

ENVIRONMENTAL MONITORING

CASE STUDY: WASTE CLASSIFICATION & INVENTORY SYSTEMS IN CAUCASIAN COUNTRIES¹

1.0 INTRODUCTION

Waste management issues currently rank among national environmental priorities in all three Caucasian countries, as stated in their National Environmental Action Plans. At present, however, waste management systems are weak and disintegrated and data on waste generation, transport, treatment and disposal are in part or in whole absent, as effective state inventory systems do not exist.

In the former Soviet Union, there were regulations and health norms and rules relating to the transportation, disposal, utilization and treatment of certain types of wastes (mainly industrial and toxic wastes). The management of municipal waste was organized under the responsibility of local authorities. However, there was no comprehensive state system regulating waste management and defining responsibilities of various public authorities.

In the late 1980s, a general inventory of industrial wastes was made in the Soviet Union and statistical forms for industrial waste reporting were developed. However, the system was never introduced widely, due to the break-up of the Soviet Union.

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2.0 GEORGIA

2.1 Waste classification and inventories

Currently there is no state inventory system for wastes in Georgia. Therefore, data on the quantities of waste generated annually, waste types, and their disposal, utilization or treatment are practically absent. The very limited data existing are scattered among different agencies. These data are not in electronic form and are not accessible to other users. Due to the lack of financial and technical resources, comprehensive waste inventories have not been yet conducted, nor has a state register been established. Such a register should include a waste catalogue, inventories of waste and disposal sites, as well as databases on waste and technologies of their utilization and treatment. Similarly, there are no exact data on the application of pesticides, quantities of obsolete pesticides or their storage facilities. The Department of Land Resources Protection, Wastes and Chemicals Management under the Ministry of Environment (MoE) recently developed a State Program on the Inventory of Obsolete Pesticides and Contaminated Sites, but could not implement it due to lack of finances.

A unified classification system is a set of statistical standards that make different management systems and databases compatible in terms of information. Without such a system, it is impossible to conduct effective data collection, reporting, data processing as well as to achieve data compatibility at the international level.

Waste classification is one of the major components of a unified classification system and is aimed at providing decision-makers with information in the fields of waste management and natural resources use, on the basis of record keeping and reporting in accordance with international standards.

Currently, Georgia is moving towards the adoption of a new system of data collection and statistical reporting, moving from sector-based to enterprise-based (source-specific) statistics. New formats and methodologies for data collection and reporting are being elaborated based on international requirements.

The current waste classification system in Georgia is based on the Soviet approach, which divides wastes into five classes according to level of hazard (toxicity). These five classes range from extremely toxic to non-toxic. However, there are neither exact criteria for the classification of waste types nor definitions of “hazard”.

The State Statistical Department is developing a modern national system of statistical classification. Waste classification is one of its components. The resulting document will have regulatory status and its application will be mandatory for all users. Under this system, all types of wastes (either substances or items) and services related to them are subject to classification. The source of origin and the level of hazard serve as key criteria in the waste classification system, the first being the major criteria. As an initial step towards setting up the new classification system, a comprehensive waste inventory would be conducted throughout Georgia and a waste catalogue developed. This catalogue would serve as a basis for the development of a National Standard for the Waste Classification System. Unfortunately, the catalogue has not yet been developed, hindering the timely adoption of waste classification system.

As noted, under the proposed scheme the first criterion for wastes will be the source of origin (raw materials, economic activities and technological processes). The second criterion will be their level of hazard. The system will cover the whole life cycle of waste management and will

be compatible to the National Classification System on Economic Activities, based on European standard NACE. The structure of the system will be divided into two parts. The first part will classify all wastes and the second, services related to these wastes. The classification code will consist of eight-digit numbers (XXXX * X * X * XX) for both wastes and services. The code for wastes will take into consideration economic activity, phase of process, type of process and type of waste.

2.2 Legal Basis

The ***Law on Environmental Protection (1996)*** sets the legal framework for environmental and natural resources protection in Georgia. It defines overall objectives for environmental protection as well as the principles, guidelines and mechanisms for their implementation. It also defines the rights and duties of citizens and responsible authorities and sets criteria for the division of responsibilities among authorities. The law requires that industrial facilities conduct integrated pollution control and monitoring as well as develop emergency preparedness and response plans, in agreement with designated authorities. According to the law, the new owner of a company should meet the environmental requirements that were set for the former owner. All new industrial and commercial developments, as well as major industrial modifications, require environmental permits issued by designated authorities.

The ***Laws on Environmental Permits (1997)*** and ***on State Environmental Examination (1997)*** regulate significant potential environmental impacts from human activities through Environmental Impact Assessments (EIAs), State Environmental Examinations (SEEs) and the issuance of integrated environmental permits. The Ministry of Environment of Georgia grants environmental permits, provided the applicant will suggest mitigation measures and meet all environmental standards and requirements. The applicant is responsible for carrying out the EIA and the MoE for the SEE. EIA and SEE costs are covered by the applicant, as part of the cost of permitting process. The law guarantees public participation in all stages of the EIA..

The MoE has prepared a draft ***Law on Waste Management***. Among its major goals, the law aims to establish a state waste management system and promote the gradual introduction of EU standards and requirements in this field. It regulates the generation, collection, transport, recycling, reuse, disposal, and treatment of municipal, and hazardous wastes. The law sets up waste classification and inventory systems.

Under the proposed law, wastes are classified according to their source of origin, as well as according to health and environmental hazards. Based on source of origin, there are five types of wastes:

- Municipal wastes;
- Industrial wastes;
- Medical wastes;
- Agrochemical wastes;
- Biological wastes.

The class of hazardous wastes is separate from all the above types of wastes. Any type of wastes is designated hazardous if it contains hazardous substances, as defined in the relevant law (Georgia's Law on Hazardous Chemical Substances). Hazardous wastes are divided into sub-groups based on type of hazard (teratogenic, cancerogenic, toxic, etc.). However, the law does not define the threshold for "hazard".

The proposed Law on Waste Management requires the creation of a National Waste Catalogue, in which all wastes should be registered using the six-digit trade codes from the Foreign Economic Activity Trade Code System. In addition, wastes can be described according to the waste registration and coding systems set up under the Basel Convention and the European Union's Council Regulation 259/93/EEC. The National Waste Catalogue should be maintained according to the Law's classification system law as well as according to the waste classification system set in the European list of waste, approved by the EU Council in Decision 2000/532/EC, in accordance with the Directives on Waste, 75/442/EEC, and on Hazardous Waste, 91/689/EEC. Waste identification would be conducted according to a National Rule on Waste Identification, which would be based on the waste identification requirements laid down in European Council Decision 2000/532/EC. Until the Rule is adopted, wastes would be identified in accordance with the Basel Convention and EU Council Regulation 259/93/EEC, as well as existing national standards, health norms and rules and relevant Georgian laws. All types of wastes listed in the yellow and red lists of EU Council Regulation 259/93/EEC are classified as hazardous.

The Law on Waste Management will require the creation and maintenance of a State Waste Inventory System. Under this System, waste generators will conduct waste inventories at source on a regular basis, following approved formats and rules, and report these to the designated authorities (MoE and the State Statistical Department). All this information should be gathered in a State Waste Register, which should include qualitative and quantitative information on waste generation as well as information on waste sources based on their technological processes. The classification of waste sources should be based on the national classification system as well as on the economic activities identification and coding system set in the Economic Activities National Classification Catalogue.

The law on Waste Management does not designate one specific management authority in the waste management field. It requires the creation of a state steering committee under the Ministry of Environment for the coordination of management activities across all types of wastes.

Other major laws in the field of waste and hazardous chemicals management are as follow:

- The ***Law on the Transit and Import of Wastes Into and Out of the Territory of Georgia (1995, Amended in 1997)*** regulates the movement of “green”, “amber” and “red” list wastes through Georgia, in line with the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. It bans the import and transit of hazardous and radioactive wastes in Georgia;
- The ***Law on Hazardous Chemical Substances (1998)*** sets the legal and institutional basis for chemicals safety management. It requires the registration of hazardous chemicals, the licensing of new chemicals and the keeping of a national database on chemicals registration, use and storage. In addition, the law contains provisions on the permitting of import and export of chemical substances. The Ministry of Labor, Health and Social Affairs is a major authority for chemicals management: its responsibilities including the creation and maintenance of the State Registers on Hazardous Chemical Substances; it shares responsibility for chemicals safety management with the Ministry of Environment.
- The ***Law on Pesticides and Agrochemicals (1998)*** regulates the import, production, transportation, storage and usage of agrochemicals. Among its provisions, it requires the examination and registration of new agrochemicals, maintenance of a list of allowed chemicals, development of a State Catalogue on Agrochemicals and the creation of a State Registers on Agricultural Chemicals and Fertilizers. The Ministry of Agriculture

and Food and its subordinated bodies are responsible for these tasks. Banned pesticides are regulated under the Law on Hazardous Substances, which bans and restricts certain hazardous substances.

- The ***Law on Radioactive Safety (1998)*** sets the legal framework in the field of nuclear and radioactive safety. The Law includes provisions on the inventory of radioactive wastes and their sources. Specifically, MoE's Nuclear and Radiological Safety Service is responsible for keeping a State Register on Radioactive Wastes and their Sources, which should include data on existing nuclear and radioactive facilities, quantities of radioactive substances used as feedstock, radioactive substances and wastes imported, exported, used or generated and locations and technical conditions of their storage and disposal facilities. Licensed owners/operators of nuclear and radioactive facilities are responsible for radiation control and measurements of ambient pollution levels. They are also responsible for conducting inventories at source, keeping records on their activities and the technical parameters of their facilities, the quantitative and qualitative parameters of radioactive substances and wastes used or generated, etc., and annual reporting to MoE. The State Register maintained at MoE should be based on these reports.

Georgia is a party to the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. Recently, Georgia signed the Stockholm Convention on Persistent Organic Pollutants, and GEF-funded enabling activities to develop a National Implementation Plan and to support ratification of the Convention are currently underway. In addition, preparatory works are being conducted within the Ministry of Environment to accede to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

2.3 Institutional Arrangements

Several agencies are involved in waste and chemicals management in Georgia. Their responsibilities are not stated or delineated clearly. There is little cooperation among them and the limited data kept by these agencies are not shared or exchanged.

The ***Ministry of Environment*** is responsible for developing and implementing national waste management policies, strategies and regulatory documents, as well as for enforcing existing norms and standards for the environmentally sound disposal and treatment of industrial and municipal wastes. The Ministry is also responsible for implementing international treaties in the waste management field, specifically the Basel Convention. The national focal point, who is a deputy head of the Department of Land Resources Protection, Waste and Chemical Substances, has the primary responsibility for coordinating activities under the Convention.

- MoE's *Department of Land Resources Protection and Waste Management* consists of three divisions dealing with land protection, wastes and chemicals. Two staff, not enough for effective waste management, work on both wastes and chemicals. The department gathers information on contaminated sites, industrial and municipal wastes and chemicals. Major sources for information on land contamination are MoE local offices, MoE analytical laboratories (for land contamination by pollution sources) and Hydromet (for data on ambient pollution). MoE regional departments gather information on industrial wastes. They use standard questionnaires, prepared by the Department, that should be filled out by owners/operators of industrial facilities. Municipalities and MoE local offices are the main sources for information on municipal wastes. Regarding chemicals, MoE regional authorities gather information from the regions while the central office collects data from the Ministry

of Labor, Health and Social Affairs, which is responsible for maintaining the State Registers on Hazardous Chemical Substances, and the Ministry of Agriculture, responsible for the maintaining State Registers on Agricultural Chemicals and Fertilizers. Information is collected via special questionnaires, developed by department's staff. Information is collected upon requests made by the MoE to other data collecting authorities. There are no legally binding reporting requirements for wastes. Existing data are not entered in electronic form and are thus stored in paper format.

- The *Nuclear and Radiation Safety Service* coordinates and carries out an inventory of radiation sources and radioactive wastes at former Soviet military bases and plans measures for their rehabilitation. It has a staff of 10 people, which is not enough for effective performance by the Service.

The ***Ministry of Economy, Industry and Trade*** is responsible for licensing the export and import of ferrous and non-ferrous scrap and other industrial wastes.

The ***Ministry of Labor, Health and Social Affairs*** is responsible for setting and enforcing health standards, including soil and food product standards. It also is responsible for creating and operating the State Register on Hazardous Chemical Substances.

The Ministry of Agriculture and Food is responsible for coordinating activities in agrochemicals management, including the State Registers of Agrochemicals, the development of agrochemicals catalogues and approval of the list of permitted agrochemicals.

Municipalities and local governing bodies are responsible for the collection and disposal of municipal wastes, as well as providing information on this category of wastes.

The ***State Statistical Department*** is responsible for creating and operating a national system of classification, including waste classification. Jointly with the State Department of Standards and Metrology, it develops regulatory documents for national classification, coordinates national classification activities, publishes and distributes national codes of classification and related regulatory-guidance documents. Apart from this, the agency is responsible for maintaining and reporting national statistics on all social and economic indicators, including environmental indicators.

State Department of Hydrometeorology, through its National Center for Ambient Environmental Monitoring, is responsible for the collection of data on soil contamination on agricultural lands and in industrial areas. The Center has an analytical laboratory for soil analysis. At present, soil quality monitoring is not conducted due to financial shortages.

3.0 AZERBAIJAN

3.1 Waste classification and inventories

Unlike Georgia, Azerbaijan has a state system for waste inventory and reporting. The existing waste classification system is based on the Soviet approach, distinguishing among different types of wastes especially for hazardous wastes. However, this system of classification does not meet international standards.

Waste data are very limited, especially for municipal wastes. The Ministry of Ecology and Natural Resources plans to conduct comprehensive inventories of municipal wastes generated and accumulated in four cities (Baku, Sumgayit, Mingechavir and Ganja). Although more or less full data currently exist for total quantities of wastes generated, there is no data on waste composition, except for Baku, where the system of data collection and reporting is more functional and reliable than in other cities and in rural areas. There are many illegally operated landfill in small towns and rural areas, and data on them are not available.

Regarding pesticides, approximate data are available for the total amounts of pesticides used annually and stored in warehouses. According to these data, about 500 tonnes of pesticides are imported annually and about 8 000 tonnes have been landfilled. There is no exact information on the composition of these agrochemicals or on the technical and environmental conditions of their storage facilities. Data on pesticide application are approximate as well, due to the lack of state control over the use and distribution of agrochemicals.

Since 1991, Azerbaijan has conducted regular inventories of toxic industrial wastes. The following indicators are used for state statistical reporting:

- Total waste quantities at the beginning of the year;
- Wastes accumulated at industrial facilities;
- Total waste generated during the year;
- Transfer of wastes from other facilities or countries;
- Waste utilization at source;
- Waste transferred to other facilities for utilization;
- Waste storage at industrial facilities;
- Waste buried in landfills;
- Total waste quantities at the end of the year.

Enterprises are required to keep regular records on toxic wastes and on an annual basis report these to the State Statistical Committee, which processes and aggregates the data and publishes all the resulting information in statistical yearbooks and in a special publication entitled “Environment”. Currently, a comprehensive inventory of all sources of hazardous wastes is underway in Azerbaijan.

The Hazardous Waste Management Inspectorate under the Ministry of Ecology and Natural Resources has developed a reporting format called the “passport for hazardous wastes”, for the qualitative assessment of hazardous wastes generated by companies. Reporting requirements cover waste classifications under the Basel Convention, waste toxicity, general description and composition, chemical and physical characteristics, proposed treatment and use, and contact information of the responsible company or person. On 31 March 2003, the Cabinet of Ministers, in ordinance No. 41, approved the Rules for Hazardous Wastes Passports. On July 2003, the Ministry of Justice registered the Classification and Rules for Waste Inventory of Industrial Activities and in the Services Sector.

The State Control Committee and the Radiation Medicine Department of the Republican Center for Health and Epidemiology gather information on radioactive wastes and radiation sources.

Since April 2003 Azerbaijan has been participating in a program (RAIS) aimed at establishing a computerized registry of radioactive materials. At present, 482 radiation sources have been mapped in the country.

The Ministry of Ecology and Natural Resources intends to conduct a comprehensive inventory of contaminated sites, develop criteria for their rehabilitation and conduct decontamination projects. The inventory is scheduled for 2004.

3.2 Legal Basis

The ***Law on Environmental Protection (1998)*** is a framework act that identifies general environmental protection objectives and principles and calls for the development of detailed, media-specific statutes and regulations.

In relation to wastes, the Law on Environmental Protection authorizes the government to:

- set rules and procedures for environmental monitoring and auditing; and
- issue permits for environmentally hazardous economic activities, waste generation and pollutant releases into the environment.

Special licenses are required for pollutant releases, transportation, storage and disposal of hazardous industrial and municipal wastes, environmental auditing and economic activities that may have significant impacts on environment. Industrial facilities should conduct self-monitoring and keep records on their emissions and wastes. The law requires the establishment of pollution taxes on air and water emissions and waste disposal, and the imposition of penalties for non-compliance with emissions limits. Legal or natural persons conducting economic activities that may have significant impacts on environment should hold environmental insurance. The law also requires setting emissions and waste generation limits. Finally, the law guarantees public participation in decision-making process.

The ***Law on Environmental Safety (1999)*** regulates the issues of liability, access to information and justice and public court suits. It also sets regimes for restricting or banning certain types of activities that may have adverse environmental impacts.

The ***Law on Industrial and Municipal Wastes*** defines the legal and policy framework for waste management, including hazardous wastes. Specifically, it defines duties and rights of designated authorities, sets responsibilities for waste owners, and defines environmental requirements for waste generation, disposal, treatment, re-use and movement. This law has been supplemented by Presidential Decree No. 26.10.98, which sets detailed responsibilities for designated authorities and lists rules and measures to be implemented by the Government. None of these follow-up measures – except for the Rule on Licensing, established by Presidential Decree – have been approved. Among other issues, these measures are to regulate record-keeping and reporting procedures, certification of import/export of wastes and waste inventories.

The ***Law on Industrial and Municipal Wastes*** does not have a definition for waste. In addition, its definition for hazardous wastes is not clear enough and does not define “hazard”. The law requires licensing of waste treatment, disposal and recycling. All applicants should be identified

in the state registry kept by the Ministry of Ecology and Natural Resources. The law requires that waste owners keep records on their wastes and regularly report to the Ministry of Ecology and Natural Resources. The law also requires the registration of wastes during their transportation but does not define the terms and conditions, rules and procedures for this. Finally, the law requires the registration of waste disposal sites in a state registry.

All provisions related to waste classification, inventory and reporting need further development. The draft National Waste Management Strategy envisages the development of new waste legislation that, among other issues, would regulate waste definition and classification issues, the inventory and rehabilitation of contaminated sites, and record keeping and reporting.

Since 2001, Azerbaijan is a party to the Basel Convention. The national Hazardous Waste Management Authority is directly responsible for its implementation.

3.3 Institutional Arrangements

Municipalities are responsible for municipal waste collection, transportation and disposal.

The **Ministry of Ecology and Natural Resources** is the regulatory body for hazardous wastes. It issues permits to industrial facilities for the disposal of hazardous wastes. In addition, it carries out compliance monitoring and control (law enforcement) in the fields of municipal and industrial waste management, and it keeps the State Waste Registry, containing information on municipal and industrial wastes, including hazardous wastes.

To manage hazardous wastes, a Hazardous Waste Management Inspectorate was established under the Ministry of Ecology and Natural Resources in March 2003. The agency is responsible for hazardous waste management, including policy-making. It is also responsible for the enforcement of hazardous waste legislation. Waste licensing and inspection authorities will be delegated to its regional offices by 2004.

The **Ministry of Health** is responsible for medical waste management (collection, treatment and disposal).

The **Radiation Medicine Department of the Republican Center for Health and Epidemiology** and the **State Control Committee** are responsible for collecting and keeping data on types and quantities of isotopes used in the country. The latter also carries out testing of construction material and food products for radioactive contamination.

The **State Statistical Committee** is responsible for maintaining and publishing national statistics on municipal and industrial wastes.

4.0 ARMENIA

4.1 Waste classification and inventories

Since 1997, Armenia has carried out a systematic state inventory on waste generation, re-use and disposal. However, the information on data handling is not adequate, and it does not reflect the actual situation in this area, as not all enterprises are functioning at full capacity and, as a result, they are not reporting annually on waste. The methodological and regulatory basis on waste generation is weak and it requires revision to streamline it with international requirements.

According to the statistical format registered with the Ministry of Justice, the producers and owners of waste provide primary data to the Environmental Inspectorate of the Ministry of Nature Protection on an annual basis. Annual statistical reports consist of data on volumes of wastes generated and their trends. In addition, the reports indicate the type of wastes: hazardous, non-hazardous, and household wastes. Reports cover all types of wastes except for radioactive wastes, livestock wastes, air emissions and discharges into water bodies and sewerage systems.

The waste inventory uses a classification system based on the level of hazard. The system defines five classes of hazard:

- I extremely hazardous waste;
- II highly hazardous waste;
- III moderately hazardous waste;
- IV slightly hazardous waste;
- V non-hazardous waste.

Annual statistical information should be reported by legal or natural persons engaged in economic activities. The reporting forms have three parts. The first part asks for data on waste classes according to hazard (household wastes are indicated separately) and quantitative data on waste generation and flow:

- Total waste quantities at the beginning of year;
- Wastes received from other facilities;
- Total waste generated during the year;
- Waste transferred to other facilities;
- Waste rendered harmless or eliminated (removed);
- Waste, including household waste, transported to and disposed at treatment sites at the expense of waste generators/owners;
- Wastes utilized;
- Total waste quantities at the end of year.

The second part asks for aggregated data on financial expenditures. The third part requests waste data, in the same categories as the first part, for each type of waste. It also requests information on waste sources, technological process, physical and chemical characteristics (aggregate state, composition) of wastes, and type and total area of the waste disposal site.

In practice, only 10-15% of reporting organizations provide the physical and chemical characteristics of their wastes.

Annual reports are received by the regional offices of State Environmental Inspectorate, and after verification they are sent to the National Statistical Service for data entry, processing and analysis. Aggregated national statistical data are published in the monthly reports entitled “Social and Economic Situation in the Republic of Armenia”, in statistical yearbooks and in a separate

publication entitled “Environment and Natural Resources in Armenia”. National statistics include total waste volumes and waste volumes according to waste type and hazard class. Normalized data per capita, per area and per waste generator/owner are also reported. Annual data are provided on waste flows (generation, transportation, treatment and disposal) and on financial expenditures for services related to wastes, both in total and per class and type of wastes. Apart from annual data, national statistics provide trends on waste generation, waste flow and financial expenditures.

In addition to the above data, State Statistical Department keeps records and maintains national statistics on solid household waste generated in cities, on the basis of special reporting format “1-Specialized Transport – Mechanical Sanitary Cleaning of Cities”. Statistical reports also include information on financial expenditures for municipal waste services. Municipalities and enterprises involved in urban waste management keep records on household wastes: these are reported to the State Statistical Department. In urban areas, solid household wastes are transported to waste disposal sites, which do not meet minimum health requirements and represent a major source of pollution.

4.2 Legal Basis

Armenia does not have specific laws regulating wastes and chemicals. The Ministry of Nature Protection has drafted a law “On Wastes”, which among its provisions establishes economic incentives for enterprises treating and using wastes. The draft law was submitted to the Secretariat of the Basel Convention for international review.

Several legal and regulatory documents currently address hazardous and other waste management and chemical substances management:

- Law on Taxes for Environmental Protection and the Use of Natural Resources;
- Law on Base Rates of Environmental Protection Taxes;
- Law on Licensing;
- Law on Public Health and Safety;
- Law on Medicines;
- Law on Plant Protection and Quarantine Service;
- Armenian Code of Mineral Resources;
- Decision No. 518 on the Provision of State Health and Epidemiological Services (adopted 12 October 1993)
- Government Decision No. 97.02.03.2000, on the transboundary movement of hazardous wastes, including their import, export and transit.
- Government Decision No.121-H.30.01.2003 on Rules and Procedures for Licensing the Re-Use, Treatment, Storage, Transport and Disposal of Hazardous Wastes in the Republic of Armenia;
- Government Decision No. 902.31.12.2000 on the Ban of Movement of Specific Goods Through Customs of the Republic of Armenia according to Customs Regimes;
- Instruction Manual No. 10.09.1999 on Identification of Regulated and Non-regulated Wastes, Listing of their Hazardous Characteristics, Reporting and Waste Removal;

- Government Decision No. 487.31.07.1999 on the Designation of State Body in the Field of Removal of Obsolete Medicines;
- Government Decision No.581.20.09.2000 on the Approval of the Rule of Export/Import of Medicines in Armenia;
- Government Decision No.347.25.04.2001 on the Approval of the Rule for State Registration of Medicines and the Rate of the Payment of Examination of Medicines Conducted for the Purpose of Their Registration in the Republic of Armenia;
- Government Decision No.12.08.01.2002 on the Approval of the Rule for State Registration of Plant Protection Remedies;
- Government Decision No.57.24.01.2002 on the Approval of the List of Chemical Substances, Bionic Components, Heavy Metals or Substances with Heavy Metal Content or Other Substances, Having Negative Impacts on the Ecosystems of Lake Seven;
- Presidential Decree on Governmental Structure and Regulation Framework, issued 15 January 1996, specifying responsibilities of the Provincial Chief Administrator for waste management;
- Government Decision No. 51 on Communal Property (establishing communal ownership over landfills);
- Law on the 1996-97 Program for the transfer of state enterprises and unfinished construction (encouraging the privatization of waste management services), adopted on 20 March 1996.
- Decision No. 405 on the State Inventory of Wastes, requiring the collection of information on the generation, transport and disposal of wastes, including their transboundary movements (adopted on 17 October 1997)
- Instruction Manual on the Registration, Taxation and Safe Disposal of Wastes, as approved by the Minister of Nature Protection in 1997;
- Instruction Manual on the Classification of Wastes according to the Level of Hazard, as approved by the Ministerial order No.180.05.12.1996;
- Government Decision No. 864 of 30 September 1998 on the levying of taxes and fines for the use of surface water, groundwater and mineral water, for air and water pollution and for disposal of industrial wastes; and
- Government Decision No. 1702 of 11 November 1998, Concerning an Ecological Passport for Industrial Enterprises.

Armenia is a party to Basel Convention, which was ratified by the Armenian National Assembly (Parliament) in 1999. In 2000, the National Assembly also ratified the Agreement among CIS Countries on the Control of Transboundary Movement of Hazardous Wastes. Government Decision No. 97.08.12.1995 is a major regulatory document setting general principles for the regulation of transboundary movements of hazardous and other wastes in Armenia. Two other Conventions, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) and the Stockholm Convention on Persistent Organic Pollutants, have been signed by the country and enabling activities for the ratification of these conventions are currently underway.

4.3 Institutional Arrangements

The Division of Hazardous Chemicals and Waste Management of the **Ministry of Nature Protection** is responsible for the development of state policy in the field of waste and chemicals

management as well as for establishing a system for the collection and analysis of information on the safe management of chemicals and the generation, storage, recycling and disposal of municipal and industrial wastes, including hazardous wastes. The Division maintains a list of organizations reporting on their wastes as well as the computerized registry on quantities of wastes generated and their quantitative and qualitative characteristics.

Regional branches of the State Inspectorate of the Ministry of Nature Protection are responsible for environmental law enforcement, including:

- Enforcement of the regulations for the import, export and transboundary movement of hazardous wastes;
- Enforcement of the norms and requirements for waste disposal, treatment, utilization, transportation and burial;
- Enforcement of requirements for the use, transport and storage of hazardous chemical substances;
- Enforcement of hazardous waste inventory and reporting requirements;
- Checking the validity of records;
- Control over environmental tax payment;

The Agency of Hydrometeorology and Environmental Quality Monitoring under the Ministry of Nature Protection, and the Center for Environmental Impact Monitoring, subordinated to the Ministry, conduct studies on environmental impacts. On the basis of ambient environmental quality data collected by the Center (a non-profit public organization), analysis of state of the environment and quantitative and qualitative analyses of chemicals are made (Government Decisions No. 1619.26.09.02 and No411.06.03.03).

Local authorities (marzpetarans) and the governor of the city of Yerevan carry out their responsibilities, as set by Presidential Decrees No. 726.06.1997 on the State Government of the Marzs of the Republic of Armenia and No. 727 on the State Government in the City of Yerevan. In the field of environmental management, they are responsible for:

- participation in the development of state environmental protection programs and, within their terms set, for implementation of these programs;
- compliance assurance and control in the field of environmental protection; and
- cooperation with NGOs and local communities in the implementation of environmental protection programs.

Other institutions are also involved in safe management of hazardous chemicals:

- The **Ministry of Health** is responsible for the health and epidemiological control and safety of the population, as well as for the regulation of chemical substances and wastes through its structural services and organizations:
 - The State Health and Epidemiological Inspectorate organizes social and health studies (monitoring) of the impacts of environmental factors; conducts health examinations and testing and gives recommendations on the burial of hazardous wastes, the use of polymeric materials and other substances, food products and the use of plant protection remedies; undertakes enforcement of the implementation of health standards;
 - The Institute of Environmental Health and Preventive Toxicology researches and monitors the migration of pesticides in the environment (air, soil, water and biota);
 - The Institute of General Health and Occupational Diseases deals with the development of ambient environmental quality standards and emission limits as well

as permissible exposure limits in the air of work environments and conducts scientific health, epidemiological and laboratory studies.

- The ***State Statistical Service*** is responsible for maintaining and publishing national statistics on waste generation and flows;
- The ***Ministry of Agriculture*** is responsible for conducting pest control as well as enforcing food product safety, phyto-sanitary and veterinary requirements;
- The ***Ministry of Trade and Economic Development***, jointly with state governing bodies, develops recommendations on quotas for the export and import of consumption goods, imposing state monopoly regimes on the export and import of certain goods, as well as on bans and restrictions for certain goods, including chemicals;
- The ***Research Center for Agriculture and Plant Protection*** tests the properties of pesticides, including new products and preparations to protect crops from disease and pests;
- The ***Soil Sciences and Agrochemistry Institute*** carries out research into the rational use of agricultural chemicals and their impact on the environment;
- The ***Center for Ecological and Neosphere Studies*** of the National Academy of Sciences is involved in the management of contaminated sites. Activities are planned to develop technologies for the remediation of sites contaminated with heavy metals, cyanide and nitrogen compounds and pesticides.

REFERENCES:

Armenia. State of the Environment Report for Armenia, 2000

United Nations Development Programme, General Needs Assessment Report, Environmental Monitoring and Control, Capacity Building for the Ministry of Environment of Georgia, 2001

United Nations Economic Commission for Europe, Environmental Performance Review of Azerbaijan, New York and Geneva, 2003 (forthcoming)

_____ Environmental Performance Reviews of Georgia, New York and Geneva 2003

_____ Environmental Performance Reviews of Armenia, New York and Geneva 2001

_____ Various papers, First Workshop on the Waste Classification and Inventory, 2003

United Nations Environmental Program/GRID-Tbilisi, Caucasus Environment Outlook, (CEO), 2002