

Main Principles for Hazardous Wastes Management in Armenia

Aleksandryan A.^{1*}, Khachatryan A.²

¹Ministry of Nature Protection of the Republic of Armenia, Governmental Building 3, Republic Square, Yerevan 0010, Armenia

²Waste Research Center State Non-Commercial Organization, 46 Charents Street, Yerevan 0025, Armenia

*corresponding author:

e-mail: anahit.aleksandryan@yahoo.com

Abstract: In the Republic of Armenia main principles for wastes management include:

- Protection of the environment and human health against adverse impacts of wastes;
- Use of advanced achievements in science and-technioogy for implementation of wastes-free and low-waste technologies to minimize amounts of wastes;
- Comprehensive use of raw materials;
- Environmentally safe disposal (treatment, recovery, destruction) of inappropriate-for-use. wastes.

The regulatory-legislative basis of hazardous waste management are covered by provisions of the “Basel Convention on the control of transboundary movements of hazardous wastes and their disposal” ensuring environmental safety and preventing illegal traffic of hazardous wastes.

The “Law on Waste of the Republic of Armenia” was adopted in 2004 and regulates legal and economic basis of issues relevant to collection, transportation, storage, processing, use, disposal, minimizing volumes of waste, including hazardous wastes.

The following main elements of hazardous wastes management are important:

- Wastes state registration;
- Wastes generation standards and wastes disposal limits;
- Wastes identification/passportization;
- Wastes State Cadastre;
- Register of establishments carrying out operations on wastes generating, recycling and re-use.

In Armenia the problem of hazardous wastes management is worsened by the fact that polygons for treatment and disposal of hazardous wastes are lacking in the country.

Keywords: wastes, governance, regulation, environmental protection, environmental safety

1. Introduction

In order to protect human health and the environment from the unsound management of chemicals it is necessary to

implement a number of measures aimed at reducing the associated hazards and risks.

Such implementation requires appropriate management initiatives on chemicals and wastes, including:

- a clear coordination,
- regulatory and public policy tools in all sectors related to chemicals and wastes,
- significant expansion of existing knowledge and information on chemicals and wastes, as well as
- general practice of chemicals and wastes sound management throughout their life cycle.

2. Relevant International Commitments and Obligations

In order to ensure human health and environmental protection against the potentially harmful effects of chemicals and wastes and to promote the environmentally sound management of these chemicals, including prevention of illegal international traffic the Republic of Armenia has signed and ratified a number of conventions and has undertaken obligations to implement them.

The main conventions that focus on regulation of issues relevant to the sound management of chemicals and wastes, as well as to prevention of illegal traffic in hazardous substances and wastes are:

- Convention on Transboundary Movements of Hazardous Wastes and their Disposal [*Basel Convention, 1989*];
- Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade [*Rotterdam Convention, 2015*];
- Convention on Persistent Organic Pollutants [*Stockholm Convention, 2010*].

3. Integrated Approach to Chemicals and Wastes Management

Chemicals and wastes management should be based on the development and implementation of an integrated

approach aimed at the efficient arrangement of the safe production and use of chemicals, improvement of environmental safety in chemicals and waste handling, as well as prevention of their harmful effects towards human health and ensuring healthy environment [NIP, 2005].

An integrated approach to chemicals and wastes management at the national level implies the creation and strengthening of mechanisms for cooperation between ministries, research institutes, industrial associations and non-governmental organizations. This is the basis of efficient and coordinated actions for consideration of national priorities in the area of chemicals and wastes management, as well as for the effective implementation of international agreements and initiatives related to chemicals and wastes.

4. Chemicals and Wastes Regulation System

In the Republic of Armenia there is a definite system of chemicals and wastes legislative and institutional regulation. A key stage in the management of hazardous and other type wastes was the preparation and adoption of the Republic of Armenia Law "On Waste" [Law "On Waste", 2004], which contributed to the implementation of the state policy and strategy in area of wastes management.

The activity performed in this direction resulted in established regulatory framework covering a wide range of issues, such as the order of wastes passportization; their classification according to the degree of hazard; the order for wastes generation accounting/inventory; the order on disposal (destruction, treatment, and placement) and recycling of wastes; the procedure for state registration of wastes, maintenance of Register of wastes generation, processing and recycling facilities, as well as wastes disposal sites, etc.

However, it should be noted that the legislative and regulatory framework in the area of chemicals management is currently imperfect and requires further strengthening. In the Republic of Armenia there is no Law "On Chemicals" that would regulate the management and sound use of chemicals, including production, registration, use, storage, import and export throughout the "life cycle".

In the Republic of Armenia regulation of chemicals is carried out under the Rotterdam Convention pursuant to obligations according the Decree of the Government which approved "List of Chemicals and Pesticides Banned in the Republic of Armenia and regulated by the Rotterdam Convention". The List includes 44 names of chemicals and pesticides, the use of which is prohibited in order to protect human health and the environment, as they have a pronounced adverse effects and their use may have serious consequences for human health and the environment.

In the frame of the Stockholm Convention the "National Action Plan on Persistent Organic Pollutants" was approved; this document presents national priorities on persistent organic pollutants (POPs), key tasks and main directions for activities aimed at termination of use, reduction of emissions, and elimination of stockpiles of POPs-containing wastes.

At present the legislative basis in the sphere of management on chemicals and wastes, including POPs,

requires further strengthening and improvement. In the Republic of Armenia there is no "Law on Chemicals". Regulation of issues on management of chemicals and wastes, including POPs in the Republic of Armenia is executed by the "Law on Waste" (2004) and a number of by-laws and other legal acts aimed at prevention of the harmful impact of chemicals and wastes to the environmental and human health.

Currently, main legal acts regulating the sphere of wastes management in the environmentally sound way include the following Decrees of the Republic of Armenia Government:

- Laying down the order of wastes state registration

The Decree lays down the order of wastes state registration in the Republic of Armenia. The aim of wastes state registration is to set up a database on quantities of wastes generated in the country. The database is necessary for establishment and management of Wastes State Cadastre. The mentioned database contains information on quantities of all production and consumption wastes generated in Armenia.

- Laying down the order of confirmation of waste generation standards and waste disposal limits

The Decree regulates the confirmation process of wastes generation standards and wastes disposal limits for natural and legal persons involved in waste management process.

In order to fulfill environmental law requirements, waste generation standards and waste disposal limit projects are laid down for natural and legal persons by this decree.

For the purposes of this Decree

1. Waste generation standard means the quota of generated waste for each product unit.
2. Waste disposal limit lays quotas for certain categories of waste, which, in accordance to the legislation of the Republic of Armenia, can be placed at waste placement objects.

The Decree also lays down the principles of waste generation standards and waste disposal limits elaboration by natural and legal persons.

- Laying down the exemplary form of calculation of waste generation standards and waste disposal limit projects

The Order lays down general requirements to the form of calculation of wastes generation standards and wastes disposal limit projects.

The mentioned Form contains information on:

- 1) the title;
- 2) common data on the natural and legal person;
- 3) explanation;
- 4) description of production process as a source of waste generation;
- 5) list, type, physical and chemical properties of wastes generated by natural or legal person;
- 6) calculation of standards and quantities of generated wastes;
- 7) balance of materials;

- 8) scheme of waste movement in accordance with processes;
 - 9) description of the site, where wastes are temporarily stored, the substantiation of wastes quantity and disposal frequency;
 - 10) description of wastes use and disposal technologies;
 - 11) proposals on waste disposal limits, etc.
- Laying down the order of waste registration (generation, disposal (elimination, neutralization, storage)) and re-use

The Decree regulates the order of wastes registration (generation, disposal (elimination, neutralization, storage) and re-use.

Waste registration is a system of continuous documentary information, which contains information on waste management and qualitative and quantitative indicators of waste.

The decree applies to waste holders, who must primarily implement registration.

- Laying down the order of Wastes Disposal Sites Register

The Decree lays down the order of Wastes Disposal Sites Register. The aim of the Register is to keep data on registration and description of waste disposal sites. It is a system that contains normative-technical, technological, environmental information on wastes disposal facilities.

The Register supports to wastes management, inspection and control; it will also promote the construction of new facilities, elaboration of scientific-technical programmes, etc.

The Register includes:

- Waste treatment and disposal establishments or undertakings;
- Wastes storage establishments or undertakings;
- Landfills.

5. Current level of information, awareness, and education

Present-day level of knowledge in general public concerning the potential risk associated with chemicals and wastes, including POPs, is insufficient and requires further raising [NIP, 2017].

In the system of higher education certain issues dealing with POPs and POPs wastes are involved in the scope of curricular of state and non-state operated institutes of higher education of Armenia. Primary knowledge on POPs is obtained at the level of moderate ecological education in the process of learning such subject as chemistry, which is most likely of a general character.

At the pre-school level no analogous education related to ecology and POPs is carried out. At this level family upbringing of children and formation of new mentality on ecologically clean nutrition and healthy life-style in parents are more important.

No education embracing POPs problems and programming maintenance at the level of post-graduate ecological

education and training of general public is performed. This is mainly conditioned by the fact that the structure of continuing and consistent, step-by-step ecological education is not ultimately formed. However, in the Republic of Armenia there are all the necessary legal/legislative and scientific and educational prerequisites for efficient use of national capacities and the potential in order to raise the knowledge and awareness in general public, various professional groups, scientific and technical personnel.

Various groups of population: both occupationally exposed cohorts and those having no professional relation to issues relevant to manufacturing / application of chemicals and wastes (workers, farmers, students, schoolchildren, women) are ill-informed, unaware and have no sufficient information on the unfavourable impact of various chemicals and pesticides, as well as on the consequences of their improper application to the status of human health and environment.

Thus, it is necessary to raise the level of awareness in general population, and, first of all, in occupationally concerned groups - workers and farmers, in respect of such issues as measures and safety precautions at work with chemicals and pesticides, to raise knowledge and awareness of public concerning the risks for environment and health, which can be posed by chemicals and wastes, including POPs.

In order to improve the situation it is necessary to prepare and include in the educational programs of schools and higher educational institutions the subjects dealing with issues on harmful impact of hazardous chemicals, including POPs and/or POPs wastes, on human environmental health. It is pivotal to carry out special educational and training programmes for wide layers of population.

Development and realization of educational and socio-educational programs relevant to POPs, as well as their consequences and alternatives for human health and environment, especially for women, children and least educated persons will promote also awareness raising and education of general public.

Materials dealing with issues on management of chemicals and wastes, in particular, that of POPs in the Republic Armenia are periodically published in mass media. However, such information carries irregular character. Similar problems require wide coverage in periodical publications, as well as in TV and radio programmes.

In order to achieve knowledge increase in owners of small and medium-size farms of Armenia, it might be rather useful to organize and carry-out special socio-educational training programs on safety/security measures of work with chemical plant protection means, acquaintance with possible/probable symptoms of poisoning due to handling of pesticides, measures of poisonings' prevention, rendering first medical aid.

The increase of knowledge both in workers, and general public will be promoted also by preparation and publication of popular scientific-methodical and visually evident materials.

Certain work on public awareness raising in concern of potential risk, health and safety challenges relevant to

chemicals and wastes, in particular with POPs, is carried out by NGOs, which have active participation in discussions and decision making of POPs problems in Armenia.

However, it is necessary to allocate questions of chemicals and wastes management, in particular, POPs management, in a separate nation-wide problem of inter-sectoral, interdepartmental character.

Raising POPs problem this way, would undoubtedly promote attraction/ enhancement of attention of the Government to the given problem.

Awareness raising on such challenges as POPs and POPs wastes alongside with other hazardous wastes amongst concerned Ministries, Agencies/Departments and general public at the national level would create favourable conditions for solution of questions, while the obstacles can be successfully overcome by joint efforts of the parties, involved in the given process.

References

- Republic of Armenia Law “On Waste”. Yerevan. 2004. Official Bulletin of the Republic of Armenia. No. 72 (371). December 28, 2004. P. 91-101
- NIP – 2005. National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants. Republic of Armenia. Yerevan. 2005.
- Basel Convention on the Control of transboundary Movements of Hazardous Wastes and their Disposal. Texts and Annexes. 1989. 117p.
- Stockholm Convention on Persistent Organic Pollutants (POPs) as amended in 2009. Text and Annexes. Published by the Secretariat of the Stockholm Convention on Persistent Organic Pollutants in August 2010. 63p.
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Texts and Annexes (revised in 2015). 48p.
- NIP – 2017. National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants. Republic of Armenia. Yerevan. 2017.