orangchon                 | 20140              | 9.5       | 3.0       | 10.2        | 42.9        | 14.5       |
| Songchongang              | 24177              | 8.0       | 2.5       | 5.5         | 25.0        | 9.0        |
| Namdaechon                | 257                | 20.0      | 4.0       | 9.5         | 65.0        | 10.0       |

|            |      |      |     |     |      |      |
|------------|------|------|-----|-----|------|------|
| Rimzingang | 8130 | 23.9 | 4.0 | 9.5 | 78.3 | 10.0 |
|------------|------|------|-----|-----|------|------|

In 2002, the nationwide sample survey of the drinking water provision by households showed the rate of households using the pipe water service, well, or house tubewell were 95.5 percent of total households and only 0.5 percent used tube well. Eighty-six percent of the households were provided with the safe pipe water. This showed that pipe water services were quite high. The households using piped water was 13.5 percent high in urban than the rural areas.

The household rate using the interior toilet and individual outside latrine was 95.5 percent, and only 4.5 percent used public latrine in 2002. The rate of using the adequate waste disposal facility reached 99.2 percent of total population in 2002.

Recently, the country is faced with the electricity shortage and difficulties in providing reagents needed for water quality. This hinders the routine supply of high quality water in the country for the broad pipe water network. The government has taken measures to solve the water problem by construction of single electric line supply for water sources.

For the adequate disposal of various wastes and sewage, the government primarily set the completion of infrastructures of waste disposal facilities in all the buildings, as the main principle of construction.

#### **4. HEALTH RESOURCES**

##### **4.1 Human resources for health**

The state has highly qualified health workers. The government adhered to the principle of giving priority to training even in difficult conditions. In 2003, the number of doctors was 74,597, nurses 87,330 and midwives 6,084. This indicated 32 doctors, 37 nurses, 3 midwives per 10,000 populations.

During the period 2001-2003, the number of doctors was increased by 104 percent, the nurses 125 percent and the midwives 107 percent. This accounted more than 3 times high in number of doctor, nurse, and midwives in comparison to the population growth rate of the same period.

DPR Korea has about 100 health personnel training institutions including the central and provincial medical universities, re-education university, nursing school, midwife school and schools for dental prosthesis, massagists and X-ray. DPR Korea has regular education system, the study-while working system and reorientation system. The Ministry of Public Health is closely cooperating with the training institutions of health personnel.

In DPR Korea, the household doctor system is in force and now a household doctor is in charge of 150 households. The government has made efforts for decreasing the gap in health services in urban and rural areas, gap in the plain areas and mountain areas through

appropriate allocation of health workers. This is the main principle in health planning and is implemented constantly. Thus, there is nearly no gap between urban and rural in the number of household doctors and nurses per household. This means the existence of a rational distribution system of health personnel, especially at PHC level, nationwide. In the distribution of health personnel in-charge of outpatient treatment, the principle is to distribute 75-80 percent at direct sections, 10-15 percent at city, district, county levels, 3-5 percent at provincial level, 0.5-1 percent at the central curative and preventive establishments.

The government draws the strategy to train the health workers in accordance with the increasing population and expanding of curative and preventive establishments, in accordance with the high quality and specialization of health services and in accordance with the world's trend of health development. In consideration of needs of health workers' training, the principles focus is on keeping regional balance of health services used, meeting needs by specialized sections, consideration of world health and medical development trend, increasing the rate of women health workers in the areas of drugs, dental, ophthalmic, otorhinolaryngology, paediatrics, obstetrics and gynaecology.

#### **4.2 Financial resources for health**

In DPR Korea, all the health establishments are run as public and state properties. The main source of health finance is the health expenditure based on the state income. The emergency cooperation and regular cooperation provided by WHO, other international agencies and the humanitarian organizations in recent difficult conditions are partial sources of health finance.

In 2004, the expenditure on health was 6.3 percent of GDP. Along with the above mentioned financial resources, the state provides cost of preventive work, healthcare cost of universal free medical care system, buildings and running fund of health institutions and health research institutions, living expense of health workers and other public health works. Some of funds of social insurance and calamities insurance are allocated to the health finance. The social insurance is applied to the citizens with employment and receiving the living expense from the state.

#### **4.3 Physical infrastructure for health**

DPR Korea historically has an extensive and comprehensive health infrastructure. The country has 433 hospitals at city, district, county levels; 7,008 hospitals at Ri and polyclinics; and hundreds of industrial hospitals in factories and enterprises. There are hospitals at the central and provincial levels and number of specialized hospitals including the maternity centres and paediatric hospitals at central level, and in every province and some of the cities. The sanitary and anti-epidemic institutions, specialized in control of infectious diseases, are located at central, province, city, district and county levels.

In 2002, the total number of beds in health sector was 308,042, of which the number of hospital beds was 214,647. In the same period, the total number of beds per 10,000 population was 132, of which the number of hospital beds was 92. DPR Korea has strengthened the district healthcare system based on the PHC. Access to first level health service for the population in the health system is provided by polyclinics or clinics in urban, Ri people's hospital or Ri clinic in rural and industrial hospital or industrial clinic in industrial areas. People's hospital of next upper level at city, district and county is the general hospital with every specialized department, which provide the specialized health services and fulfil the function of first referral of PHC.

The technical and methodological guidance is ensured by healthcare delivery system, according to which the central level gives guidance to province, the province to county, the county to Ri. Today, Ri people's hospitals with the basic specialized departments such as internal medicine, paediatrics medicine, surgery, obstetrics and gynaecology, traditional Korean medicine dentistry are run in rural areas. The urban polyclinics, the main PHC units with basic specialized services for households, obstetric and gynaecological surgery, dentistry and laboratory are run in urban areas.

In DPR Korea, the household doctor system is enforced to provide the health protection for all the population. The health care of the staff and their families living around the industrial hospitals is provided by the industrial hospital. Ri hospitals and polyclinics conduct the activities of preventive healthcare, sanitary propagation, sick-call treatment, visiting treatment, women consultation, birth assistance, infant consultation, specialized diagnosis and treatment.

Ri hospitals and polyclinics, the direct performers of PHC, are set up in areas within a walking distance of 30 minutes. City, district, and county hospitals, to provide primarily specialized care, are distributed within the reach of one hour travel by transport vehicle.

Health services are free to the people and as such affordability is not applicable.

#### **4.4 Essential drugs and other supplies**

The production, storage, use of the medicines is controlled by law based on the Law of Medicines Management. The drugs are registered in line with the regulations and procedures formulated by the state, and the drug reactions are regularly monitored through all the treatment and prevention establishments and the pharmaceutical testing stations.

The pharmaceutical testing institutions at central, provincial and county levels control the quality of medicines through the examination of the efficacy and the drug-action of the tested and produced drugs and all the imported medicines.

About 260 items of drugs are registered as the essential drugs and are used in all health facilities. About 40 items of essential drugs proposed by WHO are widely used in the urban polyclinics, rural Ri people's hospitals and industrial clinics at the PHC level.

In the drug supply, the main principle is to define the variety and quantity of medicines to be provided in accordance with the morbidity of population of every region. The medicines are dispensed according to the prescriptions of the doctors.

In Korea, the well-organized drug supply system for the rational provision to all the treatment and preventive institutions is through the drug supply stations set up in the central, provincial, city, and county levels, and for control of medicine resources.

The Ministry of Public Health has established the computer network of the national drug management and expanded it to lower peripheral units to rationally organize the management and use of medicines with the supply system to meet the needs from central level to peripheral levels.

In 2003, the rate of population accessed to the essential drugs was on an average 71 percent. Among it, 81 percent in provincial seat, 60 percent in common city, 77 percent in county seat, 71 percent in industrial areas, and 60 percent was among Ri populations. The average distance from the residence to the supply unit of essential drugs is 1.93 km in urban, 3.1 km in rural, 2.3 km in industrial area, and the national average is 2.6 km. The rate of population able to access essential drugs provided within the coverage of a radius of 5 km is 100 percent in urban and 97.1 percent in rural; the national average is 98.6 percent.

The state puts primary efforts on the production of essential drugs, preventive medicines and traditional drugs and takes measures to increase the variety and quantity of medicines including the synthetic pharmaceutical products, highly effective broad-spectrum antibiotics, various vitamins and hormone preparations, anti-virus and cancer medicines.

The drug production is mainly focused on the production in central and local pharmaceutical factories.

At every level, treatment and preventive establishments themselves have built the bases for pharmaceutical production and produced drugs to meet the needs of medicines in the treatment and prevention work.

#### **4.5 International partnership for health**

The government annually dispatches hundreds of health personnel to the developing countries to give assistance for their health work and send lots of doctors, researchers, postgraduates, and trainees to several countries to exchange the medical scientific technology and learn the advanced techniques. The government puts great efforts to strengthen the relationship with the WHO, the largest UN Organization in health sector. Its especial focus is on operation with the WHO by implementing the “WHO Country Cooperation Strategy 2004-2008,” which was made jointly by DPR Korea and WHO.

The WHO established the Collaborating Centre for Gerontology, the Collaborating Centre for PHC, the Research Centre for the Traditional Medicines and other regional research centres to contribute to the world health development and provide the technical cooperation and training in various types and modes.

Besides, other UN organizations such as UNICEF, UNDP, UNFPA, bilateral and multilateral donors including the WFP, the non-governmental organizations including the IFPA and humanitarian organizations, recently facilitated the international exchange and cooperation programme for the health sector.

In June, 2001, the world Fund against AIDS, TB, and Malaria was established, following the UN Special Assembly on HIV/AIDS, opened in New York.

## **5. DEVELOPMENT OF THE HEALTH SYSTEM**

### **5.1 Organization of the health system**

The administrative control over health sector is undertaken by the Ministry of Public Health and health departments and sections of provincial, city, county people's committees. The Ministry of Public Health is one of ministries under the cabinet, responsible for the total health work in the country, monitors the health work (including the nursery sectors) through the guidance of provincial health department, central hospitals, specialized hospitals under direct control, and hygiene and anti-epidemic establishment at the central level.

The Central hygiene and anti-epidemic agency is the one responsible for hygiene and anti-epidemic work including the infectious diseases control of the country. Under the leadership of the Ministry of Public Health, it provides technical and methodological guidance to the provincial hygiene and anti-epidemic stations.

The health department at province guides the whole provincial health work through the guidance over the city, county level leading health institutions within the area of province, the provincial people's hospitals, provincial specialized hospitals, hygiene and anti-epidemic and drug stations at provincial level.

The health sections at city, county are responsible for the whole health work of city, county and give the guidance over the curative and preventive work of city, county people's hospitals, Ri (Dong) people's hospitals, polyclinics, and city, county level hygiene and anti-epidemic work, and the work of drug institutions.

Every hospital, hygiene and anti-epidemic stations provide technical and methodological guidance in the work of lower unit hospitals including hygiene and anti-epidemic work. In the early days of DPRK, PHC for the population was delivered at the peripheral treatment unit of Ri people's hospitals, polyclinics and the city, county people's hospitals. Recently, the people's hospitals at city, county provide the PHC in the way of

specialized health care and give the technical and methodological guidance and the general health care is provided by Ri-people's hospital and polyclinics.

## **5.2 Health information system**

The health statistics include the statistics of health of the population and diseases collected by peripheral treatment and preventive institutions, the activities of all levels of health institutions and the statistics of conditions of health resources. The health information collected by health statistics reports are synthesized and added up by the Ministry of Public Health in the form of daily report, ten days report, monthly report, quarterly report, half-yearly report, yearly report in accordance with the specific feature and urgency of the health indicator.

Based on it, the Ministry of the Public Health formulates the policy and takes measures to analyse, and evaluate the whole country's health situation and to improve the health work.

Besides the periodical information reporting system, the institutions of health administration research and leading health establishments, engaged in the treatment and prevention at all levels, regularly conduct the census survey and the sample survey on health situations and thus provide further effective health information to the Ministry of Public Health and other leading health establishments at all levels.

The collection, collation and dissemination of medical scientific technical information is undertaken by the Medical Information Centre under the control of Medical Science Academy. This agency's main stress is on the information of medical scientific technology, to build the database of various health information, and to develop the international exchange with several countries and within a country. This agency is important element of the country' comprehensive health information system cooperating closely with Ministry of Public Health.

Recently, owing to the demand of information era, the old manual system has been changed to the system of health information management by computer network.

## **5.3 Emergency preparedness**

On 2 April 2004, two train wagons with ammonium nitrate and fuel oil exploded after coming in contact with electric wire from the train cables, resulting into a powerful blast in 500-meter radius. As a result, 156 people died within 48 hours of explosion, of which 76 were children in a school, which collapsed, 1300 injured and more than 7000 people rendered homeless.

The Government of DPR Korea made request for international assistance, and WHO mobilized for the 3 county and 9 Ri hospitals kits consisting of medical equipment, supplies and essential medicines. These kits were shifted from the WHO central warehouse where it was stored for distribution to other parts of the country. Governments

of Japan and Hong Kong provided, in cooperation with WHO, emergency health kits and some critically needed medicines on short notice (WHO Pyongyang “An Overview of the Health Services in DPR Korea and Current Health Situation, September 2004”).

## **6. HEALTH SERVICES**

### **6.1 Health education and promotion**

In DPR Korea, disease prevention is a matter of primary concern of the state. Its basic mission is to prevent disease, and preserve and improve the lives and health of the people. The principal task in implementing the preventive medicine is to strengthen the health education and sanitary information for the improvement of health and sanitation among the populations. The Public Health Law guarantees this work. It is compulsory for the health and education agencies including all the institutions and the enterprises to conduct the education and provision work for the sanitary information and the health promotion. For the health protection and health promotion of the population, the state develops clean and healthy living environments, constructs buildings, arranges all the facilities in line with the hygiene demands, prevents environmental pollution, strictly observes the hygienic regulations in safe working conditions and in handling the food products, takes the anti-epidemic measures, and encourages to make it a daily routine and a habit to take physical exercise. This work is monitored, controlled, and evaluated by the leading health institutions, local authorities and other sectoral inspection institutions. These organizations closely cooperate with each other.

Preventive medicine is an undertaking for the people and of the people themselves, and thus the state conducts it as a widespread campaign. This means that the health institutions and all the intuitions and enterprises consider the health promotion of population as one of the most important work and participate there with responsibility. The mass media used in health education and sanitary information are Central TV program, Education and Culture TV Program, broadcasting and various forms of newspapers. Its main executors are household doctors and health workers in charge of workshops, who make it a routine work.

Personnel of education institutions, student at universities, and sometimes even pupils at senior middle schools, are mobilized in this work. The education of sanitary common sense and the health knowledge for the pupils in the education institutions consists in:

- Providing the education of basic sanitary measures and practice in accordance with the age of children of kindergarten and primary schools.
- Providing the education with the specialized subject in secondary schools.

The research institutions of health administration and education make a regular inspection of research and evaluation of healthcare, workload for the sanitary information and the health promotion by doctors mobilized in household doctor system, the research of education and information method, and assessment of the effectiveness of health promotion program.

## **6.2 Maternal and child health/family planning/adolescent health**

The government systematically improved the health and well-being of women and children based on the adopted Law on Public Health, Family Law, the Law of Educating and Upbringing Children, the Law of Education, and established the system of caring the women and children with the state expense.

The government decided the selection of number of children of individuals and the family as the human right of them, especially women and conducted the activities to meet the family planning needs of couples. The government has put focus on family planning from the mid seventies.

The contraceptive service is provided free in the hospitals and clinics at all levels under the guidance of the Ministry of Public Health. The operating method and the method required for the mechanical interventions are conducted by the trained health workers in the hospitals at district and county levels.

The government has developed comprehensive maternal and child healthcare in accordance with the action programme adopted in the International Conference of Population and Development in 1994.

Today, the hospitals and clinics of Dong and Ri level located everywhere in the country are equipped with the facilities to diagnose and treat the genital infections, and the midwives and household doctors of these units are responsible for providing consultation of family planning, provision of oral contraceptives and condoms and regular healthcare during pregnancy.

The paediatric hospitals and maternity hospitals at all levels and the paediatric, obstetric and gynaecological sections are reconstructed and enlarged, and mobile service team is organized for the difficult to reach areas and disaster regions.

The maternal healthcare includes registering within three months of pregnancy, healthcare of pregnant women and newborn by midwife in the house and clinics. The pregnant women are examined by a doctor specialized in obstetric and gynaecology within 32 weeks of pregnancy.

The healthcare for women and indicators of healthcare that worsened in the 1990s began to improve again. In 1996, the Maternal Mortality Ratio (MMR) was 105 per 100,000 live births, which declined to 97 in 2002.

In 2002, the survey of reproductive health showed the rate of genital infection syndrome among the married women as 9.7 percent; the rate of treatment provision was 95.8 percent, and the rate of non-treatment was 4.2 percent.

In 2002, the register rate of pregnant women was 98 percent; the rate of consultation, observation and examination by specialized health worker during the pregnancy was 98

percent. The major indicators for antenatal examination were complications, body weight, height, blood pressure and urine. In 2002, the rate of delivery assistance by specialized personnel was 98 percent in DPR Korea.

The rate of medical examination of infants reached 100 percent in 2002.

The rate of using the family planning methods among the married women was 68.6 percent in 2002, of which 10.4 percent were using the traditional methods and 58.2 percent the modern methods. The awareness on the family planning method was 99.6 percent among the women of reproductive age. Number of induced abortions per thousand women decreased from 17.7 in 1997 to 11.1 in 2002 due to increase in family planning.

For the protection of reproductive health, the subjects of hygiene and physiology are included in the curriculum in schools, which shows the emphasis and the great concern given for health.

### **6.3 Immunization**

Immunization is conducted by the state as a national activity. The immunization is managed by the State Inspection Centre of Ministry of Public Health and all-level hygiene and anti-epidemic stations. The system of vaccine production and provisions is well established including the Microbiological Research Institute and vaccine manufacturing factory. The immunization is given by household doctors of clinics. The immunization rate for polio, measles and TB was over 90 percent in 2005, except for DPT 3 is 79 percent.

To provide 98 percent of immunization rate for the children till 12 months after birth, the government increased the production of vaccine in the factories and organized 100,000 non-standing immunization teams and regularized the immunization.

In 2005, the immunization rate of DPT3 was 79 percent, polio3 97 percent, measles 96 percent, BCG 94 percent, and vitamin-coverage of under-2 children was 98.6 percent.

The government recognized that injection safety was important in medical service including the implementation of EPI, and so modernized and expanded the equipments in existing injection (syringe and needle) production factories for mass-production of injections for single use. The government designed the plan of the modern injection production factory and completed its construction.

### **6.4 Prevention and control of locally endemic diseases**

The government has well-organized surveillance and control system of diseases. The healthcare for the population in DPR Korea is provided by household doctors. The household doctors maintains the health records of the population in section, detects early and registers the diseases through the regular observation and examination, and report it to the upper health institutions for the synthesis and analysis. As soon as they detect the

emergence of communicable diseases, they report it to the upper anti-epidemic agency and leading health institutions.

The Ministry of Public Health and leading health institutions at all levels, mobilize the treatment and preventive institutions under the control of Research Institutions of Health Administration, organize the screening and diseases investigation by regions and sectors, assess and analyse the health status of population in detail, and take adequate measures.

To prevent the transmission risk of HIV/AIDS from outside the country, the government set up the integral system of medical inspection and took measures to organize the epidemiological examination teams in airport, harbour, border areas and central anti-epidemic station.

Government has made the strategy for prevention and control of HIV/AIDS 2003-2007, set the system of prevention and control activities by the governmental and public organization, and launched the implementation of the strategy.

In DPR Korea, HIV/AIDS surveillance is done by the health workers in-charge of communicable diseases, monitored by anti-epidemiological agencies, which belong to the national health system and the relevant examination is conducted in the transfusion institutions at the provincial, city and county levels including the central level and in 15 specialized inspection centres for HIV/AIDS.

Due to the vigorous efforts of the government, no HIV-positive person has been discovered till today in DPR Korea. Through the very effective national system for the disease surveillance and control, the communicable diseases including the typhoid, malaria, measles, diphtheria, polio and cholera, which remained as endemic diseases in the country for long time, were completely eradicated.

Most of the endemic diseases have already been eradicated but goitre still remains to be eradicated. Prevalence of goitre is 26 percent in mountainous region (MICS, 1998, UNICEF). To prevent the goitre due to iodine deficiency mainly in the mountainous areas of South Pyongyang and Zagang Provinces in the country, the government set up the national system for supply of the seaweeds systematically to the relevant areas based on the mass-produced seaweed in the country.

Recently, some of communicable diseases re-emerged; malaria re-emerged from 1998 but it decreased from 300,000 patients in 2001 to 60,559 in 2003. The TB prevalence was 219 per 100,000 population in 2003.

GFATM approved a proposal for TB control in April 2002 but funds are yet to be released (WHO Pyongyang "An Overview of Health Services in DPR Korea and Current health Situation, September 2004").

## **6.5 Prevention, control and management of common diseases and injuries**

Diarrhoea is a major cause of ill health among children. For management of diarrhoea cases, Oral Rehydration Solution (ORS) is widely used and antibiotics, digestive medicines and traditional, herbal korgo medicines were given to a large proportion of diarrhoeal cases (MICS, 1998, UNICEF).

The major risk factors for emergence of NCD in the country were the smoking, lack of exercise, uncomfortable traffic conditions, polluted environment of workplace, etiological environment, etc. Various measures are being taken to prevent them.

The Government pays great attention to the prevention of injuries. It has established security measures for working protection and specialized treatment for injury patients in the specialized hospitals of trauma surgery and orthopaedics.

The institutions working on sanitary research, hygiene and anti-epidemiological station, the institution of working protection strengthen the research for this field. Thus, the scientific measures for working protection are set up.

## **7. TRENDS IN HEALTH STATUS**

### **7.1 Life expectancy**

In 2003, the life expectancy at birth was 67.6 years – 63.5 years for male and 71.4 years for female. The average burden of diseases was 6.18 years for children, 6.15 years for males and 6.25 years for female s.

### **7.2 Mortality**

Infant Mortality Rate was 21.13 per thousand live births in 2003  
Under-five mortality rate was 46.3 per 1000 live births in 2003  
Maternal Mortality Ratio was 97 per 100,000 live births in 2002.

### **7.3 Morbidity**

In 2002, morbidity of major NCD per 100,000 population was (i) cancer -14.4 (ii) cardiovascular diseases -17.21 (iii) ischemic heart diseases - 23.3 (iv) rheumatic heart diseases - 49.9 (v) cerebral vascular diseases - 17.8 (vi) other heart diseases - 81.1 (vii) diabetes - 7.0 (viii) injury - 20.9 (ix) poisoning - 0.4 (x) chronic respiratory disease - 26.5, and (xi) neurolo gical mental disease - 82.4.

The morbidity of major Communicable Diseases (CD) per 100,000 population in 2002 was: epidemic cerebro-spinal meningitis - 1.04, pertussis – 4.65, rubella – 2.23, , parotitis – 11.62 and malaria – 258. In 2003, the calculated case detection rate for TB was 241 per 100,000 and New Smear Positive (NSP) 82.5 per 100,000.

In the future, the morbidity of CD is likely to decline and the proportion of NCD will increase due to the several factors including the population ageing, but the morbidity of NCD is expected to decline gradually.

## **7.4 Disability**

On 18 June 2002, the Law of disability Protection was newly adopted in the Supreme People's Assembly, and thus the protection of the disabled is ensured by law.

## **8. OUTLOOK FOR THE FUTURE**

### **8.1 Overall assessment and strategic issues**

As described in earlier section, the worsened health indicators in the latter half of the 1990s were recovered gradually. In this period, the humanitarian emergency cooperation for health sector provided by WHO and other international organizations and humanitarian organizations contributed to reconstruct the health facilities and improve the health state.

In accordance with the economic conditions and all fields of the popular economy recovered, the government will implement the activities for further improving the efficiency and perfect health system, for maintaining sustainable health foundations, for intensifying and developing the most popular health care system. It will pay greater attention to improve the popular nutrition and health sanitary situation. Thus, recovering of all health indicators at the level of early 1990s is proposed as the urgent task of health sector.

### **8.2 Proposed strategies**

The government will implement Party's policy of preventive medicine, realize the universal perfect free medical care system, systematically increase the public expenditure on the health sector, improve the health system and skill, manage and run the health institutions efficiently, tap the health resources to the fullest extent, and arouse the entire social and national interest for the health work.

To eliminate the regional gap in PHC, the government will rationally distribute the PHC network in accordance with the density of population and features of population areas expand and modernize the health facilities and strengthen the training of health workers, thus increasing the specialized level and quality of health services.

The government will put greater efforts into the health and medical scientific technical development, including bioengineering and telemedicine, to improve the health administration, diagnosis and treatment.

The government will further strengthen the international cooperation and exchange within countries in the health sector on the principle of sovereignty, respect, mutual benefit, and non-interference in each other's internal affairs and develop cooperation with international organizations, especially with WHO.

### **8.3 Basic health Indicators including the U.N. Millennium Development Goals**

See Annex.

## ANNEX

**Country reported Data for Basic Health Indicators including health related  
MDG Indicators**

| Indicator  | Latest available data | Year    | Source | Remarks                      |
|--|-----------------------|---------|--------|------------------------------|
| <b>POPULATION AND VITAL STATISTICS</b>                                     |                       |         |        |                              |
| Total population (in thousands)  | 23.61 million         | 2004    | 6      | Central Bureau of statistics |
| Population density (persons per sq km)                                     | 192                   | 2003    | 1      |                              |
| Sex ratio (males per 100 females)  | 95.2                  | 2003    | 1      |                              |
| Population under 15 years (%)  | 26.2                  | 2003    | 1      |                              |
| Population 60 years and above (%)  | 12.3                  | 2002    | 1      |                              |
| Crude birth rate (per 1000 population)                                     | 15.6                  | 2003    | 1      |                              |
| Crude death rate (per 1000 population)                                     | 9.1                   | 2003    | 1      |                              |
| Natural (population) growth rate (%)                                       | 0.71                  | 2000-03 | 6      |                              |
| Total fertility rate (per woman)   | 2.03                  | 2003    | 1      |                              |
| Urban population (%)   | 60                    | 2000-03 | 6      |                              |
| <b>SOCIOECONOMIC SITUATION</b>   |                       |         |        |                              |
| Gross national product per capita (US\$)                                   | 477                   | 2001    | 1      |                              |
| Adult literacy rate (%)  | 100                   | 2003    |        |                              |
| Prevalence of low birth weight (weight <2500 grams at birth) (%)           | 6.7                   | 2002    |        |                              |
| Prevalence of underweight (weight-for-age) in children <7 years of age (%) | 20.2                  | 2003    | 1      |                              |
| <b>HEALTH SYSTEM</b>   |                       |         |        |                              |
| <b>INPUTS</b>  |                       |         |        |                              |
| <i>Facilities</i>  |                       |         |        |                              |
| Number of hospital beds  | 214,647               | 2002    | 1      |                              |
| Population per hospital bed  | 108                   |         |        |                              |
| Hospital beds per 10,000 population  | 92                    |         |        |                              |
| Ri's hospitals and polyclinics   | 7008                  |         |        |                              |
| <i>Human resources</i>   |                       |         |        |                              |
| Number of physicians   | 74,597                | 2003    | 1      |                              |
| Number of professional nurses  | 87,330                |         |        |                              |
| Number of midwives   | 6084                  |         |        |                              |
| Population per physician   | 314                   |         |        |                              |
| Physicians per 10,000 population   | 32                    |         |        |                              |
| Nurses per 10,000 population:<br>Professional nurses                       | 37                    |         |        |                              |

| Indicator  | Latest available data   | Year                 | Source | Remarks                             |
|--|-------------------------|----------------------|--------|-------------------------------------|
| <b>POPULATION AND VITAL STATISTICS</b>   |                         |                      |        |                                     |
| <b>Total population (in thousands)</b>   | <b>23.61 million</b>    | 2004                 | 6      | <b>Central Bureau of statistics</b> |
| <b>Population density (persons per sq km)</b>  | <b>192</b>              | 2003                 | 1      |                                     |
| <b>Sex ratio (males per 100 females)</b>   | <b>95.2</b>             | 2003                 | 1      |                                     |
| <b>Population under 15 years (%)</b>   | <b>26.2</b>             | 2003                 | 1      |                                     |
| <b>Population 60 years and above (%)</b>   | <b>12.3</b>             | 2002                 | 1      |                                     |
| <b>Crude birth rate (per 1000 population)</b>  | <b>15.6</b>             | 2003                 | 1      |                                     |
| <b>Crude death rate (per 1000 population)</b>  | <b>9.1</b>              | 2003                 | 1      |                                     |
| <b>Natural (population) growth rate (%)</b>  | <b>0.71</b>             | 2000-03              | 6      |                                     |
| <b>Total fertility rate (per woman)</b>  | <b>2.03</b>             | 2003                 | 1      |                                     |
| <b>Urban population (%)</b>  | <b>60</b>               | 2000-03              | 6      |                                     |
| <i>Budgetary resources</i>   |                         |                      |        |                                     |
| Total Expenditure on Health (THE) as % of Gross Domestic Product (GDP)                         | 6.3                     | 2004                 | 6      |                                     |
| Public Expenditure on Health (PHE) as % of Total Expenditure on Health (THE)                   | 99.6                    | 2004                 | 6      |                                     |
| <b>FUNCTIONS</b>   |                         |                      |        |                                     |
| Pregnant women attended by trained personnel during pregnancy (%)                              | 98                      | 2002                 | 1      |                                     |
| Deliveries attended by trained personnel (%)   | 98                      |                      |        |                                     |
| Infants attended by trained personnel (%)  | 100                     |                      |        |                                     |
| Women of childbearing age using family planning (%)  | 68.6                    |                      |        |                                     |
| Infants reaching their first birthday that have been fully immunized against poliomyelitis (%) | 97                      | 2005                 | 7      |                                     |
| Infants reaching their first birthday that have been fully immunized against measles (%)       | 96                      | 2005                 | 7      |                                     |
| Infants reaching their first birthday that have been fully immunized against tuberculosis (%)  | 94                      | 2005                 | 7      |                                     |
| <i>Environment</i>   |                         |                      |        |                                     |
| Population with access to improved water source (%)  | 96                      | 2002                 | 6      |                                     |
| Population with access to improved sanitation (%)  | 99.2                    |                      | 6      |                                     |
| <b>OUTCOMES</b>  |                         |                      |        |                                     |
| Life expectancy at birth (years):  | Male<br>Female<br>Total | 63.5<br>71.4<br>67.6 | 2003   | 1                                   |
| Disability adjusted life expectancy (years)  | Male<br>Female          | 56.89<br>64.69       | 2000   |                                     |
| Infant mortality rate (per 1000 live births)   |                         | 21.13                | 2003   |                                     |
| Under-five mortality rate  |                         | 46.27                | 2003   |                                     |

| Indicator  | Latest available data | Year    | Source | Remarks                      |
|--|-----------------------|---------|--------|------------------------------|
| <b>POPULATION AND VITAL STATISTICS</b>   |                       |         |        |                              |
| Total population (in thousands)  | 23.61 million         | 2004    | 6      | Central Bureau of statistics |
| Population density (persons per sq km)   | 192                   | 2003    | 1      |                              |
| Sex ratio (males per 100 females)  | 95.2                  | 2003    | 1      |                              |
| Population under 15 years (%)  | 26.2                  | 2003    | 1      |                              |
| Population 60 years and above (%)  | 12.3                  | 2002    | 1      |                              |
| Crude birth rate (per 1000 population)   | 15.6                  | 2003    | 1      |                              |
| Crude death rate (per 1000 population)   | 9.1                   | 2003    | 1      |                              |
| Natural (population) growth rate (%)   | 0.71                  | 2000-03 | 6      |                              |
| Total fertility rate (per woman)   | 2.03                  | 2003    | 1      |                              |
| Urban population (%)   | 60                    | 2000-03 | 6      |                              |
| (per 1000 live births)   |                       |         |        |                              |
| Maternal mortality ratio (per 100,000 live births)                                   | 97                    | 2002    |        |                              |
| <b>GENDER EQUITY</b>   |                       |         |        |                              |
| Life expectancy at birth ratio (females as a % of males)                             | 112.4                 | 2003    | 1      |                              |
| Seats held in parliament (% of women)  | 20.1                  |         |        |                              |
| Adult literacy ratio (females as a % of males)                                       | 100                   | 2003    | 1      |                              |
| Primary school enrolment ratio (females as a % of males)                             | 100                   |         |        |                              |
| Secondary school enrolment ratio (females as a % of males)                           | 100                   |         |        |                              |
| <b>MDG HEALTH RELATED INDICATORS</b>   |                       |         |        |                              |
| G1.T2.I4 - Prevalence of underweight children (under-five years of age)              | 20.2                  | 2003    |        |                              |
| G4.T5.I13 - Under-five mortality rate (probability of dying between birth and age 5) | 46.27                 | 2003    |        |                              |
| G4.T5.I14 - Infant mortality rate  | 21.13                 | 2003    |        |                              |
| G4.T5.I15 - Proportion (%) of 1 year-old children immunized for measles              | 95.3                  | 2002    |        |                              |
| G5.T6.I16 - Maternal mortality ratio   | 97                    | 2002    |        |                              |
| G5.T6.I17 - Proportion (%) of births attended by skilled health personnel            | 98                    | 2002    |        |                              |
| G6.T8.I21c - Malaria prevalence rate per 100,000                                     | 258                   | 2003    | 6      |                              |
| G6.T8.I23a - Tuberculosis death rate per   | 10                    | 2002    | 6      |                              |

| Indicator  | Latest available data | Year    | Source | Remarks                             |
|--|-----------------------|---------|--------|-------------------------------------|
| <b>POPULATION AND VITAL STATISTICS</b>   |                       |         |        |                                     |
| <b>Total population (in thousands)</b>   | <b>23.61 million</b>  | 2004    | 6      | <b>Central Bureau of statistics</b> |
| <b>Population density (persons per sq km)</b>  | <b>192</b>            | 2003    | 1      |                                     |
| <b>Sex ratio (males per 100 females)</b>   | <b>95.2</b>           | 2003    | 1      |                                     |
| <b>Population under 15 years (%)</b>   | <b>26.2</b>           | 2003    | 1      |                                     |
| <b>Population 60 years and above (%)</b>   | <b>12.3</b>           | 2002    | 1      |                                     |
| <b>Crude birth rate (per 1000 population)</b>  | <b>15.6</b>           | 2003    | 1      |                                     |
| <b>Crude death rate (per 1000 population)</b>  | <b>9.1</b>            | 2003    | 1      |                                     |
| <b>Natural (population) growth rate (%)</b>  | <b>0.71</b>           | 2000-03 | 6      |                                     |
| <b>Total fertility rate (per woman)</b>  | <b>2.03</b>           | 2003    | 1      |                                     |
| <b>Urban population (%)</b>  | <b>60</b>             | 2000-03 | 6      |                                     |
| 100,000  |                       |         |        |                                     |
| G6.T8.I23b - Tuberculosis prevalence rate per 100,000  | 219                   | 2003    | 6, 8   |                                     |
| G8.T17.I46 - Proportion (%) of population with access to affordable essential drugs on a sustainable basis | 71                    | 2003    |        |                                     |

**Sources:**

- 1 Central Bureau of Statistics, Democratic People's Republic of Korea
- 2 WHO, Summary of the Health System and the Information of Health Situation in the period of 2001-03 in DPR Korea, Department of Health System Development, South-East Asia Regional Office New Delhi, India
- 3 WHO Pyongyang "An Overview of the Health Services in DPR Korea and Current Health Situation, September 2004".
- 4 UNICEF, An Analysis of the Situation of Children and Women in the Democratic People's Republic of Korea 2000, December 1999.
- 5 UNICEF, The Multiple Indicator Cluster Survey in the Democratic People's Republic of Korea, 1998.
- 6 WHO, Regional Office for South-East Asia. 11 questions of 11 Sear Countries, 2007
- 7 South-East Asia Region EPI Fact Sheet 2005
- 8 WHO Global TB Report, 2006.