UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project of the Governments of Armenia

PROJECT DOCUMENT

Project number:	GF/ARM/08/XXX
GEFSEC ID:	3571
Project title:	Technical assistance for environmentally sustainable management of PCBs and other POPs waste in the Republic of Armenia
Thematic area code	EAE
Starting date:	January 2009
Duration:	2 years
Project site:	Yerevan, Armenia
Government	Ministry of Nature Protection of the Republic of Armenia
Co-ordinating agency:	
Counterpart/Executing agency:	Department of Hazardous Chemicals and Waste Management, Ministry of Nature Protection of the Republic of Armenia
Cooperating agency:	"Waste Research Center" State Non-commercial Organization at the Ministry of Nature Protection of the Republic of Armenia
Project Inputs:	
- UNIDO inputs:	US$ 45,000 (in-kind)
- Counterpart inputs:	
- GEF	US$ 805,000 (excluding PPG funding of $ 25,000)
- Government of Armenia and other donors	US$ 1,803,460 (excluding PPG co-funding of $ 50,000)
GRAND TOTAL:	**US$ 2,653,460 (excluding support costs and PPG)**
Support costs (10%):	US$ 83,000
Breakdown of Counterpart / Donors inputs:	
- Government Contribution	US$ 135,000 (cash) and US$ 155,000 (in-kind)
- Waste Research Centre	US$ 10,000 (cash) and US$ 50,000 (in-kind)
- GEF Agency (UNIDO)	US$ 45,000 (in-kind)
- Government of Switzerland	US$ 200,000 (grant)
- UNITAR	US$ 50,000 (grant) and US$ 50,000 (in-kind)
- EU/Armenia	US$ 398,460 (direct budgetary support)
- NATO	US$ 325,000 (grant)
- SAICM	US$ 300,000 (grant)
- Private Sector	US$ 100,000 (cash)
- Local NGOs	US$ 30,000 (in-kind)

Brief description:

The proposed project will provide a detailed analysis of Armenia's institutional as well as technical capacity to ensure the environmentally sound management (ESM) of polychlorinated biphenyls (PCBs) and other persistent organic pollutants (POPs) wastes as required under the Stockholm Convention on POPs. Based on this analysis, the proposed project seeks to develop strategies to overcome the identified gaps and shortcomings. This includes capacity building and the provision of technical assistance in the area of ESM of POPs (PCBs and obsolete pesticides) through training and information campaigns.

The proposed project also aims at assisting the country to develop and implement legislation on the ESM of PCBs. If enforced, this will enable Armenia to more effectively meet its obligations under the Stockholm Convention to phase-out the use of PCBs-containing equipment and disposal of PCB-wastes. The improvement of the legal basis for chemicals management, including POPs will generally support the fulfillment of global agreements, specifically the Stockholm, Rotterdam and Basel Conventions as well as SAICM. The development and adoption of a number of legislative documents for sound management of POPs chemicals and wastes, including working-out normative acts for development and establishment of the Register on POPs and POPs-containing wastes (obsolete pesticides and PCBs), as well as the establishment of the Central Analytical Laboratory on POPs to ensure analyses and control on the environment, will facilitate the achievement of the project objective. In terms of national infrastructure for the ESM of PCBs, the proposed project will identify suitable interim storage sites for PCB-containing waste, with the aim of minimizing the adverse effects of releases of PCBs to human and the environment. In this regards, the feasibility studies for the disposal of POPs wastes (PCBs and obsolete pesticides) should be carried out, as well as affordable best available techniques (BAT) and best environmental practices (BEP) options for Armenia will be formulated and finalized with relevant institutions and stakeholders.

With the implementation of the proposed project, Armenia will be able to significantly reduce the use and releases of PCBs and POPs pesticides. This in turn will help to reduce the global availability of these substances, thus reducing their negative impact to human health and the environment on a global scale. The project will hence contribute to global efforts to control POPs chemicals. It will also indirectly contribute to the objectives of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and the Rotterdam Convention on the Prior Informed Consent Procedures for Certain Hazardous Chemicals.

Approved:	**Signature:**	**Date:**	**Name and title:**
On behalf of **the Government of Armenia**	_____	_____	_____
On behalf of **UNIDO:**	_____	_____	_____

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LIST OF ABBREVIATIONS

APR	Annual Project Report
AWP	Annual Work Plan
BAT	Best available techniques
BEP	Best environmental practices
COP	Conference of the Parties
DDT	1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane
EIA	Environmental Impact Assessment
EPAC	Environmental Protection Advocacy Center
ESM	Environmentally Sound Management
GEF	Global Environment Facility
GC-ECD	Gas chromatography with electron capture detection
GC-MS	Gas chromatography/mass spectrometry
GLP	Good Laboratory Practice
HCB	Hexachlorobenzene
HPP	Hydro Power Plant
IA	Implementing Agency
IR	Inception Report
IS	Information System
IW	Inception Workshop
M&E	Monitoring and Evaluation
MOA	Ministry of Agriculture
MOE	Ministry of Economy
MOENR	Ministry of Energy and Natural Resources
MOF	Ministry of Finance
MOH	Ministry of Health
MNP	Ministry of Nature Protection
MSP	Medium-size project
NATO	North Atlantic Treaty Organization
NCG	National Coordination Group
NEA	National Executing Agency
NGO	Non-Governmental Organization
NIP	National Implementation Plan
NPC	National Project Coordinator
OFP	Operational Focal Point
PCBs	Polychlorinated biphenyls
PIR	Project Implementation Review
PMT	Project Management Team
POPs	Persistent organic pollutants
PPG	Project Preparation Grant
PR	Public Relations
PSC	Project Steering Committee
PPER	Project Performance and Evaluation Review
PRTR	Pollutant release and transfer register
PTR	Project Terminal Report
R&D	Research & Development

SAICM	Strategic Approach to International Chemicals Management
SAEFL	Swiss Agency for Environment, Forests and Landscape
SBC	Secretariat of Basel Convention
TOR	Terms of Reference
TR	Terminal review
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
UP-POPs	Unintentionally produced POPs
USSR	The Union of Soviet Socialist Republics

SECTION A. CONTEXT

A.1 CONTEXT/HISTORY

1. Persistent organic pollutants (POPs) possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water and migratory species, across international boundaries and deposited far from their place of release, where they accumulate in terrestrial and aquatic ecosystems. With years of emissions before their environmental risk became known, POPs have already become an international environmental problem that human kind must face.

2. The Armenian government attaches great importance to environmental protection and has adopted an array of measures to strengthen environmental protection. The Republic of Armenia signed and ratified a number of international environmental Conventions and Agreements, for which the Ministry of Nature Protection (MNP) is the national focal point (see Annex 6) and has been active in performing the obligations stipulated in these Conventions, including the Stockholm Convention on POPs. On 22 October 2003 the Government of the Republic of Armenia ratified the Stockholm Convention and proceeded to fulfill the country's obligations/commitments under the convention. One of such obligations is the preparation of the National Implementation Plan (NIP) for 2005-2010, which has been approved and endorsed by the Government of the Republic of Armenia on 13 January 2005.

3. The NIP strictly follows the "Interim Guidance for Developing a National Implementation Plan for the Stockholm Convention and the requirements of the Convention's NIP-related articles". Based on extensive investigations and consultations, the NIP has developed a series of activities, strategies and action plans to be carried out during the 5 year period for Armenia to implement.

4. NIP development and the project brief preparation have enabled POPs-related ministries to understand better Armenia's POPs situation, identify gaps for Convention implementation and develop strategies and action plans to address these gaps and implement the Convention. A consensus view has been developed to carry out a nationwide capacity building in order to more effectively organize and implement measures for POPs reduction and elimination, including study and formulation of the related policies and legislation, strengthening of related institutions, development and transfer of technologies for POPs reduction, disposal and substitution, study and application of the financing mechanism, and enhancement of public participation and awareness. These capacity building activities are consistent with the priorities set in the NIP and with the strategic objectives established by GEF4, and are essential to ensure the smooth implementation of the NIP in Armenia.

5. In the past, Armenia was characterized as a country with developed industry and agriculture. Amongst different industrial branches, the leading part belong to machine-building industry, ferrous and non-ferrous metal processing, chemical, and petrochemical industry, ferrous and non-ferrous metallurgy, as well as industry of building materials. They functioned as major enterprises on production of calcium carbide, hydrate of sodium, chlorine, hydrochloric acid, sulfuric and nitric acids, chloroprene rubber and latexes, nitrous fertilizers, glass, chemical fiber and plastics and many of them were sources of PCDD/PCDF releases.

6. Energy sector, which is nowadays amongst the leading sector in the Republic of Armenia and is one of the main sources of environmental pollution by POPs, in particular such substances as polychlorinated biphenyls (PCBs) in the content of mineral oils used in different types of electric equipment (power transformers, turbines, electric valves, switch keys and closing switches of high voltages, automatic volume compressors, etc.).

7. However, aside from the energy sector, oils are widely used in different branches of industry and in household appliances (lifting gears, transformers, compressors of different types, etc.). According to the inventory carried out at different industrial entities and facilities of energy sector in operation/service, there are about 18,000 tons of PCB-containing oils. PCB oil-containing equipment is also one of the leading sources of POPs releases to the environment.

Therefore, the problem of PCB-containing oils and equipment replacement, as well as disposal/elimination thereof is of importance and urgency for Armenia

8. Armenia has a developed agricultural production and was amongst the country in the region with intense pesticide application. Summary area load of pesticides averaged 9-35.5 kg/ha, exceeding many-fold the average All-Union levels of pesticide application. Likewise, organochlorine pesticides from all the Republics of the former USSR, were widely applied in Armenia until the prohibition thereof in 1980s. As a result, there emerged the problem of areas contaminated by organochlorine pesticides (agricultural lands, former pesticide storehouses, pesticide burial, dump sites, etc.), to this latter signify data of the analyses performed in different environmental media.

9. The state of the environment significantly affects the health status, life conditions and safety/ security of different groups of population. A greater part of the population in Armenia is actively engaged or directly dependant on agricultural activity, in the process of which the population is exposed to pesticide impact, including the effect of obsolete pesticides, pesticides inappropriate for use or prohibited ones. Contamination of agricultural lands and food-stuffs by pesticide residues poses threat for the environment and human health. Therefore, the issues on management of persistent organic pesticides should not be considered as problems of exceptionally ecological significance.

10. During the preliminary inventory of PCB-containing oils and equipment existing in Armenia, the following activities were carried out:

- identification of the types of equipment exploited in energy complex and other fields of national economy (asphalt plants, boiler departments, medium and small-sized industrial complexes, etc.), which can be filled with PCB oils;
- inventory of the identified types of equipment with indication of the trademark/brands and production date;
- more precise specification and verification of types and quantities of oils contained in exploited equipment of the energy complex and other spheres of national economy, as well as evaluation and inventory thereof;
- accounting/registration, evaluation and inventory of oils intended for recharge/re-filling in the equipment;
- accounting/registration, evaluation and inventory of mineral oils, which are subject to destruction.

11. According to the preliminary inventory carried out in the energy sector of the Republic of Armenia, there are about 17,000 tons of oils, which are filled in currently functioning energy power facilities of the State Distribution Power Stations (SDPS) and HPPs (power transformers, rectifiers/converters, high voltage switches and breakers, compressors, etc.). The revealed amounts of oils, which probably contain PCBs, are subject to replacement with subsequent destruction in environmentally sound manner. The table below shows the types and amount of oils in the Armenian energy sector.

Type	Amount of oil (tonnes)
T-1500 type transformer oil	16,254.5
TP-30 and TP-type turbine oil	773.9
Compressor oil	1.4
TOTAL	**17,029.8**

The average annual amounts of mineral oils required for refilling/recharges are:

– 1,278.36 tons of transformer oils;
– 151.2 tons of turbine oils;
– 3.3 tons of compressor oils.

12. Oil switchers/breakers and transformers at industrial entities, in settlements, at entities of public catering and technical service were also taken into account, as they might probably contain PCBs. In Armenia, there are 3,582 enterprises with installed transformers including:
    – 2,552 in industry;
    – 500 in inhabited settlements;
    – 352 in entities of public catering;
    – 75 in technical service; and
    – 103 in other organizations.

13. From 1965 to 1991, a large-scale exploitation of transformers took place during the Soviet period. Studies revealed that only transformers manufactured exceptionally in the former Soviet Union (mostly of Russian Federation production) were installed and exploited.

14. Besides the energy sector, mineral oils are widely used in various branches of industry and for domestic demands (lifting mechanisms, transformers, different types of compressors, etc.). According to data of the Inventory, there are about 1624 tons of oils at various industrial entities (outside the energy sector), including:
    – 1157 tons in industry;
    – 226 tons in inhabited settlements;
    – 241 tons at entities of public catering and technical service, etc.

15. The problem to replace and destruct PCB-containing oils and equipment is of high importance and urgency for Armenia. Analysis of information obtained by expert groups concerning the use and storage of the equipment and wastes, probably containing PCBs, as well as an approximate preliminary evaluation of PCB releases allowed determining the following:
    - Existing amounts of oils in the Republic of Armenia;
    - Amount of oils used in industry and energy sector;
    - Location of enterprises having equipment probably containing PCBs;
    - Distribution according to regions and indication of geographic location of phased-out PCB containing equipment, as well as PCB-containing wastes;
    - Distribution according to regions and indication of geographic location of currently used and reserve PCB-containing equipment;
    - Sites of PCB release (spillages, leakages) in the process of technology operations.

16. There was determined the content of PCBs in oils used in exploited transformers of energy sector of Armenia. The levels of PCBs in used oils varied within the range of 11.0 and 29.3 mg/L. Though the concentrations are not so high the total quantity of oil contaminated by PCBs is significant (17,000 tones) so the total PCB is also considerable. Concerning the measured concentrations in oils there were very few samples analyzed during the NIP preparation and the study protocol do not explain anything on the origin of the samples. Because of the insufficient laboratory capacity, old equipment and lack of data on samples there are doubts on reliability of this data. Based on experience, origin of the transformers, their age and the process of there maintenance it is expected to get very different numbers from the implementation of the project activities.

17. The results of studies for residual amounts of organochlorine pesticides and PCBs in environmental media (surface waters, waters of Sevan Lake and rivers feeding it), as well as in food (meat, cheese, milk) produced in different regions of Armenia signify to their contamination by POPs. In particular Lindane levels in water varied within the range of 0.02-0.38 mcg/L; DDT - 0.02-1.97 mcg/L. PCB levels in samples of food ranged 4.5 - 15.7 mcg/kg.

18. Chronic impairment to human health through exposure to POPs and other pollutants and contamination of the environment has direct implications to national and international efforts to meet sustainable development targets in human health and indirectly impacts efforts to reduce poverty and improve attainment of educational opportunities. Studies on POPs indicate that eliminating them can lead to reduction in the environmental degradation rate and in the long-term, reduce its harmful and dangerous influence on health both to the present and future generations. Such an approach has prompted the international action that resulted in the

adoption of the Stockholm Convention on POPs. The actions proposed here relate directly to POPs listed in Annex A, Parts I and II and Annex B of the Convention.

19. The rationale of the proposed MSP originated from the needs identified during the inventory process conducted in the course of the NIP preparation, priorities and key objectives established by the NIP. Priority areas identified in the NIP include:

- Reduction/elimination of POPs releases into the environment and minimizing POPs impact on human health;
- Up-dating of the National Register on POPs releases in order to facilitate implementation of the Stockholm Convention;
- Disposal/liquidation of stocks of obsolete pesticides regulated by the Stockholm Convention;
- Replacement of PCB-containing oils and their disposal/destruction in environmentally sound manner, preferably using non-combustion technologies;
- Replacement of PCB-containing equipment and its disposal/destruction in environmentally sound manner;
- Application of BAT/BEP principles as background for development of the strategy for future industrial progress;
- Collection of additional data required for evaluation/ranking of contaminated sites and carrying out remediation measures;
- Establishment of POPs Central Analytical Laboratory to perform constant monitoring programmes, analyses and ecological control aimed to solve POPs problems relevant to implementation of the Stockholm Convention;
- Working-out/development of a conception for long-term POPs monitoring aimed to facilitate implementation of the Stockholm Convention;
- Creation of National Inter-Departmental Council on implementation of the Stockholm Convention and carrying-out policy on POPs issues, raising the level of coordination in activity of different Ministries/Agencies involved in POPs-related issues, as well as for efficient information exchange;
- First-priority solution of the problem of ecologically sound destruction of POPs stocks and prevention of the possible environmental pollution and the impact to human health.

20. The proposed MSP focuses on the following:

- capacity building and strengthening of legislation and institutions;
- ESM of POPs, including identification of sites and other environmental media contaminated by PCBs and POPs pesticides;
- identification and requirements of clean-up of such sites and environmental media; selection of technologies for POPs management and disposal that meet the BAT/BEP requirements of the Stockholm Convention;
- enforcement of ban of DDT use (illegal import of DDT);information exchange and stakeholder involvement and public awareness; and information and education; and
- given the different focus of the study in terms of POPs chemicals and environmental matrices covered, Armenia yet has to build capacity for the monitoring of POPs and POPs releases from industrial and agricultural sources, which will be a priority for the implementation of the proposed project.

21. In May 2001, the Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted with the aim of protecting human health and the environment from POPs. The GEF became the principal financial mechanism by the decision of the Conference of Parties (COP). In October 2002, the GEF Assembly approved the addition of POPs as a new GEF focal area, and in November 2003, the GEF Council approved a GEF Operational Program on POPs – OP 14.

22. Article 13.2 of the Convention provides that developing countries Parties and Parties with economies in transition will have access to new and additional financial resources to enable them to meet the agreed full incremental costs of implementing measures that fulfill their

Convention obligations. Therefore, insofar as a Party is obliged to require best available techniques under the well-defined circumstances specified in the Convention, the Party should receive access to the agreed full incremental costs of implementing this obligation.

23. Article 6 of the Stockholm Convention addresses measures that Parties shall take measures to reduce releases of POPs chemicals listed in Annexes A and B with the goal of their continuing minimization and, where feasible, ultimate elimination.

24. The implementation of the Stockholm Convention in Armenia has been planned and is progressing in close coordination with the national strategies on development and environment. More specifically, and in the context of the environment, Armenia has made significant progress in development of the following strategy concepts:

- National Environmental Action Plan 2009 - 2012 (expected to be approved by the Government by the end of this year).

- Programme “Updating a National Chemicals Management Profile, Development of a National SAICM Capacity Assessment in Armenia” under SAICM/UNITAR - the revision of the National Profile is done and appropriate data for the period of 2003-2008 is added.

- Priority setting Governmental Action Plan - includes issues related to sound management of PCB containing wastes.

A.2 Problem statement (a preliminary gap analysis)

25. During the preparation of the NIP, analysis has been made on the gaps between Convention requirements and the present situation. This gap analysis has shown that in order to meet Convention requirements, strengthened capacity is necessary in a range of areas such as:

- institutional capacity in technical support institutions;
- legislation, regulation, implementation, and enforcement capacities;
- research, development and dissemination of technical capability for alternatives technologies;
- supervision and management of labeling, transportation, storage and disposal of in-use power equipment containing PCBs;
- supervision and management in identification, labeling, transportation, storage and disposal of end-of-life power equipment containing PCBs;
- supervision and management of POPs specific exemptions and acceptable purposes;
- capacities in reducing unintentionally produced chemicals release;
- capacities in POPs stockpiles and wastes identification, management, and disposal;
- capacities in identifying and remediation contaminated sites;
- administration capacities of local governments;
- capacities in information exchange, public information, awareness raising, and education; and
- capacity for effectiveness evaluation and compilation of Convention implementation report.

26. Chapter 3.4 of the NIP “Development and Capacity-building Proposals and Priorities” further identifies the need for:

i. Establishment of the National Inter-Agency (Inter-ministerial) Council in order:
   - to implement the Stockholm Convention obligations and policies concerning POPs in general,
   - to evaluate the environmental measures regarding national legislation in a given field,

- to apply practices of accepting the basic political and economic measures by consulting with experts in the given field,
- to evaluate projects relevant to the POPs issues,
- to coordinate the activities performed by different ministries/departments involved in POPs issues and effective information exchange.

ii. Establishment of Central Analytical Laboratory on POPs for carrying out permanent monitoring programmes, analyses and environment control with the goal of realizing tasks associated with the implementation of the Stockholm Convention. (Newly equipped accredited laboratory will be established within the framework of the NATO supported project "*Inventory, monitoring and analysis of PCBs, obsolete pesticides in Armenia for environmentally sound disposal*").

iii. Arrangement and holding of trainings and workshops for different target groups on POPs issues.

iv. Ensure sufficient technological capacity for the replacement of PCB containing oils and equipment.

27. During the project preparation phase, several gaps have been identified for the project to address to ensure its successful implementation and achievement of project objectives. These include:
    - Lack of an enabling policy and regulatory environment;
    - Lack of mechanisms for sustainable raising of co-financing;
    - Weak monitoring capacity for POPs;
    - Lack of an effective mechanism for orienting R&D towards Convention implementation;
    - Lack of an effective mechanism for technology transfer;
    - Unavailability of and limited access to information;
    - Weak institutional capacity for planning, guiding and enforcement for the Convention compliance;
    - Under capacity in evaluation for continuous improvement of NIP implementation;
    - Low public awareness on POPs; and
    - Lack of qualified human resources.

28. Some of the above barriers may be partially addressed by thematic projects within their scope. However, due to the cross-cutting nature of these barriers and the limited scope of thematic projects, this will not be sufficient to completely eliminate all of them. The proposed project will allow an efficient use of GEF resources by allowing capacity building activities to be implemented in a cost-effective manner, e.g., where stakeholders are affected by multiple POPs areas, a training program could be designed and delivered to address those areas simultaneously, rather than conducting separate training programs for each thematic area as would otherwise be the case. Similarly, one POPs center can be established spanning multiple sectors, given the functional overlap and obviating the need for separate centers in different sectors for each thematic area. Without this project, mechanisms to allow such coordinated and cost-effective use of the GEF's limited resources for Convention implementation would not be established and innovative practices to achieve the NIP objectives would not be possible.

Lack of an enabling policy and regulatory environment

29. The NIP has identified the existing policy and regulations regarding the production, use, import and export, environmental monitoring, and ingestible standards for pesticide POPs, PCBs, DDT, UP-POPs, stockpiles, wastes and contaminated sites. Findings show that there are no specific policies or regulations regarding POPs management. Instead, stipulations related to POPs management are dispersed throughout different laws and regulations that are hard to coordinate where some current regulations are impracticable. These regulations generally contain overlaps and gaps and would benefit from increased incentive-based measures to promote self-regulation and monitoring rather than an enforcement role for local officials. At local levels, where capacity is weak, regulations are poorly understood, inconsistently applied and subject to varying interpretations.

30. The proposed project will promote the preparation and development of a comprehensive law so that important constituent and legislative elements for POPs reduction and elimination could be integrated together. A parallel approach would be conducted. While text of regulation will be drafted and prepared at the central government level, the local legislation as a support to central level legislation preparation will also be conducted and tried against local context.

Financial barriers to the implementation of NIP

31. According to the NIP, Armenia's total cost for Convention implementation is estimated at US$ 15.46 million. As the Convention's financial mechanism, the GEF is the most stable and the most significant financial source for POPs issues, though there are several other sources available in Armenia which enabled financing the implementation of this project proposal.

32. On the other hand, as Armenia is transiting from a planned economy to market economy, there are a wide variety of constraints for NIP implementation to have access to domestic financial resources. They are in general related to a poor understanding for any POPs related environmental protection undertakings, which include low profit-making or financial significance, long payback periods, high risk and uncertainty, high transaction cost and weak capacity to access to adequate information. In addition, there are market, technology and policy barriers as well that could also hinder their access to financial resources.

33. As mitigating the enormous gap and finding out ways to overcome the barriers mentioned above is of vital importance, there is a compelling need to study enabling environment, for instance, the financing mechanism, feasible and operational models, as well as opportunities for public and private investment. To this end, the project has designed activities to explore the likelihood of co-financing and attract the private and international donors.

Weak monitoring capacity for POPs

34. Monitoring is a process involving sampling and analysis. With regard to the sampling infrastructure, there are no facilities available in Armenia. It should be noted that the required analytical capacity is not available in Armenia therefore capacity building activities for sampling and monitoring of POs are the major needs to be focused in order to ensure a good environmental management. Weak monitoring capacities, lack of scientific and technical investigations are key barriers to the implementation of the necessary prevention and control measures for reducing pollution.

35. Analytical laboratory in Armenia lack up-to-date analytical equipment, international accreditation as well as institutional and human resource capacity to perform POPs analysis in compliance with international standards. Therefore, the proposed MSP aims at implementing activities focusing on the education of personnel for extraction, clean up and analysis of different matrices, accreditation (ISO 17025 and GLP) and the participation in international intercalibration studies.

36. This project component utilises the on-going project on upgrading of the laboratory in the "Waste Research Center" which will be established and equipped from approved project: "*NATO Science for Peace and Security Programme: Inventory, Monitoring and Analysis of Obsolete Pesticides in Armenia for Environmentally sound Disposal*"; this component will be co-financed by this NATO's project.

37. Activities for removing other barriers mentioned above will be addressed in more details as recommendations and suggestions for capacity building proposal to be developed in parallel with the implementation and as an output of the proposed project.

Weak institutional capacity for planning, guiding and enforcement for the Convention compliance

38. Firstly, the national Convention implementation structure has insufficient capacity for comprehensive coordination, decision making support, organization and execution and monitoring and supervision. Due to the absence of the National Inter-Agency (Inter-ministerial) forum for information exchange and well supported scientific decision making, decisions are

often made hastily without a well-conducted consultation with experts from technology, economy, environment and sociology disciplines, and often with a risk of lack of consultation with a broad range of stakeholders and neglect of deep social survey in advance. The MNP is extremely understaffed, with only 3 regular staff and a few short-term contracted staff, whose capacity is too small to effectively accomplish its mission and needs to be strengthened.

39. Secondly, barriers exist on weak capacity in mainstreaming the requirements of the Convention compliance into current environmental management instruments. As far as the current environmental management instruments are concerned, aspects of particular interest will be the:

- existing environmental impact assessment (EIA) that might be important in investment planning to prevent the establishment of new sources of unintentional production of POPs;
- registration system for chemicals, wastes, pollutant discharges;
- total emission control system;
- pollution levies system and non-compliance fines; and
- Law of waste pollution prevention and control and its associated listing of hazardous wastes.

40. Although the role of these current practices have not been brought into full action, their real impact are often questioned, mainly due to their inherent defects, which are often associated with systematic institutional changes that can not be completed in a short period of time. The integration of the requirements of the Stockholm Convention into the current practices will certainly create concerted efforts in achieving national and global benefits. It will also allow funds currently being invested to achieve local environmental benefits and thus achieve greater global environmental benefits simultaneously at an economic cost. To this point, the relevant stakeholders, in particular the government agencies at central and local level with different institutional mandates and responsibilities have to cooperate in order to remove the associated barriers in coordination, organization and enforcement due to limited resources, information, knowledge, personnel and finance.

41. Thirdly, local governments are the major bodies for NIP implementation but their implementation capacities are the weakest. The environmental protection departments and other related departments at various local levels have not yet incorporated POPs into their routine agenda for monitoring and enforcement. So far, there has been lack of approach and operational practices to devolve responsibilities for the Convention compliance to local government levels and to encourage the respective local community participation. Measures have to be taken to ensure the establishment of linkages between the Convention requirements and local economic, environmental and social development programs. With the related regulations, standards, guidelines, procedures and mechanisms to be established for POPs management, their institutional capacity for monitoring and enforcement on POPs issues needs a lot of improvement to meet the requirements of the Convention implementation.

42. Lastly, there is lack of incentives for enterprises to take measures to comply with the Convention compliance. Enterprises are the main entities that bear the obligations of Convention. Their reaction and attitudes towards the POPs related policies directly affect the outcome of the implementation of the NIP. So far, many polluting enterprises are inefficient and can neither afford end-of-pipe treatment nor take up precautionary measures within process changes and most industrial firms do not acknowledge that violating environmental laws and standards represents an offence. There are also perverse incentives for enterprises to take measures against pollution. Economic instruments are relatively under-developed and most of them are either only at the trial stage or generate adverse consequences through pricing distortion. For example, the system of pollution levies and non-compliance fines has been of limited impact as the levies and fines are set very low and enterprises opt simply to pay the fees rather than invest in pollution prevention and reduction facilities. The introduction of planned improvement to the system is hampered by the current weak monitoring capacity and public sensitivity to price adjustment, especially when the unemployment rate is rising in many areas.

43. Overcoming these barriers and integrating the requirements of the Convention will require considerable capacities at both national and provincial levels within the government, industry and a variety of key stakeholder communities.

Unavailability of and limited access to information

44. The concepts of POPs reduction and control are still relatively new to Armenia. Much basic information regarding their properties, harms and impacts are still unavailable and needs to be transferred from the developed countries to Armenia. The existing information is largely stored in the academia and in governmental departments independently and needs to be transformed into reader-friendly database that can be well disseminated and welcomed among the public. The various platforms and channels to produce and distribute environmental awareness raising materials for POPs should be integrated through partnerships.

45. The coordination and cooperation among stakeholders is weak and the practical impact of R&D is poor. With Armenia's ratification of the Convention, the relevant governmental departments have come to realize the importance of providing the support to R&D on POPs and some key research programme/projects have been supported (e.g. at the Ministry of Health). Most of these existing researches have not covered many key issues directly associated with the implementation of the Stockholm Convention, such as technologies for POPs release reduction and control and monitoring techniques, and other technologies for using pesticide alternatives, destruction and disposal of PCBs and other POPs wastes, remediation/rehabilitation of contaminated sites. In addition, these studies are often financed by different funding ministries and departments without consultation, coordination and cooperation among key stakeholders. Lastly, the capacity to transfer the results from research domain to application domain is poor and there are always complaints that the researches are often academic and of little practical use.

46. In order to address the barriers mentioned above, the project has designed activities to enhance the communication mechanism among ministries and main funding sources, to formulate polices that supports application of research results, to trace the progresses of R&D activities relevant to POPs, to promote the communication among researchers at home and abroad and to strengthen the linkages among research bodies, enterprises and the government. These activities will be conducted in line with the priorities identified in the NIP, which are as follows:

- to create the system for information gathering and exchange;
- to organize workshops for stakeholders/ concerned parties;
- to disseminate/ spread information about POPs in mass media;
- to prepare information leaflets, brochures for authorities at the levels of marzes (regions), enterprise employees, farmers and other vulnerable groups;
- to prepare reports for various Task Force groups, engaged in POPs issues; and
- to develop a web page on POPs issues.

47. Competence and education in general public is necessary to enhance the level of information and to carry out activities in broad cooperation with NGOs such as EcoTox Environment and Health NGO, Armenian Women for Health and Healthy Environment NGO, Environmental Protection Advocacy Center (EPAC) NGO and others in the sphere of ecological initiatives:

- to arrange and hold trainings and workshops on POPs for different target groups including NGOs;
- to work out educational and general information programmes for schools and universities on POPs as well as their after-effects for human health and the environment;
- to establish regional centers of ecological education at the level of marzes of Armenia;
- to prepare training/educational materials and publications for different society groups (school children, students, farmers);

– working out and implementation of information and educational programmes for (re)training of workers, researchers, lecturers, technical and administrative staff.

Low awareness of POPs

48. During the NIP development, the stakeholders in various sectors and levels have been mobilized to participate in numerous training and consultation workshops. Their awareness of POPs issues, particularly at the national level, has been improved significantly. However, due to the limited time and resources allocated to awareness promotion campaign, awareness is still insufficient, particularly at the local levels where economic development is generally seen as of greater importance rather than environmental protection. The decision and lawmakers may be reluctant to mainstream POPs issues into the general policy and legislative framework and put them on their agenda as a priority. The enterprises have not been fully motivated to take measures on POPs. The public has little exposure to information on POPs and is far from being reactive to POPs concerns.

A.3 Rationale for GEF intervention

49. This project will respond effectively to the articles of the Convention, including:

- Article 9: Each Party shall facilitate or undertake the **exchange of information**. Each Party shall designate a national focal point for the exchange of such information.
- Article 10: Each Party shall, within its capabilities, promote and facilitate **awareness** among its policy and decision makers with regard to persistent organic pollutants, provision to the public of all available information, development and implementation of educational and public awareness programs, public participation, training of workers, scientists, educators and technical and managerial personnel, development and exchange of educational and public awareness materials at the national and international levels, and development and implementation of **education and training** program at the national and international levels.
- In addition, Article 10 also states that each Party shall, within its capabilities, ensure that the public has access to public information and that the information is kept up-to-date. Each Party shall, within its capabilities, encourage industry and professional users to promote and facilitate the provision of the information at the national level and, as appropriate, sub-regional, regional and global levels. Each Party shall give sympathetic consideration to developing **mechanisms,** such as pollutant release and transfer registers, **for the collection and dissemination of information** on estimates of the annual quantities of the chemicals listed in Annex A, B or C of the Convention that are released or disposed of.
- Article 11: The Parties shall, within their capabilities, at the national and international levels, encourage and/or undertake appropriate **research, development, monitoring and cooperation** pertaining to persistent organic pollutants and, where relevant, to their alternatives and to candidate persistent organic pollutants. The Parties shall, within their capabilities, support national and international efforts to strengthen national scientific and technical research capabilities, particularly in developing countries and countries with economies in transition.
- Article 12: The Parties shall cooperate to provide timely and appropriate technical assistance to developing country Parties and Parties with economies in transition, to assist them, taking into account their particular needs, to develop and **strengthen** their **capacity** to implement their obligations under this Convention.
- Article 16: Comparable and reliable monitoring data is the basis for the **effectiveness evaluation**. Therefore, each Party has the obligation to allocate such **monitoring data**, in accordance with their technical and financial capacities, using existing programmes and mechanisms to the extent possible and promoting harmonization of approaches.

50. Article 13 of the Convention sets out the principles on which “developed country Parties shall provide new and additional financial resources to enable developing country Parties and Parties with economies in transition to meet the agreed full incremental costs of implementing measures that fulfill their obligations under the Convention”. Article 14 of the Convention states that “The

institutional structure of the Global Environment Facility (GEF)… shall, on an interim basis, be the principal entity entrusted with the operations of the financing mechanism referred to in Article 13…".

51. According to OP#14, the GEF will provide funding, on the basis of agreed incremental costs, for three types of activities to address POPs issues – capacity building, on-the-ground interventions and targeted research. The activities under capacity building include: 1) strengthening of human and institutional capacity; 2) strengthening and harmonization of the policies and regulations; 3) strengthening of monitoring and enforcement capacity; 4) developing capacity to assess technologies and management practices, and promoting and facilitating the transfer of viable and cost-effective options and management practices; 5) developing and implementing public awareness/information/environmental education programs; and 6) facilitating dissemination of experiences and lessons learned and promoting information exchange. Most all of these activities are contained in this project.

52. While the proposed capacity building project does not intend to directly reduce or eliminate any POPs, it will lay down the solid foundation for the fulfillment of Armenia's commitments to the Convention.

    1. ***Domestic benefits:*** With this project, Armenia will be able to have the required capacities for implementing the Convention and the NIP. Improved regulatory framework, legislation enforcement, monitoring, and public awareness from implementing the proposed project will yield significant domestic benefits, including:
        - Introduction of advanced concepts and management experience to harmonize Armenian practices with international levels;
        - Promotion of technology transfer and application;
        - Upgrade the industrial structure;
        - Protection of the public health from POPs pollution.

    2. ***Global benefits:*** With this project, Armenia will be enabled to respond to the capacity building articles of the Convention effectively and efficiently. The regulatory framework and the institutional capacity to be strengthened by the project will upgrade Armenia's management of POPs control and reduction to an internationally accepted level. The improved monitoring capacity will help to produce a more reliable and comparable inventory of POPs releases in Armenia. The various mechanisms, platforms and partnerships to be established will lay a fundamental basis for effective and efficient reduction and elimination of POPs in Armenia and generate significant benefits for the protection of the global environment and human health. Global benefits can also be achieved through dissemination of experience of Armenia, which could serve as a reference for other developing countries. This will also support the implementation of other multilateral environmental agreements and conventions, such as the Basel and Rotterdam Conventions as well as the SAICM.

SECTION B. REASONS FOR UNIDO ASSISTANCE

53. UNIDO has a comparative advantage in developing, formulating and implementing industry-related programmes and projects and is committed to assist its developing country Member States in accordance with Article 12 of the Stockholm Convention. The GEF has approved Enabling Activities proposals submitted by UNIDO for more than 40 countries, including China and India that have opted to undertake the NIP development through the full project cycle.

54. Based on the experience gained through this work, UNIDO has decided to expand its POPs programme and to assist countries, which are now entering the post-NIP phase, in the implementation of the Convention's obligation.

55. Conscious that the Stockholm Convention requires Parties to initiate post-NIP activities to address priority issues identified in the Enabling Activities projects, UNIDO is executing or developing a range of demonstration and capacity building projects geared to support the Convention implementation in a wide range of developing countries and countries with economies in transition. UNIDO has made considerable effort to build this assistance programme. This commitment is based on a clear understanding that these activities are compatible with UNIDO's mandate and corporate strategy and will lead towards the Millennium Development Goals.

56. Upon request of the Government of Armenia, UNIDO has taken a programmatic approach to develop and formulate this MSP, which aims at strengthening Armenia's capacity to ensure that POPs chemicals are managed and disposed of in an environmentally sound manner.

SECTION C. THE PROJECT

C.1. Objective of the project

57. The **overall objective** of this project is to effectively and efficiently assist Armenia to implement the Stockholm Convention by strengthening the institutions, regulations and enforcement and to enhance the capacities for the sound management of POPs at national and local levels.

58. The **concrete objective** of this project is to establish/amend laws, regulations and standards; strengthen institutions for monitoring; establish/update inventories of POPs chemicals; improve research and development (R&D); promote technology transfer; facilitating data and information collection (POPs PRTR); develop a national methodology for risk assessment and a strategy for risk reduction for priority chemicals, including POPs (SAICM); enhance supervision, update the National Chemicals Management Profile, enforcement and evaluation for continuous improvement and awareness raising of stakeholders on POPs issues, thus creating an enabling environment in Armenia for the final disposal of POPs chemicals and related waste.

59. The project will develop strategies and plans that will provide Armenia with the tools to prevent future POPs contamination. The objectives of this proposal are fully in compliance with Armenia's National Implementation Plan (NIP) and its priorities:

- strengthening of legislation - development of norms/standards relating to POPs management (i.e. documents regulating removal/ phasing-out PCB-containing equipment; application of alternative substances instead of PCBs; requirements on examination of PCB polluted areas and environmental media; requirements on clean-up of PCB polluted areas and environmental media; requirements on establishment of special stationary or mobile facilities for destruction of PCB and PCB-containing substances and wastes; requirements on collection and transportation of PCB and PCB-containing wastes; processes of destruction for PCBs, PCB-containing equipment and wastes; sanitary hygienic standards on PCB contents in the environment and remediation of PCB polluted areas; requirements on labeling/marking of existing PCB-containing equipment that is currently exploited, etc.);
- enforcement of ban of DDT use (illegal import of DDT);
- measures to reduce releases from unintentional production (Article 5 of the Stockholm Convention);
- measures to reduce releases from stockpiles and wastes (Article 6 of the Stockholm Convention);
- identification of stockpiles, articles in use and wastes;
- management of stockpiles and appropriate measures for handling and disposal of articles in use;
- identification of contaminated sites (Annexes A, B and C chemicals) and remediation in an environmentally sound manner;
- information exchange and stakeholder involvement; and
- public awareness, information and education.

60. Based on a comprehensive analysis of sectoral action plans and priorities for capacity building, this project will target institutional strengthening activities at different levels: government, local authorities, private sector, NGOs, academia and other key stakeholders in Armenia. The project will be coordinated with other POPs projects, and will provide guidance and information mechanism(s) to harmonize and integrate capacity building related activities.

61. The specific objective of the project aims at:

- Reducing POPs releases from stockpiles of obsolete pesticides, from inappropriate handling of PCB containing equipment by strengthening the institutional and technical capacity; and

- Risk reduction by implementing of the proposed measures that aim at reducing the negative impact of POPs on human health and environment.

62. Upon completion of the project, the following outcomes are expected:

- Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner;
- POPs inventories are established and/or updated;
- Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention;
- Concerned stakeholders involve civil society and apply improved knowledge on the ESM of POPs and disposal activities;
- Improved capacity on POPs management issues, including disposal of PCBs and obsolete pesticides in an environmentally sound manner;
- A national action plan for the final disposal of POPs chemicals and hazardous waste is developed.

C.2. The UNIDO approach

63. The project implementation arrangements will be based on the following principles:

- Establish and well-defined cooperation among governmental authorities involved in environmental protection and industrial development including local authorities, the Ministry of Natural Protection of the Republic of Armenia, the private sector, universities/research institutions and NGOs.
- Accountability of the project related work and expenditures of all involved parties;
- Transparency through clearly defined monitoring indicators and evalution methodologies including data generation throughout the project implementation.

64. **UNIDO** will be the **implementing agency (IA)** of the project and will take the responsibility of the day-to-day overlook of the project management. UNIDO is executing and/or developing a range of demonstration and capacity building projects to support the Convention implementation. UNIDO has committed considerable effort to build this assistance program, both in support of the Convention implementation and in furtherance of UNIDO's mandate and corporate strategy in support of the Millennium Development Goals.

65. The Waste Research Center **(WRC)**, a state non-commercial organization at the Ministry of Nature Protection of the Republic of Armenia will be the **national executing agency (NEA**). WRC will be engaged in the development of scientifically based recommendations aimed at minimizing the risks of obsolete pesticides to human health and environment in order to ensure environmental security of the general population, as well as in the preparation of regulations for sound management of PCBs-containing wastes and oils, as well as obsolete pesticides, including handling, transportation, disposal, etc. WRC will also be engaged in the process of taking samples of different environmental media for further analytical analyses. WRC has a successful experience in hosting the "Establishment and Operation of a National Cleaner Production Programme in Armenia" Project (UNIDO, 2006-2008) and "Inventory, monitoring and analysis of PCBs, obsolete pesticides in Armenia for environmentally sound disposal**"** **(**NATO, 2008-2010**).**

66. The **Hazardous Substances and Waste Management Department (HSWMD)** of the **Ministry of Nature Protection of the Republic of Armenia** (MNP) will be the coordinating entity as it is the national focal point for the Stockholm Convention in Armenia. MNP has significantly contributed to the design and drafting of this MSP proposal as well as the mobilization of co-financing. HSWMD was the co-ordinating agency for implementation of the following Projects:

- "Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Armenia" Project (UNIDO, 2002-2004);
- Integrated National Programme for Sound Chemicals and Waste Management" Project in the Republic of Armenia" Project (UNITAR, 2004-2006);
- "Development and Implementation of the National Cleaner Production Programme in the Republic of Armenia" Project (UNIDO, 2006-2008);
- "Strengthening waste integrated management in Armenia" Project (UNDP CO, 2006);
- "Design of a National PRTR System to Strengthen Capacity Building Activities for the implementation of Stockholm Convention on POPs in Armenia" (UNITAR, 2007-2009);
- "Armenia and UNEP Partnership Initiative for Sound Management of Chemicals and Implementation of SAICM in Armenia" Project (UNEP, 2008-2009);
- "Inventory, monitoring and analysis of PCBs, obsolete pesticides in Armenia for environmentally sound disposal" (NATO, 2008-2010)

67. A ***Project Steering Committee (PSC)*** will be established composing of representatives from the Ministries of Nature Protection, Health, Agriculture, Trade and Economic Development, (Board on standardization, metrology and compliance confirmation at the Ministry of Trade and Economic Development, Ministry of Energy, WRC, State Environmental Expertise, State Inspection for Nature Protection, Universities and research institutes, private sector, NGOs and UNIDO. The PSC will further take the role of overseeing the various POPs projects in Armenia, with regular status updates from the sector projects td ensure that no undue overlaps are taking place. The PSC will hold its regular sessions once a year throughout the project implementation, but additional meetings can be held if necessary. It will oversee the project related work of project management team (PMT) and the implementation teams and will review, comment on and approve the work plan. All decisions of the committee, such as respective responsibilities, timelines and the budget will be clearly communicated to those parties concerned. Activities will be implemented through instruments of subcontracts. Submitted tenders, contracts and TORs will be reviewed and evaluated by the PSC. Any major changes in the project plans or programs will require the approval from the PSC to take effect. PSC members will facilitate the implementation of the project activities in their respective organizations, ensure that activities are implemented in a timely manner and facilitate the integration of project-inspired activities to existing programs and practices. Representatives of partner and co-funding organizations, which are not represented in the PSC, will be invited to attend the meetings as needed.

68. The ***Project Management Team (PMT)*** composed of representatives from HCWMD and WRC of MNP will be established for the day-to-day monitoring of implementation progress based on the project's annual work plan and its indicators. The PMT will inform UNIDO of any delays or difficulties faced during implementation so that appropriate support or corrective measures can be adopted in a timely and remedial fashion.

69. The project will stress on the participation of relevant stakeholders within the country who will be responsible as follows:

Stakeholder	**Responsibility**
Ministry of Nature Protection (MNP) (Hazardous Chemicals and Waste Management Department; WRC)	- Serve the PSC in coordinating relevant ministries, sectors and localities for implementation of POPs management in Armenia. - Develop network of relevant ministries, sectors, universities, research institutions, waste treatment enterprises, NGOs and local communities for implementation of the project. - Develop capacity, including human and material resources for the monitoring of Annex A POPs of the Stockholm Convention. - Develop and finalise policies, institutions and legal documents for the prevention, reduction and elimination of POPs wastes in accordance with the roadmap of Stockholm Convention.

	- Develop a national information system for the management of POPs and hazardours wastes. - Collaborate with relevant ministries, sectors and localities in developing options for promoting ESM of POPs in pilot projects to minimize the unintentional production and release of UP-POPs from production and serve activities. - Study technologies and propose their application in the sound management, treatment and disposal of POPs. - Prepare teaching materials and organise workshops and further active involvement in the project implementation.
Ministry of Health (MOH), Health Institute	- Assess the adverse impact of POPs on human health and the environment. - Regularly update the rates of POPs exposure and study the impact of POPs on human health in order to develop effective prevention and therapy measures.
Ministry of Agriculture (MOA)	- Performance of executive control for safety of food-stuffs, as well as over observation and compliance of phytosanitary and veterinary norms. - Cooperate with the Customs service to identify sources of DDT, with the State Inspection for Nature Protection on control of its use. - Cooperate with NGOs in awareness raising compaign for farmers.
MOE, MOIT and local industrial associations	- Cooperate with the MNP, Environmental and Energy Inspection on normative tools, technical standards development and implementation, inventory, training execution, implementation of safety measures. - Cooperate with the Ministry of Industry and Trade and local industrial associations to develop necessary legal tools regulating hazardous substances/waste management, to identify sources of POPs and to introduce ESM of POPs and other hazardous substances.
Ministry of Finance (MOF)	- Cooperate with MOF to explore possible utilization of existing and coming funds from EU, bilateral donor funds, etc.
Private sector	- Private sector engagement has been encouraged at the design phase of this project and will be encouraged throughout the project implementation. - Cooperate to explore public-private partnerships to involve private sectors in investing and operating POPs reduction and control projects and study the economic and financial policies that will ensure the reasonable rate of return of investments. - Cooperate with farmers on awareness raising activities, communication on development of tools and strategies to reduce POPs pesticides utilisation and reduction of risks they are exposed to.
NGOs	- NGOs will contribute actively by commenting on the development of strategies and legal documents on environmental protection, exchanging experiences and expertise, enhancing internatinal cooperation, disseminating knowledge of environmental protection in all 11 regions of Armenia through workshops and awareness raising activities, and also supporting governmental authorities in supervising environmental protection in localities and facilities.

C.3 RBM code and Thematic area code

RBM Code: CE17 – Stockholm Convention

Thematic area code: FG50 (EAE)

C.4. Expected Outcomes

70. There are five (5) outcomes designed to achieve the objectives of the project:

1. Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner.

2. Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention.
3. Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities.
4. Improved capacity on POPs management issues, including disposal of PCBs and obsolete POPs pesticides in an environmentally sound manner.
5. Project management structure and M&E mechanism in place.

C.5. Outputs and Activities

71. Outcomes/Outputs will be achieved by performing a set of activities as follows. Brief explanatory notes have been given, as appropriate, after the headings of outputs and activities. These notes facilitate the understanding of and bring transparency to this project of complex technical nature.

Outcome 1: Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner

72. The existing integrated approach in the field of chemicals and wastes management, including POPs, in Armenia presumes establishment and strengthening of the mechanisms of cooperation among the ministries, research and academic institutions, industrial unions, as well as public organizations and other stakeholders at the national and local levels which will bring about more and wider participation and coordination among stakeholders, adoption of harmonized approaches and operations in environment protection programs, plans, and projects to obtain both national and international benefits and improved institutional management relevant to Stockholm Convention compliance and other international agreements and initiatives related to chemicals and waste.

73. Outcome 1 will establish and strengthen the institutional capacities, which will bring about more and wider participation and coordination among stakeholders, adoption of harmonized approaches and operations in environment protection programs, plans, and projects to obtain both national and international benefits and improved institutional management relevant to Stockholm Convention compliance.

74. Human resources will be developed through intensive trainings. Management systems will be strengthened to enable existing national monitoring facilities to properly perform its monitoring functions. Cooperation among ministries will be improved so as to allow them to be more effective in communication and coordination in addressing POPs related issues. An information exchange forum to strengthen linkages among research bodies, enterprises and government agencies to address POPs issues will be established.

75. Data and information collection mechanism will be established and strengthened to meet the requirements of Stockholm Convention and Conference of Parties (COP) as well as support decision-making.

76. Enforcement of policy and regulations at national and local levels through strengthening of organization, coordination and management, and mainstreaming the requirements of the Convention and the NIP implementation in the existing environment protection instruments and practices.

Output 1.1 Institutional capacity for the ESM of PCB and POPs pesticides evaluated and improved

77. Capacity for enforcement of POPs regulations at institutions identified will be strengthened by the tools developed. Preliminary identification of institutions dealing with POPs management was carried out during the NIP preparation project. Due to some developments during the years since the preparation of the NIP in the country, new tasks and activities under the proposed project require an updated assessment of the current institutional situation with a detailed description of responsibilities of each of the entity including duties on POPs monitoring and reporting. The principles and mechanism for responsibility sharing among the stakeholders for different types of activities, e.g. non-profitable and profitable activities will be determined. The

POPs Monitoring Network will be designed and system of information exchange among identified institutions will be set up.

Activity		Responsibility
1.1.1	Evaluation of institutional capacity for the ESM of PCB and POPs pesticides.	MNP, UNIDO
1.1.2	Development of POPs Information Management and Reporting System.	MNP, UNIDO
1.1.3	Development of POPs Monitoring Network.	MNP, UNIDO

Output 1.2 Management of data on chemicals and wastes

78. The establishment of information system on chemicals and wastes will improve the process of managing the data as well as the existing system on accounting/inventory and reporting. In this regard the following components of the information system should be set-up:

Activity		Responsibility
1.2.1	Development of the identified databases: • National Register on Wastes; • National Register on Chemicals, including POPs; • State Cadastre on Wastes (classification of wastes generated in Armenia, including POPs wastes); • State Register on the sites/entities, at which POPs-containing wastes are generated, processed, utilized, and disposed; • Data Bank on technologies for destruction and decontamination of POPs-containing wastes; and • Register of pollutants releases and transfer on POPs (PRTR).	MNP, UNIDO
1.2.2	Development of a strategy and templates for data gathering.	MNP, UNIDO
1.2.3	Gathering, processing, analysis and evaluation of data.	MNP, UNIDO

Output 1.3 POPs inventory and reporting system improved

79. According to the requirements of the Convention and its COPs, POPs data should be collected and processed to meet the reporting requirements. Parties shall:

- Pursuant to para (g) of Part II in Annex A and adhering to the requirement and format issued by COP1 for PCBs reporting, transmit every 5 years a progress report on PCBs elimination.
- Pursuant to para 2, Article 16, provide comparable monitoring data on the presence of the chemicals listed in Annexes A, B and C of the Convention as well as their regional and global environmental transport.
- Pursuant to para (g) of Part II in Annex A and adhering to the requirement and format issued by COP1 for PCBs reporting, transmit every 5 years a progress report on PCBs elimination.
- Pursuant to para 4 of Part II in Annex B and adhering to the requirement and format decided and issued by the Conference of the Parties in consultation with the World Health Organization (WHO), provide every three years to the Secretariat and the WHO information on the amount used, the conditions of such use and its relevance to that Party's disease management strategy.

80. In addition to the Convention requirements, the NIP has also identified the capacity building for information management as a priority action. Reliable data gathering and regular update of the database of such information is crucial for taking any further action.

81. The following activities are aimed towards the development of a registration scheme and a central national database for PCB-containing equipment and for its introduction as part of the PCB regulations. The designated work team will update and enhance the national PCB registry

by (i) collecting detailed inventory information on PCB-containing oils and PCB-containing or contaminated equipment from key sectors; and (ii) gathering information on previously unrecorded equipment such as those in private hands or obsolete equipment stored for disposal. Such a database will be accessible for all monitoring and control authorities.

Activity		Responsibility
1.3.1	Preparation of inventory forms and guidelines to holders of PCB contaminated equipment on how to carry out an inventory, notification and reporting requirements.	MNP, UNIDO
1.3.2	Identification of other potential holders of PCB equipment.	MNP, MOE, MOI
1.3.3	Development and provision of a labelling system for use by holders of POPs-containing equipment and waste.	MNP, UNIDO
1.3.4	Establishment of a database for information gathered in the POPs inventory and for future management of PCB contaminated equipment.	MNP, UNIDO
1.3.5	Training of State Inspection on identification and notification of PCB contaminated equipment.	MNP, MOE, MOI

Output 1.4 Efficient cooperation on POPs related issues and information/knowledge and skills exchange for decision makers, professionals, and public and their involvement and active participation ensured

82. According to the requirements of the Convention and its Conference of Parties (COPs), POPs data should be collected and processed to meet the reporting requirements. *Parties shall - ensure that the Convention is implemented and its obligations met.* Armenia will set up a high-level intra-ministerial National Coordination Group (NCG) chaired by MNP and consisting of other related ministries and related agencies. This NCG will be supported to make more scientific decisions and effective coordination by an advisory board to be established in the fields of policy, technical and scientific researches. In order to successfully achieve the objectives of the NIP and undertake POPs reduction and control in a sustainable way, POPs issues must be first incorporated into the legislative framework. A wide array of stakeholders must be mobilized to strengthen the enforcement of the legislation, particularly at the local level. Environmental protection departments at all levels and many national centers promoting environmental management, environmental impact assessment and cleaner production should incorporate POPs issues into their working agenda and be equipped with necessary capacity to carry out the new tasks. Other relevant departments should be trained to be aware and responding to POPs issues within their administrative domains. The public and civil society should be instigated to play a supervisory role. Under external supervisions, the enterprises should be instructed to exercise self-disciplined practices and adopt cleaner production to improve their environmental image and product competitiveness.

Activity		Responsibility
1.4.1	Establishment of an inter-ministerial Committee on POPs issues.	MNP, UNIDO
1.4.2	Establishment of expert working groups from different agencies, institutions, universities, research and development institutes for separate POPs issues.	MNP, UNIDO
1.4.3	Information exchange forum at the Ministry of Natural Protection web page will be set up, including publication of the relevant reports and articles updated, national and international.	MNP, UNIDO
1.4.4	Awareness raising of policy makers on specific POPs issues including waste management policies, risk reduction measures through informative meeting organized.	MNP, UNIDO, NGOs, agricultural sector
1.4.5	Conduct meetings with identified key stakeholders to secure their active participation in the project.	MNP, UNIDO

Output 1.5 Existing laboratories for POPs analysis strengthened

83. This output represents upgrading of the laboratory in the State Environmental Impact Monitoring Centre, which will be established and equipped from the approved project: "*NATO Science for Peace and Security Programme: Inventory, Monitoring and Analysis of Obsolete Pesticides in Armenia for Environmentally sound Disposal*". This activity will be co-financed by the NATO project.

Activity		Responsibility
1.5.1	Assessment and introduction of international standard on sampling and analysis procedures supported by appropriate capacity building	MNP, UNIDO
1.5.2	Intensive training of the laboratory staff to perform analytical studies, including GLP principles introduction	MNP, UNIDO
1.5.3	Establishment of international contacts and collaborations with other laboratories including participation in intercalibration studies etc.	MNP, UNIDO
1.5.4	Conduct monitoring of POPs in all environmental compartments, foodstuffs and biological material	MNP, UNIDO

Output 1.6 Sustainable financing mechanism for follow up activities secured

84. The total required financial sources for follow-up activities as estimated by NIP amounted to US$ 15.46 million. Therefore, to study the viability of establishing the co-financing mechanism is of both urgency and important, which hopefully can mitigate the significant gap in funding. To that end, the mechanism to channel the needed fund from multilateral and bilateral sources, central and local governments, enterprises and the public will be studied by the proposed project.

Activity		Responsibility
1.6.1	Explore public-private partnerships to involve private sectors in investing and operating POPs reduction and control projects and study the economic and financial policies that will ensure the reasonable rate of return of investments.	MOF, local industrial associations
1.6.2	Organize and hold workshop on fund raising for the governmental institutions – possible utilization of existing and coming funds from EU, bilateral donor funds, etc.	Relevant ministries, their agencies and institutions
1.6.3	Hold fund raising workshops by inviting key stakeholders at home and abroad, including related ministries, multi-lateral organizations, bilateral countries, financial institutions, private sectors and the public.	MNP, MOF, local government departments, industrial associations, enterprises, investment banks, international organizations and potential cooperation countries

Outcome 2: Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention

85. There is an incomplete policy and regulatory framework for POPs. There is no specific policy and regulation regarding POPs management and control. Stipulations related with POPs management are dispersed in different laws and regulations that are hard to coordinate where some stipulations are impracticable.

86. The NIP has identified the list of laws, regulations and standards of the environmental protection legislation system in relation to POPs existing. There is a need for disclosure of gaps in this list and identification of legal tools for revision or establishment in order to create a sound policy and regulatory regime for POPs management.

87. At present the legislative basis in the area of management of chemicals and wastes, including POPs, requires further strengthening and improvement. In the Republic of Armenia there is no "Law on Chemicals", no National Waste Management Strategy, no legal document regulating the use and handling of separate POPs and POPs wastes and other core documents on management of chemicals and wastes are missing. Regulation on these issues (management of chemicals and wastes, including POPs) is executed by a number of separate laws and other legal acts aimed at prevention of the harmful impact of chemicals and wastes to the environmental and human health (see Annex 2 for the list of existing laws in the Republic of Armenia).

Output 2.1 Survey and assessment of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides carried out

88. Improvement of the policy framework through amendments of laws and regulations and preparation of Government decrees and decisions as needed to enable proper PCB management for the country will be carried out starting from a detailed analysis of existing status of national legal system related to POPs.

Activity		Responsibility
2.1.1	Review of existing legislation regarding compliance with Stockholm Convention obligations.	MNP, UNIDO
2.1.2	Assessment and evaluation of existing legislation as well as conduct of a gap analysis to define national needs in view of the implementation of the Stockholm Convention.	MNP, UNIDO

Output 2.2 Legal basis for POPs chemicals and wastes management improved - normative documents for sound chemicals and wastes management developed and adopted

89. The activities listed bellow will result in drafts of set of legal tool in-line with the Stockholm Convention, fitting to the Armenian legal framework and appropriate sharing of responsibilities ensuring the sustainability of POPs management. Moreover, there are activities introducing the risk assessment and risk management approach as a tool for decision makers to take appropriate risk reduction measures. There will be a demonstrative case presented. The final document drafted will be the National Action Plan on POPs disposal for Armenia.

90. Planned documents and training guidelines will be provided within this outcome with respect to the action plan, valid and prepared legislation and technical standards. They will reflect principles of approved SBC guidelines and manuals. All these documents also reflect Armenian plan on amendment of legal, technical, training, educational tools and they all take in account provisions of the Basel Convention, the Stockholm Convention as well as EU requirements. These documents will be adapted to Armenian conditions and will be available in Armenian language.

91. One of the task teams will develop guidelines to identify PCB-containing equipment and develop the methodology for labelling electrical equipment according to relevant international guidelines. It will include procedures for sampling, use of the field test kits and on-site analytical equipment, as well as formats for data collection and reporting. It will also include the design and printing of the labels for (a) equipment from which samples were taken, (b) PCB free equipment and (c) PCB containing equipment (above 50ppm).

92. Improvement or introduction of maintenance standards and other technical standards for PCB-containing equipment will be carried out. Standards will be developed jointly with the major users of PCB-containing equipment to protect human health and the environment during the maintenance and phasing out of the electrical equipment. Standardized procedures will be developed for draining PCB contaminated oils from the transformers and its treatment. Existing regulations will be checked for suitability and regulatory gaps will be addressed. The project team will organize a meeting for national and international experts to discuss the requirements of safe disposal of PCBs in Armenia and the applicability of the existing international standards.

93. The procedures for collecting the PCB-containing equipment and wastes, which include the registration of the companies that can provide these services to PCB owners, will be developed. The procedures for reporting the collection and the regular update of the inventory will also be developed.

Activity		Responsibility
2.2.1	Development and/or amendment of identified laws, regulations, standards and technical guidelines	Relevant ministries, local government departments, industrial associations, enterprises and civil society
2.2.2	Development and adoption of a risk assessment methodology	Relevant ministries and their agencies, institutions
2.2.3	Development and adoption of a risk reduction strategy	Relevant ministries and their agencies, institutions
2.2.4	Development and adoption of a set of risk reduction measures	Relevant ministries and their agencies, institutions
2.2.5	Development and adoption of a national action plan for the final disposal of POPs chemicals and hazardous wastes.	Relevant ministries and their agencies, institutions

Outcome 3: Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities

94. As part of the Armenian NIP preparation, an overview of public perceptions in respect to POPs was done and revealed a lack of understanding of problems related to POPs and other dangerous chemicals. The overview has also revealed very limited knowledge regarding POPs sources and effects within groups with a high risk of POPs exposure, such as farmers, industry employees, staff of the power and heat generating and distributing companies, and units responsible for collection and disposal of waste. The goal of this outcome is to create a communications framework for POPs and other chemicals and to improve awareness of the public, professionals, decision makers, researchers, students, etc. regarding POPs sources and effects through awareness building activities, as well as training and education of target groups with higher exposure to risks.

95. POPs related public awareness would be improved through an awareness raising campaign and other public education activities, such as:

- Preparation of materials on POPs environmental damage;
- Motivating media channels to disseminate POPs information; and
- Working with relevant ministries for integrating POPs topics into existing education and training systems..

96. Public awareness needs to be addressed through:

- **Awareness raising**: Present gaps include absence of popular materials/media containing information about POPs, no related content in existing programmes of environmental protection dissemination and education and insufficient participation of relevant organizations.
- **Making information accessible**: The judgment should be based on facts. These must be collected from research results, evaluated and organized and transformed into accessible information via different routes: websites, educational and informational printed matter, broadcasts, etc. Since there is still a lack of data and many data are very uncertain, these shortcomings should also be clearly communicated.
- **Creating opportunities for participation**: Individuals may not restrict their decisions to concern protection measures for themselves as individuals. They may also wish to influence the decisions of others, such as industries or legislators. Present gaps include a very weak tradition of public participation and lack of channels for such participation.

Output 3.1 Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders developed and put in place

97. This set of activities is focused on identification of the professionally exposed groups and supervisory group (occupational safety, chemical safety, energy safety) and POPs exposed public. Survey on gaps in existing rules and guidelines for safe POPs handling, selection of stakeholders for improvement of working conditions and set up of cooperation among them and local NGOs will be set up by following activities:

Activity		Responsibility
3.1.1	Development of information campaign program and training modules for professionals and the public	MNP, MOE, MOA, MOH, UNIDO
3.1.2	Adoption of the information campaign program and training modules, in close cooperation with relevant authorities such as Occupational Safety Authority and others	MNP, MOE, MOA, MOH, UNIDO
3.1.3	Identification of project stakeholders for their participation in the awareness raising and training programme	UNIDO, NCPC
3.1.4	Set up a close cooperation with local NGOs, Ministry of Education, Universities and research centers, national and local media to disseminate information	MNP, MOE, MOA, MOH, NGOs, UNIDO

Output 3.2 Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place.

98. The decision making group, chronically and highly exposed groups (workers, farmers) are very important to approach. For these groups, separate type of information through different routes will be prepared and provided. Information must be reliable and should be prepared in close cooperation with technicians, scientists, researchers and local NGOs in relation to their impact on environment and human health.

Activity		Responsibility
3.1.1	Presentations of credible scientist and researchers for decision makers on POPs issues, their health and environmental impacts	Government, UNIDO
3.1.2	Establishment of a network of scientists to exchange information on international chemicals management	MNP, MOE, MOA, MOH, NGOs, UNIDO

	Activity	Responsibility
3.1.3	Conduct of trainings on safety rules for different groups of people that are exposed to POPs and hazardous chemicals such as industry employees, staff of the power and heat generating and distributing companies, and units responsible for handling and disposal of hazardous wastes	MNP, MOE, MOA, MOH, NGOs, UNIDO
3.1.4	Conduct of risk assessment and risk management courses for persons in charge at selected ministries, agencies, research institutions and other relevant stakeholders	MNP, MOE, MOA, MOH, NGOs, UNIDO

Output 3.3 Awareness raising activities held on POPs issues for different population groups (general public, pupils, students, doctors) and mostly vulnerable to POPs exposure (children and women)

99. It is also necessary to involve the general public in the public awareness campaign. The role that the local NGOs and respected representatives of the social community (e.g. doctors, researchers, etc.) will play is crucial. A wide range of different public relation (PR) tools will be developed and published through different media with the help of NGOs and other civil society groups. Based on the Stockholm Convention requirements, it is essential to address vulnerable groups such as children and most exposed people and focus the project activities on their awareness raising concerning POPs risk and hazards.

	Activity	Responsibility
3.1.1	Motivating media channels to disseminate POPs information in cooperation with the Government, research and scientific centers and NGOs	MNP, NGOs, UNIDO
3.1.2	Preparation of materials (leaflets, articles, interviews, posters, presentations, etc.) on POPs environmental and human health impacts	MNP, NGOs, UNIDO
3.1.3	Organize and hold public meetings, presentations at schools, lectures at universities, sites visits, project results presentations, etc.	MNP, NGOs, UNIDO

Outcome 4: Capacity on POPs management issues, including disposal of PCBs and pesticides in an environmentally sound manner improved

100. This outcome will assist to identify and establish a national capacity and a regime for workable institutional framework that will allow Armenia to address PCBs/PCB waste and POPs pesticides issues in an integrated and efficient manner thereby implementing the Stockholm Convention and other international chemicals and waste agreements to which it is a party.

101. There is lack of qualified human resources for the enforcement of the existing and future regulations, which leads to non-compliance of the legislations and the improper management of PCBs. There is a lack of human and technical capacities for monitoring, especially the proper laboratory services for PCBs analysis. The necessary national standards and methods and accreditation procedures are also lacking. Through the project, these will be improved and favourable environment for setting up the ESM system for POPs will be established.

Output 4.1 Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB identified in energy and industry private sector and POPs pesticides waste recorded

102. An operational and interactive database with access to the different state institutions in charge of management and control of hazardous wastes, including PCBs and obsolete pesticides will be developed. To build functional capacity for ESM system, it is substantial to identify all available companies dealing with collection, packaging, transport and storage of hazardous wastes.

Based on findings from such review, it will be necessary to develop and propose a strategy how to upgrade the state of art system and integrate these companies to the project training activities, provide guidelines for safe handling of the type of waste in national language and introduce technical and safety standards.

Activity		Responsibility
4.1.1	Operation and update of the database with PCB contaminated equipment and POPs wastes, interactive use of stored data with management and supervisory entities	MNP, UNIDO
4.1.2	Identification of national/local capacities for safe collection, packaging, transport and safe interim storage of POPs wastes	MNP, UNIDO
4.1.3	Identification and proposal of best available measures on how to upgrade waste storage sites (PCB and pesticides) and avoid the spread of contamination	MNP, UNIDO

Output 4.2 Affordable BAT and BEP options formulated and feasibility study for the phase out and disposal of POPs wastes carried out

103. The appointed task team will collect information on existing elimination technologies and disposal options. The project will identify one or more country specific methods for treatment and disposal of PCBs, based on an economic analysis. The treatment options to be considered include chemical treatment and other emerging technologies available for safe disposal. Based on the countrywide preliminary inventory, detailed costs and benefit assessment will be prepared for the identified options. The most preferred options will be selected by the PSC.

104. Based on previous activities carried out on POPs inventory, a feasibility study will be carried out to obtain an update on the available and suitable disposal technologies for POP waste disposal.

Activity		Responsibility
4.2.1	Review of available disposal technologies and methods	UNIDO
4.2.1	Assessment and selection of suitable and affordable BAT/BEP technology for disposal of POPs waste	MNP, UNIDO
4.2.3	Based on analytical data available form different type of wastes, a feasibility study will be carried out to identify the suitable technology for POPs waste disposal	UNIDO

Output 4.3 National accredited analytical laboratory in operation

105. There were insufficient laboratory capacities for analyzing different types of POPs in different matrices in Armenia. During the NIP preparation, very few samples were analyzed and based on data gathered from the analyses of transformer oils, the method used was unreliable. The institutional capacity activity will be focused on upgrading of the analytical laboratory in Yerevan, which was equipped through the assistance of the NATO project.

106. Within the framework of the NATO supported project *"Inventory, monitoring and analysis of PCBs, obsolete pesticides in Armenia for environmentally sound disposal"*, a newly equipped laboratory will be established with experts specializing on the specific problems that Armenia has to solve. The laboratory will be equipped with GC-MS (Gas chromatography/mass spectrometry). The GC-MS instrumentation is a bench top PC coupled system with sample changer and computer library of organic compounds. GC ECD (Gas chromatography with electron capture detection) is a more specific instrument for the determination of halogenated compounds. The laboratory will be accredited for identification and determination of POPs and other chemicals in environmental media, food-stuffs and biomedia.

107. With the activities listed below, the new laboratory will be executing an extensive sampling campaign in all possible POPs media and analyze them. Data gathered from these analyses will be processed and interpreted and used in followed up decision-making process.

Activity		Responsibility
4.3.1	Performance of sampling campaign from selected priority areas to cover all possible POPs media - environmental compartments, foodstuffs, biological media, etc.	MNP, UNIDO
4.3.2	Identification and determination of POPs and other chemicals in these media	MNP, UNIDO
4.3.3	Processing data for its analysis and evaluation	MNP, UNIDO

Outcome 5: Project management, monitoring and evaluation

108. A project management and oversight component is designed to provide effective and efficient management support for the implementation of the project.

Output 5.1 Project management structure established

Activity		Responsibility
5.1.1	Establish the Project Steering Committee by relying on resources from related ministries or agencies at the national level, and from local governmental agencies as appropriate	MNP, UNIDO
5.1.2	Establish the National Project Management Team under Convention Implementation Focal Point	MNP
5.1.3	Recruit policy experts and technical experts in POPs and monitoring and research	MNP, UNIDO
5.1.4	Establish expert working groups for separate project components as appropriate	MNP
5.1.5	Carry out a series of management workshops to fine-tune the progress and performance of the project activities in consultation with the full project team	MNP, UNIDO

Output 5.2 An M&E mechanism designed and implemented according to GEF M&E procedures

Activity		Responsibility
5.2.1	Hold inception workshop and terminal project results evaluating workshops	MNP, UNIDO
5.2.2	Prepare the inception report	MNP, UNIDO
5.2.3	Measure impact indicators on an annual basis	MNP, UNIDO
5.2.4	Prepare Annual Project Reports and Project Implementation Reviews	MNP, UNIDO
5.2.5	Hold annual Project Steering Committee meetings	MNP, UNIDO
5.2.6	Carry out mid-term external evaluation	MNP, UNIDO
5.2.7	Carry out final external evaluation	MNP, UNIDO
5.2.8	Complete the Terminal Report	MNP, UNIDO
5.2.9	Carry out annual project financial audits	MNP, UNIDO
5.2.10	Carry out visits to selected pilot sites at least twice a year	MNP, UNIDO
5.2.11	Establish a project management information system (MIS), including a project website to disseminate information to various stakeholders	MNP, UNIDO

C.6. Tentative Timeline of the activities

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Outcome 1: Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner																								
Output 1.1 Institutional capacity for the ESM of PCB and POPs pesticides evaluated and improved																								
Activity 1.1.1 Evaluation of institutional capacity for the ESM of PCB and POPs pesticides																								
Activity 1.1.2 Development of POPs Information Management and Reporting System																								
Activity 1.1.3 Development of POPs Monitoring Network																								
Output 1.2: Data on chemicals and wastes managed																								
Activity 1.2.1 Development of the identified databases																								
Activity 1.2.2 Development of a strategy and templates for data gathering																								
Activity 1.2.3 Gathering, processing, analysis and evaluation of data																								
Output 1.3: POPs inventory and reporting system improved																								
Activity 1.3.1 Preparation of inventory forms and guidelines to holders of PCB contaminated equipment on how to carry out an inventory, notification and reporting requirements.																								
Activity 1.3.2 Identification of other potential holders of PCB equipment																								
Activity 1.3.3 Development and provision of a labelling system for use by holders of POPs-containing equipment and waste																								
Activity 1.3.4 Establishment of a database for information gathered in the POPs inventory and for future management of PCB contaminated equipment																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 1.3.5 Training of State Inspection on identification and notification of PCB contaminated equipment																								
Output 1.4 Efficient cooperation on POPs related issues and information/ knowledge and skills exchange for decision makers, professionals, public and their involvement and active participation ensured																								
Activity 1.4.1 Establishment of an inter-ministerial Committee on POPs issues																								
Activity 1.4.2 Establishment of expert working groups from different agencies, institutions, universities, research and development institutes for separate POPs issues																								
Activity 1.4.3 Information exchange forum at the Ministry of Natural Protection web page will be set up, including publication of the relevant reports and articles updated, national and international																								
Activity 1.4.4 Raising awareness of policy makers on specific POPs issues including waste management policies, risk reduction measures via informative meeting organized																								
Activity 1.4.5 Conduct meetings with identified key stakeholders to secure their active participation in the project.																								
Output 1.5 Strengthening of Existing Laboratories for POPs Analysis																								
Activity 1.5.1 Evaluation and introduction of international standard sampling and analysis procedures supported by appropriate capacity building																								
Activity 1.5.2 Intensive training of the laboratory staff to perform analytical studies, including GLP principles introduction																								
Activity 1.5.3 Establishment of international contacts and collaborations with other laboratories including participation in intercalibration studies, etc.																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 1.5.4 Conduct monitoring of POPs in all environmental compartments, foodstuffs and biological material																								
Output 1.6 Sustainable financing mechanism for follow up activities secured																								
Activity 1.6.1 Explore public-private partnerships to involve private sectors in investing and operating POPs reduction and control projects and study the economic and financial policies that will ensure the reasonable rate of return of the investments																								
Activity 1.6.2 Organize and hold fund raising workshop for governmental institutions – possible utilization of existing and coming funds from EU, bilateral donor funds, etc																								
Activity 1.6.3 Hold fund raising workshops by inviting key stakeholders at home and abroad, including related ministries, multi-lateral organizations, bilateral countries, financial institutions, private sectors and the public																								
Outcome 2: Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention																								
Output 2.1 Survey and evaluation of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides carried out																								
Activity 2.1.1 Review of existing legislation regarding compliance with Stockholm Convention obligations																								
Activity 2.1.2 Evaluation of existing legislation as well as conduct of a gap analysis to define national needs in view of the implementation of the Stockholm Convention																								
Output 2.2 Legal basis for POPs chemicals and wastes management improved - normative documents for sound chemicals and wastes management developed and adopted.																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 2.2.1 Development and/or amendment of identified laws, regulations, standards and technical guidelines																								
Activity 2.2.2 Development and adoption of a risk assessment methodology																								
Activity 2.2.3 Development and adoption of a risk reduction strategy																								
Activity 2.2.4 Development and adoption of a set of risk reduction measures																								
Activity 2.2.5 Development and adoption of a national action plan for the final disposal of POPs chemicals and hazardous waste																								
Outcome 3: Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities																								
Output 3.1 Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders developed and put in place																								
Activity 3.1.1 Development of information campaign program and training modules for professionals and the public																								
Activity 3.1.2 Adoption of the information campaign program and training modules in close cooperation with relevant authorities such as Occupational Safety Authority and others																								
Activity 3.1.3 Identification of project stakeholders for participation in the awareness raising and training programme																								
Activity 3.1.4 Set up a close cooperation with local NGOs, Ministry of Education, Universities and research centres, national and local media to disseminate information																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Output 3.2 Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place																								
Activity 3.2.1 Presentations of credible scientist and researchers for decision makers on POPs issues, their health and environmental impacts																								
Activity 3.2.2 Establishment of a network of scientists to exchange information on international chemicals management																								
Activity 3.2.3 Conduct of safety rules trainings for different groups of people professionally exposed to POPs and hazardous chemicals, as industry employees, staff of the power and heat generating and distributing companies, and units responsible for handling and disposal of waste																								
Activity 3.2.4 Conduct of risk assessment and risk management courses for persons in charge at selected ministries, agencies, research institutes and other relevant stakeholders																								
Output 3.3 Awareness raising activities held on POPs issues for different population groups (general public, pupils, students, doctors) and mostly children and women who are vulnerable to POPs exposure																								
Activity 3.3.1 Motivating media channels to disseminate POPs information in cooperation with Government, research and scientific centers and NGOs.																								
Activity 3.3.2 Preparation of materials (leaflets, articles, interviews, posters, presentations, etc.) on POPs environmental and human health impacts																								
Activity 3.3.3 Organize and hold public meetings, presentations at schools, lectures at universities, sites visits, project results presentations etc.																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Outcome 4: Improved capacity on POPs management issues, including disposal of PCBs and pesticides in an environmentally sound manner.																								
Output 4.1 Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB identified in energy and industry private sector; and POPs pesticides waste recorded																								
Activity 4.1.1 Operation and update of the database with PCB contaminated equipment and POPs wastes, interactive use of stored data with management and supervisory entities																								
Activity 4.1.2 Identification of national/local capacities for safe collection, packaging, transport and safe interim storage of POPs wastes																								
Activity 4.1.3 Identification and proposal of best available measures how to upgrade waste storage sites (PCB and pesticides) and avoid spreading of contamination																								
Output 4.2 Affordable BAT and BEP options formulated and feasibility study for the phase out and disposal of POPs wastes carried out																								
Activity 4.2.1 Review of available disposal technologies and methods.																								
Activity 4.2.2 Assessment and selection of suitable and affordable BAT/BEP technology for disposal of POPs waste																								
Activity 4.2.3 Based on analytical data available from different type of waste, the feasibility study will be carried out for identification of suitable technology for disposal of POPs waste.																								
Output 4.3 National accredited analytical laboratory in operation																								
Activity 4.3.1 Performance of sampling campaign from selected priority areas to cover all possible POPs media - environmental compartments, foodstuffs and biological media.																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 4.3.2 Identification and determination of POPs and other chemicals in these media.																								
Activity 4.3.3 Processing data for its analysis and evaluation.																								
Outcome 5: Project management, monitoring and evaluation																								
Output 5.1 Project management structure established																								
Activity 5.1.1 Establish the Project Steering Committee																								
Activity 5.1.2 Establish the National Project Management Team under Convention Implementation Focal Point																								
Activity 5.1.3 Recruit policy experts and technical experts in POPs and monitoring and research																								
Activity 5.1.4 Establish a local project management modules in selected provinces as appropriate																								
Activity 5.1.5 Carry out a series of management workshops to fine-tune the progress and performance of the project activities in consultation with the full project team																								
Output 5.2 An M&E mechanism designed and implemented according to GEF M&E procedures																								
Activity 5.2.1 Hold the inception workshop and terminal project results evaluating workshops																								
Activity 5.2.2 Prepare the inception report																								
Activity 5.2.3 Measure the impact indicators on an annual basis																								
Activity 5.2.4 Prepare annual project reports and Project Implementation Reviews																								
Activity 5.2.5 Hold annual PSC meetings																								

Outputs/Activities	Duration of Project (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 5.2.6 Carry out mid-term external evaluation																								
Activity 5.2.7 Carry out final external evaluation.																								
Activity 5.2.8 Complete the Terminal Report.																								
Activity 5.2.9 Carry out annual project financial audits																								
Activity 5.2.10 Carry out visits to selected pilot sites at least twice a year																								
Activity 5.2.11 Establish a project management information system (IMS) including project website to disseminate information to various stakeholders																								

C.7. RISKS, SUSTAINABILITY AND REPLICABILITY

Possible Risks

109. The risks are identified as follows:

Risk	Risk management measures
Unstable public institutional condition in the country that could cause major structural and human resource changes at the national executing agency.	Despite the recent change of presidential personnel, there was a clear declaration to continue the reforms undertaken for Armenia's speedy development and democratisation, to uphold economy growth rate, reduce poverty, introduction of a new quality of life, Armenia's deeper international involvement, as well as a fair and final resolution of the Nagorno Karabagh conflict. There is a strong support from the MNP and other related stakeholders where experts have been working on POPs problems for several years (since NIP development) including the SC OFP that secures continuity of the policy implementation in this area. Involvement and commitment of key stakeholders from the public and private sectors can greatly reduce this risk.
Enduring and effective cooperation between concerned agencies at all levels of government is unable to be achieved for the implementation of the project.	This risk is addressed by involving all stakeholders and coordination office. It will also involve training and workshops aimed at increasing awareness of the need for cross-sectoral cooperation and the improved mechanisms required to achieve it. The coordinating role of the PSC and MNP will facilitate cooperation and all the stakeholders should have expressed commitment to the program, an important factor in facilitating local-level cooperation. As the project evolves, additional mechanisms for improved coordination will be explored. Local leaders will be targeted for training and awareness building under the project.
Delays in project implementation and low quality performance due to low human resources capacity.	Carefully selected well-staffed institutions with clear mandate and measurable indicators. Moreover, an adaptive monitoring practice will enable timely implementation and high quality results.
Difficulties of securing access to different sources of information within the public administration and private enterprises.	During the project implementation, a systemic plan for institutional strengthening on data collection, processing and reporting will be implemented; corresponding training and public awareness have been designed to support the implementation of this plan.
Lack of ability to develop appropriate arrangements to attract national and international private investment or secure support for the development and implementation of public/private partnerships.	This risk is addressed through support of a study for co-financing the NIP implementation. Furthermore, the project will support the development and implementation of activities to inform the private sector and NGOs of opportunities and to encourage their support.
Opposition of the private and civil sector regarding the management strategies for PCBs and POPs pesticides.	Public awareness raising and inclusion of all stakeholders at the concept level and in both project preparation and implementation will minimize the likelihood of this risk to occur.
Insufficient project management capacities might lead to delays or restrict the achievement of full benefits of the project.	A well defined project management system will be followed including the establishment and chair of the PSC, selection of skilled individuals, implementation of a well defined monitoring system and close supervision of UNIDO, in order to ensure effective and timely delivery of the proposed outputs.

Sustainability

110. Sustainability implies not only the commitment of Armenia and its development of a NIP that provides initiatives to mainstream the objectives of the Convention into the nation's broader development policies and strategies, but also its initiation on the basic and foundational capacity building that are intended to be permanent and will be able to ensure that Armenia moves successfully from development to the subsequent implementation of its plan.

111. The project aims to establish basic, foundational and permanent capacities in the view of the obligations of the Convention to be implemented nationwide. Project sustainability will be assured through a combination of the following:
    - integration of the requirements of the Convention into the policy framework,
    - active participation of stakeholders,
    - institutional strengthening of the capacity for enforcement,
    - establishment and/or strengthening of the capacity in the fields of monitoring, R&D, technology transfer, management information system and reporting,
    - raising awareness among various stakeholders.

112. It is expected that sustainability would be reached, characterized by the following:
    - The obligations under the Convention are integrated accordingly into the existing environmental and chemicals management polices, national standards and guidelines.
    - Enforcement capacities are strengthened and the requirements on management, inspection and supervision of POPs issues are taken into the routine tasks by relevant administrations.
    - Relevant stakeholders are acquainted with the obligations of the Convention and are willing to take actions as required through various trainings.
    - The foundational capacity for monitoring in view of POPs established through improvement of the capacity of existing monitoring and laboratories and taking measures in order to get comparable and reliable monitoring data.
    - The information collection channels for the chemicals listed in Annex A and B of the Convention are established.
    - POPs concept are integrated in the education, POPs issues come up from time to time in the public debate and participants from research, labour, industry and public interest have good access to knowledge to participate well in the debate.
    - An active interplay with transfer of knowledge between the central level and municipalities and regions.
    - As far as practicable, interplay between the capacity building for POPs and other environmental issues and for the nation's broader development policies and strategies.
    - Manuals and guidelines on POPs management and control will be compiled to integrate the relevant policy, experiences and lessons gained during the implementation of the proposed project. The experiences and lessons learned will be summarized and disseminated to other areas in Armenia and other countries through a dissemination workshop and POPs website.

113. Nevertheless, it is recognized that capacity building and institutional strengthening proposed in this project could not cover all the scope of the capacity due to the complication of the measures on POPs control and the consequent development of the obligation under the Convention. For this reason, this project will help to develop and invite donor support for a proposal for the future capacity building programme, which will be based on the experiences gained and the broadened obligations in order to enable Armenia to meet its obligations under the Convention continuously. It will assure the sustainability and continuous employment of locally recruited project personnel where they will continue their respective activities focusing on country-wide replication of project results. With such an arrangement important institutional structures will also be sustainable.

114. Sustainability will be achieved through integrating the outcomes of the MSP into:

- Existing national legal system
- Coordination with the National POPs Priority Programmes and other National Priority Projects from the NIP.
- The "*National Environmental Action Plan for 2009 - 2012*". Among the specific objectives of the Action Plan, there are several directly related to POPs issues. These include:
  - Creation of the Register on facilities for disposal sites of wastes, including POPs
  - Monitoring of POPs contaminated sites
  - Establishment of a Laboratory for POPs analyses
  - Establishment of a Cleaner Production Centre
  - Application of BAT and BEP for POPs environmentally sound disposal;
  - Design and maintenance of a Data base on POPs destruction technologies
  - Elaboration of Guidelines for hazardous wastes sound disposal
  - Clean-up and remediation of POPs contaminated sites
  - Construction of polygons for safe final disposal (burying) of hazardous wastes.

Financial Sustainability

115. As a Party to the Stockholm Convention, Armenia is obligated to identify, manage, and dispose of POPs in an environmentally sound manner. The proposed project is focused on the establishment of a national inventory of holders of POPs (PCB containing and contaminated equipment, POPs pesticides) and a management plan for the ultimate disposal of this stock of different POPs wastes according to the program set out in the Convention.

116. The sustainable management of this residual stock of POPs wastes will be assured with the support of the capacity building activities of the project, which will provide training of Inspectors in all aspects of POPs enforcement, management and control and in establishing Inspector networks across the country. In addition the strengthening of the analytical capabilities of the laboratory in PCB and POPs measurements will allow Inspectors and other regulators to track POPs in equipment, in process, in emissions and in the environment. A comprehensive system of POPs regulation, testing, enforcement, management, data storage and information exchange will be put in place to assure the Convention Parties of Armenia's commitment to the complete elimination of POPs in the country and the protection of its people and the environment.

117. In order to ensure sustainability in activities introduced, considerable responsibility for the safe management of the PCB equipment and POPs pesticides will be put on the owners/possessors of the contaminated equipment and pesticides. This will ensure that the financial implications of the legislation will not be borne solely by the Government. Best efforts will be put in foreseeing that the Government of Armenia will ensure that due resources will be given to equipment inspections and other enforcement. One way of ensuring this will be to assist in integrating PCB issues in the overall scheme of industrial pollution control enforcement.

118. The installment of the treatment/disposal plant as well as guaranteeing that waste owners will use it for processing the POPs waste will need careful design. One of the project components is study elaboration to select the most suitable technology reflecting the all local specifications of POPs waste to be disposed of including a specific precondition of territory isolation connected with difficulties with safe transport of any type of hazardous waste. To the other most important prerequisites of safe management of POPs in Armenia will be the passing of legislation requiring POPs to be handled and managed according to highest environmental standards. Further, the regulations establishing contaminated sites management needs to be developed and put in effect.

119. In follow-up projects will be necessary to secure international co-financing for the establishment and building of the waste treatment/disposal technology. Current project activities are focused on seeking potential donors – international and local. There is a workshop and a donor conference planned to be held during the project implementation to attract international financial

support. Exploring potential for Public Private Partnerships with local POPs holders and focus on direction of private industry sector investments into introduction in ESM system and utilization of safe interim storages prior disposal in installed technology.

Replicability

120. The project is attempting to improve the policy systems related chemicals and pesticides with the requirements of POPs in mind. Meanwhile, it will strengthen the enforcement and implementation capacity at various levels. The approach and outputs achieved will be appropriate to replicate for the management and control for other harmful chemicals and pesticides.

121. The Government is strongly committed to move ahead with replication as the existing policy and regulatory framework for POPs is incomplete and does not allow the effective and efficient implementation of the Stockholm Convention's obligations. The first step in this direction would be the development and formulation of the new **Regulations on POPs Reduction and Control** that will be based on the gap analysis of Armenian legislation made during the NIP preparation and will be carried out through this project.

122. This project is designed to enable Armenia to establish the basic and foundational capacity for the Convention implementation and to test the advanced approaches at the demonstration areas in order to further strengthen the systemic enforcement and/or implementation capacity of the national level. The feasible experiences gained in the focal areas would be disseminated which would eventually benefit the rest of the country.

123. The proposed project will be attempting to establish the pertinent capacity with regard to almost all the categories of POPs, including intentionally produced POPs, POPs wastes and contaminate sites. In addition to introducing the actions, achievements and progress in the website as an important delivery of this project, a manuals and guidelines on POPs management and control will be compiled to integrated policies and the experiences gained. A dissemination workshop is planned to introduce the experiences gained to the interested stakeholders with a view to promoting the replication of the experiences with suitable modification to other countries.

124. Furthermore, the effective approaches to implement such project with multi-level objectives, broad stakeholder participation will be a good example for similar project implementation, especially, for the implementation of the further capacity project.

125. This project does not seek to introduce a new approach to POPs management and control, but uses well established models from the experience of other countries. Since the project targets the whole country, internal replicability does not apply as it would in a much larger country where one province or state was initially targeted for POPs phase out. However, as a country model the approach adopted would be replicable in other relatively countries with strong central government systems.

SECTION D. INPUTS

D.1. Counterpart inputs

126. The GEF, as the financial mechanism for the Stockholm Convention will provide a proposed US$ 830,000 incremental cost funding for the project, including US$ 25,000 expended for the project preparation. The Government of Armenia through the Ministry of Nature Protection has committed US$ 1,848,460 as cash and in-kind contribution to the project.

127. POPs issues in Armenia have captured the attention of a number of donors in Armenia including Switzerland, NATO, UNITAR, SAICM, NGOs, and some local private companies. The entry point varies amongst the donors, depending on the sector with whom they have shared interests. The PMT will coordinate the activities of the donors in this sector to achieve maximum synergies and efficient use of donor resources.

128. The following are proposals for assistance in the capacity building in the area of POPs management and reduction in Armenia:

1. Project Government Contribution – development of the legislative (norms, standards, guidelines, etc.) and institutional basis for environmentally sound handling (monitoring, inventory, packaging, storage, labeling, and disposal) of POPs in a total amount of US$ 400,000 of which US$ 340,000 (US$ 135,000 as a grant and US$ 205,000 in-kind) from the Government and US $ 60,000 (US $ 10,000 – in-cash and US $ 50,000 in-kind) on behalf of the Waste Research Center at the Ministry of Nature Protection for workshops/trainings, for preparation of POPs related legislation (norms, standards, regulations) and also for sampling and analyses of POPs.

2. Government of Switzerland through the Swiss Agency for Environment, Forests and Landscape (SAEFL) supports Armenia's request for co-financing of this MSP to enforce its capacity building activities with a total amount of US$ 200,000. The assistance is focused on PRTR system introduction in Armenia.

3. UNITAR is providing financial support for the project by the SAICM Quick Start Programme Trust Fund in total of US$ 100,000 as cash and in-kind contribution. It commits to support following activities: update of a National Profile; gathering detailed baseline and capacity – related information; strengthening priority setting and decision making capabilities related to planning and strategy development for the sound management of chemicals; strengthening national coordination, awareness raising and information exchange; and strengthening foundation of sound chemicals management.

4. EU/Armenia – is direct co financing of the state budget for management system of the identification, record keeping and tracking, capacity support of collection, packaging, transport, interim storage and disposal of PCB identified (phased out and operational) in energy and industry private sector and POPs pesticide wastes recorded in the "Waste Research Center" of the Ministry of Nature Protection; as well as support of affordable BAT and BEP options for the Republic of Armenia identification and development of a feasibility study for the phase out and disposal of POPs wastes.

5. In the framework of the Science for Peace and Security Programme NATO has awarded a grant for the NATO project *"Inventory, Monitoring and Analysis of Obsolete Pesticides in Armenia for Environmentally sound Disposal"*; this grant is focused on upgrading analytical laboratory capacity to identify the POPs content of different matrices in Armenia. NATO will provide to the Ministry of Nature Protection laboratory equipment for identifying the content of obsolete pesticides and other POPs in different environmental compartments. The total NATO financing is US $ 325.000.

6. Private Sector – Armenian Copper Programme, ARMENENERGONALADKA, ARMENENERGOREMONT (private companies maintaining and recycling the energy equipment including PCB contaminated transformers) have been contacted during the project preparation and they expressed willingness to participate. Their financial

contribution to the project will be identified during the inception phase of the project. The sum of US $ 100.000 was indicated as in-kind in form of participation of private sector stakeholders in the project activities focused on ESM system introduction in selected demonstration areas.

7. SAICM project – "Prioritization of chemical risks at national level in a global context (PrioChemRisks)" funded in total amount of US $ 300.000. The project objectives fully support the SAICM Strategic Priorities and Overarching Policy Strategy for risk reduction, knowledge and information, governance, capacity-building and technical cooperation, as well as are consistent with the overall objective of the QSP to use the Trust Fund resources to "support initial enabling capacity building and implementation activities in developing countries, least developed countries, small island developing States and countries with economies in transition".

129. To facilitate the project an initial activity would be to create a multi-stakeholder committee consisting of stakeholders from state structures, academy/research institutes, NGOs, as well as industrial sector of the country. The attainment of project objectives would require solution of the following three Project activity areas:

- Project Activity Area 1: Risk identification and assessment including identification of priority chemicals, related problems and "hot spots" according to their impact on the environment and human health and introduction and application of risk assessment methodology;
- Project Activity Area 2: Formulation of National Strategies for reduction of risk of priority chemicals as part of a National Action Plan on SAICM implementation;
- Project Activity Area 3: Knowledge and awareness raising in general population on possible hazards of contact with hazardous chemicals and pesticides.

Baseline scenario

130. The current baseline constitutes of under-capacitated national government with the preliminary identification of POPs sources and assessment of their quantities. Initial public awareness and participation have been achieved through the development of the NIP. The NIP also highlights the general socio-economic status of the country and provides a baseline for GEF's support. Overall, the establishment and maintenance of effective legal, scientific, economic, and political institutional framework for POPs´ management are significantly hampered because of insufficient human and financial resources. This deficiency is further compounded by the lack of adequate human resources at administrative and technical level that is required to design, implement, monitor, and enforce relevant policies, regulations as well as develop and formulate programs that are vital in the implementation of the Convention.

131. Under the Baseline Scenario and absence of this project, Armenia would face a significant shortage of capacities at various levels and would continue to encounter the existing barriers to cost-effective implementation of the Stockholm Convention, including:

- Lack of an enabling policy and regulatory environment;
- Lack of mechanisms for sustainable co-financing;
- Weak monitoring capacity for POPs;
- Lack of an effective mechanism for orienting R&D towards Convention implementation;
- Lack of an effective mechanism for technology transfer;
- Unavailability of and limited access to information;
- Weak institutional capacity for planning, guiding and enforcement for the Convention compliance;
- Under capacity in evaluation for continuous improvement of NIP implementation;
- Low public awareness on POPs; and
- Lack of qualified human resources.

132. Some of the above barriers may be partially addressed by thematic projects within their scope. However, due to the cross-cutting nature of these barriers and the limited scope of thematic projects, this will not be sufficient to completely eliminate all of them. The proposed project will allow an efficient use of GEF resources by allowing capacity building activities to be implemented in a cost-effective manner, e.g., where stakeholders are affected by multiple POPs areas, a training program could be designed and delivered to address those areas simultaneously, rather than conducting separate training programs for each thematic area as would otherwise be the case. Similarly, one POPs center can be established spanning multiple sectors, given the functional overlap and obviating the need for separate centers in different sectors for each thematic area. Without this project, mechanisms to allow for such coordinated and cost-effective use of the GEF's limited resources for Convention implementation would not be able to be established and innovative practices to achieve the NIP objectives would not be possible.

133. The formulation of an effective and efficient management framework to prevent, reduce or eliminate releases from POPs and to introduce environmentally sound management of POPs wastes should be based on adequate scientific and socio-economic data and information. Under the baseline scenario, decision makers cannot take in account the threats posed by POPs on human health and environmental in the national context. The costs incurred by possible changes and identification of realistic measures required for effective and efficient management cannot be identified. Difficulties in providing adequate scientific and socio-economic data including the absence of pertinent, comprehensive and specific scientific data with special emphasis on the risk they pose to humans, wildlife and the environment and lack of tools for proper assessment of the socio-economic aspects related to this issue further escalate the current weaknesses.

Global Environmental Objective

134. Persistent Organic Pollutants (POPs) are toxic chemicals that resist degradation, bio-accumulate and have the potential for long-range transport and therefore their exposure can harm human health and ecosystems at locations nearby the site from which they escape into the environment and also at very far distances from that site and can impact adversely on wildlife, aquatic and marine life, domestic animals and humans. Due to their unique properties, POPs do not respect national boundaries, and therefore pose a special kind of challenge that makes it impossible for any one-nation acting alone to remedy the problems and hence global action is warranted.

135. Armenia is experiencing difficult period of transformation of its economy into a market economy. This has brought heavy pressure to the local protection of human health and the environment. Enabling Armenia to comply with the obligations set out in the Stockholm Convention will have a significant and positive influence not only on Armenia's own chemicals management regime but also on the ultimate global success of the Convention to protect human health and the environment from the threat of POPs adverse effects.

136. As a direct output of the NIP development project, this proposed project is designed to maintain the momentum that has been created during the preparation of the NIP. While contributing to the major elements influencing the reduction and elimination of POPs, the project will build up the regulatory and institutional enabling environment to provide comprehensive and indispensable support for effectively and efficiently implementing the ongoing and potential technical assistance projects.

137. The proposed project is contributing to local and global public good by reducing the risk of contamination to the environment through releases of POPs contaminated pesticides and PCBs. Typical economic or financial analysis is difficult in this situation. While it may be theoretically possible to apply cost-benefit analysis to the process, the lack of reliable base data on health and the controversial aspects related to the valuation of human life make such an analysis impractical. It is nonetheless clear that the benefits from reducing damage to the environment and to human health from releases of POPs will substantially exceed the costs associated with implementing this project. Health impacts associated with POPs exposure include suppressed immune systems, respiratory damage, reproductive health problems, cancer and neurological

and behavioural problems. It is difficult to establish the direct link between exposure and health conditions under the best of conditions and in Armenia there is scarce documentation of any types of environmental health conditions. However, the health problems caused by POPs are clearly evidenced in the Armenian health profile; the contamination of water, soils, and other media, e.g. mother's milk, by POPs is documented; and the exposure risks are demonstrable. The project will seek maximum cost-effectiveness in all of its interventions, and it has used maximum risk reduction as the criterion to prioritize among the POPs issues being addressed.

Alternative

138. With this project, Armenia will be enabled to respond to the capacity building articles of the Convention effectively. The strengthened regulatory framework will upgrade the related standards of environmental quality, product quality, and POPs release to an internationally recognized level. The improved monitoring capacity will help to produce a more transparent inventory of POPs releases in Armenia. The various mechanisms, platforms and partnerships to be established by this project will lay a fundamental basis for effective and efficient reduction and elimination of POPs in Armenia and generate significant domestic and global benefits.

1. **Domestic benefits** of this project may include quicker and cheaper transition to:
   - Spin-off effects concerning strong institutional management support, strengthening of environmental legal frameworks and environmental monitoring capacities for actions resulting in POPs reduction in environment.
   - Reduced pollution to water, soil, organisms and ecosystems resulting in better conditions for living, human health and clean production of food stuffs.
   - Better education and awareness raising among professionals and the public for protection their health and environment.

2. **Global benefits** may include more effective and efficient reduction and elimination of POPs that will reduce global harm to environment and human health. Global benefits can also be achieved through dissemination of the experience gained by Armenia on capacity building requirements, which could serve as a reference for other developing countries that face similar POPs related problems.

Summary Incremental Cost Matrix in US$

Project Components/Outcomes	Baseline	Increment	Alternative
Outcome 1: Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner	430,000	296,000	726,000
Outcome 2: Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention	320,000	81,000	401,000
Outcome 3: Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities	195,000	132,000	327,000
Outcome 4: Improved capacity on POPs management issues, including disposal of PCBs and POPs pesticides in an environmentally sound manner.	703,460	216,000	919,460
Outcome 5: Project management, monitoring and evaluation	200,000	80,000	280,000
Total project costs	**1,848,460**	**805,000**	**2,653,460**

D.2. UNIDO inputs

139. UNIDO will provide an in-kind contribution of US$ 45,000 for project management, monitoring and evaluation.

SECTION E. BUDGET

E.1 Project budget (GEF only) in US$

Outputs	Budget line	Budget description	Year 1		Year 2		Total	
			US$	w/m	US$	w/m	US$	w/m
Output 1.1: Institutional capacity for the ESM of PCB and POPs pesticides evaluated and improved	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	8,000	4.0	6,000	3.0	*14,000*	*7.0*
	35-00	Workshops & meetings	5,000		2,000		*7,000*	
Output 1.2: Data on chemicals and wastes managed	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	14,000	7.0	8,000	4.0	*22,000*	*11.0*
	35-00	Workshops & meetings	2,000		2,000		*4,000*	
Output 1.3: POPs accounting, inventory and reporting system improved, PRTR set-up, PCB inventory improved	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	15-00	Project travel	4,000		4,000		*8,000*	
	17-50	National short-term consultants	22,000	11.0	18,000	9.0	*40,000*	*20.0*
	33-00	In-service training	12,000		6,000		*18,000*	
Output 1.4: Efficient cooperation on POPs related issues and information/ knowledge and skills exchange for decision makers, professionals and public involvement ensured	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	10,000	5.0	8,000	4.0	*18,000*	*9.0*
	35-00	Workshops & meetings	11,000		8,000		*19,000*	
Output 1.5: Existing laboratories for POPs analysis strengthened	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	15-00	Project travel	15,000		5,000		*20,000*	
	17-50	National short-term consultants	8,000	4.0	4,000	2.0	*12,000*	*6.0*
	33-00	In-service training	10,000		6,000		*16,000*	

Outputs	Budget line	Budget description	Year 1		Year 2		Total	
			US$	w/m	US$	w/m	US$	w/m
Output 1.6: Sustainable financing mechanism for follow up activities secured	11-50	International short-term consultants	0	0	5,000	0.5	*5,000*	*0.5*
	17-50	National short-term consultants	3,000	1.5	2,000	1.0	*5,000*	*2.5*
	35-00	Workshops & meetings	0		3,000		*3,000*	
	45-00	Equipment for data processing	35,000		0		*35,000*	
TOTAL OUTCOME 1			***184,000***	***35.0***	***112,000***	***26.0***	***296,000***	***61.0***
Output 2.1: Survey and evaluation of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides carried out	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	11,000	5.5	8,000	4.0	*19,000*	*9.5*
	35-00	Workshops & meetings	5,000		5,000		*10,000*	
Output 2.2: Legal basis for POPs chemicals and wastes management improved, normative documents for sound chemicals and wastes management developed and adopted	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	8,000	4.0	6,000	3.0	*14,000*	*7.0*
	33-00	In-service training	12,000		6,000		*18,000*	
TOTAL OUTCOME 2			***46,000***	***10.5***	***35,000***	***8.0***	*81,000*	***18.5***
Output 3.1: Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders developed	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	17-50	National short-term consultants	8,000	4.0	4,000	2.0	*12,000*	*6.0*
Output 3.2: Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	15-00	Project travel	4,000		4,000		*8,000*	
	17-50	National short-term consultants	12,000	6.0	10,000	5.0	*22,000*	*11.0*
	33-00	In-service training	8,000		5,000		*13,000*	
	35-00	Workshops & meetings	3,000		2,000		*5,000*	

Outputs	Budget line	Budget description	Year 1		Year 2		Total	
			US$	w/m	US$	w/m	US$	w/m
Output 3.3: Awareness raising activities held on POPs issues for different population groups (general public, pupils, students, doctors) and mostly children and women who are vulnerable to POPs exposure	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	15-00	Project travel	4,000		4,000		*8,000*	
	17-50	National short-term consultants	14,000	7.0	14,000	7.0	*28,000*	*14.0*
	35-00	Workshops & meetings	3,000		3,000		*6,000*	
TOTAL OUTCOME 3			***71,000***	***18.5***	***61,000***	***15.5***	***132,000***	***34.0***
Output 4.1: Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB developed and operational in energy and industry private sector and POPs pesticides waste recorded	11-50	International short-term consultants	10,000	1.0	15,000	1.5	*25,000*	*2.5*
	17-50	National short-term consultants	14,000	7.0	14,000	7.0	*28,000*	*14.0*
	35-00	Workshops & meetings	2,000		3,000		*5,000*	
Output 4.2: Affordable BAT and BEP options formulated and feasibility study for the phase out and disposal of POPs wastes carried out.	11-50	International short-term consultants	5,000	0.5	15,000	1.5	*20,000*	*2.0*
	17-50	National short-term consultants	2,000	1.0	2,000	1.0	*4,000*	*2.0*
	35-00	Workshops & meetings			4,000		*4,000*	
Output 4.3: National accredited analytical laboratory in operation	11-50	International short-term consultants	5,000	0.5	5,000	0.5	*10,000*	*1.0*
	15-00	Project travel	3,000		3,000		*6, 000*	
	17-50	National short-term consultants	8,000	4.0	6,000	3.0	*14,000*	*7.0*
	21-00	Subcontract for Sampling & analysis	20,000		35,000		*55,000*	
	33-00	In-service training	5,000		15,000		*20,000*	
	45-00	Testing equipment	15,000		10,000		*25,000*	
TOTAL OUTCOME 4			***89,000***	***14.0***	***127,000***	***14.5***	***216,000***	***28.5***

Outputs	Budget line	Budget description	Year 1		Year 2		Total	
			US$	w/m	US$	w/m	US$	w/m
Output 5.1: Project management structure established	11-50	International short-term consultants			5,000	0.5	*5,000*	*0.5*
	15-00	Project travel	6,000		5,000		*11,000*	
	17-50	National short-term consultants	24,000	12.0	20,000	10.0	*44,000*	*22.0*
	51-00	Printing, editing, translation	2,500		2,500		*5,000*	
Output 5.2: An M&E mechanism designed and implemented according to GEF M&E procedures	11-50	International short-term consultants	5,000	0.5	10,000	1.0	*15,000*	*1.5*
TOTAL OUTCOME 5			***37,500***	***12.5***	***42,500***	***11.5***	***80,000***	***24.0***
TOTAL PROJECT COSTS			***430,000***	***90.5***	***375,000***	***75.5***	***805,000***	***166.0***
TOTAL PPG							***25,000***	
GRAND TOTAL PROJECT COSTS (including PPG)							***830,000***	

E.2 Co-financing budget by Outputs (in US$)

Outputs	Co-financing (**CASH/GRANT**) in US$							Co-financing (**IN-KIND**) in US$						
	Gov. of Armenia (MNP)	WRC	Gov. of Switzerland	UNITAR	NATO	SAICM	Private Sector	Gov. of Armenia (MNP)	WRC	EU/ Armenia	UNITAR	Local NGOs	UNIDO	TOTAL
Output 1.1: Institutional capacity for the ESM of PCB and POPs pesticides evaluated.	20,000	-	-	-	-	-	-	-	-	-	-	-	-	20,000
Output 1.2: Managing data on chemicals and wastes.	20,000	-	-	10,000	-	-	-	-	-	-	-	-	-	30,000
Output 1.3: POPs accounting, inventory and reporting system improved, PRTR set-up, PCB inventory improved.	20,000	-	30,000	-	-	-	-	-	-	-	50,000	-	-	100,000
Output 1.4: Efficient cooperation on POPs related issues and information/ knowledge and skills exchange for decision makers, professionals and public involvement ensured.	5,000	-	-	20,000	-	-	-	-	-	-		-	-	25,000
Output 1.5: Strengthening of existing laboratories for POPs analysis.	-	-	-	-	250,000	-	-	-	-	-	-	-	-	250,000
Output 1.6: Securing sustainable financing mechanism for follow up activities	5,000	-	-	-	-	-	-	-	-	-	-	-	-	5,000
TOTAL OUTCOME 1	***70,000***	***-***	***30,000***	***30,000***	***250,000***	***-***	***-***			***-***	***50,000***	***-***		***430,000***
Output 2.1: Survey and evaluation of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides carried out.	10,000	-	50,000	-	-	-	-			-	-	-		60,000
Output 2.2: Legal basis for POPs chemicals and wastes management improved, normative documents for sound chemicals and wastes management developed and adopted.	30,000	10,000	-	-	-	200,000	-	-	20,000	-	-	-		260,000
TOTAL OUTCOME 2	***40,000***	***10,000***	***50,000***	***-***	***-***	***200,000***	***-***	***-***	***20,000***	***-***	***-***	***-***	***-***	***320,000***

Outputs	Co-financing (**CASH/GRANT**) in US$							Co-financing (**IN-KIND**) in US$						
	Gov. of Armenia (MNP)	WRC	Gov. of Switzerland	UNITAR	NATO	SAICM	Private Sector	Gov. of Armenia (MNP)	WRC	EU/ Armenia	UNITAR	Local NGOs	UNIDO	TOTAL
Output 3.1: Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders developed.	5,000	-	10,000	-	-	50,000	-	-	-	-	-	5,000	-	70,000
Output 3.2: Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place.	5,000	-	5,000	-	-	25,000	-	-	-	-	-	10,000	-	45,000
Output 3.3: Awareness raising activities held on POPs issues for different population groups (general public, pupils, students, doctors) and mostly vulnerable to POPs exposure (children and women).	5,000	-	5,000	20,000	-	25,000	-	-	10,000	-	-	15,000	-	80,000
TOTAL OUTCOME 3	***15,000***	***-***	***20,000***	***20,000***	***-***	***100,000***	***-***	***-***	***10,000***	***-***	***-***	***30,000***	***-***	***195,000***
Output 4.1: Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB developed and operational in energy and industry private sector; and POPs pesticides waste in the "Waste Research Center" of the Ministry of Nature Protection.	10,000	-	100,000	-	-	-	100,000	-	-	398,460	-	-	-	608,460
Output 4.2: Affordable BAT and BEP options for the Republic of Armenia formulated feasibility study for the phase out and disposal of POPs wastes carried out.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Output 4.3: National accredited analytical laboratory in operation	-	-	-	-	75,000	-	-	-	20,000	-	-	-	-	95,000
TOTAL OUTCOME 4	***10,000***	***-***	***100,000***	***-***	***75,000***	***-***	***100,000***	***-***	***20,000***	***398,460***	***-***	***-***	***-***	***703,460***

Outputs	Co-financing (**GRANT**) in US$							Co-financing (**IN-KIND**) in US$						
	Gov. of Armenia (MNP)	WRC	Gov. of Switzerland	UNITAR	NATO	SAICM	Private Sector	Gov. of Armenia (MNP)	WRC	EU/ Armenia	UNITAR	Local NGOs	UNIDO	TOTAL
Output 5.1 Establish the project management structure	-	-	-	-	-	-	-	105,000	-	-	-	-	24,000	129,000
Output 5.2 Design and implement and M&E mechanism according to GEF M&E procedures	-	-	-	-	-	-	-	50,000	-	-	-	-	21,000	71,000
TOTAL OUTCOME 5	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***155,000***	**-**	**-**	**-**	**-**	***45,000***	***200,000***
TOTAL PROJECT CO-FINANCING	**135,000**	**10,000**	**200,000**	**50,000**	**325,000**	**300,000**	**100,000**	**155,000**	**50,000**	**398,460**	**50,000**	**30,000**	**45,000**	**1,848,460**
CO-FINANCING PPG	-	-	-	-	-	-	-	50,000	-	-	-	-	25,000	75,000
GRAND TOTAL CO-FINANCING	**135,000**	**10,000**	**200,000**	**50,000**	**325,000**	**300,000**	**100,000**	**205,000**	**50,000**	**398,460**	**50,000**	**30,000**	**70,000**	**1,923,460**

SECTION F. MONITORING AND EVALUATION, REPORTING

Project implementation monitoring

Project Inception Phase

140. A project inception workshop will be conducted with the full project team, relevant government counterparts, co-financing partners and UNIDO as appropriate.

141. The fundamental objective of this Inception Workshop (IW) will be to assist the project team in understanding and assimilating the goals and objectives of the project, as well as to finalize preparation of the project's first annual work plan on the basis of the project's logical framework (logframe).

142. This work will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and completing an Annual Work Plan (AWP) for the first year of project implementation, including measurable performance indicators.

143. Additionally, the IW will: (i) introduce project staff to the UNIDO team which will support the project during its implementation; (ii) delineate the roles, support services, and complementary responsibilities of UNIDO staff vis à vis the project team; (iii) provide a detailed overview of UNIDO reporting and monitoring & evaluation (M&E) requirements, with particular emphasis on Annual Project Implementation Reviews (PIRs), the Annual Project Report (APR), as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNIDO project related budgetary planning, budget reviews, and mandatory budget rephrasing.

144. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines and conflict resolution mechanisms. The Terms of Reference (TOR) for project staff and decision-making structures will be discussed, as needed, in order to clarify each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

145. A detailed schedule of project review meeting will be developed by the project management team (PMT) in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. The schedule will include: (i) tentative time frames for Project Steering Committee (PSC) meetings (or relevant advisory and/or coordination mechanisms), and (ii) project related Monitoring and Evaluation activities.

146. Day to day monitoring of implementation progress will be the responsibility of PMT based on the project's Annual Work Plan and its indicators. PMT will inform UNIDO of any delays or difficulties faced during implementation so that appropriate support or corrective measures can be adopted in a timely and remedial fashion.

147. The National Project Coordinator (NPC) will fine-tune the progress and performance/impact indicators for the project in consultation with the full project team. Periodic monitoring of implementation progress will be undertaken by UNIDO or MNP, as appropriate through quarterly meetings with project counterparts. UNIDO and MNP will conduct periodic visits based on an agreed upon schedule. Annual monitoring will occur through Project Steering Committee (PSC) meetings, which will take place at least once a year. The terminal review will be held in the last month of the project operation. PMT is responsible for preparation of the Terminal Review and submit it to UNIDO.

148. The National Project Coordinator (NPC) will fine-tune the progress and performance/impact indicators for the project in consultation with the full project team at the Inception Workshop. Specific targets for first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of

the Annual Work Plan. Targets and indicators for subsequent years will be reviewed annually as part of the internal evaluation and planning processes undertaken by the project team.

149. Measurement of impact indicators related to global benefits will be done according to the schedules defined in the Inception Workshop. The measurement of these will be undertaken through subcontracts or retainers with relevant institutions, or through specific studies that are to form part of the projects activities. Indicators of project goal, progress and performance will be continuously monitored and evaluated throughout the whole project life. Impact indicators to be measured include but not limited to:
    - Number of laws/regulations;
    - Number of new policies/guidelines/standards ;
    - Convention compliance requirements mainstreamed into existing environmental protection instruments;
    - Capacity improvement shown in the results of new sampling and analyses: Laboratory capable of undertaking standardized POPs analyses, conducted studies; Report on the results of cross-laboratory inters comparisons and calibration;
    - Number of facilities adopting ESM system on POPs management;
    - Number of enterprises/individuals being trained;
    - Functioning of coordination mechanism between the Implementing Agency, national executing agency and its partner stakeholders within and between the government, academia, enterprises and the public;
    - Quantitative and qualitative change in percentage of the population in high-risk POPs exposure areas aware of the need for protective action;
    - Level of the stakeholder awareness of and participation in decision making and adopting measures to reduce POPs emissions and health/environmental risks related;
    - Number of workshops and consultations on relevant financing tools, number of tools identified.

150. At least two inspections will be conducted by the representatives of the MNP during project implementation to determine the extent of building capacities and adoption of ESM system and supervise enforcement of relevant regulations, rules and standards.

151. Periodic monitoring of implementation progress will be undertaken by UNIDO or the MNP, as appropriate through quarterly meetings with project counterparts, or more frequently as deemed necessary. This will allow parties to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

152. UNIDO and the MNP will conduct periodic visits based on an agreed upon schedule to be detailed in the project's Inception Report / Annual Work Plan to assess project progress. Other members of the PSC may also accompany these visits. A Field Visit Report will be prepared by UNIDO and circulated no less than one month after the visit to the project team and all PSC members.
153. Annual Monitoring will occur through PSC meetings, which will take place at least once a year. The first such meeting will be held within twelve months of the start of full project implementation. The PM will prepare an Annual Project Report (APR) and submit it to UNIDO at least two weeks prior to the TR for review and comments.

Terminal Review (TR)

154. The terminal review will be held in the last month of project operation. PMT is responsible for the preparation of the Terminal Review and submitting it to UNIDO. It shall be prepared in draft at least two months in advance of the TR in order to allow review, and will serve as the basis for discussions in the TR. The terminal review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as the vehicle through which lessons learned can be captured to feed into other projects under implementation or formulation.

Project Monitoring Reporting

155. PMT in conjunction with the PSC members will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and are specifically related to monitoring, while items (g) through (h) have a broader function and the frequency and nature is to be defined throughout implementation.

(a) Inception Report (IR)

156. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided into quarterly time-frames detailing the activities and progress indicators that will guide implementation during the project's first year. This Work Plan will include the dates of specific field visits, support missions from UNIDO and MNP or UNIDO consultants, as well as timeframes for meetings of the project's decision-making structures. The report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 month time-frame.

157. When finalized, the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, UNIDO will review the document.

(b) Annual Project Report (APR)

158. The APR is a UNIDO requirement and part of UNIDO central oversight, monitoring, and project management. It is a self -assessment report by project management to UNIDO, as well as a key input to the PSC. The APR will be prepared on an annual basis prior to the PSC to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

159. The format of the APR is flexible but should include the following:
    - Analysis of project performance over the reporting period, including outputs produced and information on the status of the outcome
    - Constraints experienced in the progress towards results and the reasons for these
    - Expenditure reports
    - Lessons learned
    - Recommendations to address key problems in lack of progress, if applicable.

(c) Project Implementation Review (PIR)

160. The PIR is an annual monitoring process mandated by the GEF. It is an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a PIR must be completed by the project team. The PIR can be prepared any time during the year (July-June) and ideally immediately prior to the PSC. The PIR should then be discussed at the PSC so that the result would be a PIR that has been agreed upon by project staff, the executing agency, and UNIDO.

161. The GEF M&E Unit provides the scope and content of the PIR.

(d) Quarterly Progress Reports

162. Short reports outlining main updates in project progress should be provided quarterly to UNIDO by the project team.

(e) Periodic Thematic Reports

163. As and when called for by UNIDO, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be

provided to the project team in written form by UNIDO and will clearly state the issue or activities that need to be reported on. These reports will be used as a form of lessons learned exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered.

(f) Project Terminal Report

164. During the last three months of the project, the project team based on the Terminal Review will prepare the Project Terminal Report (PTR). This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learned, objectives met (or not met), and structures and systems implemented. The PTR will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's activities.

(g) Technical Reports

165. Technical Reports are detailed documents covering specific areas of analysis within the overall project. As part of the Inception Report, the project team should prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

(h) Project Publication

166. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project in the form of journal articles, multimedia publications, or other forms of distribution. Publications can be based on Technical Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if Technical Reports merit formal publication, and will also (in consultation with UNIDO, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format.

Independent Evaluation

167. The project will be subjected to at least two independent external evaluations as follows:

- **Mid-term Evaluation.** An independent Mid-Term Evaluation will be undertaken at the end of the first year of project implementation. The Mid-Term Evaluation will measure progress made towards the achievement of outcomes and will identify corrections if needed. The evaluation will focus on the effectiveness, efficiency, and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned on project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project's term. The organization, terms of reference, and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by UNIDO.
- **Final Evaluation.** An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also review impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNIDO.

Audit Clause

168. The Government will provide the UNIDO Representative with certified periodic financial statements and with an annual audit of financial statements relating to the status of GEF funds according to the established procedures set out in the Programming and Finance manuals. The audit will be conducted by a legally recognized Government auditor, or by a commercial auditor engaged by the Government.

Indicative Monitoring and Evaluation Plan

Item	Responsible	Budget (US$)	Time Schedule
Quarterly Progress Reports and financial statement	UNIDO/MNP	4,000	Quarterly
Project Implementation Reviews (PIRs)	UNIDO	3,000	Annual
Mid-term review report	UNIDO		After one year of the start of the project
Terminal evaluation report	Independent expert	10,000	At the end of the project
Financial audit report	Independent audit firm	4,000	At the end of the project
TOTAL		**21,000**	

169. The following table outlines selected indicators that measure the successful implementation of the objectives of the project and support the requirements of reporting on results and impacts. The listed indicators take reference to relevant GEF-4 indicators for the POPs strategic program 1, which are as follows:
- Number of countries receiving support for NIP development.
- Number of countries receiving support to update their NIP.
- Number of countries submitting their initial NIP to the COP.

Selected Impact indicators

Outcomes	Indicator	Target	Sources of Verification
Outcome 1: Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner	1. Institutional capacity for the ESM of PCB and POPs pesticides evaluated. 2. Data on chemicals and wastes managed. 3. POPs accounting, inventory and reporting system improved, PRTR set-up, PCB inventory improved. 4. Efficient cooperation on POPs related issues and information/ knowledge and skills exchange for decision makers, professionals and public involvement ensured. 5. Capacity of existing laboratories for POPs analysis strengthened. 6. Sustainable financing mechanism for follow up activities secured.	- Convention compliance requirements mainstreamed into existing environmental protection instruments at different agencies (national, local); - Inventory forms, guidelines, methodologies; - Trained State Inspection on identification and notification of PCB contaminated equipment, National Register on Wastes; - National Register on Chemicals, including POPs; - State Cadastre on Wastes (classification of wastes generated in Armenia, including POPs wastes); - State Register on the sites/entities, at which POPs-containing wastes are generated, processed, utilized, and disposed; - Data Bank on technologies for destruction and decontamination of POPs-containing wastes;	- Databases - Reduction of POPs releases verified by measurements - Project technical reports - Project implementation review - Project terminal report - Project website - Other relevant project documentation

Outcomes	Indicator	Target	Sources of Verification
		- Register of pollutants releases and transfer on POPs (PRTR); - Databases on PCB equipment/wastes; - POPs Monitoring Network; - POPs Information Management and Reporting System; - Intra-ministerial National Coordination Group (NCG) chaired by MNP; - Expert working groups from different agencies, institutions, universities, research and development institutes for separate POPs issues; - Information exchange forum at the Ministry of Natural Protection web page; - Laboratory capable of undertaking standardized POPs analyses, conducted studies; - Report on the results of cross-laboratory inter comparisons and calibration; - Financing tools identified, funds secured. Public-private partnerships	
Outcome 2: Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention	1. Survey and evaluation of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides. 2. Legal basis for POPs chemicals and wastes management improved, normative documents for sound chemicals and wastes management developed and adopted.	- Review of existing legislation regarding compliance with Stockholm Convention obligations; - Evaluation of existing legislation as well as conduct of a gap analysis to define national needs in view of the implementation of the Stockholm Convention; - Development and/or amendment of identified laws, regulations, standards and technical guidelines; - Development and adoption of a risk assessment methodology; - Development and adoption of a risk reduction strategy; - Development and adoption of a set of risk reduction measures; - Development and adoption of a national action plan for the final disposal of POPs chemicals and hazardous waste.	- Reviews, evaluations and gap analysis report; - Laws, regulations, standards and technical guidelines; - Methodologies, strategies, action plans; - Project technical reports; - Project website; - Other relevant project documentation
Outcome 3: Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities	1. Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders. 2. Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place. 3. Awareness raising activities held on POPs issues for different population groups (general public, pupils,	- Development of the information campaign program, training modules for professionals and public; - Adoption of the information campaign program, training modules in close cooperation with relevant authorities (Occupational Safety Authority etc.); - Identification of individual selected project stakeholders for participation in the awareness raising and training programme; - Set up a close cooperation with local NGOs, Ministry of Education, Universities and research centres,	- Information campaign program, training modules for professionals and public; - Participation of individual selected project stakeholders in the awareness raising and training programme; - Presentations; - Information exchange network; - Trainings, courses;

Outcomes	Indicator	Target	Sources of Verification
	students, doctors) and mostly vulnerable to POPs exposure (children and women).	national and local media to disseminate information; - Presentations of credible scientist and researchers for decision makers on POPs issues, their health and environmental impacts; - Establishment of a network of scientists to exchange information on international chemicals management; - Conduct of safety rules trainings for different groups of people professionally exposed to POPs and hazardous chemicals, as industry employees, staff of the power and heat generating and distributing companies, and units responsible for handling and disposal of waste; - Conduct of risk assessment, risk management courses for persons in charge at selected Ministries, agencies, research institutes and other relevant stakeholders; - Motivating media channels to disseminate POPs information in cooperation with Government, research and scientific centers and NGOs; - Preparation of materials (leaflets, articles, interviews, posters, presentations, etc.) on POPs environmental and human health impacts; - Organize and hold public meetings, presentations at schools, lectures at universities, sites visits, project results presentations etc.	- Public hearings, articles, interviews; - PR documents, media involvement; - Project technical reports; - Field inspection reports; - Other relevant project documentation; - Project website
Outcome 4: Improved capacity on POPs management issues, including disposal of PCBs and POPs pesticides in an environmentally sound manner.	1. Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB developed and operational in energy and industry private sector and POPs pesticides waste recorded 2. Review of all affordable BAT and BEP options formulated and feasibility study for the phase out and disposal of POPs wastes carried out. 3. National accredited analytical laboratory in operation	- Operation and update of the database with PCB contaminated equipment and POPs wastes, interactive use of stored data with management and supervisory entities; - Identification of national/local capacities for safe collection, packaging, transport and safe interim storage of POPs wastes; - Identification and proposal of best available measures how to upgrade waste storage sites (PCB and pesticides) and avoid spreading of contamination; - Review of available disposal technologies and methods; - Evaluation and selection of suitable and affordable BAT/BEP technology for disposal of POPs waste; - Based on analytical data available form different type of waste the feasibility study will be carried out for proposed kind of technology; - Performance of sampling campaign form selected priority areas to cover all possible POPs	- Interactive PCB database; - Sampling protocols, studies - Project technical reports - Field inspection reports - Other relevant project documentation - Project website

Outcomes	Indicator	Target	Sources of Verification
		media - environmental compartments, foodstuffs and biological media; - Identification and determination of POPs and other chemicals in these media; - Processing data for its analysis and evaluation.	
Outcome 5: Project management, monitoring and evaluation	1. Project monitoring management structure established 2. Project monitoring and evaluation procedures established	- Establishment of Project Steering Committee and National Project Management Team - Recruiting of technical experts to form the project expert team - Training of all members of project management teams - Holding Inception Workshop - Issuing Inception Report - Issuing Project Annual reports - Holding review meetings - Carrying out visits to operating facilities - Preparing and issuing Project Terminal Report	- Working rules of the Steering Committee - TORs of the project management offices and staff - Expert recruitment notices and TORs for the NPC, and the international and national experts - TORs of the selected pilot enterprises - Inception Workshop meeting minutes and report - Annual Project Reports and Project Implementation Reviews - Annual Steering Committee meeting minutes - Mid-term and terminal external evaluation reports - Terminal Report - Annual project financial audit reports - Field inspection reports - MIS development documentations and reports generated by properly retrieving data and information from the MIS - Project website development and maintenance documentations

SECTION G. PRIOR OBLIGATIONS AND PREREQUISITES

170. The Project Document will be signed by UNIDO and the Government of Armenia. GEF assistance will be provided subject to UNIDO being satisfied that obligations and pre-requisites listed below have been fulfilled or are likely to be fulfilled. When fulfillment of one or more of these pre-requisites fails to materialize, UNIDO may, at its discretion; either suspend or terminates its assistance.

G.1 Prior to Project Effectiveness

171. Legally binding co-financing agreements are signed for participation in the project.

G.2 During project implementation

172. Quarterly Progress reports, annual Project Reports and Project Implementation Review reports as well as measure impact indicators should be prepared. The project work plan and consequently the budget will be updated annually.

G.3 Within one year of start of project implementation

173. Annual audited financial reports should be prepared and submitted to GEF.

SECTION H. LEGAL CONTEXT

174. The Project Document shall be the instrument referred to the Standard Basic Agreement between the Government of Armenia and UNIDO. The project objectives shall be in line with objectives of the Policies of the Government of Armenia.

175. The following types of revisions may be made to this Project Document with the signature of the Project Manager, provided he or she is assured that the other signatories of the Project Document has no objection to the changes as follows:

- Revision in, or in addition of, any annexes of the Project Document; and
- Revisions that do not involve significant changes in the immediate subcomponents, objectives, outcomes or activities of the project, but are caused by rearrangement of the inputs already agreed to or by cost increases due to inflation.

ANNEXES

Annex 1: Project Results Framework

Annex 2: List of existing POPs legislation in Armenia

Annex 3: State Structures on Management of Chemicals and Wastes, including POPs

Annex 4: Summary Report on Monitoring and Analyses of POPs in the Republic of Armenia

Annex 5: NIP Assessment with respect to Annex A, Part II chemicals of the Stockholm Convention (PCBs)

Annex 6: Involvement of Armenia in Key International Conventions Relevant to Chemicals Management

ANNEX 1: PROJECT RESULTS FRAMEWORK

Project Strategy Goal	Reduction of health and environmental risks posed by POPs releases through effective and efficient implementation of SC & NIP		
Interventions	**Objectively Verifiable Indicators**	**Sources of Verification**	**Assumptions and Risks**
Objective: The overall objective of the Medium Size Project (MSP) is to reduce the use and releases of PCBs and other POPs to the environment through the development and implementation of a national PCB and POPs pesticides management system, to effectively and efficiently assist Armenia to implement the Stockholm Convention by strengthening the institutions, regulations and enforcement and to enhance the capacities for the sound management of POPs at national and local levels.	➢ Steady and smooth progress in SC compliance and NIP implementation	➢ Performance appraisal reports for SC compliance and NIP implementation ➢ Project progress reports by evaluations	➢ Continued government commitment ➢ Commitment by the other related institutions and non-governmental organizations ➢ Stakeholders' conflict of interest ➢ Co-financing support is not adequate and timely
Outcome 1: Relevant institutions are enabled to manage PCBs and POPs pesticides in an environmentally sound manner			
Output 1.1 Institutional capacity for the ESM of PCB and POPs pesticides evaluated			
1.1.1 Evaluation of institutional capacity for the ESM of PCB and POPs pesticides. 1.1.2 Development of POPs Information Management and Reporting System. 1.1.3 Development of POPs Monitoring Network.	➢ Building up a basic infrastructure for NIP implementation ➢ The capacity of MNP and WRC improved ➢ Responsibilities for the implementation of NIP at different ministries and agencies ➢ POPs Information Management and Reporting System set up ➢ Fully computer based functional POPs network that meets evaluation and monitoring requirements and support decision making ➢ An evaluation oriented institutional capacity to meet the requirements of the SC for performance appraisal and the requirements for continuous improvement in NIP implementation is built up	➢ Ministries, agencies and institutions improved ➢ The qualified reports to meet the requirements of SC and COP ➢ Well functioning IS ➢ Developed and functioning POPs monitoring network	➢ Government commitment is crucial ➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation ➢ Data can be available and the hardware and software configuration can accommodate all necessary data ➢ Communication and cooperation among relevant agencies

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
Output 1.2:.Data on chemicals and wastes managed			
1.2.1 Development of the identified databases 1.2.2 Development of a strategy and templates for data gathering. 1.2.3 Gathering, processing, analysis and evaluation of data.	➢ Design and format of the identified databases will be set up National Register on Wastes; • National Register on Chemicals, including POPs; • State Cadastre on Wastes (classification of wastes generated in Armenia, including POPs wastes); • State Register on the sites/entities, at which POPs-containing wastes are generated, processed, utilized, and disposed; • Data Bank on technologies for destruction and decontamination of POPs-containing wastes • Register of pollutants releases and transfer on POPs (PRTR).	➢ Databases developed and functioning ➢ Strategy developed ➢ Templates developed, used, data collected and processed	➢ Government commitment is crucial ➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation ➢ Hardware and software is available ➢ Data can be available and the hardware and software configuration can accommodate all necessary data ➢ All other stakeholders are willing to provide data
Output 1.3 POPs accounting, inventory and reporting system improved, PRTR set-up, PCB inventory improved.			
1.3.1 Preparation of inventory forms and guidelines to holders of PCB contaminated equipment on how to carry out an inventory, notification and reporting requirements. 1.3.2 Identification of other potential holders of PCB equipment. 1.3.3 Development and provision of a labelling system for use by holders of POPs-containing equipment and waste. 1.3.4 Establishment of a database for information gathered in the POPs inventory and for future management of PCB contaminated equipment. 1.3.5 Training of State Inspection on identification and notification of PCB contaminated equipment.	➢ Data requirements of SC and COP including all forms to be filled and relevant reports submitted and reviewed ➢ Stakeholders/Pos waste potential holders identification and communication ➢ Other information needs relevant to anti-POPs initiatives assessed ➢ Data collection protocols ➢ Establishment and regular update of the database ➢ Securing control over the newly established obligations related to identification, labelling, reporting,	➢ Data collection forms, protocols ➢ List of stakeholders identified ➢ Stakeholder communication ➢ Database set up, updated ➢ Training of the State inspection manual ➢ Training report	➢ The needed data can be made available ➢ The hardware and software available ➢ The hardware and software configuration can accommodate all necessary data ➢ The staff of relevant environmental protection agencies and enterprise are sufficiently trained ➢ The IS (database) is interactive and other relevant agencies can have access to it

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
Output 1.4 Efficient cooperation on POPs related issues and information/ knowledge and skills exchange for decision makers, professionals and public involvement ensured.			
1.4.1 Establishment of an inter-ministerial Committee on POPs issues. 1.4.2 Establishment of expert working groups from different agencies, institutions, universities, research and development institutes for separate POPs issues. 1.4.3 Information exchange forum at the Ministry of Natural Protection web page will be set up, including publication of the relevant reports and articles updated, national and international. 1.4.4 Raising awareness of policy makers on specific POPs issues including waste management policies, risk reduction measures via informative meeting organized. 1.4.5 Conduct meetings with identified key stakeholders to secure their active participation in the project.	➢ An inter-ministerial Committee on POPs issues established and working ➢ Expert working groups from different agencies, institutions, universities, research and development institutes for separate POPs issues established and working ➢ Web page developed and functioning ➢ Improved awareness of policy makers on specific POPs issues including waste management policies, risk reduction measures ➢ MoU with all the key stakeholders with determination of their roles and responsibilities	➢ Committee session meeting minutes ➢ Expert working group meeting minutes, reports, conclusions, recommendation ➢ Web page ➢ New policies proposed, approved, adopted ➢ Decisions, measures proposed, taken ➢ MoU signed	➢ Continued government commitment ➢ Commitment by the other related institutions and non-governmental organizations ➢ Stakeholders willing to participate ➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation
Output 1.5 Existing laboratories for POPs analysis strengthened			
1.5.1 Evaluation and introduction of international standard sampling and analysis procedures supported by appropriate capacity building. 1.5.2 Intensive training of the lab staff to perform analytical studies, including GLP principles introduction. 1.5.3 Establishment of international contacts and collaborations with other laboratories including participation in intercalibration studies etc.. 1.5.4 Conduct monitoring of POPs in all environmental compartments, foodstuffs and biological material.	➢ Improved laboratory capacity ➢ Improved knowledge of lab staff ➢ Training organized, collaboration with other established labs established ➢ GLP principles introduced ➢ Data and results for inter –comparison and calibration ➢ Improved monitoring capacity	➢ Report on standards and analytical methods ➢ Number of trainees ➢ GLP and accreditation documents ➢ Number of laboratories cooperating and number of studies conducted ➢ Number of samples, analyses	➢ Relevant fund is available ➢ Labs willing to participate ➢ Capable trainers are available
Output 1.6 Sustainable financing mechanism for follow up activities secured			
1.6.1 Explore public-private partnerships to involve private sectors in investing and operating POPs reduction and control projects and study the economic and financial policies that will ensure the reasonable rate of return of the investments.	➢ Financial roles and responsibilities of stakeholders determined ➢ Determine principles and mechanisms fro responsibility sharing among stakeholders for different type of activities	➢ Report on principles and guidelines for co-financing ➢ Reports on results of consultation among stakeholders	➢ Stakeholders willing to participate ➢ Consensus can be reached regarding profitable and non-profitable classification

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
1.6.2 Organize and hold workshop on funds raising for the governmental institutions – possible utilization of existing and coming funds from EU, bilateral donor funds, etc. 1.6.3 Hold fund raising workshops by inviting key stakeholders at home and abroad, including related ministries, multi-lateral organizations, bilateral countries, financial institutions, private sectors and the public.	➢ Market oriented mechanisms identified and relevant legislation and institutional strengthening requirement recommended ➢ Suggestions and recommendations to remove barriers to market oriented operations ➢ Workshops held ➢ Strategy report for co-financing consulted and developed	➢ Identification of activities financed by the government ➢ Workshop minutes ➢ Consultation reports ➢ Suggestions and recommendations to relevant governmental agencies	➢ Investment opportunities exist ➢ Opinions of different groups could be harmonised ➢ Government willing to allocate sources to finance NIP
Outcome 2: Strengthened capacity of the Armenian Government to comply with the obligations of the Stockholm Convention			
Output 2.1 Survey and assessment of policy and regulatory framework for the environmentally sound management of PCBs and POPs pesticides carried out.			
2.1.1 Review of existing legislation regarding compliance with Stockholm Convention obligations. 2.1.2 Evaluation of existing legislation as well as conduct of a gap analysis to define national needs in view of the implementation of the Stockholm Convention.	➢ A basic enabling environment for SC compliance and NIP implementation built via establishing more sound regulatory framework	➢ Reports on compliance of local legal pieces with the SC requirements ➢ Gap analysis report	➢ Government commitment is crucial ➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation
Output 2.2. Legal basis for POPs chemicals and wastes management improved, normative documents for sound chemicals and wastes management developed and adopted.			
2.2.1 Development and/or amendment of identified laws, regulations, standards and technical guidelines 2.2.2 Development and adoption of a risk assessment methodology. 2.2.3 Development and adoption of a risk reduction strategy. 2.2.4 Development and adoption of a set of risk reduction measures. 2.2.5 Development and adoption of a national action plan for the final disposal of POPs chemicals and hazardous waste.	➢ Proposed new or revised legislation submitted to relevant government agencies for consideration ➢ Consultation among stakeholders completed ➢ RA/RM methodology developed ➢ Risk management measures proposed and consulted ➢ Action plan developed, consulted and approved by the relevant governmental agencies	➢ Legislative pieces and technical policies, guidelines, standards ➢ Workshops reports, reports for policy recommendations, consultation reports with relevant stakeholders, formal suggestive bills to relevant governmental agencies or legislative bodies ➢ Trainings, manuals, guidelines, technical standards ➢ Number of trained individuals in relevant institutions and agencies	➢ Government commitment and readiness to adopt proposed legislation pieces is crucial ➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation ➢ Action plan is approved and adopted

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
Outcome 3: Concerned stakeholders involved civil society and apply improved knowledge on the ESM of POPs and disposal activities			
Output 3.1 Educational and training programmes embracing POPs problems and chemical safety issues for concerned stakeholders developed.			
3.1.1 Development of the information campaign program, training modules for professionals and public. 3.1.2 Adoption of the information campaign program, training modules in close cooperation with relevant authorities (Occupational Safety Authority etc.) 3.1.3 Identification of individual selected project stakeholders for participation in the awareness raising and training programme. 3.1.4 Set up a close cooperation with local NGOs, Ministry of Education, Universities and research centres, national and local media to disseminate information.	➢ Materials in different forms tailored to professional and public developed ➢ Textbooks and training materials developed, number of teachers trained ➢ Good contacts to local NGOs and connection and close cooperation with their programmes ➢ Attraction of the relevant stakeholders to participate ➢ Motivate educational institutions to incorporate anti-POPs training modules	➢ Plan for media mobilisation to publicize POPs issues ➢ Plan fro partnerships establishment and cooperation in public awareness raising ➢ Number of NGOs and other partners involved	➢ Willingness of NGOs and other involved authorities to cooperate and participate ➢
Output 3.2 Educational and awareness raising activities on POPs issues, risks, consequences and required mitigation measures for decision makers and professionals developed and put in place.			
3.2.1 Presentations of credible scientist and researchers for decision makers on POPs issues, their health and environmental impacts. 3.2.2 Establishment of a network of scientists to exchange information on international chemicals management. 3.2.3 Conduct of safety rules trainings for different groups of people professionally exposed to POPs and hazardous chemicals, as industry employees, staff of the power and heat generating and distributing companies, and units responsible for handling and disposal of waste. 3.2.4 Conduct of risk assessment, risk management courses for persons in charge at selected Ministries, agencies, research institutes and other relevant stakeholders.	➢ Presentations to the decision makers from credible researchers to convince them on the seriousness of the problem and necessity to take measures ➢ Network and information exchange forum established and functioning ➢ Training manuals on occupational safety developed ➢ Trainings held	➢ Number of scientist, institutions and authorities involved ➢ Presentations materials ➢ Number of participants ➢ Training modules ➢ Trainings held ➢ Number of staff trained	➢ Willingness to participate and cooperate

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
Output 3.3 Awareness raising activities held on POPs issues for different population groups (general public, pupils, students, doctors) and mostly vulnerable to POPs exposure (children and women)			
3.3.1 Motivating media channels to disseminate POPs information in cooperation with Government, research and scientific centers and NGOs. 3.3.2 Preparation of materials (leaflets, articles, interviews, posters, presentations, etc.) on POPs environmental and human health impacts. 3.3.3 Organize and hold public meetings, presentations at schools, lectures at universities, sites visits, project results presentations etc.	➢ Good contacts with various media ➢ Materials available for distribution ➢ Ppublic meetings, presentations at schools, lectures at universities, sites visits, project results presentations held etc. ➢ Percentage of target audience in key areas exposed to information regarding POPs risks ➢ Program to reach farmers, children, women and other vulnerable groups established	➢ Plans for public exposure to POPs ➢ Survey report on the percentage that is aware ➢ Plan program to reach farmers, children, women and other vulnerable groups implementation	➢ Willingness of media to cooperate ➢ Willingness of governments, NGOs, community based organisations, professional organisations and schools ➢ Awareness and information lead to change attitude and behaviour of those who feel they have cause of concern
Outcome 4: Improved capacity on POPs management issues, including disposal of PCBs and pesticides in an environmentally sound manner.			
Output 4.1 Management system for the identification, record keeping and tracking, collection, packaging, transport, interim storage and disposal of PCB developed and operational in energy and industry private sector and POPs pesticides waste recorded			
4.1.1 Operation and update of the database with PCB contaminated equipment and POPs wastes, interactive use of stored data with management and supervisory entities. 4.1.2 Identification of national/local capacities for safe collection, packaging, transport and safe interim storage of POPs wastes. 4.1.3 Identification and proposal of best available measures how to upgrade waste storage sites (PCB and pesticides) and avoid spreading of contamination.	➢ Developed, updated and accessible to all environmental supervisory entities for interaction ➢ Developed a survey on existing and improvement of existing capacities for safe collection, packaging, transport and safe interim storage of POPs wastes ➢ Improvement of existing POPs waste storage sites ➢ Elimination of contamination spreading	➢ Database functioning ➢ Reports on existing POPs handling capacities ➢ Reports on their improvement ➢ Report on identification of the sites contaminated by POPs ➢ Number of sites ➢ Proposal of measures how to improve the storages/sites	➢ Relevant fund is available ➢ Smooth cooperation and coordination among agencies for information sharing and evaluation ➢ The needed data can be made available ➢ The hardware and software available ➢ The hardware and software configuration can accommodate all necessary data ➢ The staff of relevant environmental protection agencies and enterprise are sufficiently trained ➢ The IS (database) is interactive and other relevant agencies can have access to it
Output 4.2 Affordable BAT and BEP options formulated and feasibility study for the phase out and disposal of POPs wastes carried out.			
4.2.1 Review of available disposal technologies and methods.	➢ Development of review	➢ Review on technologies available	➢ Proposed technology is approved

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
4.2.1 Evaluation and selection of suitable and affordable BAT/BEP technology for disposal of POPs waste 4.2.3 Based on analytical data available form different type of waste the feasibility study will be carried out for proposed kind of technology.	➢ Evaluation of existing technologies to enable selection of suitable technology for disposal accommodating all local specifics ➢ Feasibility study carried out	➢ Evaluation report ➢ Feasibility study	➢ Government commitment and readiness to seek additional funds to adopt proposed technology ➢ Relevant fund is available
Output 4.3 National accredited analytical laboratory in operation			
4.3.1 Performance of sampling campaign form selected priority areas to cover all possible POPs media - environmental compartments, foodstuffs, biological media. 4.3.2 Identification and determination of POPs and other chemicals in these media. 4.3.3 Processing data for its analysis and evaluation.	➢ Monitoring capacity improved ➢ Laboratory capacity improved and exploited efficiently ➢ Reliable data provision for their evaluation, reporting and measures proposal	➢ Number of samples taken and analysed ➢ Reports, protocols, studies ➢ Evaluation reports	➢ Relevant fund is available ➢ Lab capacity sufficient ➢ The needed data can be made available ➢ The hardware and software available ➢ The hardware and software configuration can accommodate all necessary data ➢ The staff of relevant environmental protection agencies and enterprise are sufficiently trained
Outcome 5: Project management, monitoring and evaluation			
Output 5.1 Project management structure established			
5.1.1 Establish the Project Steering Committee by relying on resources from related ministries or agencies at the national level, and from local governmental agencies as appropriate 5.1.2 Establish the National Project Management Team under the Convention Implementation Focal Point and the executive agency 5.1.3 Recruit a National Project Coordinator (NPC), policy experts, technical experts in POPs ESM system and monitoring and research 5.1.4 Establish Task force groups as appropriate 5.1.5 Carry out a series of management training courses to the national and local project management staff	➢ Steering Committee established ➢ National Project Management Team established with necessary office equipment procured ➢ National project expert team established ➢ International project expert team established ➢ Local project management offices or contacts in selected provinces established ➢ Project management capabilities improved at national and local levels	➢ Working rules of the Steering Committee ➢ TORs of the project management staff, including the project managers and technical support staff ➢ Expert recruitment notices and TORs for the NPC, policy experts, technical experts, monitoring, and evaluation experts ➢ TORs of the local project management offices ➢ TORs of the selected pilot enterprises ➢ Training materials on contractual management, project management tools, and basics of POPS ESM system	➢ Various ministries agree on and support the project ➢ Coordination and cooperation can be achieved among various ministries and institutions ➢ Qualified project management staff can be recruited ➢ Qualified experts/specialists can be recruited ➢ The selected pilot enterprises have strong commitment for participation and cooperation ➢ Conflict of interest among stakeholder ➢ Provision of agreed co-financing resources and financial support in time
Output 5.2 An M&E mechanism designed and implemented according to GEF M&E procedures			
5.2.1 Hold inception workshop	➢ Inception workshop held	➢ Inception Workshop meeting minutes	➢ The trained project management staff can well perform their jobs required in TORs

Interventions	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
5.2.2 Prepare the inception report 5.2.3 Measure the impact indicators on an annual basis 5.2.4 Prepare the Annual Project reports and Project Implementation Reviews 5.2.5 Hold annual Project Steering Committee meetings 5.2.6 Carry out mid-term external evaluation 5.2.7 Carry out final external evaluation 5.2.8 Complete the Terminal Report 5.2.9 Carry out annual project financial audits 5.2.10 Carry out visits to selected pilot sites at least twice a year 5.2.11 Establish a project management information system (MIS), including a project website to disseminate information to various stakeholders	➢ Detailed work plans prepared ➢ Data and information against indicators input into the MIS ➢ Non-compliances identified and corrected ➢ Technical and political guidance from the Steering Committee ➢ Experience summarized and recommendations raised ➢ Problems identified and recommendations provided by field visits ➢ MIS established and made functional ➢ Project information, experience and lessons disseminated through website	➢ Inception Report ➢ Annual Project Reports and Project Implementation Reviews ➢ Annual Steering Committee meeting minutes ➢ Mid-term and terminal external evaluation reports ➢ Terminal Report ➢ Annual project financial audit reports ➢ Field inspection reports ➢ MIS development documentations and reports generated by properly retrieving data and information from the MIS ➢ Project website development and maintenance documentations	➢ Qualified external evaluation experts can be recruited ➢ No extreme weather conditions or other extreme events upon field visits ➢ Qualified IT service providers can be recruited to develop the MIS, including the project website ➢ A data and information collection mechanism among various stakeholders at different levels can be established to activate the MIS

ANNEX 2: LIST OF EXISTING POPS LEGISLATION

In the Republic of Armenia regulation of issues on chemicals and wastes management, including POPs is executed by the following relevant legal documents.

- Water Code of the Republic of Armenia
- Land Code of the Republic of Armenia
- The Republic of Armenia Code on Underground Resources
- The Republic of Armenia Code on Administrative Violations
- The Republic of Armenia Criminal Code
- Law of the Republic of Armenia "On organization of control check-ups in organizations functioning on the territory of the Republic of Armenia"
- Law of the Republic of Armenia "On Environmental Impact Expertise"
- Law on Wastes of the Republic of Armenia
- Law of the Republic of Armenia "On Licensing"
- Law of the Republic of Armenia "About maintenance of sanitary - hygienic security of the population"
- Law of the Republic of Armenia "On Medicines"
- Law of the Republic of Armenia "About the Lake Sevan"
- Law of the Republic of Armenia "On Nature Use and Nature Protection Payments"
- Law of the Republic Armenia "On the rates of nature protection payments"
- Law of the Republic of Armenia "On protection of plants and quarantine of plant"(NL-209-N)
- Republic of Armenia Law «On Protection of the Atmospheric Air» (adopted on October 11, 1994)
- The Republic of Armenia Law "On Ozone Depleting Substances" (adopted on November 27, 2006)

- Governmental Decision of the Republic of Armenia "On the order of regulating import, export and transit transportation of hazardous and other wastes over the territory of the Republic of Armenia" (No. 97 dated December 8, 1995)
- Decision of the Government of the Republic of Armenia "On implementation of Republic of Armenia obligations under Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal" ((No. 97-N of March 2, 2000)
- Decision of the Government of the Republic of Armenia "On assignment of the designated body in the waste management area" (No 599-N dated May 19, 2005)
- Decision of the Government of the Republic of Armenia "On establishment of the State Non-commercial Organization "Waste Research Center" (No. 670-N dated May 19, 2005)
- Decision of the Prime Minister of the Republic of Armenia "On measures ensuring realization of the Republic of Armenia "Law on Waste" (No 380-A dated May 30, 2005)
- Protocol Decision of the Government of the Republic of Armenia «On approval of the Programme for development of a normative regulating document "Waste Classification according to Hazard" (No 33 dated August 18, 2005)
- Decision of the Government of the Republic of Armenia "On adoption of the order of approval for norms of waste generation and draft limits for waste placement" (No. 2291-N dated December 9, 2005)
- Decision of the Government of the Republic of Armenia "On determination of the order of wastes passportisation" (No. 47-N dated January 19, 2006)
- Decision of the Government of the Republic of Armenia "On the order for maintenance of the Register of wastes generation, recycling and utilization facilities" (No. 500-N dated April 20, 2006)
- Decision of the Government of the Republic of Armenia "On approval of the order of maintenance the Register on wastes disposal sites" (No. 1180-N dated July 13, 2006)
- Decision of the Government of the Republic of Armenia "On defining the order of wastes accounting in accordance to wastes generation, deposal (elimination, treatment, placement) and use" (No. 1343-N dated September 14, 2006)
- Decision of the Government of the Republic of Armenia "On defining the order for State accounting of wastes" (No. 1739-N dated December 7, 2006)
- Decision of the RA Government of the Republic of Armenia "On the order of keeping the State Cadastre on Wastes" (No. 144-N dated January 18, 2007)

- Decision of the Government of the Republic of Armenia "On approval of the Republic of Armenia "List of hazardous wastes" (No. 874-A dated May 20, 2004)
- Decision of the Government of the Republic of Armenia "On applying changes to the Decision of the Republic of Armenia No.97 of December 8, 1995 and on approval of the Republic of Armenia "List of prohibited hazardous wastes" (No. 1093-N dated July 8, 2004)
- Decision of the Government of the Republic of Armenia "On approval of limits on hazardous substances" (No. 182-N dated February 16, 2006)
- Decision of the Government of the Republic of Armenia "On the order of licensing for activity on processing/recycling, treatment/decontamination, storage, transportation, and placement of hazardous wastes in the Republic of Armenia" (No.121-N of January 30, 2003)
- Decision of the Prime Minister of the Republic of Armenia "On approval of the membership and order of activity of inter-departmental commission on licensing of activity on recycling, treatment, storage, transportation and placement of hazardous wastes in the Republic of Armenia" (No. 46-N of February 5, 2004)
- Decision of the Government of the Republic of Armenia "About the assignment of the authorized body of state management of the Government of the Republic of Armenia in the sphere of pharmaceutical activity and on disposal of medicines" (No. 487 dated July 31,1999)
- Decision of the Prime Minister of the Republic of Armenia "On setting-up the Inter-Agency Commission (No. 645-A of December 12, 2003)
- Decision of the Government of the Republic of Armenia "On approval of the order of import and export of medicinal preparations in the Republic of Armenia"(No. 581 of September 20, 2000)
- Decision of the Government of the Republic of Armenia "About the approval of the order of state registration of medicinal substances and the size of payment for expertise examination aimed at state registration of medicines in the Republic of Armenia" (No. 347 of April 25, 2001)
- Decision of the Government of the Republic of Armenia "On approval of the list of substances, biogenic elements, heavy metals or their compounds and other substances having negative impact on ecosystem of the Lake Sevan" No. 57 of January 24, 2002
- Decision of the Government of the Republic of Armenia "On approval of the Statute of Safety Passport of industrial entities in the Republic of Armenia" (No. 702 of November 11, 1998)
- Decision of the Government of the Republic of Armenia "On approval of the order of state registration of plant protection means" No. 12 of January 8, 2002
- Decision of the Prime Minister of the Republic of Armenia "On setting-up the working group on regulation of issues dealing with destruction of obsolete, inappropriate-for-use chemical plant protection substances and working-out action plan for destruction thereof" (No. 452-A of September 22, 2003)
- Decision of the Government of the Republic of Armenia "On approval of measures ensuring security of obsolete pesticides burial and on assigning funds from the Republic of Armenia state budget for FY 2004" (No. 526-A dated April 22, 2004)
- Decision of the Government of the Republic of Armenia "On implementation of the Republic of Armenia obligations on Rotterdam Convention signed September 10, 1998" (No. 1508-N dated October 29, 2004)
- Decision of the Government of the Republic of Armenia "On approval of the List of chemicals and pesticides regulated by Rotterdam Convention and banned in the Republic of Armenia" (No. 293-N of March 17, 2005)
- Decision of the Government of the Republic of Armenia "On implementation of the Republic of Armenia obligations on Stockholm Convention signed May 23, 2001" (No. 1483-N dated October 29, 2004)
- Protocol Decision of the Government of the Republic of Armenia "On approval of the "List of actions implemented within the frames of the "National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants in the Republic of Armenia during 2005-2010" (No. 1 of January 13, 2005)
- The Order of the RA Minister of Nature Protection "On approval of documentation on regulated and non-regulated wastes, their Lists of hazard degree, notification, information and actions for disposal" (No. 96 dated August 10, 1999) (State registration number: 105.0096.270899).
- The Order of the RA Minister of Nature Protection "On approval of the List of production and consumption wastes generated on the territory of the Republic of Armenia" (No. 342-N of October 26, 2006), which was registered at the RA Ministry of Justice on November 3, 2006 (State registration number : 10506373)

- The Order of the RA Minister of Nature Protection "On approval of reporting forms for register maintenance and accounts for register recordings on waste generation, processing and utilization entities and the registry book keeping" (No. 359-N of November 7, 2006), which was registered at the RA Ministry of Justice on November 23, 2006 (State registration number: 10506391)
- The Order of the RA Minister of Nature Protection "On approval of book forms for register maintenance and the leaflet for register recordings on wastes disposal sites" (No. 387-N of November 24, 2006) , which was registered at the RA Ministry of Justice on December 6, 2006 /State registration number: 10506407/
- The Order of the RA Minister of Nature Protection "On approval the List of wastes classified by hazard" (No430-N dated December 25, 2006; state registration No10506440 dated December 28, 2006)
- The Order of the RA Minister of Nature Protection "On approval of the exemplary form for Waste Passport" (No19-N dated February 02, 2007; state registration No10507037 dated February 12, 2007)
- The Order of the RA Minister of Nature Protection "On approval of draft exemplary form for calculation of standards on waste generation and placement limits thereof" (No. 97-N of April 27, 2007), which was registered at the RA Ministry of Justice on May 10, 2007 /State registration: No.10507200/
- The Order of the RA Minister of Nature Protection «The Instruction on filling out the administrative statistical report (annual) Form No.1-Waste «On wastes generation, utilization and disposal» and approval of the form of the administrative statistical report (annual) Form No.1-Waste Waste «On wastes generation, utilization and disposal» (No. 112-N of August 22, 2002), which was registered at the RA Ministry of Justice on October 21, 2002 /State Registration: 10502243/
- The Order of the RA Minister of Nature Protection «The Instruction on filling out the administrative statistical report (annual) Form No. 2-TA[1] (water industry) «On water use" and the approval of the form for the administrative statistical report (annual) Form No. 2-TA (water industry)" (No. 114-N of August 22, 2002), which was registered at the RA Ministry of Justice on October 21, 2002 /State Registration: 10502245/
- The Order of the RA Minister of Nature Protection "Instruction on filling out the administrative statistical report (annual) Form No. 2-TA[1] (air) "On harmful substances released from stationary sources to atmospheric air» and on approval of the form for the administrative statistical report (annual) Form No. 2-TA[1] (air) "On harmful substances released from stationary sources to atmospheric air»,)" (No. 111-N of August 22, 2002) , which was registered at the RA Ministry of Justice on October 21, 2002 /State Registration: 10502244/

[1] TA - Armenian abbreviation to «annual emission»

ANNEX 3: STATE STRUCTURES ON MANAGEMENT OF CHEMICALS AND WASTES, INCLUDING POPS

In Armenia the management of chemicals and wastes, including POPs, is based on development and application of integrated approaches addressed at effective organization of safe production and use of chemicals, improvement of ecological safety during chemicals and wastes handling, as well as at the prevention of their adverse impact on human health and ensuring the healthy environment.

The integrated approach in the field of chemicals and wastes management, including POPs, presupposes to establish and strengthen at the national level the mechanisms of cooperation between the ministries, research and academic institutions, industrial unions, as well as public organizations to serve as basis for effective and coordinated actions for discussion and consideration of national priorities on chemicals and waste management issues and effective implementation of international agreements and initiatives related to chemicals and waste.

At the State level, regulation of chemicals and wastes, including POPs, is performed by the following structures of the Republic of Armenia:

- Ministry of Nature Protection;
- Ministry of Health;
- Ministry of Agriculture;
- Ministry of Economy;
- Board on standardization, metrology and compliance confirmation at the Ministry of Trade and Economic Development;
- Ministry of Energy;
- Ministry of Defence;
- Ministry of Finance;
- National Statistical Service;
- Marzpetarans (authoritative bodies at regions) and Yerevan city administration

Separation of duties, functions, rights, and responsibilities between state-governing, local bodies of self-government and the consumers is fixed in the Statutes of these organizations.

MINISTRY OF NATURE PROTECTION OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal regulation

The Ministry of Nature Protection of the Republic of Armenia is the state body of executive power, which develops and performs state policy in the sphere of environment and natural resources conservation in Armenia.

In accordance with the Decision of the Government of the Republic of Armenia (No.1237-N dated August 8, 2002) to create the State managerial authority “Administration of the Ministry of Nature Protection of the Republic of Armenia” and the legal act “On approval of the statute and structure of the Administration of the Ministry of Nature Protection of the Republic of Armenia”, as well as the Decision of the Government of the Republic of Armenia (No. 189-N dated February 1, 2007) the Ministry of Nature Protection has the following goal and objectives:

- prevention and/or mitigation of unfavourable effects to the environment, formation of state policy and management on rational use and restoration of natural resources within the authorities assigned by legislation;

- accounting, study and providing the establishment of limits for objects and elements that have harmful effect to the environment;
- providing the development and application of legal acts, standards, technical regulations in the sphere of nature protection;
- providing the development and implementation of economic mechanisms in the sphere of nature protection, rational use and restoration of natural resources, including relevant environmental fees and payments;
- providing the establishment of conditions for sound management in the area of production and use of hazardous chemicals and generation of wastes on the territory of the Republic of Armenia;
- ensuring the arrangement and maintenance of united data bases, cadastres and registers in sphere of nature protection and natural resources;
- providing the implementation of state expertise of environmental exposures;
- providing the development of unified policy in the area of ecological science, awareness raising and education jointly with authorities for education and science;
- participation in the development and implementation of the international policy of the Republic of Armenia in the sphere of nature protection; etc.

Based on above-mentioned, the functions of the Ministry of Nature Protection embrace the following:

- development of legal acts, standards, technical regulations in the sphere of nature protection;
- development of methods for calculation of damages caused and compensation in case of violation of legislatively established norms and rules, as well as actual calculation of damages caused;
- carrying out the state environmental monitoring, including the waste disposal sites;
- study on environmental health and identification of the harmful impacts and their sources, carrying out environmental monitoring;
- agreement of Passports on hazardous wastes;
- carrying out the state expertise of environmental exposures;
- expertise assessment of draft “Safety Passports” or certificates of industrial entities;;
- classification of produced and used chemicals, industrial and household/consumer wastes generated on the territory of the Republic of Armenia according to the degree of hazard;
- maintenance of the state accounting/inventory on wastes, State Cadastre on Wastes, the Registry on waste generation, processing and utilization entities, as well as the Registry on waste disposal sites;
- approval of draft standards for waste placement limits;;
- ensuring the executive control in respect of requirements presupposed by the legislation of the Republic of Armenia in the area of nature protection;
- agreement of Ecological Passports of industrial entities;
- participation of the Republic of Armenia in the development and implementation of international policy trends in the sphere of nature protection;
- participation in the actions addressed to implement the obligations under international agreements/conventions in accordance with established legal procedure; etc.

Institutional Regulation

In accordance with the Decision of the Republic of Armenia (No.1237-N of August 8, 2002) the Ministry of Nature Protection in the frames of assigned authorities regulates the problems dealing with

chemicals and wastes, including POPs, through the following structural and special dedicated departments and organizational bodies:

Department of Hazardous Substances and Wastes Management

The Department of Hazardous Substances and Wastes Management, as a structural subdivision of Ministry of Nature Protection administration, within the frames of its authorities carries out policy on problems of chemicals and waste management, including that of POPs. In compliance with the Statute (The Order of the Ministry of Nature Protection No88-A dated April 16, 2007), the Department of Hazardous Substances and Wastes Management performs the following:

- working out legal acts, concepts, as well as strategic and target programs ensuring management of chemicals and wastes;
- classification of chemicals produced and used; and industrial and household/consumer wastes generated on the territory of Armenia, according to degree of hazard thereof;
- implementation of the state accounting/registration of wastes;
- approval of the draft standards for waste generation and placement limits elaborated by legal persons and individual employers;
- agreement of Passports of hazardous wastes;
- maintenance of the Registry on waste generation, processing and utilization entities;
- maintenance of the Registry on waste disposal sites;
- maintenance of the State Cadastre of wastes;
- preparation of expert conclusions on import, export and transboundary movements of hazardous and other wastes;
- ensuring the conditions for environmentally sound management of hazardous wastes (expired medicines, obsolete pesticides, PCB-containing oils and equipment, etc.);
- development of measures addressed to prevent the industrial accidents within assigned authorities;
- accounting the organizations, which are potentially prone to industrial accidents;
- expertise of draft Safety Passports of the hazardous industrial entities, etc.

Department of Norms and Methods

The Department on Norms and Methods is a structural subdivision of the Ministry of Nature Protection administration that ensures working-out drafts of legal documents and acts (laws, by-laws, standards, technical regulations, methodical guidance and other guidelines) regulating the exposure to hazardous substances and wastes; their coordination and submission of mentioned documents for approval to the appropriate legislative and executive bodies.

"Waste Research Center" State non-commercial organization

In order to facilitate development and implementation of the State Policy and strategy in the area of waste management, as well as to secure environmentally sound management of chemicals and waste within the structure of the Ministry of Nature Protection there was established the "Waste Research Center" (Decision of the Government of the Republic of Armenia No. 670-N dated May 19, 2005). The Center is engaged in issues relevant to waste inventory taking, classification thereof according to the hazard degree, carrying out research activity to study the unfavourable impact of waste disposal sites towards the environment, working out normative acts (regulations and standards) in the area of waste management, as well as gathering and analysis of information on low-waste and waste-free technologies, on entities at which wastes are generated, processed and used.

- **Department of Economics of Nature Protection and Nature Management**

The Department of Economics of Nature Protection and Nature Management is a structural subdivision of the Ministry of Nature Protection administration that ensures working out economic mechanisms regulating management of hazardous substances and wastes.

- **Department of Meteorology and Monitoring of the Environment and State non-commercial organization "Centre for Monitoring of Environmental Impacts"** perform the monitoring investigations and study the various factors and agents impact on environment.

Due to the operating observations performed by the State non-commercial organization "Centre for Monitoring of Environmental Impacts", the quality of surface waters is studied, including qualitative and quantitative analyses of such POPs as DDT, DDE, α- and γ-HCH (Lindane) (Decision of the Government of the Republic of Armenia No. 411 of March 6, 2003).

- **State non-commercial organization "State Environmental Expertise"**

State expertise and assessment of environmental impacts are performed in order to evaluate exposures in accordance with the Law of the Republic of Armenia "On expertise of environmental impacts" and the Decisions of the Government of Republic of Armenia No.1846 of November 21, 2002.

State non-commercial organization "Environmental Expertise", with the assistance of independent experts and public, performs expertise of environmental impacts resulting from planned activity.

- **State Inspection for Nature Protection**

State Inspection for Nature Protection as a specially assigned subdivision at the Ministry of Nature Protection of the Republic of Armenia in accordance with the Decision of the Government of the Republic of Armenia (No.1149-N of July 25, 2002) executes control on fulfilment of norms and regulations presupposed by the legislation of the Republic of Armenia assuring environmental protection, in particular, in concern of the following:

- compliance with the established requirements dealing with import, export and transboundary movement of hazardous wastes over the territory of the Republic of Armenia;
- compliance with norms and requirements established for storage, treatment, recycling, transportation and placement of wastes;
- compliance with requirements established for use, transport and storage of hazardous wastes;
- compliance with measures/actions ensuring environmental protection;
- compliance with the order of accounting/inventory taking for hazardous wastes, proper payment of environmental fees by tax-payer;
- ensuring environmental fees in accordance with volumes of hazardous wastes, incl. compliance of data presented in reports to established limits.

MINISTRY OF HEALTH OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal regulation

The Ministry of Health of the Republic of Armenia is the republican body of executive power assigned to develop and execute policy of the Government of the Republic of Armenia in the sphere of public health.

In accordance with the Decision of the Government of the Republic of Armenia (No.1300-N of August 15, 2002) on establishment of State managing board "Administration of the Ministry of Health of the Republic of Armenia" and the legal document "On approval of the Statute and Structure of the administration of the Ministry of Health of the Republic of Armenia", the Ministry of Health of the Republic of Armenia should perform the following:

- working out and approval of sanitary standards, norms and regulations;
- taking measures and actions to improve health status of the population;
- arrangement of hygienic researches on factors of environmental impact to health of general population;
- working out, organization and carrying out the sanitary-hygienic and anti-epidemiologic measures for prevention of infectious and mass non-infectious diseases and poisonings;
- execution of the control on fulfilment of hygienic and anti-epidemiologic measures and compliance with the sanitary norms/standards and regulations.

Institutional Regulation

The Ministry of Health of the Republic of Armenia, in the frames of authorities assigned by the legislation, regulates issues dealing with chemicals and wastes through the following appropriate structural and special designated subdivisions and organizations:

➧ **State hygienic and anti-epidemic inspection of the Ministry of Health of the Republic of Armenia**

State hygienic and anti-epidemic inspection in accordance with the Statute, approved by the Decision of the Government of the Republic of Armenia No.1300-N of August 15, 2002 performs the following:

- arrangement of socio-hygienic studies (monitoring) on factors of environmental impact on human health in general population, analysis and evaluation of the results obtained;
- hygienic expertise and drawing conclusions on final disposal/burying of wastes, on use of polymers and some other types of substances, packages/containers for raw food materials and food-stuffs, as well as on application of chemical plant protectants;
- control on compliance of sanitary norms and regulations.

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

➧ **Yerevan State Medical University of Mkhitar Heratsi**

In accordance with the Decision of the Government of the Republic of Armenia (No1880-N dated December 14, 2006) the State non-commercial organization "Research Institute of Environmental Hygiene and Preventive Toxicology" (Ministry of Health of the Republic of Armenia) was reorganized and united with the Scientific Research Center of the Yerevan State Medical University after Mkhitar Heratsi. As a result of reorganization the following research laboratories were established:

- laboratory of experimental toxicology;
- laboratory of agrochemicals, pesticides and polymers;
- laboratory of epidemiological studies, environmental health and delayed effects;
- laboratory of analytical chemistry.

Research activities of above-mentioned laboratories embrace the following:

- researches to reveal the effect of chemical pollution on the state of the environment and human health;
- working out methods for sanitation of the environment;

- hygienic, chemical and toxicological laboratory studies of soil, water, air, food raw materials, food-stuffs, natural and synthetic polymer substances, and consumer goods made of them, industrial raw materials and goods, chemical means for plant protection (agrochemicals) and quantitative determinations of residual amounts of chemicals, including POPs in soil, air, water and food-stuffs.

MINISTRY OF AGRICULTURE OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal regulation

The Ministry of Agriculture of the Republic of Armenia is a republican body of executive power, which develops and implements the policy of the Government of the Republic of Armenia in the sphere of agriculture.

In accordance with the Statute of the Ministry of Agriculture of the Republic of Armenia" it is assigned to:

- organize the fight against quarantine diseases of agricultural crops grown and extremely dangerous organisms, as well as managing of quarantine limitations;
- perform executive control for safety of food-stuffs, as well as over observation and compliance of phytosanitary and veterinary norms.

Institutional Regulation

The Ministry of Agriculture of the Republic of Armenia in the frames of the authorities assigned by the legislation regulates the issues dealing with chemicals, including POPs through the appropriate structural and special designated subdivisions and organizations:

- **Inter-Agency commission on registration of chemical, biological plant protectants in the Republic of Armenia**

By the Decision of the Republic of Armenia No.18 of January 11, 2001 there was established the Inter-Agency Commission on registration of chemical, biological plant protectants. The personal membership of the Inter-Agency Commission approved by the Order of the Minister of Agriculture (No.195-A dated August 29, 2007) involves representatives of the following Ministries and Agencies: Ministry of Agriculture, Ministry of Health, Ministry of Nature Protection of the Republic of Armenia, Scientific Center on Agriculture and Plant Protection, Scientific Research Center of the Yerevan State Medical University after Mkhitar Heratsi, the National Academy of Sciences, etc.

The Inter-Agency Commission on registration of chemical, biological plant protectants according the Statute, approved by the Decision of the Republic of Armenia (No.11 of January 8, 2002) performs the following:

- issues conclusions and decisions on registration of chemical substances for plant protection;
- proposes suggestions in concern of implementation of laboratory and field tests of the chemical substances for plant protection submitted for registration;
- proposes suggestions in concern of invalidation/ cancellation of those chemical substances for plant protection, which exert negative impact on environmental and human health.

In accordance with the Decision of the Government of the Republic of Armenia "On approval of the order of State registration of plant protection means" (No.12 dated January 8, 2002) the Ministry of Agriculture of the Republic of Armenia performs state registration of chemical plant protection means in case of a positive expert conclusion of the Inter-Agency Commission on registration of chemical, biological means of plant protection.

- **State inspection on quarantine of plants at the Ministry of Agriculture of the Republic of Armenia**

In accordance with the Decision of the Government of the Republic of Armenia No.1888-N of November 21, 2002 State inspection on quarantine of plants executes control for observation of phytosanitary norms for plants, production of plant origin, and other regulated objects.

- **State Inspection on Foodstuff Safety and Veterinary at the Ministry of Agriculture of the Republic of Armenia**

In accordance with the Decision of the Government of the Republic of Armenia No.1915-N of November 21, 2002 the State Inspection for veterinary medicine and cattle breeding executes control on:

- use of raw material and products of animal origin, as well as application of means for protection of animals, veterinary preparations, feeds and mixed fodder/ combined feeds;
- observation of veterinary and sanitary requirements by legal and natural persons in order to protect the Environment.

- **State non-commercial organization "Plant Quarantine and Plant Protection Service" at the Ministry of Agriculture of the Republic of Armenia**

In accordance with the Decision of the Government of the Republic of Armenia No.1915-N of November 21, 2002 the State non-commercial organization "Plant Quarantine and Plant Protection Service" performs the following:

- analysis of phytosanitary state of cultivated agricultural crops, prognoses/predicts and reveals pests and development of plant diseases; in case of necessity notifies the state governing bodies and bodies of self-government at the municipalities, as well as legal and natural persons about the realization of the entire complex of scientifically substantiated measures;
- expertise of imported and exported plant protectants (laboratory analysis) and issues the appropriate information thereof to legal and natural persons;
- rendering assistance to prevent sale and use of plant means non-registered and withdrawn from circulation in Armenia;
- rendering assistance to legal and natural persons in implementation of actions/measures on plant protection at agricultural, industrial, trade areas, as well as at storage facilities.

MINISTRY OF ECONOMY OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal regulation

The Ministry of Economy of the Republic of Armenia is a republican body of executive power, which develops the policy of the Government of the Republic of Armenia in the sphere of economic development.

In accordance with the Decision of the Government of the Republic of Armenia (No.1229-N adopted July 11, 2002) on establishment of State Managerial Authority "Administration of the Ministry of Trade and Economic Development of the Republic of Armenia" and legal document "On approval of the Statute and Structure of Administration of the Ministry of Trade and Economic Development of the Republic of Armenia and corrective action in concern of the Decision of the Government of the Republic of Armenia (No.197 of March 6, 2002), the Ministry of Trade and Economic Development of the Republic of Armenia is assigned:

- to work out and implement scientific and technical and rationalization (labour-saving) innovation policy in the sphere of science and technology, to facilitate formation of mutually beneficial relations of science and production, to assist in development, import and export of high technologies, as well as the transfer thereof to the national economy of Armenia, to study the international processes of technology transfer and to assist in import of the transferred technologies having high importance for development and progress of National Economy of the country; to work out actions for industrial development of information technologies;
- to coordinate the activity held by the Republic of Armenia together with the World Trade Organization and international trade-economic organizations in the sphere of Foreign Economical Policy and economic interactions; to work out, jointly with the state governing bodies, suggestions on application of quantitative limitations for import and export of goods; establishing state monopoly for import and export of definite goods, conditioned by the issues of economical development of the country, as well as banning or limitation on import and export of goods;
- to work out the policy on development of the production complex of the Republic of Armenia and to put forward proposals/suggestions for realization of these measures and to work out and implement republican and local/municipality-based programs on organization of safety-in-work activity in national economy, on prevention of nature and technogenic calamities and performs control over their implementation;
- to work out and implement measures/actions on development and regulation of domestic market of goods and services (both retail and wholesale) in the Republic of Armenia;
- in the sphere of state management and national economy regulation to ensure working out and implementation of measures on development, use and reliable legal protection of industrial proprietorship (discoveries, utility models, industrial samples, trademarks and services, name of locations /origination of the goods, names of companies), as well as to establish norms and regulations on technical safety and to execute control over the implementation of these requirements.

Institutional Regulation

The Ministry of Economy of the Republic of Armenia in the frames of authorities assigned by the legislation in accordance with the Statute approved by the Decisions of the Government of the Republic of Armenia (No. 1229-N of July 11, 2002; No. 2041-N and No. 2042-N of December 19, 2002) regulates the issues dealing with chemicals by the following structural and special designated subdivisions of the Ministry and dependent organizations and societies:

- **Structural subdivisions of Administration of the Ministry of Economy of the Republic of Armenia**
  - Department of economic policy and planning of development;
  - Department of proportional sectoral and area economic development;
  - Department of Science, technology and innovation policy;
  - Department of development of investment policy and market infra-structure;
  - Department of military-industrial establishment and military-economic programmes;
  - Department of Economy of Entrails Use, Mining Industry
  - Department of protection of inner market and improvement of competitive environments;
  - Trade and Services Department;
  - Legislative and legal Department;
  - Department of financial/ fiscal and economic accounting;
  - Department of Co-operation with the World Trade Organization and European Union;

- Department of industry;
- Department of tourism;
- Department on Standards, Metrology and Compliance Confirmation;
- Department of Information Technologies Development;
- Department of jewelry works;
- Department of small- and medium-sized business.

➧ **Intellectual Property Agency at the Ministry of Economy of the Republic of Armenia**

In accordance with the Statute, approved by the Decision of the Government of the Republic of Armenia (No. 1231-N of July 11, 2002), the Intellectual Property Agency performs:

- receiving and examination of applications, state registration, granting of patents and certificates for inventions, utility models, industrial designs, trademarks and service marks, appellation of origin, trade names (hereinafter industrial property objects) and integral microcircuit topologies and keeping of state registers for mentioned objects in the prescribed order;
- legal safeguard of publications on official information about the discoveries, utility models, industrial samples, trade marks and signs/ logo of services, names of location/origination of goods and names of companies; development of a constantly updated information-search/ retrieval base;
- patent information exchange between foreign and international organizations, purchases of information materials and joint publication thereof.

➧ **Inspection on safety-in-work in industry and mining control at the Ministry of Economy of the Republic of Armenia (**Secure Performance of Works within Industry and Mountain Control Inspectorate)

The Inspection on safety-in-work in industry and mining control in accordance with the Statute, approved by the Decision of the Government of the Republic of Armenia – No. 1232-N of July 11, 2002) performs the following:

- state technical control/monitoring in concern of safe exploitation of enterprises of chemical, petrochemical, metallurgy industries, ammonia refrigerating units/ cold-storage establishments, boiler units, lifting apparatuses, pressure vessels/ cylinders, facilities for fuel storage and recycling (solid, liquid, and gaseous), as well as State grain procurements/purchases and transportation of hazardous loads;
- control in concern of protection and use of treatment system and facilities at plants, those of industrial drainage, technological reversion water supply, burning of gaseous emissions and emissions from utilization stations, transport of liquid chlorine, ammonia, chemical and other hazardous wastes and gases;
- registration of individuals working under the conditions of high pressure of vessels/cylinders and pipes at the enterprises of chemical, petrochemical, metallurgy industries, ammonia refrigerating and other stations/units and issuing permission for their safe exploitation and repair works;
- control in concern of proper application of the requirements of the Republic of Armenia Legislation, safety rules, and standard technical legislation for transportation of hazardous loads by transport means, as well as for prevention of accidents and emergencies;
- control in respect of safe works in case of hazardous loads' movements/transportation from enterprises (regardless of the type of ownership);
- control in respect of compliance of constructions and the technical state of transport means to the requirements and qualifying standards for safe/secure transportation of hazardous loads.

↳ World Trade Organization Notifying Agency at the Ministry of Economy of the Republic of Armenia

The Agency on Notification of the World Trade Organization (WTO) in the Republic of Armenia at the Ministry of Trade and Economic Development of the Republic of Armenia in accordance with the Statute approved by the Decision of the Government of the Republic of Armenia No.1230-N dated July 11, 2002 performs the following:

- in the frames of WTO agreements information is collected from the functioning inquiry points, appropriate ministries and other bodies of State governing system about the legal documents having influence and regulating foreign trade and economic relations of the Republic of Armenia, as well as, in accordance with the requirements of WTO agreements, some other information is collected and the decisions taken on the necessity to notify the WTO Secretariat;

- the Agency submits to WTO Secretariat those documents, which are subject to notification in the period of time fixed by the WTO agreements and in the form accepted by the Secretariat of WTO (and via the Secretariat to WTO member-states) with indication of the provided subject of regulation, as well as necessity and purposefulness of such regulation;

- the Agency receives from WTO Secretariat notifications, submitted by the WTO member-states and renders them to the WTO inquiry points, appropriate Ministries and Agencies of the Republic of Armenia for comments;

- the Agency receives from WTO inquiry points, from appropriate Ministries and Agencies of the Republic of Armenia substantiated comments of WTO member-states in concern of informative notices or inquires on holding conferences/ meetings and provides them to WTO Secretariat (and via the Secretariat to WTO member-states);

- the Agency informs WTO inquiry points, appropriate ministries and other state governing bodies of the Republic of Armenia (in comprehensive collaboration with them) about the responsibilities related to notifying functions of WTO, order and form of notification submissions to the Agency and observes their proper carrying-out in due time.

↳ Agency on Accreditation at the Ministry of Economy of the Republic of Armenia

↳ Quality Inspection at the Ministry of Trade and Economic Development of the Republic of Armenia

MINISTRY OF FINANCE OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal Regulation

The Ministry of Finance of the Republic of Armenia is a republican body of executive power, which develops and implements the policy of the Government of the Republic of Armenia in the sphere of state revenue, state finance governance, coordination of programmes on socio-economic development.

In accordance with legal document adopted on July 11, 2002 by the Decision of Government of the Republic of Armenia No.1460-N “On approval of Statute and structure of administration of the Ministry of Finance and Economy of the Republic of Armenia”, the Ministry of Finance and Economy of the Republic of Armenia is assigned to perform:

- provision of international collaboration in the sphere of macro- and micro-economic policy, in particular: coordination of works on implementation of programs executed by financial institutions and monitoring on the implementation process;
- servicing obligations and commitments occurring in concern of the Republic of Armenia.

Institutional Regulation

The Ministry of Finance of the Republic of Armenia in the frames of the authorities assigned by the legislation regulates the issues dealing with chemicals and POPs through the following structural subdivisions:

- Department of international policy;
- Department of financial programming of budget costs;
- Department of international financial collaboration.

MINISTRY OF ENERGY AND NATURAL RESOURCES OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal Regulation

The Ministry of Energy and Natural Resources of the Republic of Armenia is a republican body of executive power, which develops and implements the energy policy of the Government of the Republic of Armenia.

In accordance with legal document adopted November 28, 2002 by the Decision of Government of the Republic of Armenia No. 2072-N on establishment of state governing institution “Administration of the Ministry of Energy of the Republic of Armenia” “On approval of Statute and structure of administration of Ministry of Energy of the Republic of Armenia”, the Ministry of Energy and Natural Resources of the Republic of Armenia is assigned to:

- working-out strategy of stable and sustainable development in the area of energy, ensuring safety and reliability of energy supplies, programmes and actions for their implementation;
- ensuring working-out and application of economic and legal mechanisms of reasonable use of local energy resources (especially those of hydro-energy), alternative sources;
- working out incentive measures for stimulation of scientific and technological progress and implementation of new energy energy-efficient /power saving technologies, manpower training and continuing education;
- in the frames of assigned responsibilities, the Ministry of Energy and Natural Resources arranges working out of normative documents for standardization in the sphere of energy production and energy supplies (technical regimen, national standards, etc.) and approval thereof in the established order;
- arrangements on working-out norms and limitations, use of lands by the energy facilities and safety zones/belts, as well as approval thereof in an established order;
- carrying out measures/ actions on environmental protection in the sphere of energy production;
- in an established order, implementation of measures/ actions on economic, financial, scientific-technical collaboration and other forms of development with other states, foreign legal persons, as well as international organizations;
- in an established order, implementation of technical control in the sphere of energy production and energy supply in respect of safe exploitation of switching substations.

Institutional Regulation

The Ministry of Energy and Natural Resources of the Republic of Armenia in accordance with the Statute and within the frames of authorities assigned by the legislation regulates issues dealing with chemicals and POPs by the following structural subdivisions of the Ministry and dependent organizations and companies:

Structural subdivisions of Administration at the Ministry of Energy and Natural Resources are:

- Department of Development and External Relations;
- Department of Technical Control on Exploitation

LOCAL GOVERNING BODIES (MUNICIPALITIES) OF THE REPUBLIC OF ARMENIA: Legislative instruments for regulation of chemicals and wastes, including POPs

Legal Regulation

In accordance with the Decrees of President of the Republic of Armenia "On state governing in marzes of the Republic of Armenia" (No.VII—726 of May 6, 1997) and "On state governing in Yerevan" No.VII-727, the Republic of Armenia is divided into 11 marzes (provinces), including the capital of Armenia: Yerevan, a city with the status of a marz.

The Republic of Armenia is divided into following marzes:

- Lory marz of the Republic of Armenia;
- Kotayk marz of the Republic of Armenia ;
- Ararat marz of the Republic of Armenia;
- Shirak marz of the Republic of Armenia;
- Armavir marz of the Republic of Armenia;
- Vajots Dzor marz of the Republic of Armenia
- Syunik marz of the Republic of Armenia;
- Tavush marz of the Republic of Armenia;
- Gegarkunik marz of the Republic of Armenia;
- Aragatsotn marz of the Republic of Armenia;
- The Mayor's Office in Yerevan (Yerevan city administration).

➧ **Research Institute of General Hygiene and Occupational Diseases after N.B. Hakobyan at the "Medical Center Kanaker-Zeytun" CJSC of Yerevan city administration**

In frames of implemented program on optimization the number of medical organizations of Yerevan city was reorganized and under the power of Yerevan city administration the "Medical Center Kanaker-Zeytun" CJSC was established. In accordance with the Decision of the Republic of Armenia (No1413-H dated October 30, 2003) State non-commercial organization Research Institute of General Hygiene and Occupational Diseases after N.B. Hakobyan has been united into the Medical Center Kanaker-Zeytun.

Research Institute of General Hygiene and Occupational Diseases after N.B. Hakobyan performs the following:

- research, scientific medical, clinical, hygienic and laboratory studies;
- medical expertise aimed at diagnosis of occupational diseases and drawing expert conclusions.

The local governing bodies (marzpetarans) function in the frames of authorities assigned by the Decrees of the President of the Republic of Armenia "On State Governing in Marzes of the Republic of Armenia "(No.VII- 726 of May 6, 1997) and "On State Governing in the City of Yerevan" (No.VII-727) and in the person of Mayor of Yerevan (on the territory of Yerevan city) and in the persons of marzpets/marz leaders (at the territory of a marz) perform the following in concern of environmental protection:

- participate in working out governmental programmes on nature and environment protection, and in the frames of given responsibilities, ensure realization thereof at the areas entrusted;
- perform control over the execution of environmental regulations/ legislation at the areas entrusted and, in case of infringement, notify the appropriate authorities;
- collaborate with the corresponding public organizations and citizens in concern of implementation of programs relevant to nature protection.

The legal framework of responsibilities of the local governing bodies (municipalities) in the sphere of nature protection are stated in Article 45 of the Law of the Republic of Armenia "On local self-government", in accordance with which the head of the community executes the following obligatory function in the area of nature and environment protection :

- arranges protection of the environment, lands and forests that are in possession of the community.

In concern of the nature and environmental protection, the head of the community executes the following responsibility set by the State:

- ensuring the protection of lands against the landslides, flooding, swamping, water logging, as well as against pollution by chemicals, radioactive substances, and industrial wastes.

According to Article 42 of the above-mentioned Law, in concern of public health the head of the community arranges and manages the activity of public health institutions and organizations, as well as voluntary assists the bodies of public health to fulfill sanitary hygienic, anti-epidemic and quarantine measures.

In respect of agriculture according to Article 44 and in the frames of responsibility imposed by the state, the head of the community arranges anti-epidemic measures, as well as actions performed by veterinary services to prevent diseases of animals, and ensures adherence to other agricultural rules/regulations, as well as organizes activity aimed to fight against diseases of agricultural crops, pests and weeds. In the frames of responsibilities set forth by the Law, the head of the community is given the possibility to execute functions dealing with on-site regulation of chemicals.

According to the Law of the Republic of Armenia "On Public Organizations", numerous public organizations, registered by the State and in the frames of responsibilities set by the Statutes thereof facilitate the settlement of the problem on prevention of the harmful impact of chemicals to the human health and the environment.

In concern of legal and natural persons, who use the chemicals, including POPs, by a number of laws and legal instruments regulating the sphere of nature protection norms, standards and limitations are established, the rights and responsibilities are imposed for prevention or minimization of the harmful effect of the chemicals and wastes, as well as the extent of responsibility for performance of these duties.

Institutional Regulation

In accordance with the Law of the Republic of Armenia "On State Governing Bodies" and the appropriate Decrees of the Government of the Republic of Armenia, Administration was established in each marz with special structural and designated subdivisions. Territorial State institutions were reorganized into territorial agencies with the status of designated institution (Administration).

Within the Administration of each marz, there were established territorial structures with the status of a structural subdivision dealing with regulation in the sphere of environmental protection. The above-mentioned territorial structures involve:

- Department of Nature Protection at the Administration of Yerevan city Mayor's Office established on the basis of Decision of Government of the Republic of Armenia (No.1788-N dated October 3, 2002);

- Department of Agriculture and Nature Protection at the Administration of Lory marz, established on the basis of Decision of Government of the Republic of Armenia (No.1789-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Kotayk marz, established on the basis of Decision of Government of the Republic of Armenia (No.1790-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Ararat marz, established on the basis of Decision of Government of the Republic of Armenia (No.1791-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Shirak marz, established on the basis of Decision of Government of the Republic of Armenia (No.1792-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Armavir marz, established on the basis of Decision of Government of the Republic of Armenia (No.1793-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Vajots Dzor marz, established on the basis of Decision of Government of the Republic of Armenia (No.1794-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Syunik marz, established on the basis of Decision of Government of the Republic of Armenia (No.1795-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Tavush marz, established on the basis of Decision of Government of the Republic of Armenia (No.1796-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Gegharkunik marz, established on the basis of Decision of Government of the Republic of Armenia (No.1797-N dated September 19, 2002);

- Department of Agriculture and Nature Protection at the Administration of Aragatsotn marz, established on the basis of Decision of Government of the Republic of Armenia (No.1808-N dated September 19, 2002);

ANNEX 4: SUMMARY REPORT ON MONITORING AND ANALYSIS OF POPS IN THE REPUBLIC OF ARMENIA

In Armenia since 1960s the problems arose in concern of environmental pollution by persistent organic pollutants, as persistent organochlorine pesticides (OCPs) were in all-round, extensive use. The reason for such large scale application of OCPs was conditioned by the universal, multipurpose character of these compounds.

According to data obtained due to studies performed by the country sanitary it was revealed that such OCPs as DDT and HCH, including Lindane (γ-HCH), were determined in food especially in foodstuffs of animal origin. It was found out that in Armenia the load of OCPs per 1 hectare of arable lands made 8.4 kg. The load of OCPs per capita made 1.72 kg. In the districts of Ararat Valley these values made 21.1 kg and 5.3 kg, appropriately.

Statistical data signify that in 89% of all cases DDT residues were revealed in soil; HCH was found in 39.8% of cases. In samples of water of open reservoirs these values made appropriately 61%, and 24.7%, in feed crops and formula feeds the amounts were 71.7% and 42.5%, while in foodstuffs residues made 80.7% and 37.7%.

According data available for 1970s-1980s, the levels of DDT and HCH were as follows:

- in soils: 0.2-0.06 mg/kg,
- in samples of water from open reservoirs the level was at 0.021 mg/L and 0.01 mg/L,
- in water from artesian wells: 0.11 mg/L and 0.07 mg/L,
- in formula feeds: 0.38 mg/kg and 0.25 mg/kg,
- in foodstuffs of animal origin: 0.44 mg/kg and 0.1 mg/kg,
- in foodstuffs of plant origin: 0.21 mg/kg and 0.14 mg/kg.

Studies held in different regions of the former Soviet Union in concern of levels of OCP pollution of various environmental media became the basis for decision-making on banning application of DDT as an agricultural pesticide in USSR, including Armenian Republic, since 1970.

In Armenia since 1970, the use of the extremely hazardous organochlorine pesticides was prohibited according to the Order of Minister of Health of the Former USSR. List of banned pesticides includes compounds falling under the action of Rotterdam and Stockholm Conventions (Table 1). Since 1980 the area for HCH application was narrowed in the sphere of prevention and fight against pests and diseases of food crops. The decision was also adopted in 1980 to stop application of HCH in the area of water collection basin around the lake Sevan.

Table 1
List of pesticides banned for use in Armenia

Name	Production/Use	Date of banning
DDT	No production/ no use	1970
Aldrin	No production/ no use	1970
2,4,5-T	No production/ no use	1970
Chlordimephorm	No production/ no use	1978
Dieldrin	No production/ no use	1985
Dinoseb	No production/ no use	1986
Heptachlor	No production/ no use	1986
Pentachlorophenol	No production/ no use	1986

After the above mentioned actions studies for the content of DDT and HCH in water of Sevan Lake, tilt/sludge and in muscle tissues of fish demonstrated that:

- according to available data DDT was determined in Sevan water averagely at 0.0004 mg/L (Small Sevan) and 0.0003 mg/L (Bigger Sevan).
- in the tilt (bottom sediment) DDT was determined at 0.01-0.037 mg/kg, HCH at.57-1.46 mg/kg.
- in muscle tissues of white-fish ("syg") DDT was detected at 0.2 mg/kg, DDE at 0.1 mg/kg and HCH at 0.2 mg/kg
- in muscle tissues of khramulya fish, which is fatter than syg, DDT was revealed at 0.006 mg/kg, DDE at 0.027 mg/kg and HCH at the level of 0.001 mg/kg.

Only officially registered substances and those included in the "List of chemical and biological means of plant protection allowed for application in the Republic of Armenia" are allowed for import to and sale at the territory of Armenia. The "List of chemical and biological means of plant protection allowed for application in the Republic of Armenia" is approved by the Order of the Minister of Agriculture (No.14-N dated February 5, 2007). The List involves names more than 200 chemical and biological plant protection means, amongst which there are no chemicals included in Annex A, Part I of Stockholm Convention.

However, despite the prohibitive actions taken since 1970s, the residual amounts of organochlorine pesticides continue to be revealed in environmental media, foodstuffs, and human organism till present.

The following was revealed as a result of monitoring studies on residue amounts of POPs chemicals.

Hexachlorobenzene (HCB) in waters of open reservoirs was revealed in the range of 0.005-0.056 mcg/L. Average content of these substances made 0.006-0.036 mcg/L. In bottom sediments no HCB residues were revealed. In soils around the transformer stations HCB was revealed at 0.018 mcg/kg in 1 sample. In waste waters from sewage collectors HCB was found at 0.016mcg/L in 1 sample.

HCB residue amounts were also determined in water samples from water supply network of cities Yerevan and Vanadzor. In 9 out of 12 samples of water collected in Yerevan Heptachlorbenzene was revealed within the range of 0.0001-0.0078 mcg/L. On the average the content made 0.0028 mcg/L. In Vanadzor the residues of HCBs averaged 0.005 mcg/L.

Data obtained due to monitoring on HCB residual amounts in foodstuffs from different marzes (regions) of Armenia signify to the presence of this pesticide:

- HCB content in eggs was within the range of 0.008-4.54 mcg/kg. Average content made 0.26-4.54 mcg/kg.
- in samples of meat HCB ranged 0.028-9.16 mcg/kg (on the average: 0.0072-2.73 mcg/kg).
- HCB residues in samples of milk levelled to 0.009-0.74 mcg/L (average: 0.025-0.21 mcg/L).
- in samples of cheese the compound was revealed at 0.1-15.65 mcg/kg, making on the average 0.1-11.09 mcg/kg.

Monitoring studies were also carried out in order to determine residual amounts of **Heptachlor** in surface waters and food stuffs (eggs, meat, milk and cheese) from different marzes of Armenia. It was found that in surface waters Heptachlor ranged 0.034-0.17 mcg/L (averagely 0.074 mcg/L). Heptachlor residues in samples of food were as follows: in eggs the residues made 0.023- 0.12 mcg/kg (average: 0.0064-0.06 mcg/kg), in meat at 0.024-4.23 mcg/kg (average 0.024-3.31 mcg/kg); in samples of milk Heptachlor was revealed in the range of 0.023-0.12 mcg/L (average content made 0.06-0.097 mcg/L). In samples of cheese Heptachlor was not revealed, except 1 sample, in which the content made 0.153 mcg/kg.

Energy sector is one of the main sources of environmental pollution by POPs and, in particular, by such compounds as polychlorinated biphenyls (PCBs), which might be contained in oils used in electrical equipment of various types (power transformers, greasing/lubricating systems; rectifiers, high voltage switches and breakers, compressors, etc).

In Armenia at present, the energy complex is one of the leading production sectors of the Republic. Therefore, there is an urgent problem to assess/ evaluate the state of the environment in concern of the use of oils probably containing PCBs in electrical equipment.

It should be mentioned that out of 70,000 tons of trichlorobiphenyls (TCB) produced in Former USSR (Russian Federation), 40,000 tons were used in production of industrial capacitors and 30,000 tons were used in production of household capacitors, which were manufactured only in Armenia and then distributed to the republic of the Former USSR (Russia, Byelorussia, Ukraine, Lithuania, Latvia).

Main consumers of capacitors manufactured in Armenia were radio-engineering plants of Kaunass, Vilnius, Riga, Minsk, Moscow, Lvov, Zaporozhie, Voronezh and Kiev. Totally 10 million film capacitors and 50 million electrolytic capacitors.

The equipment containing mineral oils contaminated by PCBs also present one of the main sources of POPs releases to the environment, and in particular, it is a source of polychlorinated biphenyls. The problem to replace and destruct PCB-containing oils and equipment is of high importance and urgency for Armenia.

There was determined the content of PCBs in oils used in exploited transformers of energy sector of Armenia. The revealed levels of PCBs in used oils varied within the range of 11.0 and 24.3 mg/L.

In order to study the degree of environmental pollution by PCBs, monitoring study was performed for their residual amounts in surface waters and Sevan Lake, bottom sediment and food-stuffs. Soil samples were taken in the vicinity (from underneath) of electrical equipment of HPPs and TPPs, as well as samples of water from the near-by water basins and flowing rivers and studied for the residual amounts of PCBs.

In soil samples from the territory of hydro- and thermal power plants the residual amounts of PCB were determined to amount up to 929.0 mcg/kg. In samples of bottom sediments PCB residues were determined to amount 719.1 mcg/kg. In samples of surface waters the levels of PCB determination ranged 0.68-1.82 mcg/L. In waters of Sevan Lake and rivers feeding it the residual amounts of PCBs were determined up to 1.57 mcg/L.

POPs content was determined in meat, eggs, milk, and cheese from various marzes (regions) of the Republic of Armenia (Syunik, Ararat, Armavir, Aragatzotn, and Lori). According to analytical data, HCH content determined in eggs was ranged within 0, 07-1, 72 mcg/kg; DDT 0, 48-6, 06 mcg/kg; HCB 0, 04-4, 53 mcg/kg; and PCB 1, 61-2, 78 mcg/kg (Table 2).

Table 2
Average POPs Content in Eggs, mcg/kg

Pesticides	Megri Region	Alaverdi Region	Gugark Region	Artashat Region	Echmiadzin Region	Ashtarak Region
Heptachlor	NR*	0.04	0.006	NR	NR	NR
Σ HCH	1.72	0.12	0.07	1.53	0.71	1.01
Σ DDT	6.03	0.48	0.75	2.29	2.29	2.46
HCB	0.26	1.47	0.41	0.04	4.53	NR
PCB	NR	2.78	1.61	NS**	NS	NS

*Hereinafter: NR - not revealed; **NS – not studied

As it is obvious from data presented in the table, all investigated pesticides are present in eggs. The findings also testify to fresh application of DDT and HCH.

It is necessary to note that **Heptachlor** is not applied in agriculture of Armenia.

Hexachlorobenzene was found out in almost all investigated egg samples that testifies either to the use of this compound in agriculture of Armenia, or to the presence of conditions favorable for its penetration into the environment from other sources containing Hexachlorobenzene.

Monitoring on POPs content in meat samples also revealed their residue amounts in samples taken (Table 3). The residues were determined on following levels: Heptachlor 0,24-3,31 mcg/kg; HCH 0,45-2,15 mcg/kg; DDT 1,1-5,24 mcg/kg; HCB 0,07-2,72 mcg/kg; and PCB 13,86-25,74 mcg/kg.

Table 3
Average POPs content in samples of meat, mcg/kg

Pesticides	Megri Region	Alaverdi Region	Gugark Region	Artashat Region	Echmiadzin Region	Ashtarak Region
Heptachlor	0.22	0.024	0.28	NR	0.38	3.31
Σ HCH	2.15	1.57	0.72	1.76	0.45	1.5
Σ DDT	5.24	1.1	2.97	1.19	1.27	4.63
HCB	0.86	0.43	2.72	0.07	NR	0.66
PCB	NS	13.86	25.74	NS	NS	NS

Thus, likewise, the study on eggs, all tested POPs were also revealed in samples of meat. It was stated that pork, as fattier samples of meat contains higher levels of POPs, as compared to samples of bee. This phenomenon is more precisely expressed in researches for PCBs contents in meat.

Samples of milk and cheese were selected and taken from different country farms. Monitoring results of milk samples revealed the following: Heptachlor was determined within 0, 06-0, 1 mcg/L; HCH 0, 1-2, 3 mcg/L; DDT 0, 29-2, 66 mcg/L; HCB 0,025-0, 2 mcg/L; and PCB 4, 53-7, 45 mcg/L (Table 4).

Table 4
Average POPs content in samples of milk, mcg/L

Pesticides	Megri Region	Alaverdi Region	Gugark Region	Artashat Region	Echmiadzin Region	Ashtarak Region
Heptachlor	0.06	NR	NR	NR	NR	0.10
Σ HCH	1.61	0.58	0.17	2.3	0.4	0.1
Σ DDT	2.657	0.42	0.29	2.61	0.37	0.48
HCB	0.21	0.10	0.025	0.07	NR	NR
PCB	NS	5.15	4.53	NS	7.45	NS

In samples of cheese the residual amounts of POPs were determinate on following levels: Heptachlor 0,15 mcg/kg; HCH 0,63-5,83 mcg/kg; DDT 0,35-12,73 mcg/kg; HCB 0,1-11,09 mcg/kg; and PCB 11,94-63,86 mcg/kg Table 5).

Table 5
Average POPs content in samples of cheese, mcg/kg

Pesticides	Megri Region	Alaverdi Region	Gugark Region	Artashat Region	Echmiadzin Region	Ashtarak Region
Heptachlor	NR	NR	н/о	0.15	NR	NR
Σ HCH	3.59	1.11	0.63	2.85	3.83	5.83
Σ DDT	12.73	0.64	2.92	0.85	0.35	3.37
HCB	0.66	11.09	4.63	0.1	NR	4.22
PCB	NS	11.94	63.86	NS	NS	NS

The results of study on samples of cheese have shown that residual amounts of Persistent Organic Pollutants are found out in almost all samples. Thus, monitoring studies confirm that in Armenia foodstuff is contaminated by POPs.

Despite the prohibition of DDT usage in 1970 its residual amounts continue to circulate and are determined in environmental media (soil, surface water, water of Sevan Lake), foodstuff and human organism. According to the monitoring data the frequency of POPs determination (Lindane, DDE) in samples of breast milk taken from feeding mothers of rural areas of Armenia (marz Aragatsotn) makes 87-97%. The detectable amounts of DDE were ranged from 0.0007 to 0.045 mg/L and Lindane was 0.0002 – 0.0097 mg/L.

The problem of polluted areas and stocks of inappropriate pesticides, including obsolete/expired pesticides is of top-priority for the Republic of Armenia. The available preliminary data testify to various degrees of pollution at the territory of Armenia by persistent organic pollutants (organochlorine pesticides, PCBs), as well as on the presence of stocks of obsolete/expired pesticides unsuitable for application, including those from the class of organochlorine compounds.

The territories of the enterprises of energy power sector (SRPPs, HPPs) and adjoining sites are mostly polluted. Territories of urban and village dumps are also polluted, the number of such dumps achieves 474 (excluding unorganized places of waste dumps). According to data of the Ministry of Health in Armenia now there are 45 urban and 429 village waste dumps, which, in the majority, do not correspond to the sanitary requirements: that is all urban and 368 village dumps.

The results of soil monitoring performed at waste dumps located in different regions of Armenia signify to presence of PCB residual amounts, which vary in the range of 22.3 - 369.9 mcg/kg.

Besides, till 1990s there were more than 600 warehouses of chemical means of plant protection "Armselkhozkhimia" (“Armenian Agricultural Chemistry”), at which pesticides were stored and wherefrom these chemicals were distributed to facilities/farms. Data of monitoring on soils of the territories of former warehouses (premises) testify to the presence of residual amounts of Organochlorine Pesticides in soils of these territories. Thus, the detectable residual amounts of DDT were ranged from 0, 37 to 11, 22 mcg/kg; HCH 0,078-19,77 mcg/kg; Heptachlor 2,34-3,68 mcg/kg; HCB 0,061-13,99 mcg/kg; and PCB 42,07-72,35 mcg/kg.

At present the state of contaminated territories (areas of enterprises of energy complex, waste dump sites, former pesticide storehouses) is of high importance for Armenia. Both organized and non-organized waste dump sites, which are scattered all over the territory of Armenia present themselves sources of environmental pollution by dioxins/ furans; this latter cannot but cause alarm and concern. Due to periodically occurring foci of low-temperature ignition and smouldering of wastes followed by generation of dioxins/ furans, these areas present hazard.

Owing to the fact that at present final disposal (burying) of hazardous wastes at the municipal dumps is the most prevalent mode for their disposal, these dump sites scattered all over the territory of Armenia can be considered anthropogenically emerged “hot spots”.

From contaminated areas POPs penetrate to different environmental media (ground and surface waters, air), plants, agricultural produce, and then by trophic chains POPs residues penetrate into human organism.

The problem of banned and obsolete pesticides became urgent already since late 1970s, when there arose the problem of elimination/withdrawal of banned and obsolete pesticides (mainly organochlorine ones) accumulated at the territory of Armenia. In early 1980s the special place was approved and allotted for pesticides burial near Bardzrashen village. At the territory of the organized burial place about 500 tons of obsolete pesticides were buried (finally disposed), of which the volume of banned organochlorine pesticides made 250 tons.

The complexity of the problem dealing with the obsolete pesticides burial is worsened by the fact that the site allotted for burial is located in the zone of active landslide processes, which can cause damage/crippling and a possible "breakthrough" of the contents ("innage") and subsequent penetration of residues of buried obsolete pesticides, including organochlorine ones, into the environment resulting in environmental pollution.

In order to take measures on improvement of ecological situation in the vicinity of the burial an evaluation was performed on the costs of activity required for ensuring the ecological safety of the burial.

As a result of the activity performed by the Ministry of Nature Protection there was prepared and then approved the Decision of the Government of the Republic of Armenia "On approval of a list of measures ensuring safety of pesticides burial and assigning financial resources of state budget of the Republic of Armenia for FY 2004" (No. 526-A of April 22, 2004). Implementation of measures was entrusted to the Department of Emergency Situations at the Government of the Republic of Armenia, which embrace the following:

- Study on the landslides at the territory neighbouring with the burial of obsolete pesticides;
- Study aimed to examine the concrete construction of the burial of pesticides and determine its integrity;
- Fencing of the burial of obsolete pesticides and reconstruction of drainage/ water catchment's system around it;
- Study on contamination of soils and ground waters adjacent to the burial.

Coordination and control on implementation of measures was laid on the Ministry of Nature Protection of the Republic of Armenia. In accordance with the approved Decision 8 504.7 thousand AMD was assigned at the expense of the reserve fund of the Government of the Republic of Armenia.

It should be mentioned that solution of the problem on remediation of polluted areas and wastes dump sites is of prime significance and urgency for Armenia. The problem is more than serious due to the fact that its solution requires a continuous period of time and is complicated by the limited financial resources.

Analysis of data on monitoring studies of soil, bottom sediments, surface waters, foodstuff (milk, meat, eggs and cheese) and biomedia (breast milk) confirm that POPs continue to circulate in environmental media and contaminate trophic chains by which these hazardous substances penetrate into human organism.

POPs problem is especially priority from point of view of risk for children health because as long as POPs accumulate in mother organism they may penetrate with breast milk to newborn's organism and cause hazard for their further development. Numerous research prove that during growth and development children are more vulnerable to effects of various ecological factors, including POPs, which are determined everywhere as result of inappropriate application of pesticides in agriculture and use of banned organochlorine ones, open burning of household wastes and hazardous wastes, industrial releases, etc.

It should be mentioned that the residual amounts of determined POPs are insignificant; however, chronic long-term exposure to and intake by human organism can become the reason of morbidity increase in population, the clinical manifestation of which, due to polytropic character of the effect exerted by pesticides, including organochlorine pesticides, is non-specific and is hardly diagnosed. Therefore, it is important to study the health status of population of the Republic in concern of pesticides application pesticides, in particular of organochlorine ones.

Summary results of epidemiological studies and available clinical data testify to unfavourable impact of persistent organic pollutants on health status in professional workers, in particular, workers of chloroprene, mining and smelting production in Armenia.

The results of studies for residual amounts of organochlorine pesticides and PCBs in environmental media (surface waters, waters of Sevan Lake and rivers feeding it), as well as in food (meat, cheese, milk) produced in different regions of Armenia signify to their contamination by POPs. In particular: Lindane levels in water varied within the range of 0.02-0.38 mcg/L; DDT - 0.02-1.97 mcg/L. PCB levels in samples of food ranged 4.5 – 15.7 mcg/kg.

Taking into consideration the actuality of problem on environment contamination by persistent pollutants as well as necessarily to establishment of harmonized chemicals and waste management, capacity building and strengthening legislative-normative basis in this area amongst a number priority trends on national level as key trends were identified the followings:

- Harmonization of the National Legislative Basis for Integrated Chemicals and Waste Management and Development of the Harmonized Regulating System on Strengthening Aspects of Control on Import and Export of Chemicals and Wastes;
- Strengthening the analytical capacity for sound chemicals and waste monitoring and (risk) management; strengthening of organizational systems for state control and carrying out inventory on existing stockpiles of hazardous wastes (obsolete pesticides, PCB-containing oils and equipment, expired medicine, etc.)
- Enhancing the skills of decision-makers for risk evaluation and risk management of first-priority chemicals and waste (PCB-containing oils and equipment, obsolete pesticides, contaminated areas, etc.), awareness raising in concern of hazards and risks of chemicals and waste;
- Capacity building for Customs Service officials to ensure control on import/export of regulated chemicals and wastes;
- Coordination of problems dealing with chemicals and wastes management in emergency situations and ensuring preparedness to accidents and incidents;
- Development of programmes on cooperation between government and different stakeholders and Awareness Raising on hazards/risks of chemicals and wastes for farmers, workers, etc.;
- Capacity Building to Meet the Republic of Armenia Obligations under Stockholm Convention on the Persistent Organic Pollutants.

The importance and necessity to strengthen the analytical basis for chemicals and waste monitoring should be explained by high priority of the problem of chemicals and waste management, including POPs, for the Republic of Armenia.

Disposal of expired medicine that is also related to the category of hazardous wastes is a serious problem of first-priority for Armenia. Disposal of such medicine should be done in an environmentally sound manner.

Unlike the expired medicine Inventory taking on obsolete pesticides and chemicals is hindered by the fact that due to economic changes in Armenia both agricultural production and the majority of industrial entities were privatized. Due to the land reform, previously existing system of centralized delivery via “HayGyughKimia” (Armenian Agricultural Chemistry) was abolished. At present pesticides (farm chemicals) are brought into the country by various commercial organizations and private individuals. Due to imperfection of the of legal/legislative basis in this area it is impossible to exclude the cases of illegal import of obsolete or banned-for-use pesticides.

The stocks of obsolete or banned for application pesticides, which were at the disposal of small and middle-sized farms, are very frequently thrown to the adjacent open water reservoirs or discharged to unapproved sites. Therefore, first of all, measures should be taken in the Republic of Armenia to ensure reliable storage of inappropriate-for-use pesticides.

Currently insufficient coordination and cohesion of monitoring studies, as well as poor logistics and technical insufficiency in concern of equipment does not allow to perform detailed monitoring on harmful substances in environmental media and to take Inventory of stocks of accumulated hazardous wastes.

In this respect on the forefront is the problem to increase coordination and technical maintenance of test laboratories at different Ministries and Agencies with modern/up-graded laboratory equipment, apparatus, instruments, chemical reagents, as well as accreditation of such laboratories. Taking into account the importance of the problem of chemicals and wastes integrated management, it is especially important to strengthen the technical infrastructure of the analytical basis for monitoring and risk assessment/evaluation in concern of human and environmental health.

The necessity of radical strengthening of technical infrastructure for environmentally sound chemicals and waste management is confirmed and dictated by the findings obtained due to monitoring studies for determination of POPs residual amounts in environmental and bio-media, which signify to their continuing circulation; this latter, undoubtedly, is resulting from pollution of the territory of Armenia by POPs.

It is worthwhile to note that the level of public awareness of possible risks on chemical substances and wastes is far to be perfect and needs to be improved. In general, the low level of environmental knowledge of representatives of managing bodies as well as the improper awareness of the society of risks and security of impact of dangerous chemical substances, wastes and pesticides, including the POPs, impedes largely to making environmentally justified decisions, and lowers their effectiveness in relation to various types of activities, and international trade and security.

Efficient management of environmental quality, public health, evaluation of risks of chemical substances and wastes, and their sound management, is mostly conditioned by their information availabilities. Information support provided in environmental, health protection, socio-economic, scientific-educational and other areas has greatly increased the decision-making productivity. It is essential, particularly, for taking decisions on sound environmental management of chemical substances and wastes, risk evaluation and risk management, which constitute the ground of strategic actions in the framework of international conventions which in their turn regulate sound management of chemical substances and wastes, regarding Basle, Rotterdam, Stockholm, Aarhus Conventions.

The above given international conventions regulating sound handling of issues on chemical substances and wastes contain absolutely new political-legal controls for synchronization of initiatives on national and regional levels to achieve a sustainable environmental development and exclude conflict situations. To this regard, it is central to develop appropriate programs on cooperation and harmonization of the interests of the state authorities and different layers of the society, as well as establish educational programs addressed to upgrading the environmental skills and awareness in respect to key chemical substances and wastes, pesticides, including the POPs, risk evaluation and risk management, and risks of impact thereof.

In Armenia, risk evaluation in the area of environment quality management and public health quality is not performed on an appropriated level, and adequate indicators used in decision-making process are not in place. The existing methodical measures are mostly applicable for evaluation of seismology risks and safety management in emergency situations. Meanwhile, environment quality indicators, and those of public health quality may be efficiently used in management system of ecologic-hygienic, ecologic-economic and other risks associated to such key chemical substances and wastes as the PCB-bearing oils and equipment, outdated pesticides and areas polluted with hazardous chemical substances and wastes.

Hence, strengthening the national potential towards the POPs management aims primarily at enhancing and further strengthening the coordination of activities carried out by various state

structures and addressed to reduction of the POPs generation and minimization of their emission, as well as environmentally appropriate disposal of wastes so as to prevent the adverse impact caused thereby on human health.

Meantime, the poor technical and material saturation of control and analytical laboratories and insufficient coordination of monitoring research held by different ministries and agencies do not allow a proper control over the environment and its pollution with POPs residues.

Armenia has faced with disposal problems of hazardous wastes when an issue of withdrawal and burial of outdated pesticides accumulated on the territory of Armenia has been arisen. It is vital now to monitor residue amounts of POPs in environmental enterprises, as well as carry out inventory of the outdated POPs-bearing pesticides for their final liquidation.

In this context, it is pivotal to organize on a national level a sound management of the POPs-bearing wastes and their safe and centralized storage before a decision on their liquidation/neutralization could be taken. To this regard, it is necessary to acquire appropriate skills to practice “best methods” and “best types of environmental activity” in the POPs management area and try to form possible options so as to develop the best model of such method and activity on the POPs management for Armenia.

Management of the PCB-bearing wastes is a key issue, namely, equipment and oils that are used in power plants such as hydro-power plants (HPP) and thermal power plants (TPP) (power transformers, rectifiers, voltage switches, compressors and others). According to provisional data, in the power complex of Armenia nearly 17 000 tons of oil (possibly PCB-bearing) has been registered subject to substitution with further environmental liquidation.

By enhancing the decision makers’ awareness and skills on risk evaluation and risk management of POPs (PCB-bearing oils and equipment, outdated pesticides, polluted with POPs territories and other) the potential to create a comprehensive national program on environmental management of chemical substances and wastes would be robustly strengthened in Armenia.

In this context, implementation of programs on cooperation and harmonization of interests of government authorities and various layers of society, as well as various programs and training courses upgrading environmental skills and information on hazardous chemical substances and wastes, risk evaluation and management, including the POPs, become a priority both for decision makers and professional groups engaged in the given business and for public circles (entrepreneurs, farmers, students, pupils and others).

To enhance knowledge and skills of decision-makers it is pivotal to prepare training guidelines, manuals and conduct training courses on topics of key chemical substances and wastes (PCB-bearing oils and equipment, outdated pesticides and medicine, and areas polluted by the abovementioned chemical substances and others). In addition, it is necessary to enhance knowledge and increase public awareness of safeguards and safety rules when dealing with chemical substances and pesticides, including the POPs.

Fulfilment of abovementioned problems will facilitate to develop and implement the integrated approach for chemicals and waste management addressed at organization of safe production and use of chemicals, improvement of ecological safety while chemicals and waste handling as well as prevention their harmful impact to human health and ensuring the healthy environment.

CONCLUSSIONS

At present, for the Republic of Armenia among numerous problems the following are urgent:

- identification/clarification of the amounts of obsolete pesticides stocks on the territory of Armenia;
- identification/clarification of the amounts of PCB-containing oils and equipment;
- resolving the problem of ecologically sound final disposal of obsolete pesticides;
- cessation to exploit PCB-containing oils and equipment;

- resolving the problem of ecologically safe storage and further sound disposal of PCB-containing oils and equipment;
- remediation of contaminated areas (dump sites, former storehouses of pesticides);
- restoring the integrity and ensuring safety of the burial;
- strategy formation on chemicals monitoring, including POPs depending on sources, environmental media and POPs -congeners;
- development of monitoring programmes and sampling methods for various chemicals, including POPs;
- development of regulating acts, methodical guidance and manuals on safe handling of chemicals and waste (draft instructions, methodical procedures, technical requirements, etc.);
- foundation of a Central Analytical Laboratory for POPs monitoring studies in environmental media, foodstuffs and biomedia;
- preparation and providing the education and enlightening programs on hazards and risks related to chemical substances and wastes, as well as on their impact on humans and environment for educating of workers, professors, technicians, scientific and management staff, as well as for schools and universities;
- organization and holding the training courses and seminars for different target groups (decision makers, managing staff, workers, farmers and others), women, children and less educated persons in integrated management of chemical substances and wastes, as well as hazards and risks, evaluation of risks on chemical substances and wastes.
- Preparation of training materials and publications for various target groups of society (students, participants, farmers) and their dissemination;
- Establishment of an Ecological Information Public Center, as well as regional centers for ecological education.

It should be mentioned that in Armenia a number of legislative and normative documents has been prepared and approved, as well as the priority measures addressed at the nature protection, risk reduction, mitigation and prevention of unfavourable effect of hazardous chemicals and waste, including POPs, on human health were developed.

Thus, in the Republic of Armenia the action are actively implemented which are aimed at the nature protection and prevention it contamination by hazardous chemicals and wastes, at the reduction of harmful impact of different ecological factors on environment and human health. Undertaken measures undoubtedly will promote the human and environment health in Armenia.

ANNEX 5. NIP ASSESSMENT WITH RESPECT TO ANNEX A, PART II CHEMICALS OF THE STOCKHOLM CONVENTION (PCBS)

Energy sector is one of the main sources of environmental pollution by POPs and, in particular, by such compounds as polychlorinated biphenyls (PCBs), which might be contained in oils used in electrical equipment of various types (power transformers, greasing/lubricating systems; rectifiers, high voltage switches and breakers, compressors, etc).

In Armenia at present, the energy complex is one of the leading production sectors. Therefore, there is an urgent problem to assess/ evaluate the state of the environment in concern of the use of oils probably containing PCBs in electrical equipment.

In order to identify and take the Inventory of PCB-containing oils and equipment existing in the republic the following was carried out:

- identification of the types of equipment exploited in energy complex and other fields of national economy (asphalt plants, boiler departments, medium and small-sized industrial complexes, etc.), which can be filled with PCB-containing oils;
- inventory of the identified types of equipment with indication of the trademark/brands and production date;
- more precise specification and verification of types and quantities of oils contained in exploited equipment of the energy complex and other spheres of national economy, as well as evaluation and inventory thereof;
- accounting/registration, evaluation and inventory of oils intended for recharge/re-filling in the equipment;
- accounting/registration, evaluation and inventory of mineral oils, which are subject to destruction.

It should be mentioned that out of 70,000 tons of trichlorobiphenyls (TCB) produced in Former USSR (Russian Federation), 40,000 tons were used in production of industrial capacitors and 30,000 tons were used in production of household capacitors, which were manufactured only in Armenia and then distributed to the republics of the Former USSR (Russia, Byelorussia, Ukraine, Lithuania, Latvia).

Main consumers of capacitors manufactured in Armenia were radio-engineering plants of Kaunass, Vilnius, Riga, Minsk, Moscow, Lvov, Zaporozhie, Voronezh and Kiev. Totally 10 million film capacitors and 50 million electrolytic capacitors of the following types were produced:

K-50-7; K-50-16; K-50-35; K-50-17; K-50-18; K-50-37; K-50-60

As a result of the Inventory of equipment (condensers and transformers) taken in various branches of country economy it was revealed that PCB-containing equipment was on the assets of enterprise/entities of:
– Energy sector;
– Industrial enterprises;
– Inhabited settlements;
– Entities of public catering and technical service.

In energy sector of Armenia an inventory/ accounting for oils and equipment probably contaminated by PCBs was taken in subdivisions of energy system, which produce, transmit and distribute the electric energy. As a result, the amounts of oils in the equipment were revealed, their types and the annual amounts required for recharges.

According to the Inventory carried out in energy sector of the Republic of Armenia, there are about 17,000 tons of oils, which are filled in currently functioning energy power facilities of State Distribution Power Stations and HPPs (power transformers, rectifiers/converters, high voltage switches and breakers, compressors, etc.). The revealed amounts of oils, which probably contain PCBs, are subject to replacement with subsequent destruction in environmentally sound manner.

It was revealed that in the energy system of the Republic of Armenia there are the following types and amounts of oils:
– T-1500 type transformer oil: 16,254.5 tons;
– TP-30 and TP-22 type turbine oil: 773.9 tons;
– Compressor oil: 1.4 tons.

The average annual amounts of mineral oils required for refilling/ recharges make:
– 1,278.36 tons of transformer oils;
– 151.2 tons of turbine oils;
– 3.3 tons of compressor oils.

Oil switchers/breakers and transformers at industrial entities, in settlements, at entities of public catering and technical service were also taken into account, as they might probably contain PCBs.

In Armenia, the number of enterprises with installed transformers makes 3,582; including:
– 2,552 in industry;
– 500 in inhabited settlements;
– 352 in entities of public catering;
– 75 in technical service;
– 103 in other organizations.

In Armenia, large-scale exploitation of transformers took place in the Soviet period, since 1965 up to 1991. The studies revealed that there were installed and exploited only transformers manufactured exceptionally in the Former Soviet Union (mostly of Russian Federation production).

Technical servicing of transformers was performed in accordance with the approved Instruction ODV-14D-21. According to this instruction, only oils produced in Russia were used (and are still being used) in transformers; the trademarks/brands include: TE-500, TE-100, TE-1500 (GOST *[State Standard]* 982-68 TKP; TU *[Technical Specifications]*-38-101-181-75).

Besides the energy sector, mineral oils are widely used in various branches of industry and for domestic demands (lifting mechanisms, transformers, different types of compressors, etc.). According to data of the Inventory, there are about 1624 tons of oils at various industrial entities (outside the energy sector), including:
– 1157 tons in industry;
– 226 tons in inhabited settlements;
– 241 tons at entities of public catering and technical service, etc.

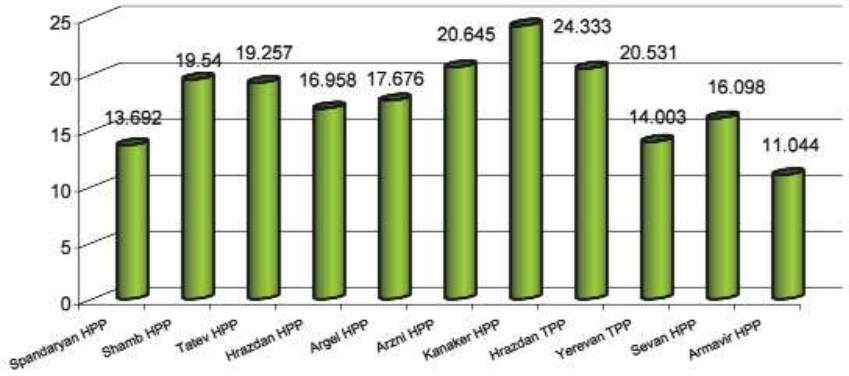
It should be mentioned that, in general, there was no possibility to take into account the precise period during which the transformers were exploited. The equipment containing mineral oils contaminated by PCBs also present one of the main sources of POPs releases to the environment, and in particular, it is a source of polychlorinated biphenyls.

The problem to replace and destruct PCB-containing oils and equipment is of high importance and urgency for Armenia. Analysis of information obtained by expert groups in concern of the use and storage of the equipment and wastes, probably containing PCBs, as well as an approximate preliminary evaluation of PCB releases allowed determining the following:

- Existing amounts of oils in the Republic of Armenia;
- Amount of oils used in industry and energy sector;
- Location of enterprises having equipment probably containing PCBs;
- Distribution according to regions and indication of geographic location of phased-out PCB containing equipment, as well as PCB-containing wastes;
- Distribution according to regions and indication of geographic location of currently used and reserve PCB-containing equipment;
- Sites of PCB releases (spillages, leakages) in the process of technology operations.

There was determined the content of PCBs in oils used in exploited transformers of energy sector of Armenia. The revealed levels of PCBs in used oils varied within the range of 11.0 and 24.3 mg/L.

Figure 1: PCBs in used oils from transformers* of energy sector, Armenia, 2003 (in mg/L)

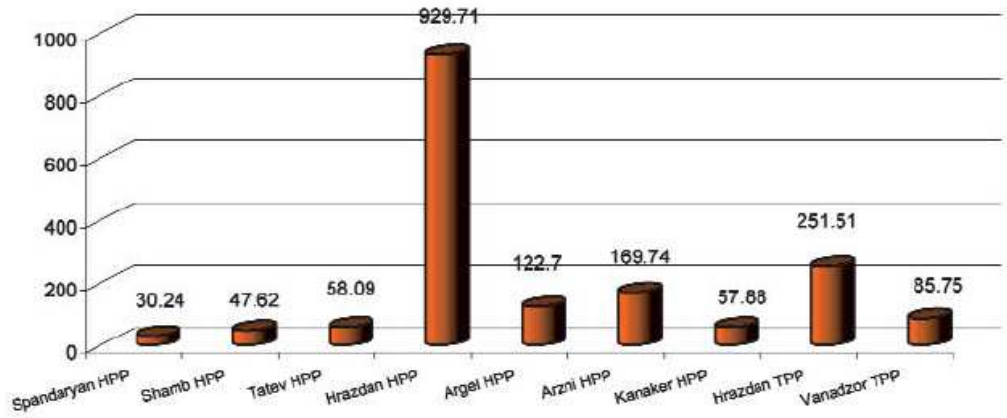


* transformers, which were refilled/recharged by PCB-free oils since 1991

In order to study the degree of environmental pollution by PCBs, monitoring study was performed for their residual amounts in surface waters and Sevan Lake, bottom sediment and food-stuffs. Soil samples were taken in the vicinity (from underneath) of electrical equipment of HPPs and TPPs, as well as samples of water from the near-by water basins and flowing rivers and studied for the residual amounts of PCBs. In order to reveal PCBs, totally 276 samples of soils, water, bottom sediment, foodstuffs were analyzed for PCBs content.

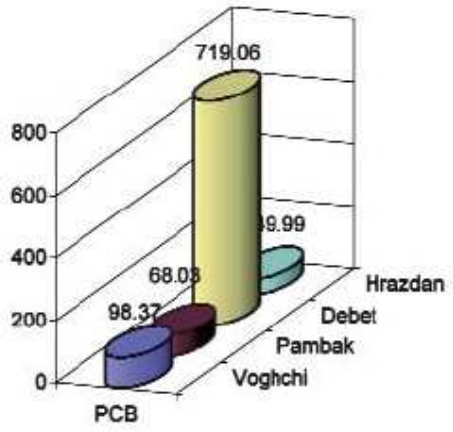
In soil samples from the territory of hydro- and thermal power plants the residual amounts of PCB were determined to amount up to 929.0 mcg/kg.

Figure 2: Average PCBs content in soils adjacent to transformers and oil facilities of HPPs & TPPs: Armenia 2002-2003 (mcg/kg)



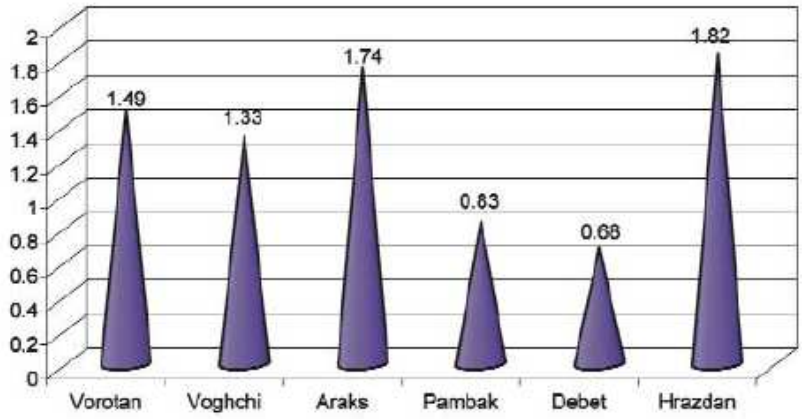
In samples of bottom sediments PCB residues were determined to amount 719.1 mcg/kg.

Figure 3: Average PCB content in bottom sediments: Rivers of Armenia, 2002-2003 (mcg/kg)



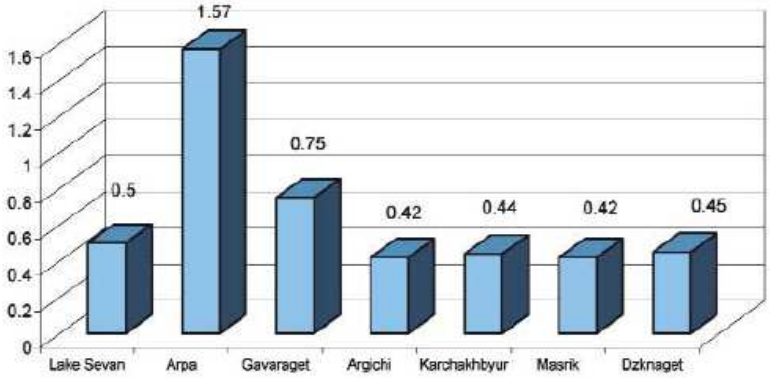
In samples of surface waters the levels of PCB determination ranged 0.68-1.82 mcg/L.

Figure 4: PCB Content in surface waters: Rivers of Armenia, 2002-2003 (mcg/L)



In waters of Sevan Lake and rivers feeding it the residual amounts of PCBs were determined up to 1.57 mcg/L.

Figure 5: PCB content in waters of the Lake Sevan and Rivers feeding it: Armenia, 2002-2003, mcg/L



ANNEX 6: INVOLVEMENT OF ARMENIA IN KEY INTERNATIONAL CONVENTIONS RELEVANT TO CHEMICALS MANAGEMENT

Convention (dates and places of adoption)	Convention Status		
	Signature	Ratification by the National Assembly	Registration at UN Secretariat
Framework Convention on Climate Change (New York, 1992)	13 June 1992	29 March 1993	14 May 1993
Kyoto Protocol (Kyoto, 1997)		26 December 2002	25 April 2003
UNECE Convention on Long-range Transboundary Air Pollution (Geneva, 1979)	14 December 1998	14 May 1996	21 February 1997
Protocol on Persistent Organic Pollutants (Aarhus, 1998)	30 November 1999		
Convention of Transboundary Movements of Hazardous Wastes and their Disposal (Basel, 1989)		26 March 1999	30 September 1999
UNECE Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (Aarhus, 1998)	25 June 1998	14 May 2001	1 August 2001
Protocol on Pollutant Release and Transfer Registers (Kiev, 2003)	21 May 2003		
Stockholm Convention on Persistent Organic Pollutants (Stockholm, 2001)	23 May 2001	22 October 2003	26 November 2003