

SANITATION COUNTRY PROFILE

UZBEKISTAN

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- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

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- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

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- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

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- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

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- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

Research and technologies

- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

Financing

- A. Basic Sanitation
- B. Solid Wastes
- C. Hazardous Wastes
- D. Radioactive Wastes

Cooperation

- A. Basic Sanitation
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Decision-making: Work is going on for establishment and streamlining of legal and regulatory base, regulating the procedure of decision making on the issues of utilization and treatment of solid, hazardous and solid wastes. National legislation and standards are used as the basis for making decisions on utilization and storage of toxic and hazardous chemical substances, solid waste and sewage water disposal on the territory of the Republic of Uzbekistan. The following major laws and legal acts are in force in this area: laws “On Nature Protection” (1992), “On State Sanitary Supervision” (1993), “On Subsoils”(1994), “On Radiation Security” (2000), “On Waste” (2002), Land Code (1998), “On Crops Protection from Pests, Diseases and Weeds” (2002), and directive documents “On Introduction since January 1, 2000 of Payment for Emissions, Discharge of Pollutants to the Environment and Waste Disposal on the Territory of the Republic of Uzbekistan”, “Regulation on State Commission on Means of Chemization and Plant protection”, “Regulation on Registration Tests and Pesticides Registration”.

Decision making on international level and improvement of interactions mechanism proceed from the commitments taken by the Republic on Vienna and Basel Conventions. The specified documents are used as instruments for decision making on restriction of harmful impact of various categories of hazardous substances (waste, means of protection, etc.) on the environment and health of the population. In addition to this, decision making mechanisms on the issues of transporting of various waste categories have been worked out in the Agreement, signed by the countries-members of the Commonwealth of Independent States. It is complemented by the «Regulation on Control over Transboundary Transportation of Hazardous Waste and their Disposal in the Republic of Uzbekistan», Resolution of the Cabinet of Ministers on collection and storage of waste containing mercury (1992). Preparation is being carried out actively for joining of Uzbekistan to Rotterdam Convention “On the Procedure of Preliminary Justified Agreement in Regards of Certain Chemical Waste and Pesticides in International Trade”.

Within 1998-2003 development of sanitary standards and rules of radioactive security and treatment of radioactive wastes has been completely finalized.

- A. Basic Sanitation: See above.
- B. Solid Wastes: See above.
- C. Hazardous Wastes: See above.
- D. Radioactive Wastes: See above.

Programmes and projects: National Action Plan and Program of Measures for Environment protection for the period of 1999-2005 are the most important program documents, where strategic actions on development of the system of management of all types of waste and their minimization, detoxication and utilization have been determined.

These documents envisage broad range of measures (i) on improvement of safety of toxic chemical substances utilization, (ii) disposal of hazardous waste, (iii) solid waste and sewage water disposal, (iv) radioactive waste disposal.

- A. Basic Sanitation: No information available.
- B. Solid Wastes: *Solid waste and sewage water disposal*: Special attention in the indicated programs is attached to solution of the above mentioned problems. The following actions are envisaged for achievement of the goals which have been set forth:
 - ◆ implementation of measures for regulation of storage and processing of domestic and solid industrial waste, envisaging:
 - to bring the existing landfills, as well as construction of new ones in towns, district centers and settlements, into line with standard requirements ;
 - accomplishing feasibility study for organization of a landfill for waste disposal for Tashkent city;
 - elaboration of the project of solid waste processing plant in Yangiyul, Tashkent region;
 - organization of work for utilization of used mercury containing bulbs and tools;
 - installation of equipment of de-mercurization of luminescent bulbs in Navoiy and Andizhan cities;

- ♦ elaboration of by-laws and regulatory-and-methodological documents in accordance with the law "On Waste", related with regulation of property right for waste, responsibility for their handling;
- ♦ enhancement of economic mechanisms and incentives for rationalization of waste disposal;
- ♦ organization and implementation of State Cadastres of Production Waste.

In addition to this, short-term action plans are being elaborated and implemented on local and sectoral levels, aimed at the following:

- ♦ elaboration of local projects on minimization of waste and establishment of sites for their processing (domestic waste in particular) with attraction of foreign investments and technologies, as well as local business community and enterprises;
- ♦ enhancement of measures having economic impact;
- ♦ accomplishing reclamation works on former dumps and landfills;
- ♦ enhancement of activities of NGOs, public and civil associations for strengthening control of observation regulations, standards, sanitary rules and requirements, organization and undertaking of actions for cities and settlements improvement and keeping them clean.

C. Hazardous Wastes: Improvement of safety of toxic chemical substances utilization: The following actions are envisaged:

- ♦ approval of nomenclature of products, subject to obligatory ecological certification and state regulatory control;
- ♦ finalizing inventory of obsolete, forbidden or unclaimed toxic substances; development of investment projects on establishment of production, processing and destruction of hazardous chemical substances in accordance with international experience of utilization of environmentally safe technologies;
- ♦ development of National Register of emissions and transfer of pollutants (RETP) in collaboration with UNITAR ;
- ♦ carrying out research on synthesis of new chemical compounds for replacement of highly toxic compounds, used in economic complex of the Republic;
- ♦ elaboration and implementation of measures for implementation of integrated plant protection system with the use of pesticides, safe for human beings and animals, development of the networks of biological laboratories and biological factories, providing crop protection from agricultural pests with the use of biological means on entire cropping area, strengthening of entomological services;
- ♦ establishment of National Center for development programs of establishment of sustainable and ecologically sound production; elaboration and implementation of ecologically sound projects for modernization of enterprises of oil, chemical, machine construction, and food industry; "know-how" development;
- ♦ development and improvement of system of monitoring of utilization, accumulation and storage of toxic substances.

Disposal of hazardous waste: Proceeding from the perspectives of exploration, mining and processing of minerals, actions have been determined for reduction of ecological risks, related with utilization and accumulation of hazardous waste:

- ♦ Preparation of the list of high-priority and perspective sites, related with development of hazardous solid waste, elaboration of detailed projects for their further rehabilitation, conservation, and liquidation, if necessary;
- ♦ Promotion of scientific-and-technical developments for improvement of technologies of waste processing and detoxication;
- ♦ Accomplishing reconstruction, technical re-equipment of industrial sites with the use of technologies, excluding development of hazardous waste; implementation of measures for regulation of their storage and processing;
- ♦ Enhancement of impact of economic mechanism in the process of disposal of all types of waste;
- ♦ Organization and implementation of State Cadastres of Production Waste;

- ◆ Development and improvement of the system of monitoring of utilization, development, accumulation of hazardous, solid and radioactive substances and waste;
- ◆ Cooperation development for sensitization of the processes for attraction of “know-how” and foreign investments for reconstruction and technical re-equipment of hazardous waste.

D. Radioactive Wastes: *Radioactive waste disposal*: Special Program of Concrete Measures for Provision of Radioactive Security for the Population has been developed and is being implemented, envisaging the following:

- ◆ accomplishing works for sanitation of radiation situation on the territory of former mine No 23 in Chorkezar village of Pap district in Namangan region;
- ◆ completion of works for improvement of radioactive situation on the sites of accumulation of radioactive waste in Yangi-abad town in Tashkent region;
- ◆ building or strengthening of mud flow protection dams of slurry ponds and dumps of unregistered ores in the vicinity of Uzbekistan borders;
- ◆ promotion of research, developments for development of methodologies and tools for control of radiation level, preparation of high-level professionals in the area of radioactive waste handling;
- ◆ development of the system of monitoring of utilization of storage of radioactive substances and waste.

Status: Due to the structure which has been developed within previous decades and imperfection of technological production base, economy of Uzbekistan still remains extremely resource-intensive, and this results in negative loading on the environment, exceeding ecosystem capacity. Energy intensity of electric and thermal power generation, cement production, and even cargo transportation with road transport (due to wear and tear and irrational structure of the fleet in regards of carrying capacity) exceeds similar indices in developed countries 1.2-3 folds. Energy intensity of GDP 2-3-folds exceeds level, achieved in developed countries of the world. There is approximately the same ratio in regards of material intensity. Production waste remains to be extremely high, while waste utilization remains on exclusively low level. Although there are some positive changes in big cities in the area of waste management and disposal of domestic waste, actually no such changes take place in rural areas. In general, sanitary situation in urban and rural settlements is still constrained.

A. Basic Sanitation: *Sewage water*: Construction of sewage system network significantly lags behind construction of water supply systems, and 54% of urban and only 3% of rural population are provided with them. Despite the fact that share of industrial enterprises in general loading on water resources (without consideration of toxicity of discharged substances) makes less than 20%, they generate local hotbeds of pollution and are major sources of heavy metals and other toxic substances, having a trend of accumulation in water bodies. More than 80% of pollutants of water resources of the country are produced by industries of Tashkent, Fergana, Navoiy and Samarkand regions.

B. Solid Wastes and Hazardous Wastes: Annual volume of generated waste of production and consumption is more than 100 million ton, more than 14% of which are referred to toxic waste. Volume of utilized waste is about 0.2%, while the rest volume of waste is stored in collecting sites (slurry ponds, slime storages) on the territories of enterprises, and insignificant part of waste is accumulated in landfills for domestic solid waste.

Maximum volume of waste is developed at the enterprises of mining and processing industries, which makes about 90 million ton per year.

Significant volumes of production waste have been accumulated within long period of mining and processing of minerals in Uzbekistan. Till present in the dumps of deposits there are concentrated more than 1.25 billion m³ of overburdens of mining industry. Slurry ponds accommodate more than 1.3 billion ton of wastes of ore-dressing, and special dumps contain high volumes of slag of metal production industry. Every year the above mentioned volumes of waste increase by 25 million m³ of overburden, 42 million ton of waste of ore concentration, and 300 thousand ton of slums of metal conversion.

Overburden of Angren coal deposit contains: secondary and primary kaolin, limes, clay loam, sandstones, etc. Total volume of kaolin mined along with coal, is 6 million ton, and maximum 5-6% of the kaolin is used, while the rest volume is being disposed in dumps.

About 300 thousand ton of slums of metal production are accumulated every year in the sectors of non-ferrous as well as iron and steel industry. Waste of power sector, machine building and light industries are represented by waste of different composition and hazard level.

The following are main types of waste formed in chemical production of the enterprises of major industrial cities: phosphogypsum - volume of accumulation is up to 70 mln.ton; lignin - about 15 mln.ton; liquid wastes - up to 10 mln. m³.

In regards of hazard level (toxicity) industrial waste accumulated on the territory of Uzbekistan, are classified in the following way: 97.4% of waste (on weight, volume) are referred to the 4th class of hazard (toxicity); 2.6% are referred to the third class; 0.02% are referred to the second class, and 0.006% of waste are referred to the 1st class of toxicity.

In regards of development rate domestic wastes are exceeding industrial ones. Annually up to 30 mln.m³ of domestic waste are disposed on urban and rural landfills. Process of development of waste collection sites, equipment of the sites with special containers, transport vehicles has been commenced within recent 3- 4 years period.

With each million ton of domestic wastes 360 thousand ton of food waste, 160 thousand ton of paper and cardboard, up to 55 ton of textile, up to 45 ton of plastics and many other components are being lost. Issues of location of and construction of specialized landfills in major cities and districts have not yet been solved. Domestic waste separation and processing have not yet been arranged.

Analysis and review of activities of municipal services of the Republic demonstrated that technical, sanitary and ecological requirements, as well sanitary and ecological requirements of storage, detoxication and disposal of waste are not observed. Domestic waste landfills have no design-and-technical documentation, and permission documents are issued without consideration of geological-and-hydrological situation and accomplishment of ecological examination. Industrial and construction waste is partially disposed on these landfills. Waste delivered to the landfill are compacted and partially covered with ground, their composting is accomplished without observation of technological regime, and this results in their spontaneous combustion.

Shortage of specialized equipment for waste processing and transportation remains a significant problem. Due to lack of spare parts and insufficient renewal of the fleet of vehicles produced domestic wastes are not being collected timely. This results in pollution of the territories of cities and settlements.

At present fleet of vehicles of municipal enterprises is completed with "DAEWOO" company produced waste collection trucks, production and manufacturing of containers for separate waste collection has been arranged. Project "Rehabilitation of solid waste management system in Tashkent city" is being implemented since 1998 with the financial support of World Bank and European Bank for Reconstruction and Development. In the scope of this project, there were purchased 210 modern waste collection trucks with carrying capacity of 4 and 8 ton; 4 waste transfer stations have been built, landfill for domestic waste disposal has been rehabilitated. More than 400 waste collection sites equipped with containers, sewage system and water pipe have been built in Tashkent as a pilot for provision of separate waste collection.

C. Radioactive Wastes: Determining the level of pollution throughout certain areas of the republic are represented by uranium ore, certain pieces of coal of radioactive rocks, ashes with high content of uranium and radio-nuclides, radioactive dye which is used for covering special devices, etc.

402 sites of radiation pollution have been de-activated till now, out of the total number of 719 registered sites of radiation pollution in the republic, where observations of the level of radiation

background are being carried out. In general radiation situation in the republic is within the standard limits (10-30 mR/hour). However, on certain sites, trans-boundary ones in particular, situation is stressed.

Currently in Uzbekistan open mining of uranium has been ceased, deposits are developed through underground leaching (UL). However, big dumps of rocks and "tailings" after extraction of uranium, with high content of this metal and decomposition products have been formed. The sites of location of these wastes have significant impact on environment and population living there. Slurry pond of hydro-metallurgical plant, located on the left bank of Zeravshan river in the vicinity of Navoiy town, represents certain danger. Area of the slurry pond is 630 ha, dam height reaches 15 m. Slurry pond is used since 1964. Currently the slurry pond contains 59.7 mln.ton of waste. Slurry sediments have also been developed in the result of disposal of pulp, waste of processing of uranium containing ores of the deposits in Uchkuduk, Sutraly, Sabyrsay, etc. Radioactivity of the tailings reaches 90 kBk/kg, while indications of gamma-field on the dams of the slurry pond is 300-500 μ R/hour. Partial filtration of tailings water is observed, as well as contamination of ground water with them, which results in 2-3-folds growth of their mineralization on the area up to 1.5 km wide, increase of the concentration of SO₄ ions, chlorine, iron, selenium and manganese. In addition to this, due to stormy winds, dust transfer takes place from the surface of the sites and dams slopes. Following environment protection activities have been undertaken by Navoiy Mining Plant with the purpose of mitigation of ecological stress. Drainage system is functioning, containing 24 pump wells with the purpose of catching filtered solutions and their return to the plant. Regime observations of dynamics of chemical composition of ground water are being carried out throughout 108 observation wells, drilled on the way of flowing of ground water to Zeravshan river. To reduce radon emission on some sites of the slurry pond, waste of gold processing plant are being disposed over the wastes of uranium production. Storage of out-of-balance uranium ores, functioning since 1961, is located not far from Uchkuduk. Volume of radioactive waste storing here is about 3 million ton. Exposure rate is 10-400 μ R/hour. Control of waste condition is carried out by special services of Navoiy mining plant. Radioactive wastes of exhaust deposits of Yangiabad mining field are located on the area of about 50 km² on the territory of Akhangaran district of Tashkent region. Total volume of stored there contaminated material is about 500 thousand m³. Intensity of gamma-radiation within the limits of contaminated areas here is about 60-200 μ R/hour, and seldom it is 1,500 μ R/hour. Main radioactive material is referred to low-radioactive waste. Currently work is being carried out here for sanitation of radioactive situation, and it is intended to finalize this work by 2005. Republican point for radioactive waste disposal (RPRWD), being potentially hazardous site, is located in Tashkent region. Since 1970 RPRWD undertakes disposal of all radioactive waste, produced in all research institutions, medical institutions and sectors of economy. It has been determined in the result of survey, that outside the borders of sanitary-protection zone RPRWD has no negative impact on the environment. In Pap district of Namangan region there are radioactive wastes, remained after exhaustion of uranium deposits Charkesar-1 and Charkesar-2. Radioactive materials are stored in dumps, covered with neutral ground. In some places the cover is destroyed by atmosphere precipitation. Gamma-field intensity on the surface of the dumps is 300-450 μ R/hour. Water flows from abandoned wells, and in regards of its micro-component composition this water is close to the composition of technological solution, containing a range of highly toxic elements (beryllium, manganese, iron, aluminium). The same range of toxic substances has been found in bottom sediments of the spring, total alpha-activity of precipitation reaches 3.5-8.1 thousand Bk/kg. In accordance with the Instruction of the Cabinet of Ministers, works are being carried out on this site for sanitation of radiation situation. Urgent work has been performed by present: isolation of the sites from animals and withdrawal of well water to a secure place.

Storages of radioactive wastes, dumps of rocks and slurry ponds, were disposed in the Soviet times on the borderline territories of Uzbekistan. Such storages are located in the vicinity of Fergana valley, in the settlements Mailuu-Suu, Kadamzhay, Sumsar, Shakoptar, Degmay and village after Gavurov, in Kyrgyzstan Republic. Under the impact of floods, mud flows, land slides, earthquakes and other natural phenomena these storages might be destroyed and become source of pollution of the environment, particularly in Syr-Daria river basin. Programs and proposals have been developed on these sites for sanitation of ecological situation. Search of internal and external sources of funding is being carried out.

In addition to the sites associated with uranium ores, on the territory of Uzbekistan sites are available on mining and processing of other types of minerals, containing increased concentration of radioactive elements. Mining and processing of coal and phosphorite is referred to such sites. For example, in Angren, in brown coal deposit, about 15% of total amount of extracted raw material is contaminated with natural uranium and its degradation products. In the result of combustion of this coal concentration of radionuclides grows and it is several times higher than that of permissible concentration. Phosphorites mined here are accompanied by insignificant quantities of natural radionuclides (uranium, thorium, radium, potassium). To this end, phosphorites are also potential source of radioactive contamination of the environment.

Ecologically stressed situation being developed in the zones of accumulation of hazardous, solid and radioactive waste, problems of waste management are caused by a number of reasons, and major reason is in financial difficulties of transition period, which did not allow to implement technologically costly activities, providing safety of waste maintenance, their elimination and (or) processing.

Capacity Building, Education, Training and Improvement of Awareness:

Regulation of the relations related with safety of utilization of hazardous chemical substances, storage and processing of industrial and domestic waste assumes participation of representatives of such organizations as the State Committee for Nature Protection, Ministry of Health, Ministry of Agriculture and Water Resources management, Main Department for Hydrometeorology, business entities of various industries, research and design divisions, authority bodies and local administrations.

Specialized design and construction organizations are also involved in implementation of the activities. Implementation of the works is supervised by the State Committee for Nature Protection and Ministry of Emergency Situations of Uzbekistan.

Non-governmental organizations of ecological orientation, self-governing structures in urban and rural settlements take active participation in decision making processes on relevant aspects of these issues.

Higher educational institutions have their special faculties, chairs and programs for training professionals on development of new technologies and technological equipment (Technical and Chemical-Technological Universities), methodologies and tools for control of radiation level (National State University); research institutions of the Academy of Sciences and design institutes work on relevant thematic programs.

- A. Basic Sanitation: See above.
- B. Solid Wastes: See above.
- C. Hazardous Wastes: See above.
- D. Radioactive Wastes: See above.

Information: State Department for Statistics of the Ministry of Macroeconomics and Statistics carries out compiling and processing of data on development, accumulation and handling of industrial and domestic wastes. Information on these themes in accordance with the Law "On State Statistics" is submitted to appropriate national and local authority bodies for decision making, and it is also accessible for research and design institutions.

Inspection of condition of slurry ponds, collectors and special sites condition, as well as taking measures with regard to violators of nature protection legislation, is in the competence of the bodies of State Nature Committee for Protection Committee and Ministry of Health.

Within the recent years active interest of public organizations and mass media has been pointed out in relation of the works on reduction of negative impact of all types of waste on the condition of health of the population and the environment. Broad series of publications about independent journalistic investigations on this problem has been published in the periodicals.

Operative information is delivered to the population through demonstration of relevant materials in daily information programs as "Akhborot", "Khaftanoma" and "Marifat" video-channel, highlighting topical aspects of ecological problems.

- A. Basic Sanitation: See above.
- B. Solid Wastes: See above.
- C. Hazardous Wastes: See above.
- D. Radioactive Wastes: No information available.

Researches and Technologies: Studies and developments are being carried out currently on establishment of a database on industrial waste and regulatory base on their collection, storage and utilization.

Outcomes of a number of studies carried out in 2000-2003 are already being used. They are the following:

- Development of theoretical justification and methodologies of utilization of domestic and industrial waste for their recycling and reduction of ecological loading;
- Development of scientific and technical bases and a complex of measures for protection from pollution with poisonous chemicals, radionuclides and ions of hard metals and rational utilization of natural environments;
- Ecological-hygienic standards of potentially dangerous factors of the environment have been developed.

Special research has been carried out on the mining facilities (Uchkuduk, Yangiabad) and working projects have been elaborated, according to which reclamation of the territories is carried out.

Most cities and settlements of Uzbekistan are located in foothill areas and along valleys of the rivers flowing down from mountain formations of Tyan-Shan. Within these areas either on the surface of the ground or in the immediate proximity from it there are found radical rocks which are rather often presented by granite and other rocks enriched with uranium and thorium. It has been established by the studies that background radon concentration in soil air in the territory of Uzbekistan varies from 1-2 up to 15-20 thousand. Bk/m³.

- A. Basic Sanitation: See above.
- B. Solid Wastes: See above.
- C. Hazardous Wastes: See above.
- D. Radioactive Wastes: No information available.

Financing: Work on improvement of the system of organization of collection and processing of wastes is funded both from state budget and local budgets in the form of funding local level programs. For example, reclamation works, activities on strengthening of disposal sites slurry ponds, as well as decontamination of territories, organization of sites for domestic waste collection and storage are carried out at the expense of the funds of ministries, departments, business entities, republican and local budgets; works on inventory are being carried out within the limits of the funds of pilot projects, with the support of local authorities; establishment of production with the use of "know-how" is envisaged with participation of international donors.

The expenses for the activities on production and consumption waste utilization and processing, as well as decontamination and disposal of toxic wastes throughout Uzbekistan constituted 259,4 Million Soum in 1999, and 750 million Soum in 2003 (which makes 0.11 % and 0,27% of total expenditures for nature protection, respectively).

- A. Basic Sanitation: See above.
- B. Solid Wastes: See above.
- C. Hazardous Wastes: See above.
- D. Radioactive Wastes: No information available.

Cooperation: Regional cooperation is developing in the scope of the Agreement of Central Asia Economic Community (CAEC) in accordance with which Programs are being implemented on provision of rehabilitation of areas under wastes on transboundary territories of the countries of the region.

A. Basic Sanitation: No information available.

B. Solid Wastes: No information available.

C. Hazardous Wastes: CIS countries signed an agreement regulating trans-boundary transportation of hazardous waste and their disposal. According to this agreement the parties are committed to undertake measures regulating import of waste on their territory, as well as transit of hazardous and other wastes through the territory of the countries.

International collaboration on ensuring safety of utilization of hazardous chemical substances is being developed in the scope of fulfilling of the commitments taken by Uzbekistan in accordance with the Vienna Convention on Ozone Layer Protection, Basel Convention on control of trans-boundary transportation of hazardous wastes and their disposal.

D. Radioactive Wastes

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