



## **COUNTRY REPORT**

Legal and Technical Assessment  
of the Management of Obsolete  
Pesticides

**Republic of Armenia**



Food and Agriculture Organisation  
of the United Nations



International HCH & Pesticides Association



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# Country Report

Legal and technical assessment of the management of  
obsolete pesticides Republic of Armenia

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The European Union and the Food and Agriculture Organization of the United Nations (FAO) have invested € 7 million to assist countries in Central Asia and Eastern Europe to foster an environment of cooperation and capacity development to eliminate the risks from obsolete pesticides and Persistent Organic Pollutants (POPs) and to develop a more sustainable agriculture in the future. This report was prepared by the International HCH and Pesticides Association (IHPA) under a contract from FAO to assess the need for, and legal and technical capacity for, the sound management of hazardous waste in the country and to develop a “road map” for achieving self-sufficiency in sound hazardous waste management in the region.

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## Data, Annexes and Working Document

**All original data and Annexes are available in a separate document: 'Working Document, Legal and Technical Assessment of the Management of Obsolete Pesticides, Republic of Armenia'.**

Annexes:

Annex 1: Terms of Reference for IHPA for Coordination of a Disposal Study for Obsolete Pesticides in the Former Soviet Union

The Working Document can be found in the library of IHPA at <http://www.ihpa.info/resources/library>



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# List of acronyms

ADR	International Carriage of Dangerous Goods by Road	PRTR	Pollutant Release and Transfer Register
BAT	Best Available Techniques	PSMS	Pesticide Stock Management System (FAO)
BEP	Best Available Practices	RA	Republic of Armenia
CIS	Commonwealth of Independent States	RID	International Transport of Dangerous Goods by Rail (original: Reglement concernant le transport international ferroviaire des Marchandises Dangereuses)
CMR	Conditions for the international carriage of goods by road. (original: Convention relative au contrat de transport international de Marchandises par route	SNCO	State Non-Commercial Organization
DDT	Dichlorodiphenyltrichloroethane	SAICM	Strategic Approach to International Chemicals Management
DOT	US Department of Transport (DOT) classification of dangerous material	TBD	To be determined
EA	Environmental Assessment	TEQ	Toxic Equivalent
EC	European Commission	UNDP	United Nations Development Programme
EEC	European Economic Community	UNEP	United Nations Environment Programme
EECCA	Eastern Europe, Caucasus and Central Asia	UNITAR	United Nations Institute for Training and Research
EIA	Environmental Impact Assessment	USSR	Union of Soviet Socialist Republics
EMP	Environmental Management Plans	WB	World Bank
EMTK	Environmental Management Tool Kit for Obsolete Pesticides (FAO)	WM	Waste Management
EU	European Union	WTO	World Trade Organisation
FAO	Food and Agriculture Organization of the United Nations		
GDP	Gross Domestic Product		
GEF	Global Environment Facility		
GHS	Globally Harmonized System of Classification and Labelling of Chemicals		
GOA	Government of Armenia		
HCB	Hexachlorobenzene		
IATA	International Air Transport Association		
IMDG	International Maritime Dangerous Goods Code		
LOW	Law of Waste		
MAC	maximum allowable concentration		
MinNP	Ministry of Nature Protection (in Part I)		
MoNP	Ministry of Nature Protection (in Part II)		
Mln	Million		
MT	Metric tonne (equal to 1000 kilogram. Also called tonne)		
N/A	Not Applicable		
NFP	National Focal Point		
NGO	Non-Governmental Organization		
NIP	National Implementation Plan		
OP	Obsolete pesticides		
OSCE	Organization for Security and Co-operation in Europe		
PCB	Polychlorinated biphenyl		
PDF-B	Project Development Facility (GEF)		
POP	Persistent Organic Pollutant		





# Introduction

Within the EC / FAO project GCP/RER/040/EC “Improving capacities to eliminate and prevent recurrence of obsolete pesticides as a model for tackling unused hazardous chemicals in the Former Soviet Union” the International HCH & Pesticides Association (IHPA) has been tasked to develop capacity for management of hazardous wastes through the example of OPs and POPs pesticides. There is an estimated 200,000 tonnes of these materials known to be affecting the countries of the Former Soviet Union. Much of the previous work on disposal of waste from the countries has looked to export thousands of tonnes of pesticide stockpiles to high temperature incinerators operated commercially in EC member states. Whilst this strategy meets all international environmental compliance requirements it is prohibitively expensive. The vast distances involved for transport of waste from Central Asian Countries to facilities in Europe makes the option of finding a local solution appealing based on both risk management and cost considerations. Moreover, the huge volumes of hazardous waste generated in the region increases the need for local destruction hazardous waste capacity. Based on the national Legal and Technical assessment reports of the management of OPs that were produced in 2014, the “Road Map to Establishing Environmental Sound Management of POPs Pesticides and other Hazardous Waste in the EECCA region”, was published at the end of 2015.



## **The Disposal Study involved (see Terms of Reference in Annex 1 of the Working document) the following activities:**

- Review of existing policy framework for the management and elimination (including inventory, assessment and transport) of POPs and OPs in line with the requirements of the respective EU Directives/ Stockholm Convention;
- Conduct benchmarking of current POPs management (including (temporary) storage and destruction) against international best practice on BAT/BEP as set out by the Basel / Stockholm Convention working groups; highlight and describe best ongoing practices in the country;
- Review of existing and planned treatment options for POPs pesticides, OPs and related hazardous wastes, contaminated containers and contaminated land;
- Assess potential treatment facilities such as existing modern cement kilns, as well as planned and/or implemented pilot plant investigations which can develop in the next years to important market players;
- Assess the Russian-Belarus-Kazakhstan customs union and its implications for hazardous waste in and through Russia, including an assessment of 1) experiences over the last years practical implementation and of 2) alternative transport routes from the republics avoiding Russian territory. This was completed with due reference to the requirements of the Basel Convention;
- Assess access (by road, train or water) to treatment options and economics of transport of waste across the region to treatment facilities/alternative storage facilities; and,
- Review existing POPs data (OPs and PCBs) as far as available, and make efforts to collect, if possible, total hazardous waste stream data as set out in national profiles such as the UNITAR chemicals profile. This was collated for the country in order to assess the potential need for future investment per country/region. Provide estimates of the scale of investments (in terms of tonnes of POPs for disposal) and a rough estimation of their national distribution, tonnes of other OPs, distribution and quantities of contaminated land and contaminated containers;
- Assess status of recycling options for empty containers or already planned or ongoing programs and initiatives;
- Prepare country summary sheets on findings and identify the gaps in information;
- Compile report of study findings, including recommendations for filling the information gaps.

#### Expected Outputs based on the Terms of Reference:

- i. Summary report of existing policy framework for the elimination and management of POPs and OPs (12);
- ii. Analysis of barriers (technical, legal, economic) to the development of national and regional waste management capacity;
- iii. Report on opportunities for introduction of new technologies (thermal and non-thermal) e.g specific stockpiles (DDT and HCH waste);
- iv. Summary report of existing and potential treatment facilities, pilot plant facilities and empty container recycling facilities/initiatives (12 countries);
- v. Report on POPs waste in relation to total hazardous waste market and approaches for Investment plan for POPs destruction for the region;
- vi. Presentation of the draft report to the SC meeting in February 2015, finalization of the report incorporating received comments.



#### Part I of the study on the assessment of the legal framework for pesticides waste management is structured into five main sections:

##### I. General background information (Participation in international treaties)

The introduction includes general information about international cooperation and the state's participation in international treaties in the waste management field. The purpose of this section is to identify and clarify the state's position in the field of waste management at an international level.

##### II. Regulatory framework on waste management

The first chapter is about the political and legal framework that determines the policies or strategies at the national/federal level aimed at the prevention of waste generation and minimization of risks associated with wastes. Also this section provides a general overview of all national laws and regulations that govern hazardous waste management.

The second chapter on specific laws and regulations that govern waste management is focused on the determination of all laws regarding waste management across different sectors such as: import/export, landfill of waste, incineration, shipment of waste and general waste management.

The third chapter on "Institution(s) involved in waste management (focus on pesticides)" studies the relevant institutions that are involved in waste management, and their obligations and responsibilities, in order to identify the competent organizations that are responsible for waste management planning.

##### III. Analysis of existing national waste management legislation

This section is dedicated to an analysis of existing national waste management legislation that reflects the legal framework regarding the different activities of waste management such as:

- Register of pesticides waste and general classification of waste
- Licensing
- Trans-boundary movement, import/export rules
- Economic initiatives regarding transport
- Labelling requirements
- Packaging and containers
- Emergency procedures
- Disposal obligations
- Incineration
- Recording, monitoring, and reporting
- Offences and penalties
- Official controls and inspection
- Research and development

##### IV. Information supplementing legal analyses – from other experts includes three main topics:

- Pesticides manufacturing industry
- Management of OP Stocks – legal provisions regarding the conditions/methods for inventory/storage/disposal activities related to obsolete stocks.
- Methods used for treatment of pesticides wastes





**V. Disposal, storage recycling and recovering facilities**  
– practical information from other experts is composed of four topics:

- Disposal facilities
- Storage facilities
- Recycling facilities
- Recovery facilities

This section aims to identify the legal norms that apply to any disposal/storage/recycling/recovery facilities of pesticides waste.

**Part II of the study, the national technical assessment (waste management report)**

We realized that in order to fulfil the specific conditions on capacity building and benchmarking in each country, as specified in the terms of reference, an adequate analysis of the whole cycle on how to deal with OPs was required. This applies from the very beginning of the process, including who is responsible and who is involved in every step from finding the OPs to the final step of complete elimination. Having carefully worked this out, it was then necessary to design a clear and standardized structure that all national waste management consultants could simply follow in order to assess each step. It was also important to allow comparison between the assessments of each country and therefore it was decided to develop a standardized template for each report using a tabular format. For clarity and brevity the entries have been made as concise as possible.

The report has been built up in four main sections containing a large number of individual items that have been assessed, these being:

**1. Benchmarking of current POPs management against international best practice**

This section includes detailed information on each step of all actions necessary for elimination of OPs and POPs pesticides:

1. **Institutional arrangements** that include the responsibilities of the concerned organisations in the country.
2. **Inventory** with all national/regional inventory updates, data sources and existing inventories, first National Implementation Plan (NIP), recent NIP update

(specifically on new POPs), UNITAR Chemicals Profile, if existing, National Pesticides and/or POPs Inventory, FAO PSMS Inventory and other information.

3. **Environmental Assessment** consistent with national requirements, and also with International experience often implemented by the UN and other agencies. This includes the capacity of the government and private sector to develop such an Environmental Assessment, as well as the FAO stages in Environmental Assessment (EA) and Environmental Management Plans (EMP) experiences from the FAO Toolkit EMTK v 3.
4. **Inventory and Environmental Assessment Management** including vital questions on the inventory and the assessment, and if the organisational capacity is in place to complete the task. For example if the relevant organisation is in place and also operational, and if so whether all managers and coordinators are in place and operational, as well as if all field teams are established and operational. Also if all Inventory data management people are in place and operational, whether the National/Regional Inventory is being updated or not, a National Pesticides and/or POPs Inventory has been established, and if a contaminated sites register exists or not.
5. **Safeguarding:** defining what has been implemented at national and international level such as under the FAO projects.
6. **Storage and transport** includes all items on packaging, containerization, storage and transportation with assessment of transport regulations, driver regulations, existence of storage regulations and available storage capacity, and Incident and accident reporting.
7. **Disposal**, assessing the national, international and FAO experience to date, including reporting on the technologies that have been selected, the process on transboundary transport under the Basel Convention and the national transport within the country, disposal capacities in the country, quality and standards applied (national/international), and current ownership of facilities.
8. **Containers** assessing the national and international experience, the FAO supported plans, amounts and type of empty containers and/or packaging materials, and the use of collection centres for empty containers.

## 2. General overview of POPs and other hazardous waste data

This section has been set up around the following six categories:

- A. Agricultural chemical waste that includes OP waste, POPs pesticides waste and new pesticides waste such as counterfeit pesticides, waste empty containers, and contaminated sites. These contaminated sites consist of burial sites or polygons (landfills) which often contain huge volumes of waste, storage sites, and sites which are still in use;
- B. Industrial chemicals,
- C. By-products,
- D. Petroleum wastes,
- E. Inorganic wastes,
- F. Health care high risk waste.

This effectively means the majority of hazardous waste has been listed. It has also to be mentioned that many of the required data are either preliminary or missing as many countries are in a first stage of such an assessment. Often quantities are listed but not verified in the field. The data also change rapidly as new inventory and assessment activities such as the current NIP updates are planned, so the data can be seen as a “snapshots” of the situation and are likely to be updated again in the near future.

## 3. Existing and planned treatment options for POPs pesticides, OPs and related hazardous wastes, and contaminated land

This section assesses existing and potential destruction plants, planned facilities and planned and/or implemented pilot plants, as well as existing and/or planned empty container (plastic and/or steel) recycling facilities or initiatives in the country. Data that need to be entered are: type of plant or technology, address/location, contact person (name/contact details) and a brief summary of the technical data, with treatment capacity, types hazardous waste permitted for treatment, permit information, and date of permit. However, it should be noted that there are only a very few plants available in most of the countries.

## 4. Transportation logistics

This section includes five main issues:

- 1. The assessment of various transport alternatives from main stockpile locations to the existing and or planned treatment facilities including cost estimates;
- 2. Assessment of possible storage networks: waste transfer stations e.g. at main railway stations or at existing landfills (polygons) or waste handling stations;
- 3. Assessment of transport capacity;
- 4. Reference to the requirements of the Basel Convention and previous experience of international export Implications of custom facilities; and
- 5. A brief description of the cases that should be reported.

Due to its clearly defined structure the report is very easy to update periodically, for the use of the national authorities and donors that are interested to support further actions on the elimination of OPs and POPs in the future.

The main report is available in both English and Russian, and all country reports will be accessible in the library of IHPA at <http://www.ihpa.info/resources/library/>

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# Summary

## for the Republic of Armenia

It should be noted that the conclusions and recommendations in this report have been made on the basis of the information available in 2014. Additionally, this legal and technical assessment of the management of OPs report was followed by a second report: “Road Map for the Development of Hazardous Waste Management in the EECCA Countries”. During the work on the last report the country’s conclusions and recommendations have been intensively discussed with the national authorities and national consultant, leading to final summaries of legal and waste management issues, which are then specifically addressed for each country in the Road Map report.



### Part I. The assessment of the legal framework for pesticides waste management in the Republic of Armenia

#### Major Findings

The Republic of Armenia adheres to the three International treaties directly related to the waste management: The Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants. However, these international treaties cannot be implemented directly and the national legal framework has to be adjusted for the proper translation to and introduction in the Republic of Armenia.

In Armenia, there is no specific law on hazardous waste management. General provisions on waste management, including hazardous waste management are provided in the Armenian Law on Wastes. Also relevant to mention is the Law on Refuse Collection and Sanitary Cleaning which regulates management of the collection of household waste and sanitary cleaning. However, the Law on Refuse Collection and Sanitary Cleaning is only applicable on hazardous waste for situations specifically mentioned in this law.

Actually, there are legal definitions for the term “waste” or “refuse” and those terms reflect the scope of the waste envisaged by the International agreements or the Law on Wastes. In the meantime, there are also legal acts that regulate waste management aspects without any reference to the terms “waste” or “refuse”. In addition, pesticides are included in the list of hazardous waste in Armenia.

There is a lack of specially designed facilities for domestic waste disposal, which meet the sanitary-hygiene requirements. Industrial and domestic waste is not collected separately. Practically all types of waste are transported to and disposed at the same urban and rural landfills without any pre-treatment and/or sorting. Another pressing issue is the environmentally sound disposal of expired medical and obsolete POPs chemicals (such as oils contaminated with PCB) and pesticides and medical waste

In conclusion, the general provisions on hazardous waste management and pesticides are found in the Armenian Constitution, the International treaties, the Law on Wastes and (sub-normative) legal acts.

There are several Institutions involved in waste management in the Republic of Armenia, such as:

1. Ministry of Nature Protection of the Republic of Armenia, as the state authorized body within waste management domain. According to the Charter of the Ministry of Nature Protection (adopted by Government Decree 1237-N, dated on 08.06.2002) there is a division on Hazardous waste and substances policy as well as there is separate structural body that is called “Agency on management of waste and atmospheric emissions.”
2. Ministry of Health
3. State Statistic Union





## Part II. Technical assessment of the management of OPs and POPs waste and soil contamination in Armenia

- **Identify the gaps in information (for all 5 sections)**

Armenia has a very successful Freedom of Information law. However there are many gaps in the implementation of the legislation such as among others the sort of information the public authority has on hazardous materials and waste management and how to make easy access to such information; for example a register for hazardous waste, which is available for the public; information on hazardous materials and waste impact on human health; a national database on emissions of releases such as the Pollutant Release and Transfer Register (PRTR); availability of electronic version of the NIP in Armenian language; the availability of a website in national language with all information about hazardous wastes and obsolete pesticides.

There is a lack of public awareness and a low level of public participation in this area.

- **Analysis of barriers (technical, economic) to the development of national and regional waste management capacity**

There is a lack of relevant economic mechanisms, to encourage the destruction of expired chemicals by private companies. Open burning for solid municipal waste and synthetic waste is still taking place at a large scale and there is little or no enforcement of the legislation taking place on this.

- **Analysis of opportunities (technical, economic) to the development of national and regional waste management capacity**

The problem of POPs pesticides is restricted to the Nubarashen landfill, with a considerable quantity of contaminated soils and POPs pesticides waste, and a limited number of stores with a relative small quantity of POPs pesticides. A concerted action of UNDP via de GEF grant and EC funding could create a substantial progress in the elimination of the all the POPs pesticides in the country and create an excellent opportunity for Armenia and for the donor community to achieve the first country in the EECCA region to be freed of POPs pesticides in a relatively short period from now on and set an example to be followed in the region. Then use this example to increase further public awareness in Armenia but also in the EECCA region.

- **Other findings that need to be addressed**

The main principles and directions of the state policy in the field of waste management are defined for alternative use and reuse of wastes, referred to as a means of reducing risks (The Law about the Waste RA, Article 6, subarticle 2, paragraphs 3 and 4). However there are no corresponding mechanisms for the implementation. For example, in 2006 with the support of the OSCE, highly explosive missile fuel has been neutralized and turned into fertilizer. <http://www.osce.org/yerevan/48893>



# Suggestions and recommendations for future activities

Based on the findings listed above, the main recommendation for the Republic of Armenia is a full revision and extension of the national legal framework, resulting in the definition of additional legislation regarding hazardous and pesticides wastes and in the provisions for proper implementation of international treaties of Basel, Rotterdam and Stockholm Conventions.

In parallel the following activities are recommended:

- Improve proper regular field assessments of presently arising, but also recycled and treated hazardous waste streams in order to get national overviews for their future environmental sound management and plan and built up of the necessary national capacity
- Start separate collection and install temporary storage facilities for certain types of (hazardous) waste that will require anyhow specific treatment in the future, such as medical waste, obsolete POPs chemicals (such as oils contaminated with PCB) and pesticides. These actions will provide important information on the future volumes of these hazardous wastes to be treated.

Regarding the revision and extension of the legal framework of the Republic of Armenia, special attention should be given to:

- The definition of hazardous waste
- To define and develop principles, activities and objectives for the prevention, reduction and recycling of (hazardous) wastes according to principles of environmentally sound waste management.
- The transboundary transport of hazardous waste in line with the regulations of the Basel Convention. That legal act should regulate all features and steps on permission issuing for or rejection of import/export of hazardous wastes.
- Define the legal provisions for licensing of all activities throughout the waste chain as production, handling, transportation, (re-)processing, storage and disposal.
- Develop the criteria and conditions for environmentally sound waste destruction methods and technologies in the country.
- Improve the level of information regarding waste production and waste management to waste producers, the general public, waste management sector, neighbouring countries, international organizations. Include in this redesign of information management the proper implementation of the Rotterdam Convention.

In order to accomplish these activities, the Republic of Armenia will need external technical and financial support and the transfer of international experiences and proper process management must be ensured.

Regarding the progress under Stockholm convention, the following specific recommendations can be made:

- Provide on the short term an update of the NIP (dating from 2005) and use this update for a public awareness campaign and create permanent platforms and structures accessible for the public. For the future this communication structure can be used for other POPs and new POPs as a model for other hazardous waste issues at country level.
- Elimination abroad of the main volumes of POP pesticides present at the landfill of Nubarashen and the other storages. Use the solution of the Nubarashen landfill as a national demonstration project how to deal with future POPs projects and provide lessons learned to the involved organisations and the public.

At Nubarashen a large part of the waste quantities consists of with POPs pesticides contaminated soils. It is recommended to develop the necessary soil remediation capacity in Armenia in order to save high transportation costs and to assure such remediation capacities for future treatment of soils coming from other contaminations in the country. International technology exchange and transfer to Armenian organizations to build up this national capacity will be an important point

- Increase international cooperation and donor engagement, taking as reference the positive experiences with the donor group established by the Ministry of Foreign Affairs in 2010 during the preparation of the tender of the Feasibility Study for Nubarashen led by OSCE.
- Elimination of PCB contaminated oils and equipment, of hazardous industrial wastes.
- Reduction and elimination of risks and remediation of contaminated sites/land.
- Management of empty POP pesticides containers in cooperation with producers and distributors.



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