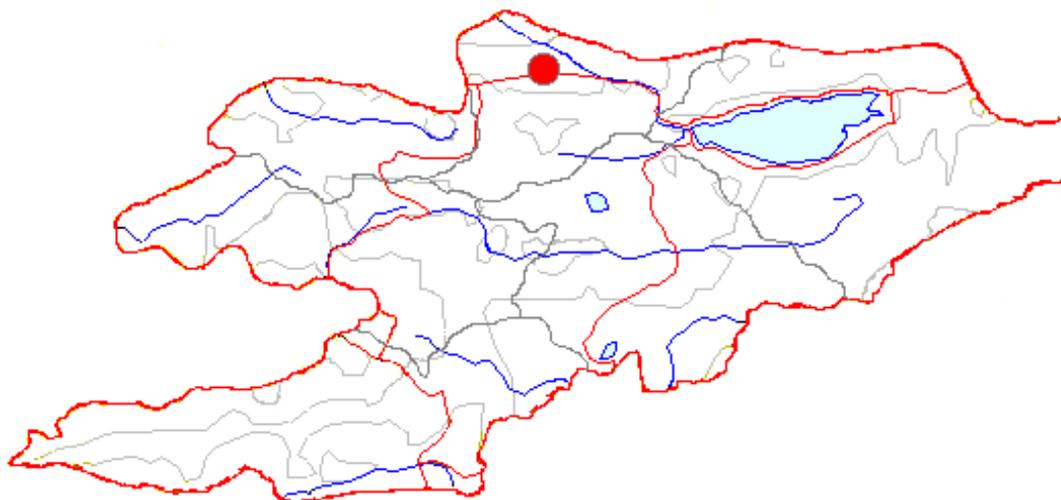


Ministry of Health of Kyrgyz Republic

**Ministry of Environment Protection of
Kyrgyz Republic**

**NATIONAL
ENVIRONMENTAL HEALTH
ACTION PLAN (NEHAP)
OF THE KYRGYZ REPUBLIC**



BISHKEK 1997

Acknowledgements

Current document is a practical resolution of adopted by Kyrgyz Republic and all the countries of WHO European region obligation on elaboration of National Environmental Health Action Plan (NEHAP) which was endorsed by the Second European Conference on Environment and Health, Helsinki, Finland, 1994. This document is a result of joint work of Ministries and departments of Kyrgyz Republic, WHO CAR NEHAP Secretariat and WHO Information Centre for Health for CAR with the support of WHO Regional Office for Europe. Current document is made to render assistance to Kyrgyz Republic Government in solving concrete questions on environmental health. This document is mutually complements Kyrgyz Republic National Environmental Action Plan (NEAP) adopted by Kyrgyz Republic Government in 1995.

Intersectoral Committee for Kyrgyz Republic NEHAP elaboration was established from representatives of all interested Ministries and Departments, and also working groups were organised. The Main Kyrgyz NEHAP Coordinators are Professor K.J.Bokonbaev, Associated member of National Academy of Sciences, Minister of Environment Protection, and V.M.Glinenko, Deputy Minister of Health, Chief State Sanitary Doctor.

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Note: Original Kyrgyz Republic NEHAP in Russian

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Foreword

On the Second Conference of Ministers of Environment and Ministers of Health, held in Helsinki in June 20-22, Ministers of Environment and Ministers of Health committed themselves to developing Environmental Health Action Plans (NEHAPs) by the end of 1997. On this Conference Environmental Health Action Plan for Europe containing package of practical activities necessary to undertake on national and international levels with close collaboration of two sectors - Environment Protection and Health Care - was endorsed. During the Conference "Environment for Europe" which took place in Sofia, October, 1995, Ministers emphasized the importance of close collaboration of two sectors - Environment Protection and Health Care in NEHAP preparation and elaboration and implementation of NEAP.

As it was emphasized in Helsinki NEHAP development and implementation is multisectoral process. Partnership between Environment and Health Care sectors and with many international organisations plays key role for successful fulfillment of Helsinki obligations. Such partnership should be based on principles of mutual understanding, trust and acceptance of the fact that Environmental Health problems are caused not by separately taken industrial venture or organisation.

Improvements in Environmental Health on country level can be reached only in case of action plans development, where all the appropriate national interests and priorities and funding necessary for fulfillment of tasks with establishment of appropriate legislative and regulatory mechanisms are considered.

Health Care requires, apart from anything else, environmental protection and rehabilitation in cases when environment was influenced by destructive human activities. It is necessary that persons responsible for environment and health care work together in close contact and those who are responsible for economical activity influencing the environment, for example, agriculture and industry, also took immediate part in work targeted at conservation and improvement of environmental health on local and central level. This requires understanding of the fact that all society members are responsible for establishment of such environment, which will maintain health, and the fact that everyone should have an access to the information necessary for carrying out this important task.

Departments of Environmental protection and of health should be recognized as key partners on policy planning in fields related to agriculture, power engineering, transportation, tourism in order these sectors to receive appropriate consultative help and to prevent mistakes, correction of which often turns out to be an expansive matter.

Chapter 1. SCOPE AND PURPOSES OF THE NEHAP

Target 18. Policy on environment and health.

By the year 2000, all Member States should have developed, and be implementing, policies on the environment and health that ensure ecologically sustainable development, effective prevention and control of environmental health risks and equitable access to healthy environments.

Health for All strategy.

- The Second European Conference on Environment and Health (Helsinki, 1994) assigned the highest priority to National Environmental Health Action Plans (NEHAP) development. Based on Helsinki Declaration it was decided that NEHAPs developed no later than 1997 should be targeted at states promotion in funding and realization of economically effective approaches to practical actions on environmental health and human health protection, taking into account climatic-geographical, socio-economical, demographical, ecological and other peculiarities of each country.
- Kyrgyz NEHAP is based on this initializing principle and constructed with consideration of WHO global strategy on health and environment (Geneva, 1993), recommendations of Consultative meeting on National Environmental Health Action Plan development (Sofia, 1995) and European Experience Survey of 1990-ties, prepared by WHO Regional Office for Europe (Copenhagen, 1995), recommendations of Kyrgyz Republic National Environment Protection Action Plan (NEAP) and Memorandum of Agreement on NEHAP development adopted by Ministry of Environment Protection, Ministry of Health and World Health Organisation Regional Office for Europe.
- Kyrgyz Republic NEHAP proceeds from the conception of interrelationship of various kinds of human activities, their influence on biosphere and also environmental influence on human health.
- NEHAP development and implementation were carried out by Ministry of Health, Ministry of Environment Protection and by other relevant Ministries, administrative departments, local administrations and local municipalities.
- NEHAP is seeking for cooperation with other important projects on Health and Environment and needs the support of international organisations. Plans is pursuing two main tasks:
 - protection of human health and wellbeing;
 - environmental protection.
- NEHAP includes specific tasks on Environmental health (these tasks totally coincide with EHAPE), sectoral division of competence spheres, and also governmental, voluntary and nongovernmental organizations participating in implementation of current plan.

1.1 Format of the Plan

During NEHAP development Kyrgyz Republic followed the format of Environmental Health Action Plan for Europe elaborated by WHO EURO and also NEHAP of the United Kingdom - the first country out of European region countries to develop such plan.

On each of the considered fields of environmental health the following data is represented:

- **Objectives** - Kyrgyz Republic NEHAP draws up objectives for each field of environmental health according to EHAPE;
- **Current situation** - Kyrgyz Republic NEHAP represents the characteristics of current situation in one or the other considered field which is used as basis for action;
- **Actions** - there proposed actions which in one way or another will positively influence health and life quality of population.

In Chapter 2 - Assessment of Environmental Health Situation - the material is represented both as text section and as charts, diagrams and maps.

NEHAP represents priorities of Kyrgyz Republic in Environmental Health, but they don't fully enclose all the goals set up by Environmental Health Action Plan for Europe proceeding from climatic-geographical, socio-economical, geographical and other peculiarities of our country.

During the establishment of priority actions in Environmental Health, KR NEHAP tried not to duplicate but complement NEAP of Kyrgyz Republic, approved and adopted by Government in 1995.

Data in KR NEHAP sections are represented according to administrative - territorial figures (oblasts and Bishkek city).

Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, biological, social and psychosocial factors in the environment. It also refers to the theory and practise of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generations.

Chapter 2. ENVIRONMENTAL HEALTH ASSESSMENT

Objectives

- **Reveal the influence of environmental factors on health indicators in Kyrgyzstan taking into consideration its climatic, geographic, social and economic peculiarities;**
- **Identify the zones mostly subjected to natural and anthropogenic environmental pollution and thus having a strong negative effect on health indicators;**
- **Determine the major ecological factors causing noticeable negative changes of public health indicators.**

General contour

Peculiarities of nature and the climate of Kyrgyzstan have determined priorities in the development of the national economy: mining, processing and light industries, as well as power generation and agriculture.

The extensive methods of management that prevailed in all branches of the economy since their formation, in addition to the almost complete neglecting of nature-protection measures, have caused accumulation of considerable amounts of industrial waste throughout the country. In most cases those wastes are stored in violation of nature-protecting rules (e.g. Khaidarkan Mercury Combinat, Kadamjai Antimony Combinat, etc.) and present a direct threat to the environment and the population. Moreover, their storage areas do not provide the required level of safety and security (e.g. the accident break-through of Ak-Tyuz concentrating mill tailings in 1964). The low efficiency of air refinery systems caused large-scale pollution of the atmosphere and soil by harmful substances.

The extensive methods of management in agriculture caused over-use of mineral fertilizers and pesticides, a considerable portion of which was carried by surface-water streams into rivers and lakes, while the remainder part penetrated the underground aquifers.

Despite complete stoppage of the operation of numerous industrial enterprises (e.g. uranium combinats, mechanical-engineering enterprises, the majority of food and light industry enterprises) the ecological situation has not improved. The state has loosened its control over the systems of purification and storage of industrial wastes. Lack of sufficient maintenance and reconstruction works caused an additional decrease in the degree of security in the storage of dangerous industrial wastes. The situation is worsened by possible natural calamities typical to Kyrgyzstan's territory (e.g. earthquakes,

mud-flow, floods, land-slides). A considerable portion of purification installations at industrial and civil engineering sites is worn out, which causes the discharge of non-purified chemical and biological toxicants into open reservoirs and penetration of those toxicants into underground water sources.

Despite some decrease of gross volume of discharge into the atmosphere, large towns and cities are suffering from a sharp increase in the proportion of highly toxic products of the burning of liquid fuels used for automobiles (e.g. benz(a)pyrene, formaldehyde, tetraethyl lead, etc.), the number of which is steadily growing. Shortages in the natural gas supply result in the increase of the share of solid fuel and black oil (mazut) at big power generating plants and in individual homes. This caused the increase in discharges into the atmosphere and the accumulation of heavy metals of the 1st and the 2nd classes of hazard in the soil and even formation of anthropogenic geo-chemical anomalies.

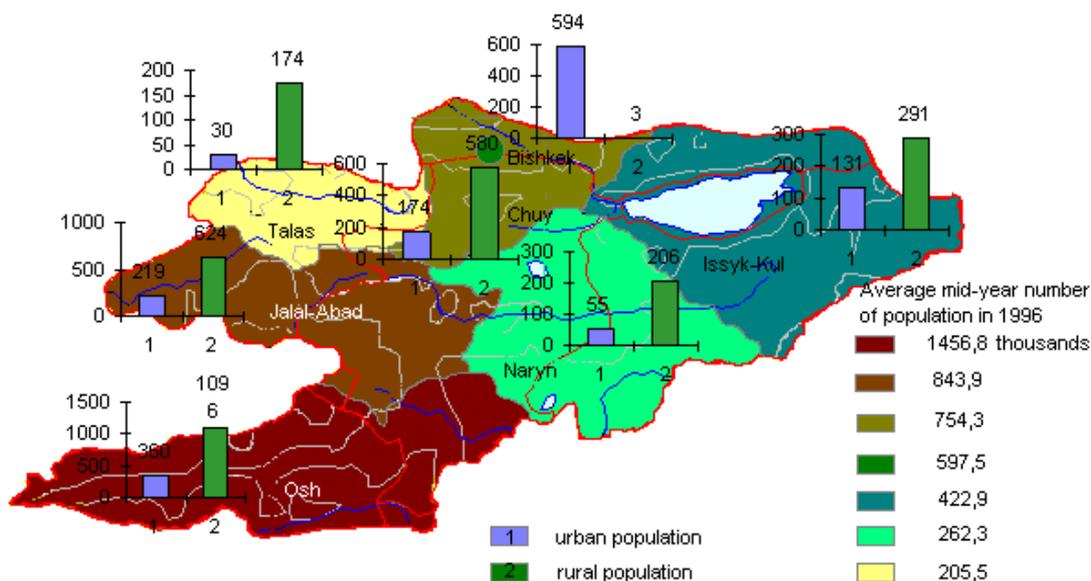
Providing the population of Kyrgyzstan with high quality drinking water is one of the key issues of environmental health. The inability of portable-water systems to provide adequately rural areas with drinking water, obsolescence of collector wells and piped distribution systems make water factor one of the major causes of high morbidity of the population.

The structural changes in agriculture, worsening of agro-chemical and veterinarian services resulted in the increase of zoonosis morbidity (for example, brucellosis sickness rate increased from 12.8/100,000 in 1990 to 19.6/100,000 in 1996) and hazardous influence of agro-chemicals and fertilizers on public health. The negative impact on public health is also caused by the sharp decrease in the volume of local agricultural products in the Kyrgyz Republic, large-scale imports of foodstuffs of low quality, uncontrolled street sale of food, breach of rules of their transportation, storage and sale.

In general, the mistakes and drawbacks of management in the Soviet time, worsened by the difficulties of the period of market transition, had a negative impact on the demographic situation and public health indicators. Thus, with the total population of 4.48 million the birthrate has dropped from 29.3/1,000 in 1990 to 23.6/1,000 in 1996. Mortality rate during that period has increased from 7.0/1,000 to 7.6/1,000. The rates of infant (30.0 in 1990 and 25.9 in 1996 per 1,000 life-born) and maternal mortality (81.4 in 1990 and 65.2 in 1996 per 100,000 of neonates) are very high. General morbidity rates are also growing. This is especially true for blood and haematogenic organs diseases (1990 - 608.2 and 1996 - 1049.8), diseases of digestive organs (2471.5 in 1990 and 2713.1 in 1995, 2107.9 in 1996), urogenital system diseases (1990 - 1193.0; 1995 - 2006.9; 1996 - 1061.9). Still high are the rates of malignant tumors (92.7 per 100,000 in 1996), general morbidity rate because of infectious diseases and parasitosis (adults and teenagers - 2762.3 per 100,000, and children - 4088.1 per 100,000 in 1996), and tuberculosis (87.5 per 100,000 in 1996).

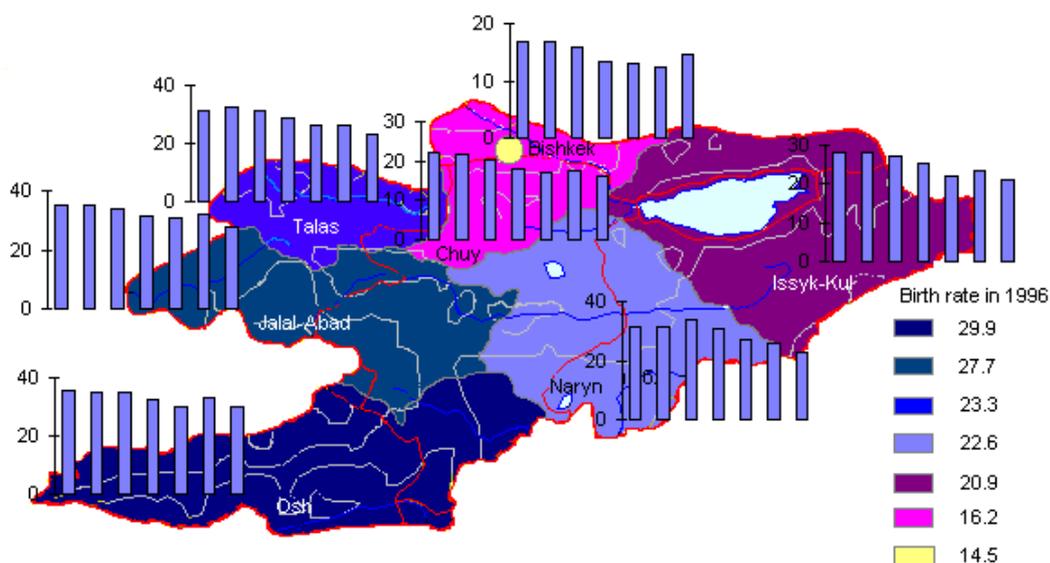
Thus, public health in considerable degree depends on the unfavorable ecological situation in the Republic. This should be the focus of urgent and efficient measures in the environmental health of the Kyrgyz Republic.

Proportion of urban and rural population by oblast in 1996

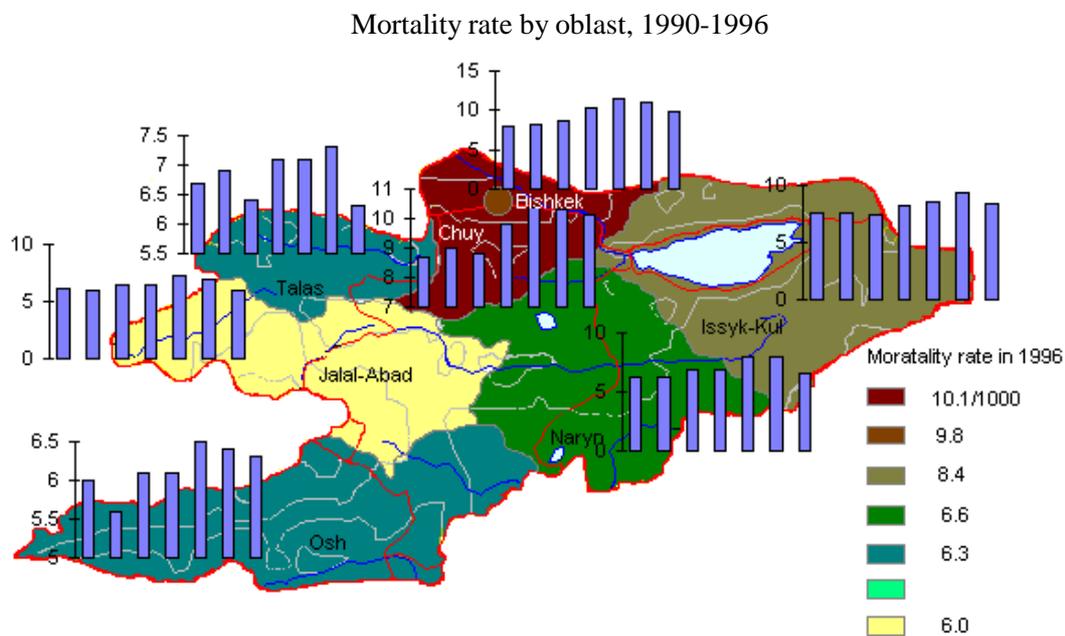


Pic.1

Birth rate by oblasts, 1990-1996

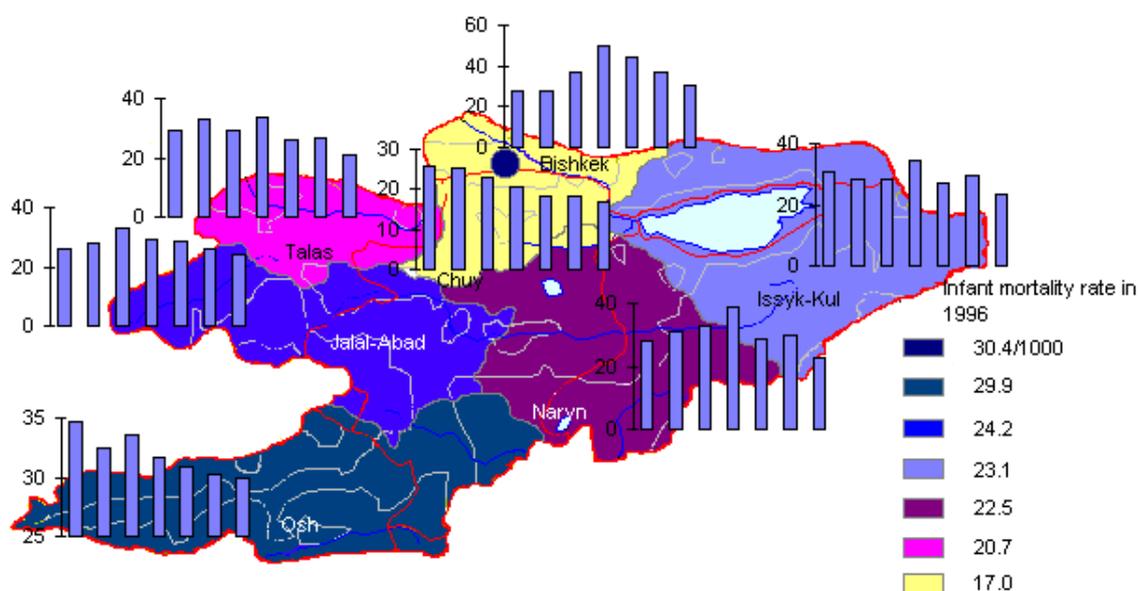


Pic. 2



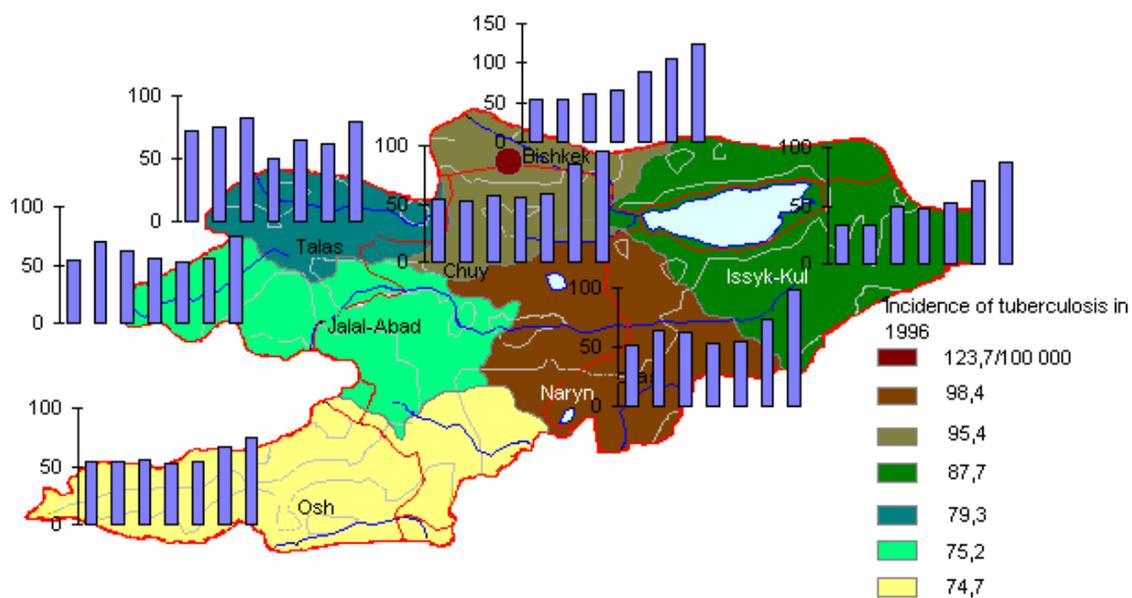
Pic.3

Infant mortality rate, 1990-1996



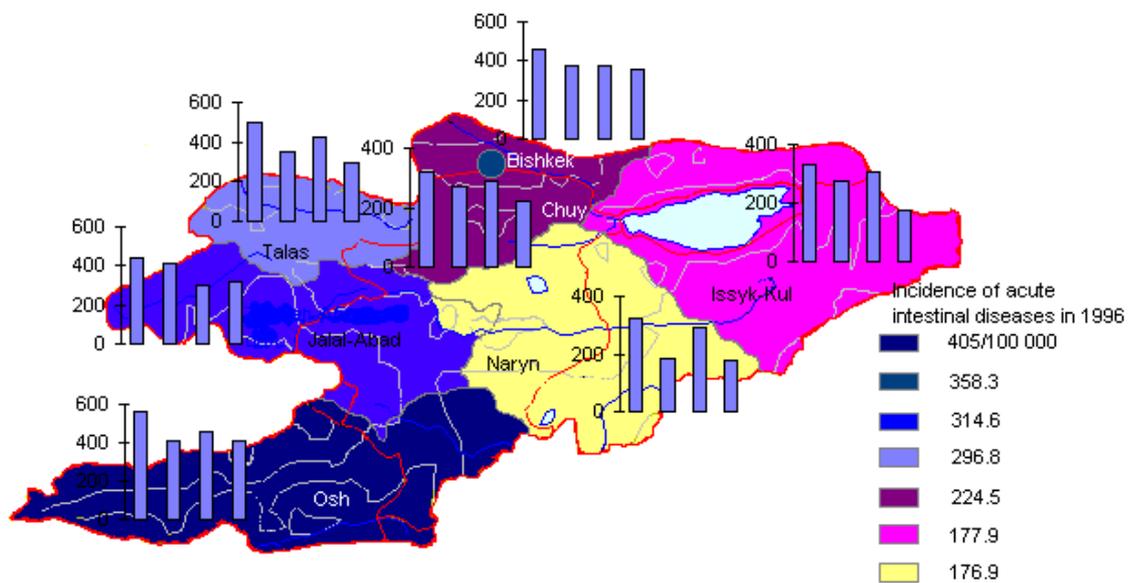
Pic.4

Incidence of tuberculosis by oblasts, 1990-1996

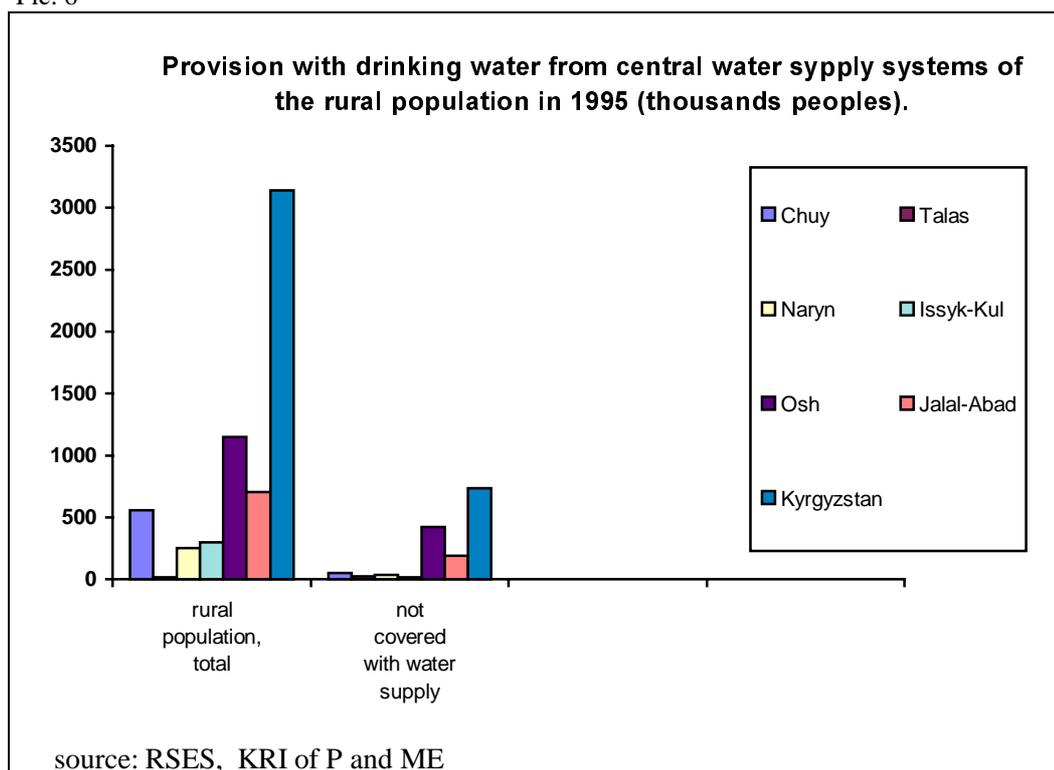


Pic. 5

Incidence of acute intestinal diseases by oblasts, 1993-1996



Pic. 6



Pic.7

Characteristics of the centralized water supply systems of settlements in Kyrgyz Republic, 1996

oblast	number of water-pipes not corresponding to sanitary standards	number of water samples taken in water distribution
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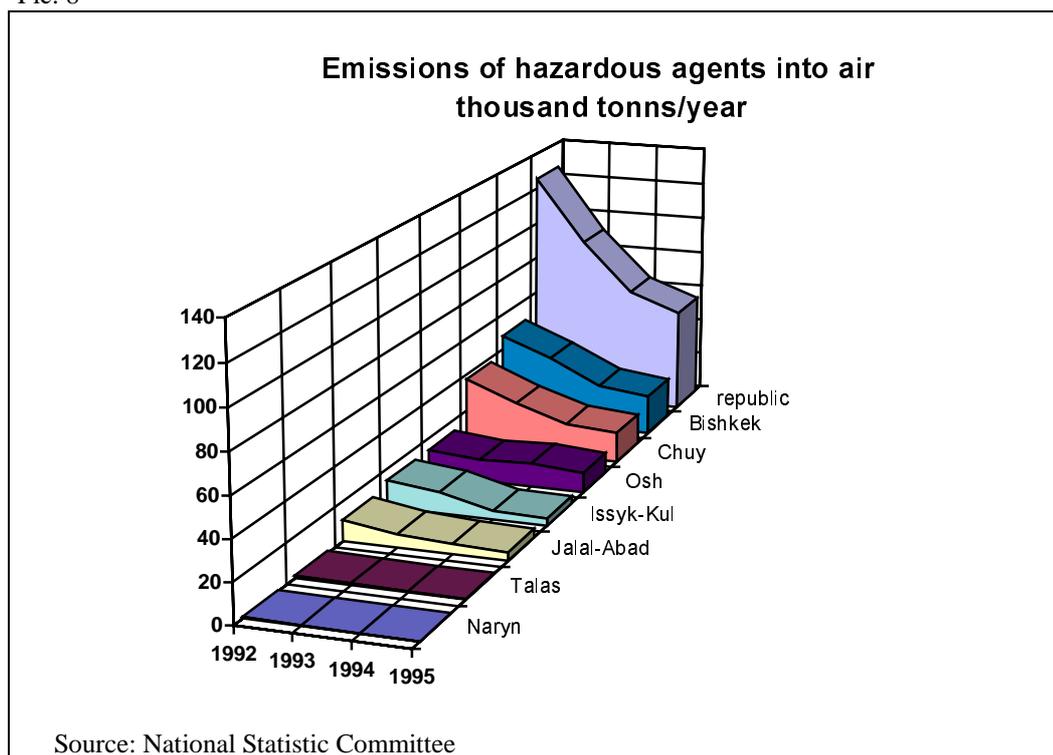
									system not corresponding to the State Standards on the following parameters	
	total		because of lack						sanitary - chemical (%)	bacteriological (%)
			protecting zones		water treatment constructions		water treatment			
CP	nC	CP	nC	CP	nC	CP	nC			
Chuy	1	190	1	94	-	8	-	97	1,0	12,5
Talas	2	-	2	-	-	-	-	-	5,0	16,3
Naryn	2	8	1	4	-	1	1	3	1,1	7,5
Issyk-Kul	3	39	2	11	2	13	-	15	2,0	15,0
Osh	-	6	-	5	-	1	-	1	3,7	7,6
Jalal-Abad	5	24	-	17	1	11	3	14	7,8	11,6
total	13	267	6	131	3	34	4	130	2,8	10,5

CP - community water pipes ;

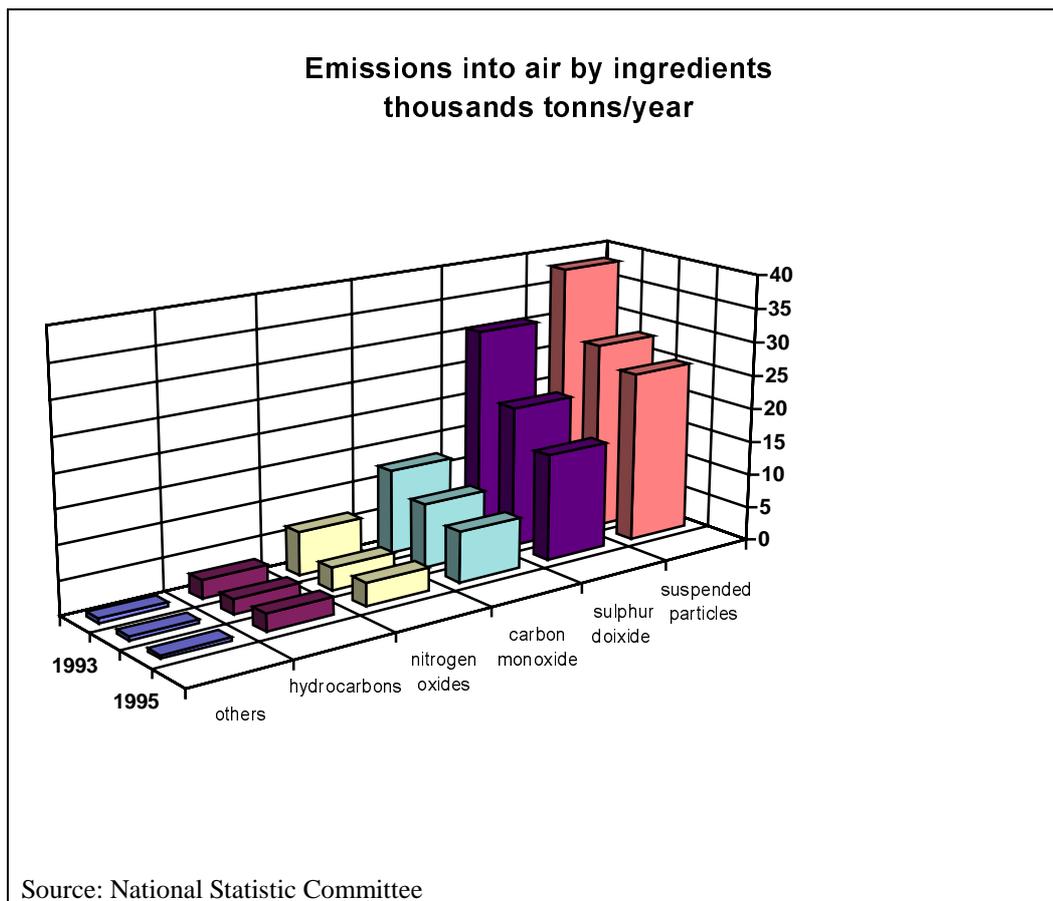
nC - non-community water-pipes

Source: RSES, KJKS, RE Kyrghyzselremstroy

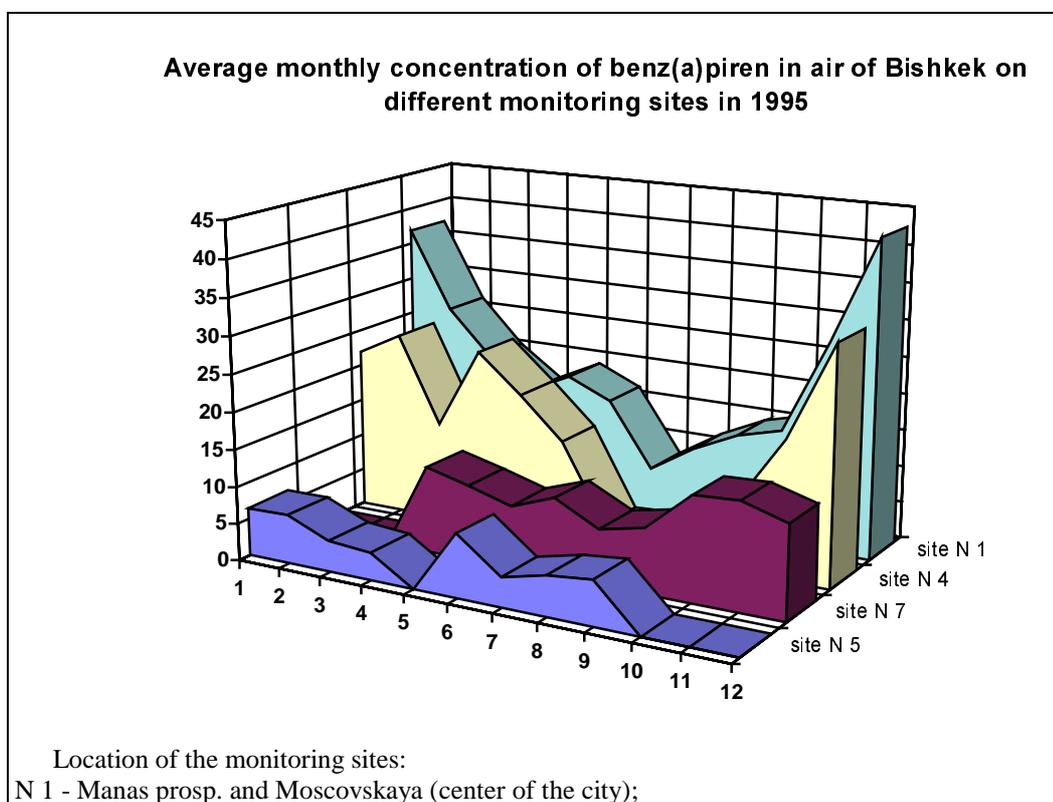
Pic. 8



Pic.9

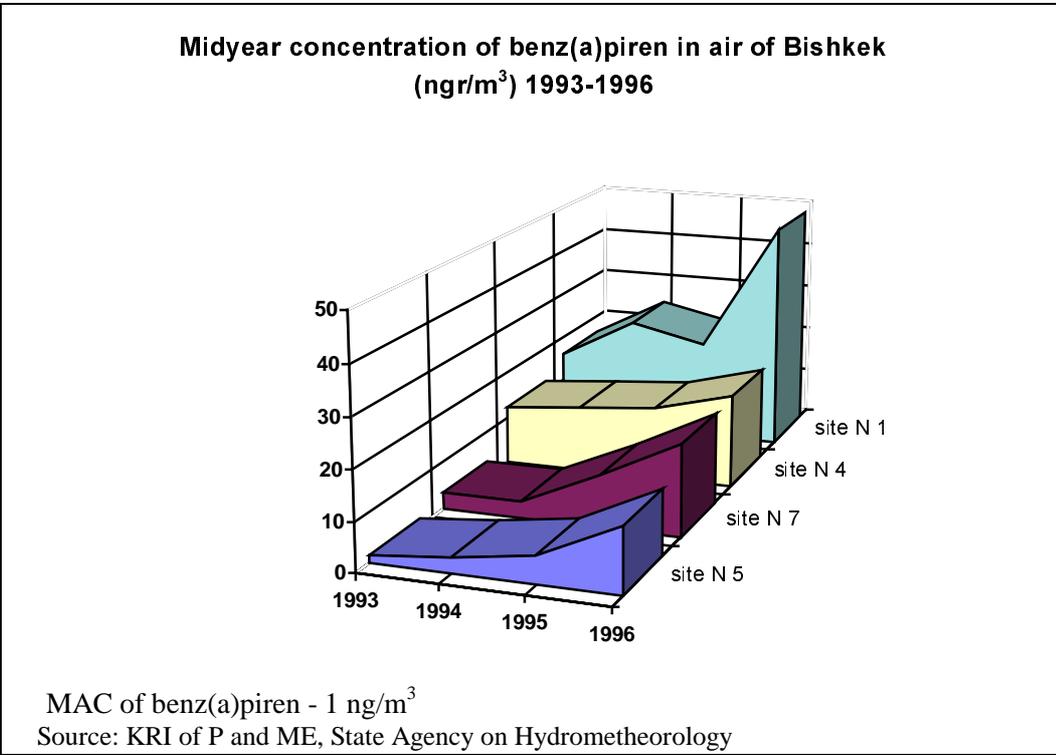


Pic.10

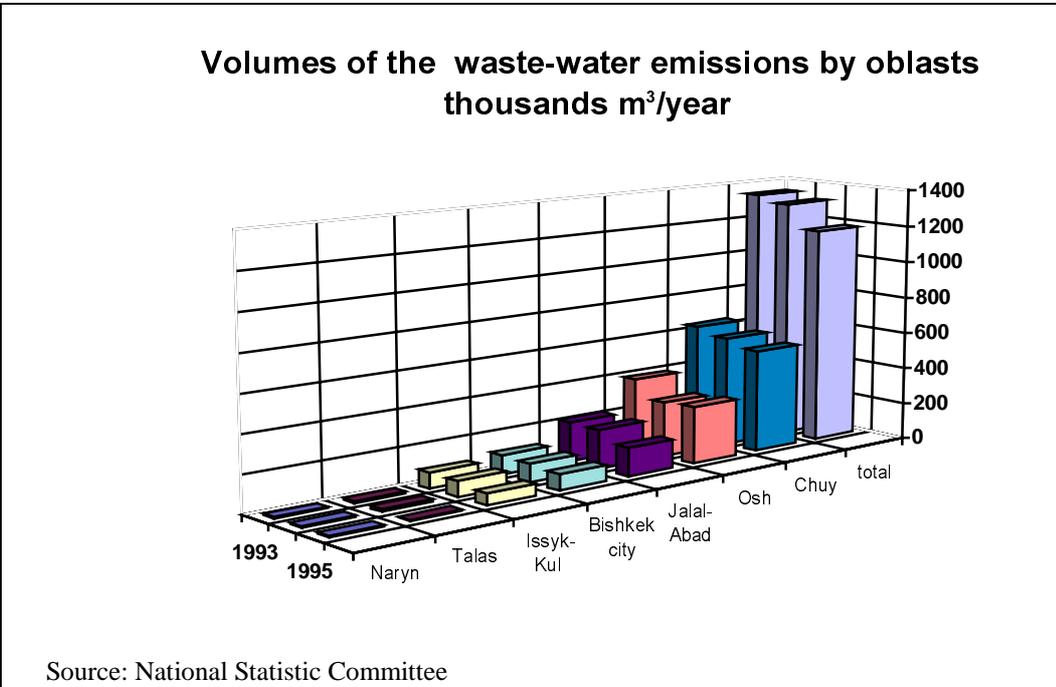


N 4 - Jibek-Jolu prosp. and Ibraimova str. (center of the city);
 N 5 - microdistrict N 7 (southern part of the city);
 N 7 - Bakinskaya str. (northern part of the city).
 Source: KRI of P and ME, State Agency on Hydrometeorology

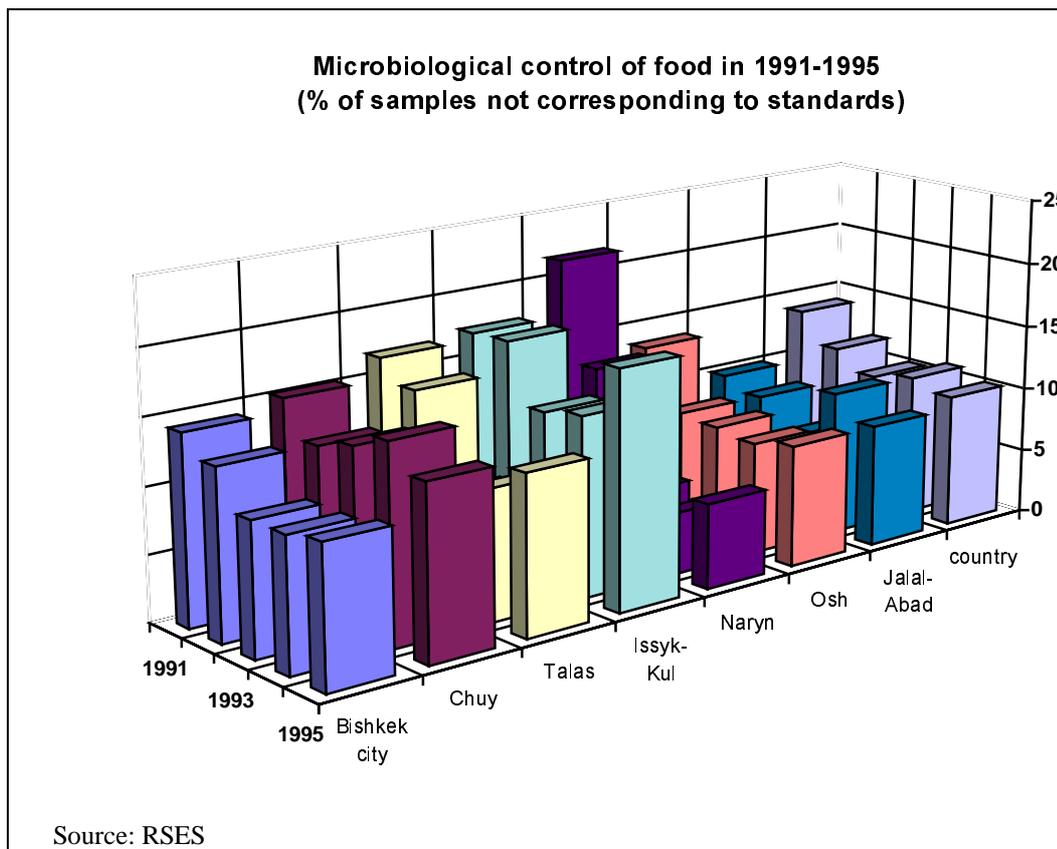
Pic. 11



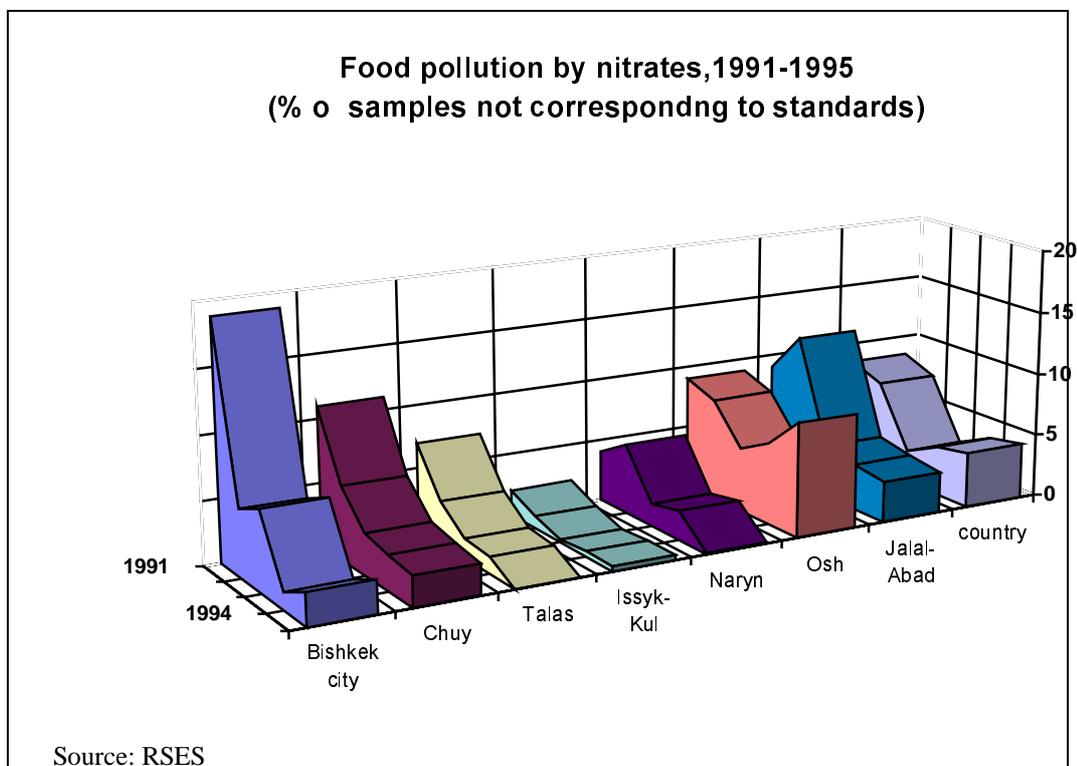
Pic. 12



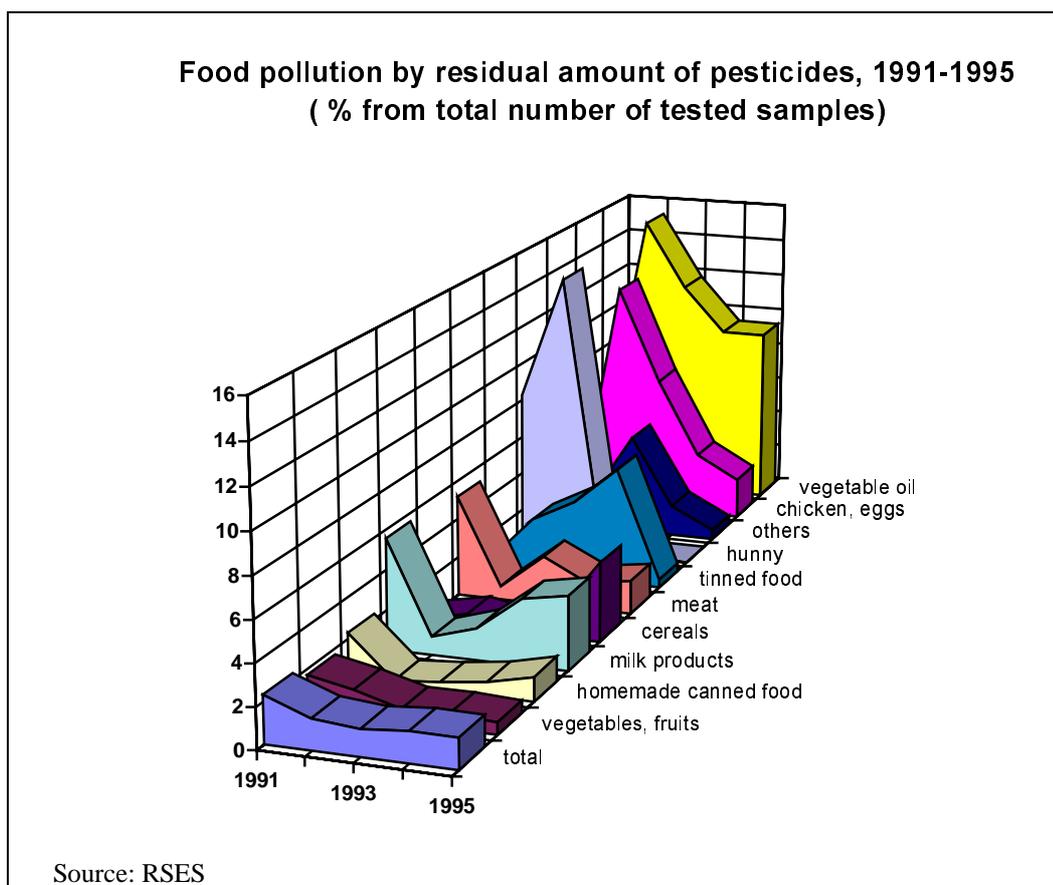
Pic. 13



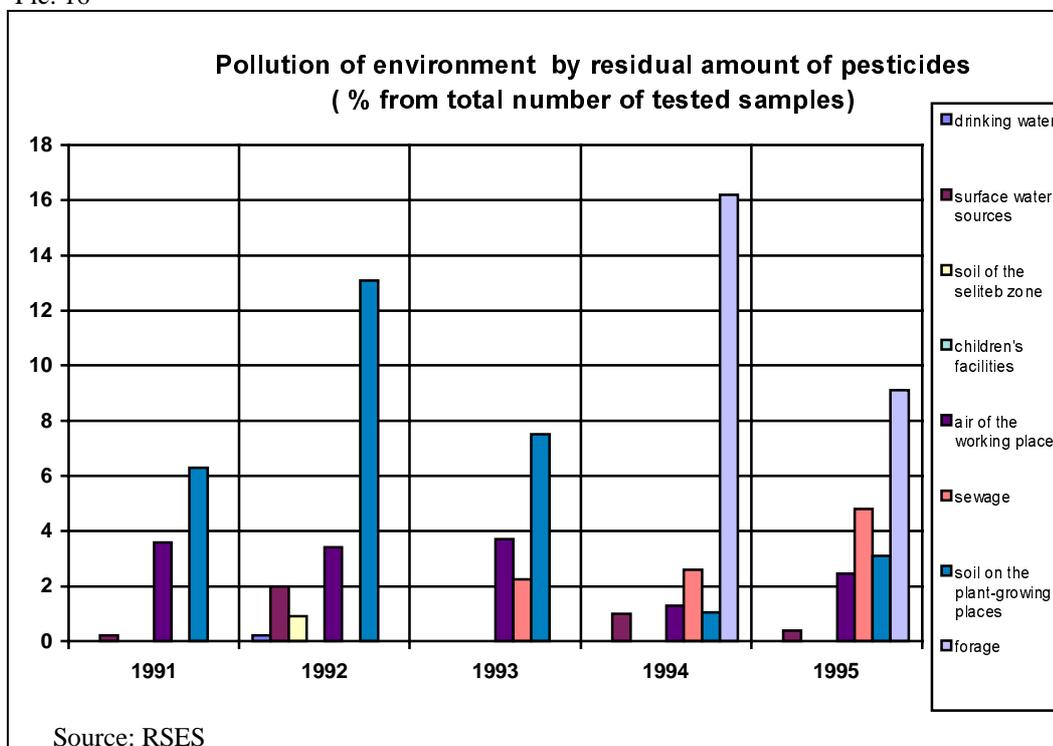
Pic.14



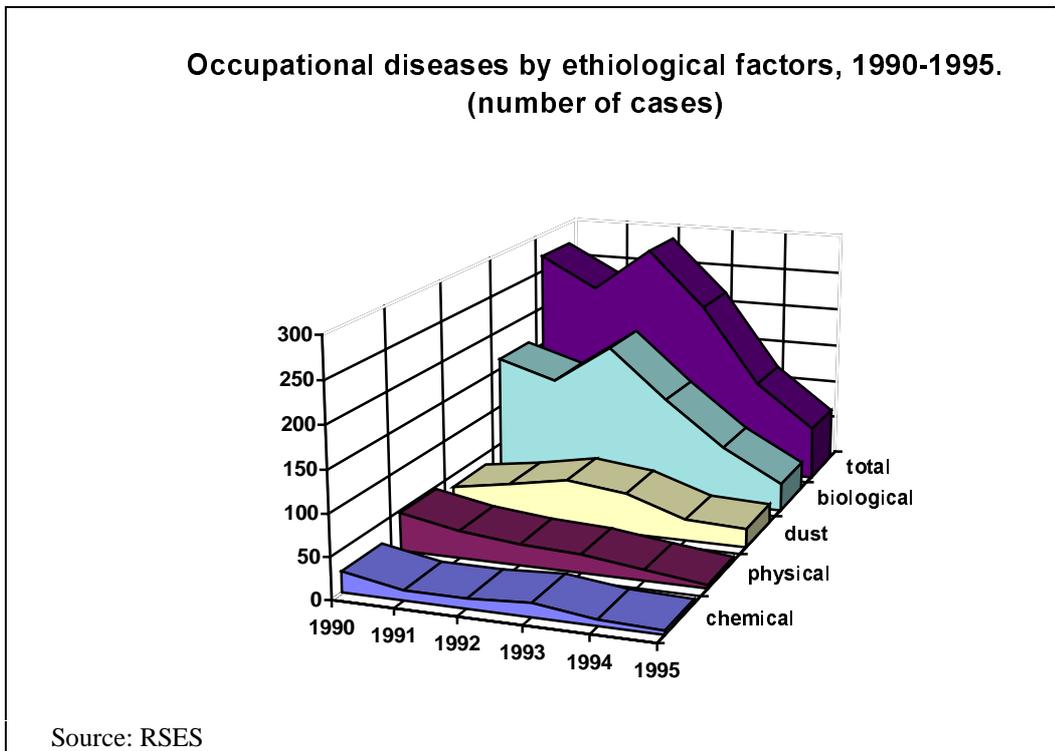
Pic. 15



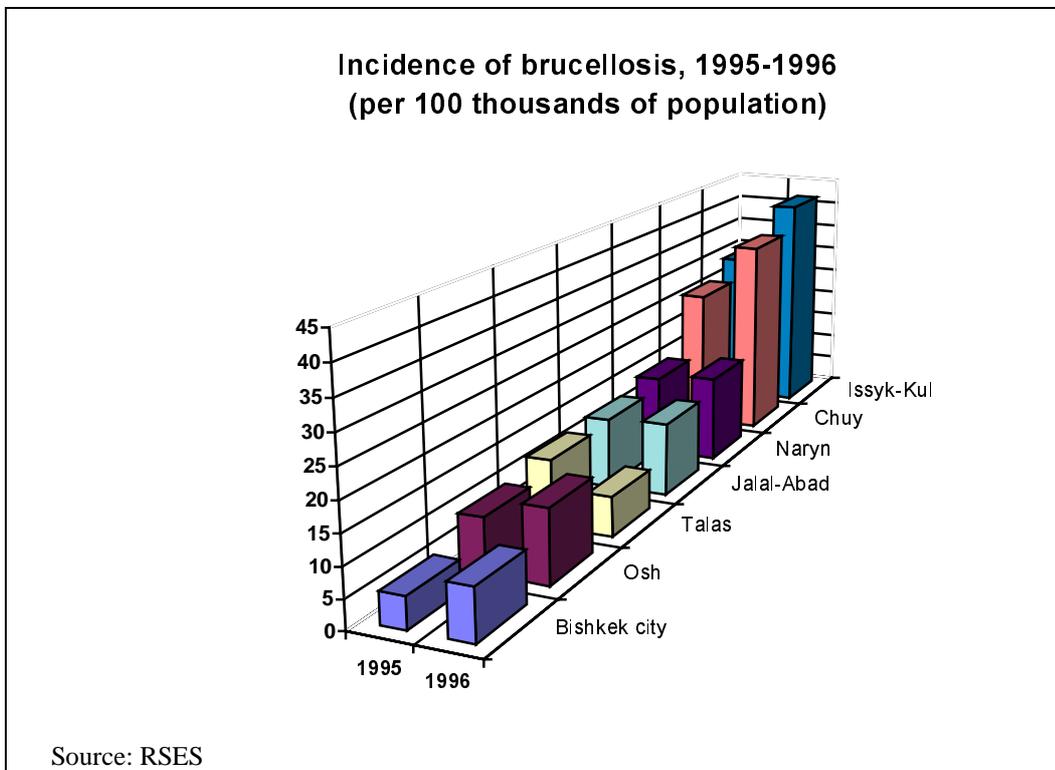
Pic. 16



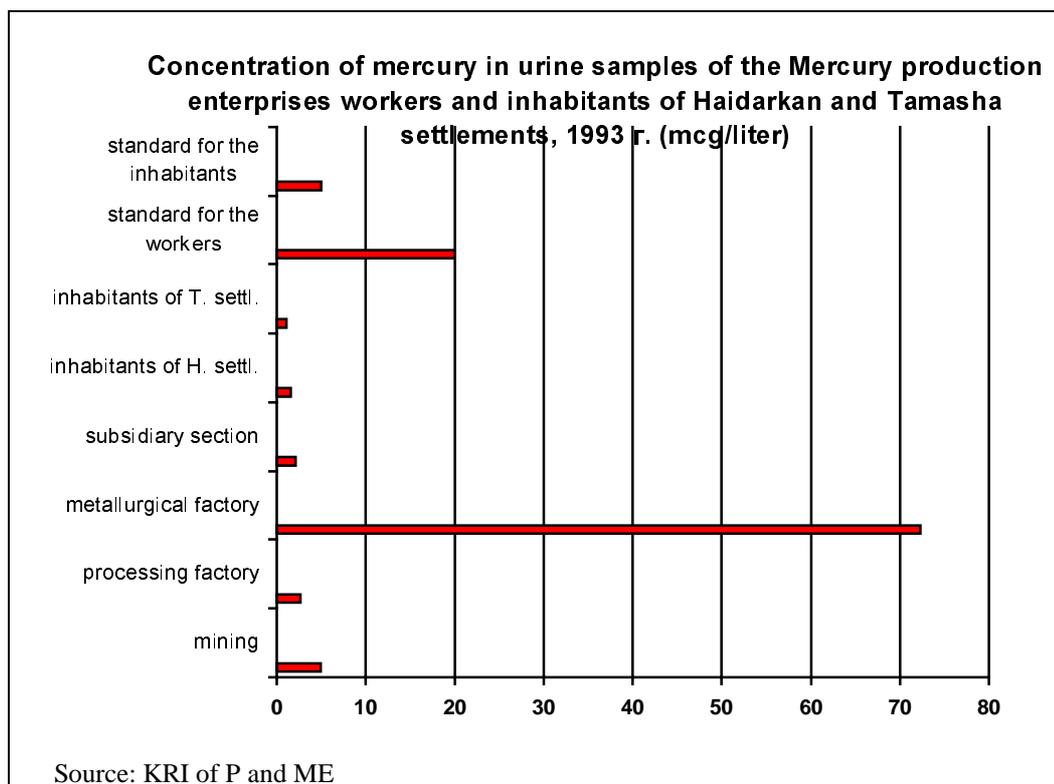
Pic. 17



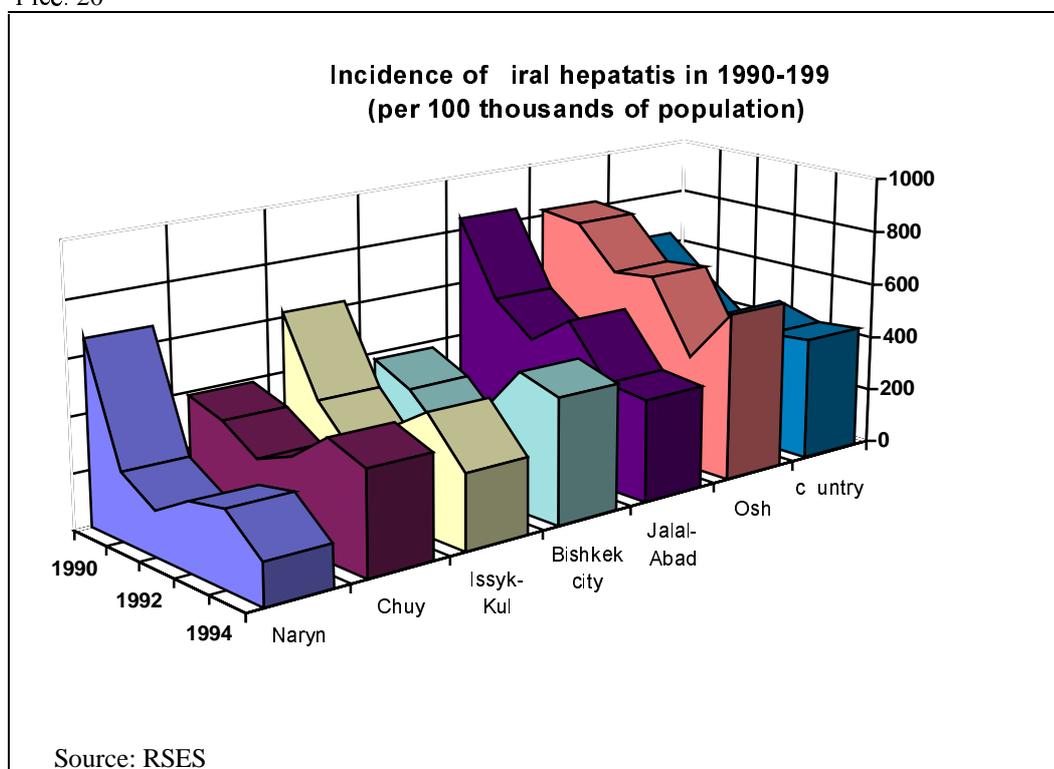
Pic.18



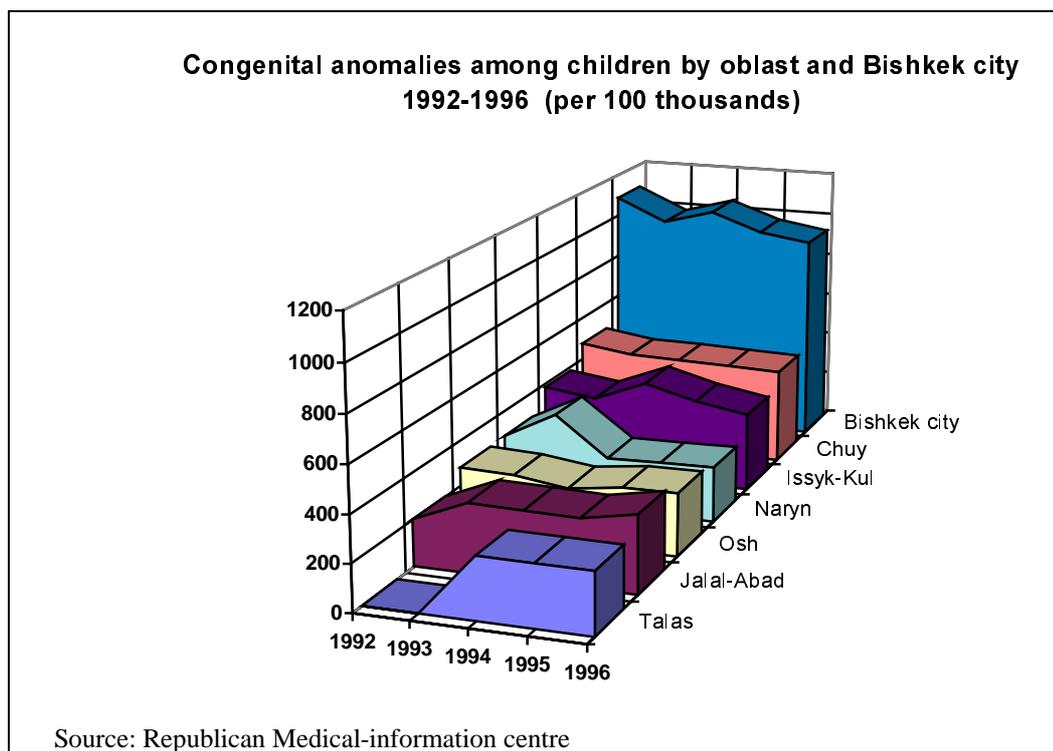
Pic. 19



Picc. 20



Picc. 21



Pic. 22

Chapter 3. Institutional framework

Objectives

- To ensure, through the establishment of appropriate government machinery, that decisions and long- term strategic planning affecting the natural environment, and through it health, are taken not merely on the basis of economic factors alone but also with full consideration of potential environmental health consequences, in accordance with the requirements of sustainable development.
- Similarly, to ensure that decisions on economic development at local level are taken in full knowledge of their environmental implications and potential consequences for health, through effective consultation involving not only local authorities and those who stand to benefits financially from the proposed development but also the population that will be affected by the positive or negative outcomes of the decision.

(EHAPE)

Article 35 of the Constitution of the Kyrgyz Republic, adopted May 5, 1993 says :

1. Citizens of the Kyrgyz Republic shall have the right for favorable for their lives and health environment and for the compensation for losses incurred to their health or property in the sphere of wildlife management.
2. Considerate attitude towards environment, natural resources and historical monuments is the sacred duty of each citizen.

The Ordinance of the Government of the Kyrgyz Republic, dated December 1992, "On Approval of the Regulations on the State Control in the Sphere of Nature Preservation and Use of Nature Resources" determines special authorized agencies that maintain state control in the sphere of environmental protection. They differ from other organs of state control because, on a special order of the state, they carry out control of how regulations and norms are observed. They have the right to oversight the activities of other agencies and to apply administrative compulsory measures when appropriate. These special organs include:

1. Ministry on Environmental Protection (former State Committee on Nature Protection);
2. Ministry of the Interior;
3. Sanitary-Epidemiology Service (under the Ministry of Health);
4. State Inspectorate for Land Tenure under the Government of the Kyrgyz Republic;
5. State Forestry Inspection under the Government of the Kyrgyz Republic;
6. State Inspection on Industrial and Mining Safety.

The organizational and political structure in the sphere of nature protection and use of nature resources is reflected in Part 7 of the National Environmental Protection Action Plan of Kyrgyz Republic - Legislation, Standards and Their Enforcement. However, the structure of the State Committee on Environmental Protection was reconsidered by the ordinance of the Government in September, 1996. The Goscompriroda was restructured into the Ministry of Environmental Protection of the Kyrgyz Republic.

Adopted by the Government Ordinance of the Government of the Kyrgyz Republic, dated September 26, 1996 No.44

Structure of the Ministry of Environment Protection of the Kyrgyz Republic



In accordance with the Law On Sanitary-Epidemiological Health of the Population of the Kyrgyz Republic, Chapter 5, and the Regulations on State Sanitary-Epidemiological Surveillance, approved by the Ordinance of the Government of the Kyrgyz Republic, dated March 2, 1993, No.45, the following sanitary-epidemiological services (SES) function in the country:

1. Sanitary-Epidemiological Stations (SES) - 58:

- Republican SES -1 ;
- Oblast SES - 6;
- City SES - 10;
- Rayon SES - 41;

2. AIDS Prevention Centers:

- National Coordination Center - 1;
- Oblast - 4;

3. Anti-Plague Stations:

- Anti-Plague Station of the Kyrgyz Republic -1;
- Oblast Departments - 3;

4. Disinfecting Stations:

- City -2;

5. Research Institute of Prophylaxy and Medical Ecology - 1.

In accordance with the Order issued by the Ministry of Health of Kyrgyzstan No.186 of July 9, 1990 “On Improvement of Hygiene Education of the Population and Promotion of Healthy Lifestyle in the Kyrgyz SSR” the Health Center of Kyrgyzstan was set up.

In accordance with the Ordinance of the Government of the Kyrgyz Republic No.328 of May 16, 1994 “On the National Program of Immunoprophylaxis, 1994-2000” the Center for Immunoprophylaxis was established (The Order of the Ministry of Health of the Kyrgyz Republic No.140 of June 3, 1994).

The General Sanitary-Epidemiological Department of the Ministry of Health was merged with the Republican SES and was named the Department of State Sanitary-Epidemiological Surveillance in accordance with the Ordinance of the Government of the Kyrgyz Republic No.299 of May 29, 1997 “On Establishing of the Department of State Sanitary-Epidemiological Surveillance of the Ministry of Health of the Kyrgyz Republic”.

The major task of the aforesaid institutions is to carry out state control over the performance of sanitary, hygienic and anti-epidemic measures aimed at prevention and liquidation of the environment contamination, improvement of working conditions, everyday life and recreation of the population, prevention and reduction of morbidity rates.

In conformity with item 9 of the Issyk-Kul Resolution, the Kyrgyz Republic, in cooperation with other Central Asian states, will develop a regional model legislative enactment on reforming of the sanitary and hygienic services in accordance with the WHO conception on environmental health. This enactment will differentiate powers of sanitary and hygienic services and other administrative organs implementing state control over environmental health.

3.1 Improving Environmental health services

Objectives

- **To develop at national, subnational and local levels appropriate environmental health services, and necessary supporting mechanisms, to implement policies to control, prevent and correct environmental factors with adverse effects on health and, where appropriate, promote those which enhance human health and wellbeing.**

(EHAPE)

In conformity with item 9 of the Issyk-Kul Resolution, the Kyrgyz Republic, in cooperation with other Central Asian states, will develop a regional model legislative enactment on reforming of the sanitary and hygienic services in accordance with the WHO conception on environmental health. This enactment will differentiate powers of sanitary and hygienic services and other administrative organs implementing state control over environmental health.

3.2 Improving Environmental health system

At present the following laws of the Kyrgyz Republic regulate the sphere of environmental health :

- On Protection of Public Health in the Kyrgyz Republic;
- On Sanitary-Epidemiological Safety of the Population of the Kyrgyz Republic;
- On Environmental Protection;
- On Water;
- On Atmospheric Air Protection.

These laws determine the major guidelines and goals in environmental and public health protection, the rights and duties of citizens and non-governmental organizations, regulatory means (economic measures, defining standards of environmental quality, state expertise) and responsibility for ecological violations, public ecological and hygienic education.

The Issyk-Kul Resolution adopted at the conference “Development of Environmental Health Action Plan” (25-27 June, 1996, Kyrgyzstan) stipulated working out of the Regional Register of statistic indicators which would characterize various aspects of environmental conditions and public health to include them into the CARINFONET draft. The second conference of CARINFONET was held on March 25-27, 1997 to set up national statistical data base on public and environmental health. The conference elaborated a preliminary list of indicators pertaining to environmental health status. In future this will help to develop the National and Regional Environmental Health Data Base, which, in its turn, will provide conditions for efficient monitoring.

In addition, it is planned to develop a joint draft of a regional model legislative enactment on reforming of the sanitary and hygienic services in accordance with the WHO conception on environmental health. This enactment will differentiate powers of sanitary and hygienic services and other administrative organs implementing state control over environmental health.

Chapter 4. SPECIFIC ENVIRONMENTAL HAZARDS

4.1 WATER

Objectives

- **To protect water sources and supplies from biological and chemical contamination.**

- **To secure, on sustainable basis, the continued availability of water for human consumption of a quality at least consistent with the WHO guidelines.**
- **To reduce the incidence of waterborne microbial diseases.**
- **To reduce exposure through drinking-water to toxic chemicals from industry and agriculture.**

(EHAPE)

Current situation

The water issue and the issue of drinking-water supply are the key ones among other problems of environmental health for the Kyrgyz Republic as well as for the other states of Central Asia. On the one hand, the problem stems from a poorly developed piped water supply systems in rural areas (in contrast to big cities), where 60% of the total population of the country live. The rural piped water supply systems are gradually falling into disrepair and becoming non-functional due to the lack of funds and closure of state maintenance services. Under these circumstances, the rural population is often forced to use water from open reservoirs and irrigation canals. The water from these sources does not meet the acting State Standard with respect to biological and chemical parameters. On the other hand, the hot climate, especially in the south of the country, makes for the increase in microbiological contamination of water in the open reservoirs. That is why Kyrgyzstan belongs to a region with a high level of water-born diseases.

More than 700, 000 people in Kyrgyzstan have no access to piped water service. There are no piped water system in 634 villages (344 in Osh oblast, 198 in Jalal-Abad, 44 in Naryn, 21 in Talas, 19 in Issyk-Kul, 8 in Chui oblasts). As a result, the population of these villages has to use water from contaminated rivers and irrigation canals both for the industrial purposes and drinking.

Surface and underground waters are the source of drinking water in Kyrgyzstan. According to the data provided by the Ministry of Agriculture and Irrigation and by the State Agency on Geology and Mineral Resources of the Kyrgyz Republic glaciers and snow accumulated in the mountains are the major sources of water supply. When melting they feed open reservoirs and underground water streams. At present throughout the country 5.9 thousand wells with total discharge 2.8 million m³/24 hours are operating on underground aquifers. Underground sources provide 90% of the total supply of drinking water.

The anthropogenic impact on the environment is the major source of water contamination. Natural factors in water composition changes are insufficient. Industrial and municipal waste water, drainage from irrigated fields subjected to agro-chemical treatment, liquid wastes from stock farms and from settlements influence water quality to a considerable degree. Only 105 (30%) out of 350 wastewater treatment plants operating in the Republic meet sanitary requirements, and 140 (40%) do not function at all. The effectiveness of waste water treatment is very low and does not meet normative requirements. In accordance with the data provided by the State Statistics Committee of the Kyrgyz Republic total waste water disposal in 1995 was 1,177 million m³. Out of those, 840,000 m³ was discharged without any treatment.

The task of supplying the population of the Kyrgyz Republic with water of good quality has the following peculiarities:

- with sufficient hydro-resources Kyrgyzstan possesses, more than half of its population has no access to sources of drinking water which would meet the sanitary and hygienic standards;
- though more than 60% of Kyrgyzstan population reside in rural areas, 35.5% of rural settlements have no piped water supply systems and the majority of those functioning are in bad need of major repairs or reconstruction;
- cities and towns of the Republic have urban water supply systems. However, out of 280 water intakes about 49% have no sanitary protection zones, 13.2% have no complete set of water treatment facilities, 47.8% have no disinfectant installations. Urban water supply systems require reconstruction, repairs and expansion;
- because of the unsatisfactory condition of the main water intakes, 2.8% of water samples taken from the urban water mains do not correspond to sanitary and hygienic requirements by their physical and chemical composition, and 10.5% - by their bacteriological characteristics;
- unsatisfactory condition of drinking-water facilities is the major cause of high rate of gastrointestinal infections in the country;
- there is no unified monitoring system which would control the quality of drinking-water at the national level and there are extremely poor possibilities of organizing such control locally;
- solution of the problem of high quality water supply in the Republic is limited by acute deficit of capital investments and allocations.

Actions

Group 1

1. Drafting the Law of the Kyrgyz Republic on drinking-water.

Executors: Ministry of Health, Ministry of Environment Protection

2. Establishing of the standard “Quality of Drinking-Water”.

Executors: Ministry of Health, “Kyrgyzstandard”

3. Introduction of alternative means of providing safe and high quality drinking-water and its purification and decontamination techniques.

Executors: “Kyrgyzjilcommunsojuz”, Ministry of Health,
“RE Kyrgyzselremstroy”, local administrations

4. Development and introduction of the National Program “Drinking-Water”.

Executors: Ministry of Health, Ministry of Environment Protection, “RE Kyrgyzselremstroy”, State Agency on geology and mineral resources, Ministry of Finance and Economy

5. Rehabilitation and repairs of water purification installations and water supply systems damaged by natural calamities.

Executors: Ministry of Emergency Situations and Civil Defence, local administrations, “Kyrgyzjilkomunsojuz”,

RE “Kyrgyzselremstroy”

Group 2

6. Development of a unified high-quality drinking-water monitoring system.

Executors: Ministry of Health, “Kyrgyzjilkomunsojuz”,
RE “Kyrgyzselremstroy”

7. Reconstruction of urban and rural centralized water supply systems.

Executors: “Kyrgyzjilkomunsojuz”, RE “Kyrgyzselremstroy”,
local administrations

8. Developing of effective measures to prevent anthropogenic contamination of the water sources.

Executors: Ministry of Health, Ministry of Environment Protection,
“Kyrgyzjilkomunsojuz”, RE “Kyrgyzselremstroy”

9. Provision of safe high-quality drinking-water to the settlements located in the vicinity of former uranium mines and other mining industry enterprises.

Executors: Ministry of Emergency Situations and Civil Defence

10. Construction of new water supply systems and increasing the output of the existing ones in places of settlements of displaced people and refugees.

Executors: Ministry of Emergency Situations and Civil Defence, local administrations

4.2 AIR

Objectives

- To provide information on indoor and outdoor air pollution levels throughout Europe, especially in urban areas.
- To adopt the measures required to bring, by a date to be specified nationally, air pollution levels below the health-related WHO air quality guidelines.

(EHAPE)

Current situation

Socio-economic transformations of the transitional period, the Kyrgyz Republic is going through, have changed the priorities in environmental health, and made the atmospheric air pollution one of them. Industrial enterprises which were the major source of air pollution in the past, especially in big towns and cities, are now out of operation or are operating not to their full capacity. At the same time, the number of

vehicles is increasing rapidly and steadily which is now the main source of environmental contamination not only in big cities but, in fact, in all settlements situated in valleys (Chui and Fergana valleys, the Issyk-Kul basin). Further more, since Kyrgyzstan has no natural gas deposits of its own, the majority of power generating plants, central heating systems, and private homes owners had to resume usage of local solid fuel which has low caloric and high ash content. Low efficiency of depuration of atmospheric discharges at big municipal power plants and absence of any purification at small power plants and individual homes are making this factor the second major source of air pollution. Finally, big deposits of mineral resources (mercury, rare-earths, gold, etc.) brought about intensive development of mining industry which will still further develop in the future. Naturally, in the vicinity of those enterprises there exists an additional man-made source of atmospheric air pollution. Obviously, the existing major sources of air pollution will remain in the years to come.

The highest degree of air pollution is observed in Bishkek. 42% of air samples taken in 1995 were aberrant. During the year, dust air pollution level exceeded the maximum allowed concentration (MAC) by two times, and in the downtown part - by 8-9 times. The following major air pollutants were registered: NO_x (2-4 MAC), formaldehyde (4-7 MAC), carbon monoxide (4-11 MAC). Atmospheric air analysis to detect presence of metals conducted by the Kyrgyz Research Institute of Pediatrics and Medical Ecology indicates exceeding of MAC level of lead by 1.5-5.6 times, nickel by 2-8 times, copper by 1.3-3 times. Considerable air pollution level is registered in Osh and Tokmok.

Due to economic constraints the number of atmospheric discharges from permanent sources is decreasing each year. In 1995 the total discharge of pollutants in Kyrgyzstan was equal to 54,995 t. However, the increase of the number of vehicles has caused a considerable growth of their contribution to air pollution. The main causes of this situation are: low-grade gasoline, obsolescence of vehicle fleet, absence of motor vehicle emission-control devices, poor condition of highways.

All these contribute to worsening of public health. Thus, general morbidity in Bishkek among adults and teenagers increased from 66,345.1/100,000 (1995) up to 68,240.6/100,000 (1996), while the average national indicator is 45,918.4 (1996). The corresponding index for children in Bishkek in 1996 was 860,047.2/100,000 with the national average index equal to 39,890.9 (1995). (Data provided by the National Sanitary-Epidemiological Station). High level of sickness rate of endocrine system, urogenital system, skin and hypodermic cellular tissue, respiratory system, and also tumors and congenital anomalies is registered. Similar situation is observed in other industrial centers of the country.

The Hydrometeorological Agency of Kyrgyzstan for a number of years has been monitoring the level of atmospheric air pollution and meteorological parameters which characterize dispersion of suspended particulate matter in the atmosphere. Monitoring centers are located in populated areas, in the vicinity of major sources of pollution, downtown. There were 17 monitoring installations throughout the country (Bishkek, Osh, Kara-Balta, Tokmok, Cholpon-Ata). Additionally, there were also the so-called "fixed-route" monitoring in Khaidarkan, Tash-Kumyr, Kyzyl-Kiya, Balykchi, Kara-Kol, and also Sary-Chelek biosphere national park. About 60,000 studies were made annually and special reports on atmospheric pollution were published.

At present, due to the sever cuts in financing, atmospheric air studies have been reduced by 50%. Jalal-Abad observation station was closed. No fixed- route studies are conducted any longer to determine the air composition.

All these effected air monitoring and caused the information gap for some related national agencies.

Actions

Group 1

1. Setting of state standards and criteria for air monitoring and control..

Executors: Ministry of Health, Ministry of Environment Protection

2. Developing a special program on reduction of air pollution in Bishkek and Osh.

Executors: Local administrations, Osh oblast SES, SES of Bishkek city, relevant ministries and departments

3. Working out and implementing of hygienic standards for safety of gasoline and lubricants for motor vehicles.

Executors: Ministry of Health, “Kyrgyzstandard”

Group 2

4. Establishing of a unified monitoring system and a centralized air control data base.

Executors: State Agency ob Hydrometeorology, Ministry of Environment Protection, Ministry of Health

5. Setting up both permanent and mobile diagnosis stations to check the quantitative and qualitative parameters of emissions from motor vehicles.

Executors: State Traffic Inspection(police), Ministry of Environment Protection, Ministry of Transportation and Communications

6. Introducing of briquetting technologies and other means of increasing the calorific value and reducing the ash contents of local coals.

Executors: State Company “Kyrgyzkomur”

7. Informing the population on a regular basis on ambient air quality in the cities and industrial centers.

Executors: Ministry of Health, mass media, State Agency on Hydrometeorology, Ministry of Environment Protection

8. Utilizing of the unconventional sources of energy (solar, wind, water, etc.) for industrial purposes and everyday necessities.

Executors: Ministry of External Trade and Industry

4.3 SOLID WASTES AND SOIL POLLUTION

Objectives

- **To ensure the safe and nuisance-free disposal of (urban and rural) community and industrial waste, in order adequately to protect the health of workers and the public during collection, transportation, treatment and final disposal.**
- **To minimize waste production and promote recycling, reuse and energy recovery.**
- **To identify contaminated sites, assess the risks they pose to health and the environment and reduce or eliminate those risks deemed unacceptable.**

(EHAPE)

Current situation

Timely collection and utilization of municipal solid wastes is hampered by the shortage of transportation means and the lack of waste disposal sites that would meet the sanitary standards requirements. The material and technical capacity of the enterprises providing municipal services (Zhilkomhoz) worsened. The considerable cuts in financing resulted in aggravation of the problems connected with collection of solid and liquid municipal wastes from the residential districts. At present, 39 towns and 95 settlements (between 12-75% of the total population) are provided with services of municipal wastes collection on a regular basis. In 771 settlements collection and removal of garbage and sewage is arranged when requested only. As previously, removal of garbage and trash from residential districts is performed through large-scale voluntary works campaigns with the aim to improve the public utilities and the surroundings. New schemes of providing municipal waste removal services, based on competition, like for example in the city of Kara-Kol, are not widely spread yet. Constraints with transportation, poor supply of fuel and lubricants, shortages and poor technical condition of garbage containers, result in irregularities in wastes disposal, accumulation of municipal wastes in residential districts, mushrooming of uncontrolled dumps which contaminate large areas. Escalation of prices for communal services reduce the number of contracts between the households and the sanitary cleaning service-providers.

Out of the 155 solid waste disposal-sites throughout the country, only one belongs to Group 1 by its sanitary safety parameters, i.e. completely meets the sanitary requirements, and 144 pertain to Group 3. This situation causes intensive contamination of the soil and underground waters. The majority of waste disposal sites are not equipped with washing installations to sanitize garbage trucks after their unloading. Land-filling and disposal of wastes are not performed regularly. No preventive measures are taken against spontaneous ignition of the garbage.

The lack of waste disposal plants is a priority concern for Osh, Jalal-Abad, and Chui oblasts which have no free lands to accommodate land-fills.

Primary anxiety is caused by the lack of controlled disposal sites for toxic wastes which are being accumulated in large quantities on the territories of the industrial enterprises. For the recent 20-25 years, this issue has been a key concern for the Government of Kyrgyzstan which adopted a number of special decrees providing for utilization, decontamination and disposal of such wastes. Implementation of special measures is also envisaged by the National Project "Healthy Nation". Unfortunately, the situation does not improve because of the financial constraints.

According to the National Statistics Committee, as of January 1, 1996, there were 30,479 thousand tons of toxic wastes in the Republic out of which 26, 121 thousand tons are the extremely toxic, Class 1 wastes.

In 1995 alone, 329 thousand tons of wastes were produced. The available data, however, are not complete and do not reflect the chemical composition of the wastes. This is due to the inability of the industrial enterprises to report on a regular basis. There are no precise and efficient reporting forms.

As a matter of fact, no measures are taken to introduce new technologies to minimize waste production or to promote recycling.

In accordance with a Decree of the Government of the Kyrgyz Republic, the Sanitary and Epidemiological Department of the Ministry of Health started the Register of chemicals that are hazardous for human health and environment. However, this does not solve the problem of management of those wastes.

More than 480 million m³ of rock in 48 dumps, and 56 million m³ of metallurgy wastes containing polymetallic ores in 18 tailings and slag dumps are stored on the territory of the Republic. The rock dumps have not been re-cultivated and the wastes are washed out and dispersed over the near-by territories contaminating with heavy metals (lead, zinc, copper, cadmium, etc.) soil and open water sources. Some tailings are found in hazardous condition. Since some of them are situated in earthquake prone zones they are fraught with a large scale damage. Therefore, there is an urgent need to examine some of those tailings so as to estimate the scope of work required for emergency response, if those tailings are destroyed and the population living down the rivers (the territories of Kyrgyzstan and Uzbekistan) is endangered.

Actions:

Group 1

1. Working out of programs and schemes of sanitary disposal¹ of community and industrial wastes from cities and settlements.

Executors: "Kyrgyzjilkomunsojuz", local administrations

Group 2

2. Construction of waste disposal plants in Bishkek, Osh, Jalal-Abad, and in Issyk-Kul recreation zone.

Executors: "Kyrgyzjilkomunsojuz", local administrations

3. Construction of controlled disposal sites for toxic industrial wastes in the northern and southern parts of the country.

Executors: State Company “Kyrgyzaltyn”, Ministry of External Trade and Industry

4. Launching of a nation-wide campaign to remove, dispose and recycle community wastes.

Executors: mass media, local administrations, non-governmental organisations

*¹**Sanitary disposal** envisages the choice of the most technically and hygienically effective measures requiring the minimum of construction and operational expenditures, application of the most progressive and cost-efficient for the given city methods of collecting, removing, decontamination, and recycling of solid and liquid wastes based on the complex mechanization of the process, usage of modern methods of cleaning the cities, and efficient location of facilities for sanitary cleaning, treatment and disposal of waste on the territory of the cities.

4.4 FOOD

Objectives

- **To reduce the incidence of and if possible eliminate diseases associated with contaminated food.**
- **To ensure that food safety is put first in each part of the food production and distribution chain, from primary producer to consumer.**
- **To improve public awareness of food safety and hygiene.**

(EHAPE)

Current situation

The issue of food supply and nutrition of the population of the Kyrgyz Republic is complex and multi-faceted. The current process of social and economic transition resulted in a sharp decrease of the quality of living for large groups of population. This produced an immediate effect on the quality of nutrition. A considerable reduction of assortment of food products took place. Consumption of meat products, fat, and fruit and vegetables is dropping, while consumption of bread, cereals and dairy products is growing. Disbalance in diet causes vitamin deficiency, anemia, diseases of digestive system, etc., especially among the most vulnerable sections of the population (children, women, and elderly people). The situation is worsened by the regional peculiarities of mineral composition of soil and water that are poor in iron and iodine.

Hot climate in the valley regions of Kyrgyzstan causes contamination of food products by microorganisms. In addition to poor quality water, this facilitates spread of infectious diseases. In general, the problem of chemical and toxic contamination of food products is not very pressing for the entire territory of the country. However, the problem is extremely acute for the population of geo-chemical provinces that are characterized by the high content of mercury, antimony, lead, rare earths and organic compounds in local agricultural produce. The same is true for the regions where cotton and tobacco are cultivated (high contents of tobacco alkaloids, pesticides, etc.).

A considerable increase of the amount of poor quality food products on sale in Kyrgyzstan is the result of the reduction in the output of local large food processing factories and parallel mushrooming of small-scale food producing enterprises, privatization of trade and catering businesses, sale of foodstuffs by street vendors, and fragrant violation of sanitary standards. The situation is worsened by the sharp increase in import of low quality foodstuffs and alcohol that are often ersatz.

Such, in short, are the problems in supplying Kyrgyzstan with food products in sufficient amount and of good quality. The urgency of this problem requires prompt and effective actions on the part of all the state power agencies, non-governmental organizations, and the entire population.

Actions

Group 1

1. Drafting of the law “On Quality and Safety of Food Products”, introduction of changes or/and amendments to the laws “On Sanitary and Epidemiological Wellbeing of the Population of the Kyrgyz Republic”, “On Public Health Protection in the Kyrgyz Republic”, “On Consumer’s Rights”, and to other governmental decrees.

Executors: Ministry of Health, Ministry of Agriculture and Water
Resources

2. Working out of new and up-dating of the acting codes and standards of the Kyrgyz Republic on farm products and foodstuffs.

Executors: Ministry of Health, “Kyrgyzstandard”

3. Establishing the system of effective health safety and quality control over imported food products at all import entry points.

Executors: Ministry of Health, State Custom Inspectorate,
“Kyrgyzstandard”

Group 2

4. Providing of food-control and monitoring agencies with modern laboratory and analytical tools and equipment, including those to perform express testing.

Executors: Ministry of Health, local administrations

5. Setting up of a training system for the personnel engaged in food control management and operating the monitoring equipment.

Executors: Ministry of Health, “Kyrgyzstandard”

6. Improving of public awareness of food safety and hygiene.

Executors: Ministry of Health, mass media

4.5 IONIZING AND NONIONIZING RADIATION

Objectives

- **To identify dwellings and workplaces where radon concentration exceed the WHO guidelines action level and to introduce remedial measures, with priority according to the extent to which that level is exceeded.**
- **To resolve the issue of safe storage and disposal of high-level nuclear waste and prevent unauthorized access to radioactive materials.**
- **To minimize unnecessary exposure to radiation and to ensure radiation protection at work.**
- **To alter behaviour patterns in those European populations where sunbathing habits result in increased risks of developing skin cancer.**
- **To encourage informed public participation in decision-making on environmental health issues related to radiation hazards.**

(EHAPE)

Current situation

The issues of radioactive security are pressing for Kyrgyzstan because since the 50-ies the Republic was the major supplier of uranium minerals in the former Soviet Union. Though in the 80-ies mining of uranium ores in Kyrgyzstan was ceased, big amounts of hazardous industrial wastes accumulated in proximity to the mining industry enterprises (Chui, Jalal-Abad, Naryn, Issyk-Kul oblasts). Long-term statistical data show the increase in the incidence of cancer, blood diseases and endocrine pathology.

Besides, Naryn and Issyk-Kul oblasts are located not far from the Lob-Nor nuclear test site. The fact that puts them at a bigger risk of radioactive contamination and requires a scientific survey and systematic environmental health monitoring.

Radioactive contamination of the territories, neighboring both the abandoned and operating uranium mining and processing enterprises, is one of the major concerns. These territories are contaminated by uranium dumps and tailings containing more than

34 million. tons of solid waste with total radioactive level about 88 thousand curie. Radium-226 specific radioactivity of wastes ranges between 28,220 to 172,000 Bk/kg, and Thorium-232 between 372 to 660 Bk/kg. People inhabiting these areas are subjected to high risk of cancer.

The problem of contamination with Radon-222 at outcrops of uranium- containing ores is of extreme concern. The concentration of radon in the air in Jety-Oguz region of the Issyk-Kul oblast ranges between 200 to 500 E, in the springs of the Kyzyl-Ompol area the concentration is equal to 300 E, at Kok-Moinok deposit it equals to 18,000 E, in Kaji-Sai region it is about 95 E.

In Mailuu-Suu springs, Jalal-Abad oblast, radon concentration reaches the level of 20 E. Uranium concentration in springs at Jalal-Abad spar is 1×10^{-4} g/liter, and that of radon is up to 40 E. The concentration of Radon-22 in the air and water exceeding MAC by two or more times is registered throughout the country.

Disregard of potential hazards, when developing residential areas, and improper methods of utilization of waste of primary processing of ores, caused emergency situations provoked by the natural disasters (floods, earthquakes, landslide, mudflows, etc.) and resulted in contamination of nearby territories. The tailing located in seismically active zone of Kaji-Sai is fraught with contamination of the lake Issyk-Kul if an earthquake or a flood occurs.

The vicinity of the nuclear testing site Lob-Nor (China) also is also a reason for concern about ecological health aftermath caused by the previously performed nuclear tests. Monitoring of radioactive fall-outs is hampered by the lack of modern multichannel gamma-spectrometers.

The Republic is prone to contamination by man-made sources of radiation. Though the phenomenon is not so widely spread it considerably determines the radioactive environmental context. The only way to clarify the situation is to make a detailed gamma-ray surveying.

There is no nonionizing radiation monitoring and control services in the Republic, thus the corresponding information is unavailable.

Actions Group 1

1. Develop a draft law On Radiation Security of the Population and Disposal of Radioactive Wastes on the Territory of the Kyrgyz Republic.

Executors: Ministry of Health, Ministry of Environment Protection

2. Establish a unified system (using modern technical equipment) of radiation monitoring on the territory of the Kyrgyz Republic.

Executors: Ministry of Emergency Situations and Civil Defence, Ministry of Health, Ministry of Environment Protection

3. Conduct a gamma-survey to reveal man-made pollution of the territory of the Republic with radioactive sources.

Executors: Ministry of Emergency Situations and Civil Defence, Ministry of Health, State Agency on geology and mineral resources

4. Conduct an emanation survey to reveal the location of places with high concentration of radon in the soil and air and consider the results in industrial and civil construction.

Executors: State Agency on geology and mineral resources, State Agency on Hydrometeorology, Ministry of Health

5. Undertake measures to strengthen the technical and material capacity of the services responsible for operation and maintenance of nuclear waste deposits (tailings, dumps, etc.).

Executors: State Company “Kyrgyzaltyn”

Group 2

6. Develop a program focused on prevention of hazardous influence of ionizing radiation on public health in the risky zones.

Executors: Ministry of Health

7. Supply radiological laboratories of the Sanitary and Epidemiological Control Department and oblast (province) level services with modern radiometric, radonometric and gamma-spectrometric equipment and with specialized means of transportation.

Executors: Ministry of Health, local administrations

8. Provide the population with comprehensive information on radiation situation in different parts of the country and instruction on the issue of protection from radiation hazards.

Executors: Ministry of Health, nongovernmental organisations

9. Control and license the sources of nonionizing radiation.

Executors: Ministry of Health

4.6 NATURAL DISASTERS AND INDUSTRIAL ACCIDENTS

Objectives

- **To limit the consequences of natural disasters, prevent the occurrence and limit the consequences of major industrial and nuclear accidents, and ensure the existence of effective arrangements for emergency preparedness for and response to natural and man-made disasters, in and between countries.**
- **To ensure that the appropriate levels of government and the relevant public services, as well as members of the public, are fully informed of the probability and potential risks of industrial and nuclear accidents, can put those risks into perspective and understand the action required of them in the event of an emergency.**

(EHAPE)

Current situation

The territory of the Kyrgyz Republic is exposed to the danger of more than 20 different natural disasters. Their spreading, recurrence and damage they cause differ from year to year, but the most dangerous both for the population and the economy are: earthquakes, downfalls and landslides, mudflows and floods, floodings, spring frosts and snowfalls, avalanches.

In the period between 1992-1996, disasters took lives of 240 people, damaged or destroyed 44,708 houses, 222 schools, 127 health care facilities, communal and agricultural facilities, roads, electricity transmission lines, bridges and hydrotechnical constructions. Direct material damage was estimated at more than a billion som .

Indirect and ecological damage (drop in general life-span; increase in disease rates caused by the worsening of sanitary and epidemiological conditions resulting from the destruction of water supply systems; deterioration of the living conditions caused by the loss of housing or the necessity to abandon it; decrease of the soil fertility, etc.) has not been estimated, but it is definitely considerable.

Kyrgyzstan is situated in one of the most seismically active regions of the planet. Several dozens of earthquakes and tremors with a magnitude 2-3 on Richter scale are registered on the territory of the country annually. Earthquakes with a magnitude 4-6 in the epicenter are rather frequent and cause considerable damage to housing sector and industrial enterprises. In accordance with the prognosis of the Research Institute of Seismology of the National Academy of Sciences, the region is susceptible to major earthquakes.

One more kind of natural disaster that often hits Kyrgyzstan is mudflow. Frequent and heavy rains often cause mudflows in the zones with clay soil and bring damage to the nearby settlements.

These peculiarities of Kyrgyzstan's territory should be taken into consideration in housing and industrial construction.

Actions **Group 1**

1. Restoring the monitoring network for natural and man-made hazards as an integral part of environmental monitoring.

Executors: Ministry of Emergency Situations and Civil Defence,
State Agency on geology and mineral resources,
State Agency on Hydrometeorology

2. Developing and implementing effective measures to prevent and mitigate damage caused by the natural calamities and industrial catastrophes.

Executors: Ministry of Emergency Situations and Civil Defence, Ministry
of External Trade and Industry, local administrations

3. Making up a list and certification of enterprises involving technologies pertaining to usage, storing, and transportation of hazardous substances, which present threat to the environment and public health in the situation of natural disasters and industrial accidents. *жающей среды и здоровья населения в случае стихийных бедствий и промышленных аварий.*

Executors: Ministry of Emergency Situations and Civil Defence, Ministry
of External Trade and Industry, Ministry of Environment
Protection, Ministry of Health, State Agency on
Hydrometeorology, local administrations

Group 2

4. Setting up of the national and regional reserve funds of material and technical resources to carry out rescue and response works under the circumstances of natural disasters or industrial accidents and in the course of disaster rehabilitation.

Executors: Ministry of Emergency Situations and Civil Defence,
local administrations

5. Making the population aware of the potential emergency risks and ensuring early warning in case of imminent disaster.

Executors: Ministry of Emergency Situations and Civil Defence, mass media

6. Training personnel and population to emergency response procedures.

Executors: Ministry of Emergency Situations and Civil Defence, local
administrations

7. Providing of special equipment for the National Rescue and Disaster Response Units.

Executors: Ministry of Emergency Situations and Civil Defence

8. Developing of the corresponding computerized database and introducing Geographic Information System for emergencies/disasters risk assessment throughout the country.

Executors: Ministry of Emergency Situations and Civil Defence, State Agency on geodesy and mapping, National Academy of Sciences, Ministry of Environment Protection, Ministry of Health

4.7 Working and living environment

4.7.1 Working environment

Objectives

- **To reduce progressively but significantly the frequency and severity of occupational accidents and diseases and narrow the disparities between countries and between high-risk and low-risk occupations, through the wider adoption of measures that are in force in the best-run workplaces.**
- **To establish and develop high quality, cost-effective occupational health services as an integrated and basic element of a comprehensive health strategy for the working population of the European region.**
- **To ensure eventual access in all countries to a comprehensive occupational health service which reflects the risks to which workers are exposed, giving the most immediate attention to those workers who are at greatest risk of work-related disease and injury.**

(EHAPE)

Current situation.

The natural features of Kyrgyzstan predetermined the priority development of such industries as mining, non-ferrous metallurgy and production of construction materials. In addition, the proportion of light and food industry enterprises using local raw materials and outdated technologies and equipment is rather high. This causes contamination of the nature and the industrial environment, deterioration of public health, and increases risk of occupational traumas, intoxication and development of occupational pathologies. At the same time, financial constraints resulted in destruction of previously effective systems of health care facilities and occupational safety control at big industrial enterprises. At present, the industrial sector of Kyrgyzstan is in the period of economic depression. But in accordance with the economic prognostication, it is this sphere of economy that will get a considerable impetus for further development and, therefore, the issues of environmental health pertaining to industrial environment remain topical.

The concentration of dust and chemicals in the air at some industrial enterprises exceeds MAC. The noise and vibration levels are also higher than it is allowable. Some other enterprises have violations of hygienic standards for illumination and microclimate parameters.

The supply of workers with special work clothes/footwear, and individual protection facilities (for organs of sight, hearing, and respiratory organs) has considerably decreased. Very often the work clothes an employee is provided with do not protect from hazards of the work performed. Managers of recently opened small-scale enterprises and private businesses ignore the laws "On Occupational Safety" and "On Sanitary and Epidemiological Well-being of the Population of the Kyrgyz Republic". Recruiting for work is done without preliminary health examination. Medical checks of workers engaged in hazardous industries are not performed in timely manner, which deteriorates health monitoring of employees at such enterprises. A lot of medical aid stations at big enterprises were closed.

After the collapse of kolkhoz (collective farm) system many small farms were set up. Since 1992, the number of such farms grew by 2.1 times and, as of January 1, 1996, numbered 2,047. These farms are technically poorly equipped, cattle-sheds do not meet sanitary requirements, special work clothes and individual protection facilities are mostly not available. All mentioned above, deteriorates occupational health and may cause occupational diseases.

Individual farmers do not observe health protection laws and regulations. Children work with sick animals in the lambing-time. Serious violations of the law are taking place when children, pregnant women and nursing mothers are involved in cultivating and harvesting tobacco.

Between 1991-1995, 922 cases of occupational diseases and intoxication were registered. Among nosological forms prevail chronic brucellosis (60.3%), dust bronchitis (20.5%), vibratile disorders and impairment of hearing (10.4%), chemical poisoning (5.6%).

Actions

Group 1

1. Working out of the state program to modernize the operating and to construct new industrial objects based on new technologies which will reduce the risk of contamination of occupational environment, incidence of injury or disease.

Executors: relevant ministries and departments, local administrations

2. Improving of existing legislation controlling working conditions and safety measures.

Executors: Ministry of Labor and Social Protection, Independent Federation of Trade Unions, Ministry of Architecture and Construction

Group 2

3. Developing of a monitoring system to control occupational environment and health of the employees and creating of the environmental health database at the Ministry of Health of the Kyrgyz Republic.

Executors: Ministry of Environment Protection, Ministry of Health,
Ministry of External Trade and Industry

4. Training of professionals to provide comprehensive occupational health and sanitary services at industrial enterprises.

Executors: Ministry of Health, Ministry of Education, Science and Culture

5. Providing of sanitary and epidemiological services and laboratories at industrial enterprises with modern analytical equipment

Executors: Ministry of Health

4.7.2 Living environment

At present, no efforts are taken to carry out a comprehensive estimation of the quality of living environment. The statistics data are not adequate, inner institutional and inter-institutional reporting forms have not been properly developed. There is no database on radon contents in the air of housing and public buildings. The quality of living in apartments in modern cities to a large degree depends on the level of quality of communal services, the efficiency of heating system, ventilation, proper natural and artificial indoor illumination, construction materials used in the building, architectural acoustics, quantity of polymeric materials used in the building, the level of static electricity, etc. About 25% of city population are suffering from the negative influence of noise. No adequate research was undertaken to trace the complex influence of major xenobiotics (carcinogens, allergens, dioxins) beginning from the preclinical stage. Drawbacks in the system of city management and the economic constraints caused numerous violations of urban development regulations and requirements: apartments are reconstructed to house various offices and institutions, urban development master plans are not observed, quality of construction materials used is very poor, etc. Urban green plantations are not taken proper care of. Large-scale deforestation in recreation zones and in city parks is taking place.

Actions

Group 2

1. Carry out a random survey of housing and residential environment and to develop a plan for its improvement.

Executors: Ministry of Health

4.8 Cities and large settlements

Objectives

- **To improve social and physical living conditions in settlements, particularly for the disadvantaged, in order to prevent disease and accidents and enhance the quality of life.**

(EHAPE)

Current situation

As mentioned above, a considerable part of rural population migrated recently to the big cities of the country, especially to Bishkek and Osh. Though the general development plan of Bishkek, worked out back in the 70-80-ies, limits its population by 600-700 thousand, the actual population of the capital is now more than a million. Shortages in housing, limits of water supply systems, insufficient capacities of heating, electricity, sewerage and purifying facilities, and other communal services deficiency combined with anthropogenic and technogenic burden upon urban environment have a strongly pronounced negative impact on the biosphere and public health. The issues of urban population health pertaining to contamination of water, air and soil were described in section 2.1, 2.2 and 2.3. and are not discussed in the present one. Considerable attention in this section will be paid to other unfavorable components of urban environment which are of no less significance.

A spectacular increase in road traffic together with the earlier mentioned problems made noise factor one of the priorities in environmental health as it causes increase of the number of people suffering from neurosis, psychosomatic disorders, etc. Emerging of additional TV- and radio- channels, new means of communication, computerization, introduction of modern medical technologies, etc., have made topical the issue of nonionizing radiation which previously was of no significance for Kyrgyzstan. Of no less significance for environmental health in the country are some issues of urban development and planning.

Actions

Group 1

1. Working out of General plans for the short- and long-term development of big cities with due attention to the hygienic and ecological problems..

Executors: Local administrations, проектные организации, Ministry of Health, Ministry of Environment Protection, Ministry of Architecture and Construction

2. Rapid development of communal services in newly constructed residential areas of Bishkek and other big cities of the country.

Executors: Local administrations

3. Establishing of a system of noise-level monitoring and control in line with the WHO guidelines.

Executors: Ministry of Health

Group 2

4. Establishing of a system for monitoring and control of nonionizing radiation (VHF, electric and magnetic fields, etc.) in the cities.

Executors: Ministry of Environment Protection, Ministry of Health

5. Developing and introducing of scientifically substantiated measures to reduce negative impact of noise and nonionising radiation on the health of urban dwellers.

Executors: Ministry of Health, National Academy of Sciences, Ministry of Architecture and Construction

6. Launching of a public information campaign on the issues of negative impact of noise and nonionising radiation on human health and the measures to reduce

Executors: Ministry of Health, mass media, nongovernmental organisations

7. Large-scale planting of trees and shrubs in cities and settlements.

Executors: Local administrations

8. Setting up a system of control over production and use of construction materials

Executors: Ministry of Health, Ministry of Architecture and Construction, State Construction Committee, nongovernmental organisations

Chapter 5. ECONOMIC SECTORS

5.1 Industry

Objectives

- To define government-set goals for protecting the environment as clearly as possible, and to explicitly include requirements for health. In moving towards these goals, to take action only when careful and authoritative risk assessments and cost-benefit analyses justify it.
- Generally to install the environmentally soundest technology in all industries, having due regard to its cost-benefit and cost-effectiveness ratios.
- At all stages of industrial development, to give due attention to total quality management and continuous improvement of the quality of all aspects of industrial activity, including occupational health and safety and environmental health.
- To apply economic incentives to encourage compliance with environmental legislation, which should be carefully devised to ensure the continued modernization of the most competitive and important industries through the application of the best available technology. Decisions should be made about the scale and types of incentives best suited to encourage the phasing out of obsolescent and non-competitive industries in conformity with existing domestic competition rules.
- To use economic incentives to encourage potential investors in countries in transition, for example by limiting investors' liability for existing levels of pollution. Prior to any investment, a detailed standardized report will need to be made of existing levels of pollution on the site and its surroundings, and a timetable drawn up so that investors can reduce levels of pollution over a reasonable period of time. This approach will provide a framework on which to base environmental investments while ensuring a decrease in levels of pollution.

(EHAPE)

Current situation

The enterprises of mining, tanning, cement, chemical, electroplating, and textile industries are major pollutants of the environment in Kyrgyzstan.

The enterprises are forced to accumulate and store industrial wastes within their territories because the country has neither disposal sites for hazardous industrial wastes nor controlled landfills.

Registration and management of mercury containing devices (mercury lamps, thermometers, etc.) is one of the major environmental problems. At present, more than 6.4 t of mercury lamps and thermometers due to disposal are stored at Bishkek Engineering Works. Similar situation is observed at the Kyrgyz Truck Assembling Plant, Osh Machine-Building Plant, Kara-Balta Carpet Factory, and some other enterprises. Storing of such wastes on the territories of enterprises without facilities for waste disposal may cause contamination of underground aquifers by chromium, mercury, oil products, nitrates, and other hazardous substances.

To address the problems of industrial pollution and waste minimization in the Republic, the following actions are to be taken:

Actions

Group 1

1. Construction of a special plant to dispose luminescent (mercury) lamps and thermometers out of use.

Executors: Ministry of External Trade and Industry

2. Construction of a landfill to manage toxic industrial wastes.

Executors: Ministry of External Trade and Industry

5.2 Energy

Objectives

- To control emissions of fossil pollutants from large industrial sources (including power and heating plants, metal smelters) in those industrialized areas where health is affected by the resulting air pollution.
- To carry out environmental health impact assessment prior to making new investments in energy technologies, thereby emphasizing the need for prevention rather than subsequent mitigation.
- To reduce transboundary acid deposition and greenhouse gas emissions. In western Europe, technology is already being applied to reduce emissions of particulates and sulfur dioxide.
- However, if gas emissions are to be curbed further improvements in fuel efficiency will be needed, as well as much greater efforts to promote energy conservation.
- Effective pollution abatement technology is already available, but the cost of installing it in established or obsolete enterprises is prohibitive, especially during economic recession. Moreover, the initial capital will only be recovered in the medium or long term. However, other less expansive measures can be taken to reduce fuel consumption and improve energy efficiency. Discontinuing unrealistic subsidies, for example, would undoubtedly reduce fuel consumption and thereby pollution levels. However, a sudden increase in the cost of energy, especially in countries with severe winters, would involve major hardships. Changes in energy-saving policies can therefore only be achieved gradually.
- To encourage the development of cost-effective non-polluting energy sources. The local mix of energy sources will be determined by local circumstances possible. In deciding on their energy policies, countries will need to consider the availability of energy sources both nationally and globally (as well as the impact of individual energy sources on the environment) and the possibilities for greater use of renewable sources and wastes for energy production.

(EHAPE)

Current situation

Energy sector in Kyrgyzstan is currently represented by a group of enterprises of the Kyrgyz Joint-Stock Company Kyrgyzenergoholding . It uses power equipment of different classes of voltage and is responsible for continuous generation, transmission, and distribution of electricity and heating. Kyrgyzenergoholding combines enterprises dealing with electrical and heat power generation, operational enterprises , and those responsible for maintenance and construction.

There are 21 electric power-stations in the Republic with a total capacity of 3,591 MW, among them - 2 heat-power stations.

The country runs unique hydroelectric power-plants (HEPP) and electricity transmission network which passes through territories located at the altitude of 3,000 m above sea-level.

A peculiar feature of the energy sector of Kyrgyzstan is, that 90% of electrical power is generated by HEPPs.

Gas/coal/mazut (black oil) fired central combined-heat-and-power plants (CHPPs) and local industrial boiler facilities are the major consumers of fossil fuels in the energy supply system. In 1995, to generate electrical and heat power they consumed more than 735,000 t of coal, 40,000 t of mazut, and 294,000,000 m³ of natural gas.

Full responsibility for the hazardous impacts of all the above mentioned factors on the environmental health rests with the energy sector.

To date, total capacity of dust and fumes collecting facilities is more than 8.5 million m³/hour. All the coal-fired boilers are equipped with ash-collectors. 7 facilities for mechanical and biological treatment of sewage with a total capacity of 100,000 m³ /24 hours are in operation in the energy system. As early as 1978, all the power system enterprises ceased to discharge non-treated sewage into the open reservoirs.

2. Institutional Environmental Monitoring at the Enterprises of Kyrgyzenergoholding.

Institutional environmental monitoring at the enterprises of Kyrgyzenergoholding controls environmental pollution and facilitates effective consumption of energy resources. In accordance with the provisions of "Atmospheric Discharges Control and Monitoring Rules at Heat Power-Plants and Industrial Boilers", CHPPs and boilers perform monitoring and control over atmospheric discharges of fumes out of smokestacks, which include quantitative evaluation and registration, and reporting of the results.

Chemical control of discharged sewage is performed by the institutional analytical laboratories. A detailed chemical analysis of water is carried out in accordance with a regular schedule of sample taking. Water composition is monitored with respect to the following ingredients: suspended matters, chlorides, sulfates, biological absorbents of oxygen, nitrates/nitrites, ammonia, oil products, iron, synthetic surface-active substances, microelements. A regular control over the observance of technological requirements, to exclude hazardous environmental impact, as well as the effectiveness of operation of the environmental facilities, on a regular basis is performed by the institutional laboratories jointly with the enterprises' departments.

3. Long-term Objectives for Development of Power System.

In addition to regular maintenance works to manage environmental facilities some new measures are planned. In the course of retrofitting of Bishkek CHPP introduction of new systems and methods of sewage treatment and disposal has been started.

In accordance with the final technical report submitted by Burns & Raw Enterprises Inc. "Improvement of Bishkek CHPP and Central Heating System" and "Improvement of Electric Power Transmission and Distribution in the Kyrgyz Republic", the World Bank will invest \$3,374,000 for environmental protection purposes.

Monitoring of water and air pollution that is the result of the work of CHPPs and boilers is an important part of the environmental control. Objective information on the composition and concentration of contamination, obtained via automatic analyzers, will mitigate the negative effect of energy sector on the environment. Since the number of such analyzers is not sufficient, the concentration of hazardous substances emitted with fumes by the CHPP is estimated via calculations. Installation of control devices to monitor hazardous discharges into the atmosphere and sewage disposal remains a major need. The Japanese Consulting Institute is developing technical and economic recommendations for environmental protection actions in Bishkek. An efficient device for desulfuration of fumes is suggested for the installation at Bishkek CHPP. Lack of financing, however, does not allow to start the implementation of the project.

Reduction of imports of fuel and energy resources is regarded by Kyrgyzenergoholding company as the major guideline for the short- and long-term prospects. At present, the program has been elaborated to develop power engineering and further use of hydropower resources. This program is of great importance from the point of view of ecological well-being. The major strategy of the Program is the development of the big hydropower capacity of the Naryn river, its tributaries and other rivers of the country which have huge potential resources of energy.

Carrying into effect of the complex of measures to develop the country's power supply system through construction of hydropower plants, compounded with active energy saving policy, as well as monitoring for the environmental impacts, will allow to improve considerably the ecological well-being not only in the cities and industrial centers but in the country as a whole.

Actions:

Group 1

1. Procuring, assembling and fitting of technological facilities for desulfuration of fumes at Bishkek CHPP.

Executors: "Kyrgyzenergoholding"

Group 2

2. Performing of a comparative analysis to assess the impact on environment of construction of hydropower plants chain in Kyrgyzstan versus the development of organic fuel electric power plants in the neighboring states.

Executors: “Kyrgyzenergoholding”, Ministry of Environment Protection

3. Equipping of the CHPPs and boilers of the power supply system with devices of automatic monitoring to control hazardous matters in discharged gases and sewage.

Executors: “Kyrgyzenergoholding”

5.3 Transport

Objectives

- **To reduce road traffic injuries, disabilities and deaths by 25% by 2000 compared to 1990.**
- **To reduce gaseous and particulate emissions from road traffic to achieve levels consistent with the currently accepted air quality guidelines throughout the Region.**
- **To abate noise from traffic and congestion.**
- **To set and enforce speed limits and carry out frequent blood-alcohol tests on drivers, with appropriate penalties for those exceeding agreed levels. The rules should apply to all categories of drivers.**
- **To check the roadworthiness of all vehicles, at all regular intervals; to check at the same time their exhaust emissions and noise levels. Manufacturers or vehicle owners should be given a strict deadline to put the fault right.**
- **To safeguard the rights of pedestrians (especially old people, children and disabled people) by ensuring that road crossings are provided and clearly marked at frequent intervals and that pedestrians' priority on them is carefully observed; to keep pavements free from parked vehicles; to indicate clearly the sites where and times when motor vehicles must give way to pedestrians (who should in turn respect the rights of other road users); to provide bicycle lanes wherever possible and encourage their safe use.**
- **To regulate traffic in order to reduce accidents, pollution and noise, and to improve communications with cities by making environmentally friendly transport modes, e.g., public transport and cycling, attractive alternatives. These might include, when necessary, restrictions on private and commercial traffic within the city centre and the reallocation of traffic and transport streams by e.g. the construction of ring roads and redesign of public transport calls for cooperation between neighbouring countries to develop an integrated transport policy.**
- **To thoroughly investigate car accidents, at least on a suitable sampling basis, to identify the relative contributions of human, mechanical, structural and environmental (particularly road) factors to their causation; and to assess the likely impact on road safety of improvements in vehicle and road design.**

(EHAPE)

Current situation

Development of transportation means is an integral part of the comprehensive scientific and technological progress. However, major conflicts may emerge as a result of interaction between transport and environment due to a number of heterogeneous factors, the harmful effect of the majority of which can be mitigated.

Motor vehicles have a negative impact on the environment and public health. Thus, enormous amount of hazardous waste is emitted from the vehicles' exhaust pipes into the atmosphere, much trouble is caused by the noise the transport makes, a lot of fertile land is engulfed by highways.

Due to the complex mountainous lay of land the automobile is the major transportation means in Kyrgyzstan. Motor vehicles provide for more than 94% of cargo transportation and 99% of passenger one.

Motor vehicles in the country annually emit into the air more than 40 thousand tons of hazardous substances of carbon monoxide, nitric oxides, various hydrocarbons, soot, and compounds of lead. The s of these emissions, in weight, are made up by carbon monoxide. Accumulating in a human body in small doses carbon monoxide causes chronic poisoning which occurs when the volumetric concentration of it exceeds 0.01%.

Nitrogen oxides combined with water evaporation form nitric acid which destroys lung tissue and causes chronic diseases. Nitrogen dioxides irritates mucous membranes of eyes , lungs and leads to irreversible changes in cardio-vascular system. Compounds of lead are dangerous for their capacity to be accumulated both in the environment and in a human body.

Between 1990-1996, the public the transportation fleet reduced by 2.25 times, and transportation of passengers - by 2.45 times. The structural composition of the transportation fleet changed considerably: the number of municipal buses and taxis went down, and the number of trolley-buses and private cars increased.

Of the 272,000 t. of motor fuel consumed in 1995, 50,7% was utilized in Bishkek. Petrol makes up 75% of motor fuel consumption. No data of unleaded petrol consumption are available.

A shift from liquid motor fuel to natural gas fuel is an effective way to reduce air pollution by hazardous emissions from automobiles. 5,6 thousand of automobiles used to run on natural gas, which allowed to save the atmosphere from burning of 30,6 thousand tons of liquid fuel. Later on, due to constructional drawbacks of gas-diesels and shortages in gas supply the number of gas-cylinder vehicles dropped by three times.

The enlarging of motoring on an extensive scale calls for a provision of an efficient, accident-free road traffic. Road accidents (RA) not only inflict material loss on the economy, but also cause irreparable moral damage on the society by killing and injuring people.

The biggest number of RAs occurred in 1989 (5,470), out of which 73.6% occurred through the drivers' fault (45.4% private automobiles, and 21.8% state-owned vehicles) and 18.5% - through the fault of the pedestrians.

At the same time, there were some RAs that occurred due to the technical reasons: 2.1% - because of the malfunction of the motor vehicles, and 8% - due to the unsatisfactory road conditions.

By the year 1993, the total number of RAs reduced by 36.6%, the number of mortal cases in road accidents dropped by 41.2%, and the number of the injured people - by 46.1%. However, the number of RAs through the fault of drivers increased by 13% (4% of which through the fault of private vehicles drivers). The number of RAs through the fault of pedestrians decreased by 2.3%. The number of RAs caused by the technical malfunctions increased by 5.2%, and the number of those caused by the poor road conditions went down by 6.8%.

Noise produced by vehicles presents a serious problem to modern cities. In the cities with a big number of automobiles and high population density the majority of citizens are suffering from harmful influence of the noise made by vehicles.

Noise produced by motor vehicles causes nervous diseases, tiredness, anger, and insomnia. The admissible levels of noise are determined by the National Standard -19358-85 "Exterior and Interior Noise of Motor Vehicles. Admissible Levels and Means of Measuring".

Actions Group 2.

1. Expand the usage of electrical means of transportation:
 - 1.1 Organize the production of trolley-buses in the Republic;
 - 1.2 Extend the length of contact lines and the number of trolley-buses in Bishkek and Osh;
 - 1.3 Switch the railway section Bishkek-Lugovoe from diesel-engine traction to electric traction;
 - 1.4 Provide for transition to electric transportation services of the most intensive passenger routes in the recreational zone of the northern coast of Issyk-Kul lake;
2. Reduce gaseous and particulate emissions from the road traffic to achieve the levels consistent with the currently accepted air quality guidelines through the region. For these purposes:

Executors: Ministry of Transportation and Communications

- 2.1 Set up at all transportation enterprises control stations to provide diagnostics and tuning of automobiles fuel systems and electric equipment;
- 2.2 By the year 2005, increase the number of automobiles running on natural gas and diesel fuel by 50% of the total number of vehicles;
- 2.3 Equip buses and trucks with neutralizers of emission gases;
- 2.4 Gradually reduce imports and use of low quality fuels and lubricants with high concentration of heavy metals, sulphurs, etc.;
- 2.5 Provide for purification of diesel fuel with the use of separators;

Executors: Ministry of Transportation and Communications, Ministry of Internal Affairs

3. Improve technical conditions of the motor vehicles. For this purpose:
 - 3.1 Supply all technical control station of the transportation enterprises with special equipment to control technical conditions of vehicles (gas analyzers, sound meters, smokemeter, etc.);
 - 3.2 Organize through the efforts of traffic police and transport inspectorate stationary and mobile checking points to monitor technical conditions of motor vehicles.

Executors: Ministry of Internal Affairs

5.5 Agreeculture

Objectives

- **To reduce human exposure to risks related to agreeculture and animal husbandry without compromising the primary aims of agreeculture and related activities, namely the provision of adequate and safe food. To this end, the closest cooperation will need to be established between human health, veterinary, agreeculture and forestry professionals.**
- **To widely promulgate and apply simple and understandable rules on the amount and timing of use of pesticides, particularly in fish farms, on the wider use of antibiotics in animal husbandry, and on the application of agrochemicals on agreecultural crops, if necessary through the adoption of legislation, so as to protect both the farmers and consumers as well as the surface- and groundwater draining the land.**
- **To train farmers in the use of agreecultural practices that make more limited use of fertilizers and pesticides.**
- **To dispose or reuse animal waste and offal in such a way that pathogens are destroyed and nitrate contamination, especially of groundwater, is minimized.**
- **To conduct frequent and thorough inspections of intensive animal farming practices for the early detection of infections, especially by Salmonella and Compilobacter, which, without necessarily affecting the animals themselves, present a risk to the consumer.**
- **To improve practices in forest management to prevent serious environmental hazards to local populations and to achieve sustainability in accordance with the recommendations of the 1992 European Conference of Forestry Ministers.**
- **To conduct irrigation in such a way as to reduce to a minimum the risk of salinization and of exposure to fish- and rodent-borne parasites; and to identify areas and streams where such parasites are prevalent and take strict measures to avoid human infestation.**
- **To conduct continuous surveillance of conditions under which agricultural produce is invested, transported and stored, in order to minimize losses of food and the possibility of its moulding in barns and silos, as well as of contamination of food by chemicals**

(EHAPE)

Pesticides

State control of agricultural plants protection from vermin, diseases, and weeds in the country is fulfilled by the State Plant Protection Services under the Department of Chemicalization of the Ministry of Food and Agriculture. The services are provided through 6 oblast level, and 31 rayon (regional) level stations for plants protection, and also by the national biofactory, 4 oblast level biological laboratories and 2 laboratories for toxicology control.

Responsibilities for appropriate storage of pesticides, compliance with technology and regulations of their utilization lies with the agricultural producers, including collective and individual farmers and other organizations involved.

Because of the lack of corresponding facilities and financing, the Republic does not have a state commission on chemicals, which would perform testing and registration of special means of fighting against pests in agriculture and forestry, and give an estimation of their hazardous influence on public health.

When choosing a pesticide to be used in Kyrgyzstan the specialists are checking with the “List of Chemical and Biological Means of Fighting against Vermin, Plant Diseases, and Weeds, Regulators for Plants Growing and Pheromones, Allowed for Use in Agriculture, Forestry and Communal Services” made and observed in Russia.

Imports to the country of pesticides and their utilization often do not comply with the above mentioned List. All kinds of chemical products and chemicals can be found on the market.

The issue of effective and safe utilization of pesticides became more acute after the collapse of big agricultural enterprises and emerging of a large number of small farms. The majority of farmers are not trained to use pesticides effectively and safely. There is no due toxicological control of the presence of pesticides in agricultural products.

Of big concern in the cattle-breeding regions is the problem of growing number of cases of zoonosis which result from the worsening veterinarian control over soil contamination with secretions of sick animals, and noncompliance with the rules of disposal of the dead ones.

Actions

Group 1

1. Introduction of certification for pesticides presence in agricultural products.

Executors: “Kyrgyzstandard”, Ministry of Health

Group 2

2. Setting up the State Commission on Chemicals which will register, issue the permission (certificate) for utilization of every type of pesticide and asses the hazardous impact of imported and locally produced pesticides.

Executors: Ministry of Agriculture and Water Resources

3. Development of special training courses for land tenures on effective and safe usage of pesticides in agriculture.

Executors: Ministry of Agriculture and Water Resources

4. Development of the regulations on the security measures while working with and storing pesticides.

Executors: Ministry of Health, Ministry of Environment Protection

5. Provision of the operational toxicological laboratories with the required equipment and chemical reagents.

Executors: Ministry of Health, Ministry of Environment Protection

Zooantroponozes.

In current transitional period, the leading branch of economy in Kyrgyzstan is agriculture based on private farms and cooperatives engaged in animal husbandry. Under these circumstances the farmers often disregard sanitary and anti-epidemic requirements, especially during lambing and slaughtering time. This causes risks of environment contamination and infecting the neighboring populations with anthroponosis, such as brucellosis and anthrax.

To date, 1179 places where soil is infected by anthrax are registered in the country.

As the number of livestock in the country decreases, the imports of animals, meat and dairy products from the countries, that often are epidemically unsafe, increases. In order to prevent contamination of the environment and minimize the risk of sickness of the population and animals with anthrax, brucellosis, and other anthroponosis the following measures are to be taken:

Actions

Group 2

1. Developing of a National Program to control brucellosis, anthrax, and other anthroponosis;

Executors: Ministry of Health, Ministry of Agriculture and Water resources

2. Developing and promulgation of veterinary and sanitary checking of imports of livestock and animal produce for presence of infecting agents of zoonosis and anthroponosis;

Executors: Ministry of Agriculture and Water Resources, State Custom Inspectorate, Ministry of Health

3. Conducting of all-round examination of the rural population and livestock to minimize the number of cases of brucellosis and to rehabilitate the infected population and animal stock;

Executors: Ministry of Health, Ministry of Agriculture and Water Resources, local administrations

4. Exerting regular laboratory control over soil sources of anthrax (paying special attention to sources adjacent to the Silk Road trade routes) and meat and dairy products control for contamination with brucellosis and anthrax;

Executors: Ministry of Agriculture and Water Resources,
Ministry of Health

5. Providing of medical and veterinary services with diagnostics and prophylactics preparations and efficient analytical equipment including facilities for express-testing;

Executors: Ministry of Health, Ministry of Agriculture and Water Resources

6. Developing of a training course for experts in laboratory control and monitoring of zoonosis;

Executors: Ministry of Health, Ministry of Agriculture and Water Resources

7. Providing agricultural workers with individual protective equipment and healthy occupational environment;

Executors: Ministry of Agriculture and Water Resources,
local administrations

8. Conducting public education campaign on preventive measures against zoonosis and anthroozoonosis (including quarantine and highly dangerous infections).

Executors: Mass media, local administrations

Plaque

Three natural sources of plague with total area of 32 thousand km² are situated in high mountainous regions of Kyrgyz Tien-Shan and Pamir-Alai. Sanitation measures taken by the anti-plague services in 1976-1983 (insecticide of marmots' holes with 10% DDT dust) which covered 70-80% of enzootic territory considerably brought down the epizootic activity of the sources of plague. In 18-22 years after the sanitation was performed, there is a tendency towards regeneration of the sources - i.e. re-establishing of the number of disease vector (fleas) to the original level and a change of the infecting agent carrier.

Since 1940, 33 cases of plague were registered in the Republic, 15 of which were fatal. In 1981, more than 1 million rubles of direct costs was spent to do away

with one pneumonic plague case in Verhnenarynskie Syrty in addition to financing the special teams that worked in the infected area.

In recent years, rats can be found on a larger area, including Bishkek. This increases human exposure to infectious diseases. Regular epidemiological surveillance remains the only preventive anti-plague measure because of the ban on DDT and lack of other insecticides.

Actions

Group 2

1. Monitoring of epizootic activity in the areas which are used for the purposes of economy and have natural sources of plague.

Executors: Ministry of Health, Ministry of External Trade and Industry,
Ministry of Agriculture and Water Resources, State Agency on
Tourism and Sport

2. Developing of a unified computer database on quarantine and particularly dangerous infectious diseases under the National Anti-Plague Center to prognosticate potential epidemic outbreaks.

Executors: Ministry of Health, Ministry of Finance and Economics

3. Providing the bacteriological and virusological laboratories of the National Sanitary and Epidemiological Services, oblast SES and anti-plague services with modern equipment, diagnostic preparations and culture media to facilitate diagnosis and indication of the quarantine and particularly dangerous infections.

Executors: Ministry of Health, Ministry of Finance and Economics

Cholera

There is a real threat of cholera epidemic due to the expansion of the so-called "commercial tourism" and uncontrolled imports of foodstuffs. In 1993-94, seven cholera cases were registered in the country among tourists and air crews coming from India and Pakistan. In 1994, there were two cases of cholera caused by the new very virulent culture of Cholera vibrio NAG 0139, which had caused major epidemics in the countries of South-West and Central Asia.

In case the infection is carried into the country, there are favorable conditions for preserving the pathogen in the environment and the outbreak of the disease. The Republic has a high rate of intestinal infections, the population is poorly provided with good quality drinking water. In the open water sources cholera cultures and NAG-vibrio were discovered. The sanitary regulations and rules are neglected by food and drinks vendors, uncontrolled street sale of foodstuffs is widely spread, communal sanitary services are not provided at a regular schedule.

Actions

Group 2

1. Setting up a unified monitoring system to control open water reservoirs, sewage disposal facilities, and drinking water sources for their contamination by Cholera vibrio.

Executors: Ministry of Health, local administrations

2. Organizing a system of control(provided with special laboratory equipment) over the quality of imported agricultural products and non-packed food products for contamination by Cholera vibrio at all import points of entry.

Executors: Ministry of Health, State Custom Inspectorate

3. Providing tourists and other persons traveling to the cholera-endemic regions with first-aid kits and sanitary-hygiene reference guides.

Executors: Ministry of Health, State Agency on Tourism and Sport

4. Carrying out medical checking of people arriving from quarantined (because of particularly dangerous infections) countries at sanitary and epidemiological posts at the airports, railway stations, and at the other points of entry.

Executors: Ministry of Health

5.6 Tourism

Objectives

- **To ensure that the adequacy and safety of the drinking-water supply and sanitation facilities in resorts meet peak tourist demand. The disposal of solid and liquid waste needs to be tightly regulated, to protect beaches and shellfish beds.**
- **To strengthen food inspection and monitoring, particularly with regard to Campillobacter and Salmonella during peak seasons, and take measures to ensure that temporary staff hired to handle food are properly trained and that standards of personal and environmental cleanliness are observed as closely as elsewhere.**
- **To inform tourists immediately and objectively in the languages understood by most of them in the event of contamination of water and food or the outbreak of infectious disease, as well as in the case of water and beaches becoming unsuitable for bathing in areas they are or will be visiting.**
- **To strictly enforce the usual road traffic regulations in resort areas so as to reduce accidents, especially among children, to keep the quality of the air unimpaired and to prevent excessive noise.**

(EHAPE)

Current situation

Few are the countries in the world that possess such a remarkable combination of natural and cultural features as Kyrgyzstan does. Undoubtedly, in the mountainous region of this country one can see one of the most attractive virgin sceneries in the world. Despite its continental location a huge and beautiful lake Issyk-Kul is, in fact, an inland sea. Pleasant climate, both in winter and in summer, provides splendid conditions for development of a round-the-year tourism.

The language, the folklore, and traditions of the Kyrgyz people have been preserved considerably up to the present time. The historical and cultural ties of Kyrgyzstan with the famous Silk Road make also a positive factor for the development of tourism industry.

However, the collapse of the former system of tourism proved to be a heavy blow on the tourism industry in the country. The major tourist zones around the lake Issyk-Kul suffered mostly from the sharp decline in the number of visitors.

Thus, only 700 foreign tourists visited the country in 1991. Later on, a slight tendency towards an increase of the number of foreign tourists appeared. With 6,000 foreign tourists in 1994, their number increased up to 12,000 in 1995, which was due to the celebrations of the millennium jubilee of the national epic Manas. In 1996, according to the estimations, this figure will probably remain under the level of the previous year. Because of the absence of statistics in the CIS the above mentioned pertain only to the tourists coming from abroad and do not include the tourists from the CIS countries. According to estimates, about 50,000 tourists from the CIS countries visited Kyrgyzstan in 1995.

The Kyrgyz Government has very little experience in protection of the environment from unfavorable influence of tourism and does not possess adequate human resources to enforce the corresponding normative acts throughout the country. This may cause a change for the worse in the conditions of tourist facilities and a sharp decline in the flow of tourists to the country.

The conditions of some tourist sites in Kyrgyzstan are deteriorating and some are under the danger of turning worse.

For example, despite all the taken preventive measures the lake Issyk-Kul suffered from the pollution by sewage and oil spillage. The environment in the mountains is very sensitive. Some frequently used mountain paths have signs of erosion and waste pollution. It is well known that wastes and garbage do not decompose in ice and this causes pollution and worsening of the scenery at such popular mountainous and alpine routes as peaks Pobeda, Khun-Tengri and Lenin. Destruction of forests caused erosion, landslides, disappearance of fauna environment and considerably lowered the attractiveness of these sites for tourists and hunters.

Actions**Group 2**

1. To work out a draft of the decree of the Government of Kyrgyzstan regulating zones and routes of tourism, recreation and mountaineering;

Executors: State Agency on Tourism and Sport

2. To develop and introduce a state system of licensing in the sphere of tourism and mountaineering with due regard for the problems of environmental protection mandatory for state, joint-stock, private, etc. tourist organizations;

Executors: State Agency on Tourism and Sport, Ministry of Environment Protection

3. To create a highly efficient and mobile rescue, first-aid and sanitary services;

Executors: State Agency on Tourism and Sport, Ministry of Health

4. To adopt a decree of the Government on the issues of tourism and mountaineering in Kyrgyzstan;

Executors: Government

5. To provide tourist centers and routes with environmental protection facilities and equipment;

Executors: State Agency on Tourism and Sport

6. To create in the zones of tourism, recreation and mountaineering medical aid centers and rescue teams with participation of local authorities and population;

Executors: Ministry of Health, State Agency on Tourism and Sport, local administrations

7. To introduce obligatory briefing of tourists on safety rules, nature protection measures and the responsibility of the tourists for the violation of those rules.

Executors: State Agency on Tourism and Sport

Chapter 6. IMPLEMENTATION STRATEGY

The National Environmental Health Action Plan (NEHAP) of the Kyrgyz Republic will be implemented by the ministries, agencies, organizations, bodies of local governments which are responsible for the corresponding planned actions, with participation of non-governmental ecological organizations, funds and broad sections of the population of the country. A responsible approach to the implementation of the NEHAP of the Kyrgyz Republic is an all-nation-scale task for improvement of health, well-being and prosperity of present and future generations of the people of the country.

The implementation of the NEHAP envisages a monitoring of its introduction on the side of the Government, ministries, agencies, bodies of local authority, public organizations and grass-root citizens.

The implementation of the Kyrgyz Republic NEHAP envisages participation of the non-governmental organizations, first and most ecological, in discussion and active transforming into reality of the appropriate actions in the priority spheres determined by the Plan.

The NEHAP presupposes its implementation through working out and realization of local plans on environmental health within the context of the National Plan.

In the course of implementation of the NEHAP, the Kyrgyz Republic will utilize the existing mechanisms of cooperation and coordination with the countries of Central Asia, in the first place, in the solution of transboundary problems of environmental health.

In its implementation of the Kyrgyz Republic NEHAP, which is undergoing a transitional period, hopes to relay on effective assistance on behalf of the international organizations, funds, donor countries, to achieve a common goal in providing of the environment which would facilitate preserving and strengthening of health.

The active participation of the population is an important factor in the successful implementation of the Kyrgyz Republic NEHAP. The participation of the population will be achieved through a broad public information on the objectives and the expected outcomes of the NEHAP, as well as the involvement of the population through public discussions of problems pertaining to a wide range of issues of environmental health.

International and regional collaboration

The basic statements of the international, first of all, regional collaboration are mentioned in Issyk-Kyl Resolution, adopted at the First Central Asian Republics Conference on development of National environmental health action plans- partnership for sustainable development (12-14 June 1996, Lake Issyk-Kul, Kyrgyzstan).

Countries agreed in particular:

- to continue the work on unification of the legislation and normative basis in environmental health and on collaborative development of a system to meet ecological requirements in respect of rational utilization of nature resources and public health standards, involving international organizations in this process;
- to jointly draw up a regional legislative framework document on the reform of public health (sanitary-hygiene) services in accordance with the WHO concept of environmental health, thus defining the boundaries of responsibilities of the public health services and other bodies, enforcing environmental health legislation;
- in pursuance of the agreements reached during the WHO workshop on education and training of environmental health professionals held in Bishkek, in November 1995, to make joint efforts to improve existing systems for the education and training of environmental health professionals, improve teaching methods with the

help of international organizations, developing institutional capacities and improving the training of teachers. To study the existing normative basis for training of environmental professionals and use them widely in future work;

- to define a regional list of statistical indicators on various aspects of the environment and human health for inclusion in the CARINFONET project;
- to make efforts to produce the regional information atlas “Environment and health of the population”;
- to seek internal and external resources to finance the development and the implementation of NEHAPs and to solve transboundary problems;
- to develop a common policy of the Member States engaged in the development of NEHAPs on the issues of transboundary contamination of water, to implement monitoring of the quality and safety of drinking water and rational utilization of water, and to organize a uniform reporting system;
- to include the evaluation and assessment of the current situation and the setting of priorities for our actions at national and regional levels as part of the process of NEHAP development and implementation;”

Recognizing that the majority of problems related to the Aral and Caspian seas are transboundary ones and taking into consideration the fact that the bulk of water utilization problems are common ones, countries resume their support for bilateral and international agreements dealing with these issues.

The Kyrgyz Republic will follow the above mentioned items of the Issyk-Kul Resolution.

References:

1. Environmental Health Action Plan for Europe. Helsinki, Finland, 20-22 June 1994;
2. Declaration of the Second European Conference on Environment and Health. Helsinki, Finland, 20-22 June 1994;
3. Documents of the First Central Asian Republics Conference on Development of National Environmental Health Action Plans - Partnership for sustainable development. Lake Issyk-Kul, Kyrgyzstan, 12-14 June 1996;
4. Issyk-Kul Resolution "On actions for environment and health protection in Central Asian republics";
5. The United Kingdom National Environmental Health Action Plan. 1996;
6. Concern for Europe's Tomorrow. WHO, 1994;
7. Health for All targets. The health policy for Europe. 1993;
8. The European Charter on Environment and Health. First European Conference on Health and the Environment. Frankfurt, 7-8 December 1989;
9. Environment for sustainable health development- an action plan for Sweden, 1996.

List of abbreviations:

1. MAC - maximum allowed concentration;
2. SES - sanitary-epidemiological station (centers);
3. RSES - republican sanitary-epidemiological station;
4. DDT - dichlorodiphenyl trichloroethane
5. CHPP - combined-heat-and-power plants;
6. Bk/kg - bekkerel/kilogramme;
7. E - eman;