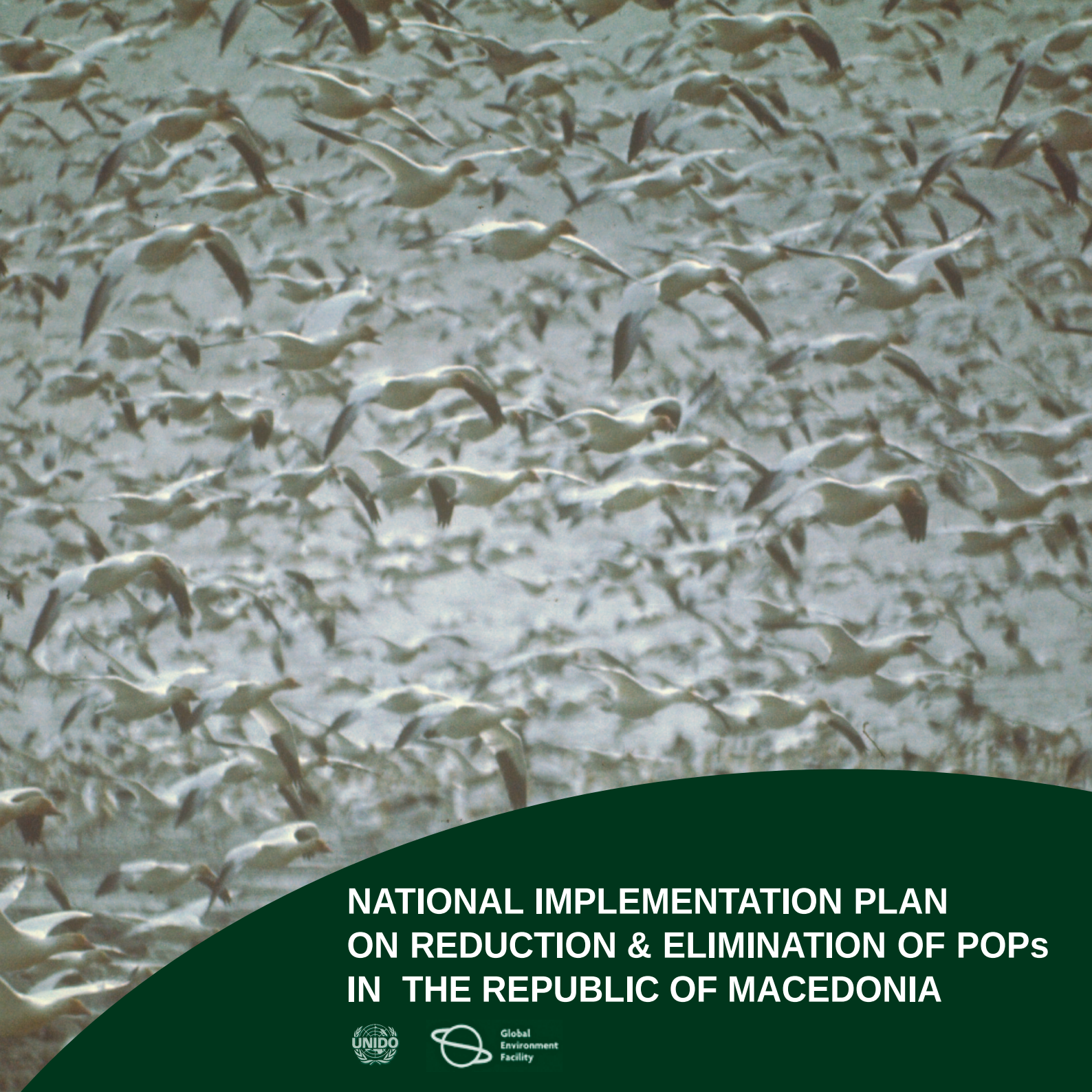

NATIONAL IMPLEMENTATION PLAN ON REDUCTION & ELIMINATION OF POPs IN THE REPUBLIC OF MACEDONIA

UNIDO

Global Environment Facility

Ministry of Enviroment and Physical Planning

NATIONAL IMPLEMENTATION PLAN ON REDUCTION & ELIMINATION OF PERSISTANT ORGANIC POLLUTANTS IN THE REPUBLIC OF MACEDONIA

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List of abbreviations

BAT - Best Available Techniques
BEP - Best Environmental Practices
CAS - Chemical Abstracts Services
CIPAC - Colaborative International Pesticides Analytical Council
DEM - Ecologist's Movement of Macedonia
DDE - Dichlorodiphenyl Dichloroethylene
DDT - Dichlorodiphenyl Trichloroethane
EC - European Community
EEC - European Economic Commission
ELVs - End of the life-vehicles
EMTPS - Enterprise for Mining and Thermal Power Station
ESPO - Convention on Environmental Impact Assessment in Transboundary Context
FAO - Food and Agriculture Organization
GDP - Gross Domestic Product
GEF - Global Environment Facility
HCB - Hexachlorobenzene
HCH - Hexachloro Cyclohexane
HPLC - High Performance Liquid Chromatography
IPPC - Integrated Prevention and Pollution Contro
IPPC-International Union on Conservation of Naturel
IUCN - International Union on Consrevation of Nature
LE - Law on Environment
LEAP - Local Environmental Action Plan
LQAA - Law on Quality of Ambient Air
LWM - Law on Waste Management
LTHS - Law on Transport of Hazardous Substances
LPP - Law on Production of Poisons
LSG - Local Self Government
MAFWE - Ministry of Agriculture, Forestry and Water Economy
MEPP - Ministry of Environment and Physical Planning
MH - Ministry of Health
NEAP- National Environment Action Plan
NGOs - Non-Governmental Organizations
NIP - National Implementation Plan
NPCU - National POPs Coordinating Unit
NPO - National POPs Office
OCPs - Organochlorine pesticides
OECD - Organization for Economic Co-operation and Development
PM - Project Manager
PCB - Polychlorinated biphenyl
PCDD/PCDF - Polychlorinated dibenzo-p-dioxins and dibenzofurans
POPs - Persistent Organic Pollutants
PO - POPs officer
PVC - Polyvinyl chloride
SFRJ - Socialist Federative Republic of Yugoslavia
TC - Technical Committee
TEQ -Toxic Equivalent
TPS - Thermal Power Station
UN - United Nations
UNIDO - United Nations Industrial Development Organization
USEPA - United States Environmental Protection Agency
WEEE - Waste Electric and Electronic Equipment
WHO - World Health Organization

National Implementation Plan on POPs
Republic of Macedonia
EXECUTIVE SUMMARY

The aim of the Stockholm Convention[1] is to protect human health and the environment from Persistent Organic Pollutants (POPs). Currently the Convention lists twelve POPs. They have similar physical, chemical, and biological characteristics. They 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.

To reach its objectives, the Convention groups POPs into three categories. Annex A lists those intentionally produced chemicals, whose production, use, import and export have to be eliminated. They are, on the one hand, organochlorine pesticides (Aldrin, Chlordane, Dieldrin, Endrin, Hexachlorobenze, Heptachlor, Mirex, Toxaphene) and industrial chemicals (PCBs) on the other. Annex B of the Convention lists those chemicals, whose production, import, export and use are allowed but restricted. Currently only DDT is listed in Annex B. Annex C to the Convention details those chemicals which are formed and released unintentionally from anthropogenic sources. They are Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF), Hexachlorobenzene (HCB) and Polychlorinated biphenyls (PCB). Their releases should continuously be reduced, and where feasible, with the goal of their ultimate elimination. The Convention also aims to increase public awareness on POPs and on the activities related to POPs. It also requests parties to develop a National Implementation Plan, which describes what measures the party will take, how much time and financial support would be required to meet the obligations of this treaty.

Macedonia signed the Stockholm Convention on 23rd May 2001, and ratified it on March 19th 2004.

With the fund from the Global Environment Facility (GEF) and with the assistance of the United Nations Industrial Development Organization, the Ministry of Environment and Physical Planning prepared the first NIP for Macedonia. The preparation took two years and the National POPs Office coordinated all the activities.

The first part of this document summarizes the current status in Macedonia with regards to POPs. This is the baseline inventory. The second part of the NIP details all the actions which need to be undertaken in order to meet all the obligations of the Convention.

[1] Further referred to as Convention

The national POPs inventories results indicate that:

- No POPs pesticides have been produced in the Republic of Macedonia. The Law on Plant Protection banned the application of POPs pesticides from 1982 on. Stockpiles of the former use of pesticides have not been assessed in details. Additional analyses for the evaluation of the present situation are to be made. DDT, Toxaphene, Endrin and Hexachlorobenzene must be banned by modification through existing legislation. Regular analysis on residuals of organochlorine pesticides in imported food should be part of the monitoring system in the country.

- In the Republic of Macedonia, most of the equipment and the total amount of insulating oils are imported. Preliminary inventory was carried out based on the total amount of equipment in the country, the age and the type of equipment. Based on the field analyses there are indicators that approximately 45-50% of the equipment is contaminated or cross contaminated with PCBs. Further actions require identification, detailed analysis and inventory of the transformers oils quantities of liquid dielectric. It must be considered that stocks of PCB containing spare oils still exist. Their quantities should be determined during the implementation of the NIP.

- In the Republic of Macedonia the import and use of DDT has been banned since 1982. The last application was in 1973 for plant protection of forest areas. There is a preliminary inventory on DDT residues in soil and cow milk, carried out by the POPs Unit during the year 2003. Obsolete stocks of DDT are estimated at about 2,5 tons. Its management is included in the NIP action plan. Further analyses for potential stockpiles should be carried out in the country.

- The preliminary inventory on Dioxins and Furans emissions was done according to the recommendations of the UNEP Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases. According to the results of this inventory, the major source of PCDDs and PCDFs releases is uncontrolled combustion. A new law prescribes the necessity for establishing a national cadastre for collecting the necessary information for assessing dioxin and furan releases. Because of the lack of information and financial resources, PCBs and HCB emissions are not included in the inventory. It is planned to be developed during the preparation of the detailed POPs release inventory.

- Due to the significant PCDD/Fs releases from the landfill sites and due to the fact that formerly large quantities of obsolete pesticides had been moved to these sites, all the landfill sites are considered as possible POPs contaminated sites. These assumptions have to be confirmed with a detailed inventory. Although not yet included in the list of POPs chemicals, HCH will be considered in the strategic planning, due to the existing quantities of industrial waste containing technical mixture of HCH isomers in the Republic.

- Presently, there is no system for the monitoring of POPs releases established in the Republic of Macedonia. The potential sources of POPs, and consequently, their impact on the population, have to be confirmed during the implementation of the NIP. Although there are few separate case studies on the influence of POPs chemicals on the environment and human health, a systematic and comprehensive analysis should be undertaken to obtain an overall picture of the state of the environment and human health.

- According to the provisions of the Aarhus and Stockholm Conventions, the POPs Unit prepared a strategy, as a part of the NIP, on raising public awareness. It addressed the target groups identified in both conventions. The strategy foresees two directions for acting: introduction of the general public, and introduction of concerned professionals (management and directly exposed workers). The programs should be tailored to the level of the recipients, thus they have to be easily understandable and learnable and different based on the targeted population.

- Non-Governmental Organizations are well informed about the POPs issue. The NIP foresees their larger involvement in the future activities in the field of raising public awareness.

- Proper waste management facilities do not exist in Macedonia, except for the landfill and incinerator at Drisla. Unfortunately, it does not meet international standards. The detailed inventory on contaminated sites will establish a solid basis for development of remediation strategy and opportunity to assess correctly the existing capacities. There is an incomplete monitoring of some POPs pesticides and PCBs. For the successful monitoring of the POPs presence in different media, fully equipped laboratories and trained staff are necessary. The future activities in the field of research would be focused on implementation on already tested alternatives and proven BAT and BEP and their adoption in a Macedonian context.

- According to the preliminary inventory surveys, the adoption of the Stockholm Convention will not have a significant social implication.

- The current system for assessment and listing new chemicals is in line with the obligation of the Stockholm Convention.

- The current system for the assessment of chemicals, which are already on the market, is in line with the obligation of the Stockholm Convention.

Based on inventories, the Steering Committee – formed by representatives from all ministries which have relevance to POPs, the private sector, and research – identified thirteen major priority areas. These are as follows:

1. Detailed inventory of POPs chemicals
2. Establishment of a National POPs Center

3. Inventory of “hot spots”
4. Preventing uncontrolled waste combustion
5. PCB/OCP containing waste management
6. Preparation of new and amendment of existing legislation
7. Monitoring of POPs
8. Providing necessary equipment for and training on POPs monitoring
9. Public awareness and education
10. Evaluation of adverse effects on human health
11. Monitoring of POPs bioaccumulation in living organisms
12. Measures for the reduction of dioxin and furan emission
    a) Promotion of the use of unleaded fuels
    b) Adoption of principles of BAT (best available techniques in the industry)
    c) Safe handling
13. Control of PAHs (In Macedonia large quantities of technical waste (technical mixture of HCH isomers) are stored which need to be solved in a proper manner. Although HCH is not listed in the Stockholm Convection, it is set as the 13th priority in order to find a prompt solution for this waste.)

To transform these priorities into activities the second part of the NIP contains seventeen action plans. They detail what management options are the most feasible in meeting the objectives of the NIP. The inventory findings are considered as the starting point and the actions are based on the resources identified in these assessments.

Short summary of the proposed actions:

Action plan	**Activities**
Institutional and regulatory strengthening measures	Establishment and functioning of Inter-ministerial Working Group for implementation of the Stockholm Convention in the Republic of Macedonia; Appointment of responsible units/focal points in each of the governmental bodies and institutions that are covering POPs issues; Assessment of the needs of the relevant government bodies; Capacity building in the identified government agencies; Finalization and adoption of the laws that are currently in the process of preparation; Preparation and adoption of the bylaws for support of the implementation of the prepared laws.

Action plan	Activities
Measures to reduce or eliminate releases from intentional production and use	Introduction of protection and technical measures concerning existing installations; Establishment of national body for long-term permanent monitoring and reporting on releases from intentional production.
Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, Part I chemicals)	Preparation and adoption of a strategy for inventory completion, collection, and disposal of obsolete pesticide stocks; Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes; Development of schemes for positive influence of business sector, having active roles and responsibilities in this area; Secure effective support of the program on non-combustion technologies for POPs destruction; Disposal of POPs pesticides in Macedonia with state contribution, according to the principles of the Stockholm Convention;Establishment of a system for control of illegal import and application of OCPs
Production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, Part II chemicals)	Preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs; Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee PCBs wastes; Development of schemes for positive influence of business sector, having active roles and responsibilities in this area; Secure effective support of the program of non-combustion technologies for PCBs destruction; Disposal of PCBs in Macedonia with state contribution, according to the principles of the Stockholm Convention; Establishment of a system for control of illegal import and application of PCBs
Production, import and export, use, stockpiles and wastes of DDT (Annex B chemicals) if used in the country	Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT; Destruction of stockpiles of DDT in Macedonia according to the principles of the Stockholm Convention

Action plan	Activities
Measures to reduce releases from unintentional production (Article 5)	Promotion of selective waste collection; Gradual substitution of wood and coal with other energy sources (natural gas, renewable energy sources); Establishment of a system for control of stubble field burning; Established systems for risk reduction with respect to forest fires; Introduction of protection and technical measures concerning existing installations; Establishment of national body for long-term permanent monitoring and reporting on Annex C POPs; Definition and adoption of maximum permitted levels of Annex C POPs releases
Measures to reduce releases from stockpiles and wastes (article 6)	Mapping out all ecological burdens containing POPs (locate current information in accessible data sources, actualize information about them); Preparation of an Inventory of Sewage Treatment Plants; Determination of the extent of the contaminated area and determination of the level of contamination; Establishment of procedures for elimination of releases from stockpiles and wastes; Preparation of economical analyses for the sustainability of the process of recycling-burning-dumping technology
Identification of stockpiles, articles in use and wastes	Preparation and adoption of a strategy for inventory completion; Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes; Development of schemes for positive influence of business sector, having active roles and responsibilities in this area
Manage stockpiles and appropriate measures for handling and disposal of articles in use	Preparation and adoption of a strategy for handling and disposal of articles in use; Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use; Development of schemes for positive influence of business sector, having active roles and responsibilities in this area

Action plan	Activities
Identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner	Preparation of an implementation strategy for these activities; Preparation of a methodology of the assessment; Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk; Preparation of technological and technical work procedures; Carrying out decontamination activities
Facilitating or undertaking information exchange and stakeholder involvement	Preparation of institutional and technical set-up for establishment of a National Focal Point; Development of mechanisms for provision of information related to POPs to the National Focal Point; Definition of formats for provision of POPs-related information. to the National Focal Point
Public awareness, information and education (Article 10)	Preparation and realization of training for national government officials for implementation of the principles of the Stockholm Convention; Preparation and realization of training for local government officials for implementation of the principles of the Stockholm Convention; Preparation and realization of training for business sector representatives for implementation of the principles of the Stockholm Convention; National Public Awareness campaign for implementation of the Stockholm Convention
Reporting	According to the requirements of the Stockholm Convention
Research, development and monitoring (Article 11)	Preparation of an inventory of scientific institutions involved in POPs research activities; Establishment of a network for cooperation, data and information exchange of these institutions; Establishment of internationally accepted system; Development of scheme for adoption of the system by the scientific institutions; Development of standards for quality assurance and control; Development of scheme for adoption of the standards by the scientific institutions

The total budget for the implementation of the NIP is 14,386,146 EUR. It is planned that 10% of it will be covered by the Country budget, mostly as contribution in-kind, while international donors, such as the Stockholm Convention and the European Union, will finance the remaining 90%. The government contribution will increase the annual budget with approximately 120,000 Euro.

1. INTRODUCTION

The Stockholm Convention

POPs do not know boundaries and are found in parts of the world where they have never been used before. They are a typical global environmental problem. The contracting countries of the Stockholm Convention take measures to prohibit the production and use, import and export of intentionally produced POPs. For DDT a special regulation has been stipulated, as this product is heavily used in developing countries to fight malaria. When following certain safety precautions and under certain conditions, the use of PCB containing devices is permitted until 2025. By the year 2028, however, all PCB containing equipment shall be disposed of in an environmentally sound manner. A brief overview of the scope of the Stockholm Convention is presented in the following tables:

Macedonia signed the Convention on May 23, 2001 and ratified it on March 19, 2004 (Official Gazette of the Republic of Macedonia No.17/2004)

Table 1.1 : Stockholm Convention, Annex A: Elimination – Part I

Chemicals	Activity	Specific exemption
Aldrin CAS No.: 309-00-2	Production	none
	Usage	local ectoparasiticide insecticide
Chlordane CAS No.: 57-74-9	Production	as authorized to the parties listed in the register
	Usage	local ectoparasiticide insecticide termiticide termiticide in buildings and dams termiticides in roads additives in plywood glues
Dieldrin CAS No.: 60-57-1	Production	none
	Usage	in agricultural operations
Endrin CAS No.: 72-20-8	Production	none
	Usage	none
Heptachlor CAS No.: 76-44-8	Production	none

Chemicals	Activity	Specific exemption
Heptachlor CAS No.: 76-44-8	Usage	termiticide termiticide in house construction termiticide (underground) wood treatment for usage in underground cabled vaults
hexachlorobenzene CAS No.: 118-74-1	Production	as authorized to the parties listed in the register
	Usage	intermediate product solvent in pesticides closed system site limited intermediate
Mirex CAS No.: 2385-85-5	Production	as authorized to the parties listed in the register
	Usage	Termiticide
Endrin CAS No.: 72-20-8	Production	none
	Usage	none
toxaphene CAS No.: 8001-35-2	Production	none
polychlorinated biphenyls (PCB)	Usage	products used according to regulations of part II of this annex

Stockholm Convention, Annex A: Elimination – Part II

Polychlorinated biphenyls

Each Party shall *inter alia*:

- Make determined efforts to identify, label and remove from use equipment containing greater than 10 per cent polychlorinated biphenyls and volumes greater than 5 liters;

- Make determined efforts to identify, label and remove from use equipment containing greater than 0.05 per cent polychlorinated biphenyls and volumes greater than 5 liters;
- Endeavor to identify and remove from use equipment containing greater than 0.005 percent polychlorinated biphenyls and volumes greater than 0.05 liters;
- Use only in intact and non-leaking equipment and only in areas where the risk from environmental release can be minimized and quickly remedied;
- Make determined efforts designed to lead to environmentally sound waste management of liquids containing polychlorinated biphenyls and equipment contaminated with polychlorinated biphenyls having a polychlorinated biphenyls content above 0.005 per cent, in accordance with paragraph 1 of Article 6, as soon as possible but no later than 2028, subject to review by the Conference of the Parties;
- Provide a report every five years on progress in eliminating polychlorinated biphenyls and submit it to the Conference of the Parties pursuant to Article 15

Table 1.2: Stockholm Convention, Annex B: Restriction – Part I

Chemicals	Activity	Acceptable purpose or specific exemption
DDT 1,1,1-trichloro-2,2- bis (4-chlorophenyl) ethane CAS No.: 50-29-3	Production	acceptable purpose: used for coping with biological disease carriers in accordance with part II of this annex specific exceptions: intermediate during the production of dikofol intermediate product usage
	Usage	lacceptable purpose: used for coping with biological disease carriers in accordance with part II of this annex specific exceptions: production of dikofol intermediate product

Stockholm Convention, Annex B: Restriction – Part II

DDT (1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane)

- The production and use of DDT shall be eliminated except for Parties that have notified the Secretariat of their intention to produce and/or use it.
- Every three years, each Party that uses DDT shall provide to the Secretariat and the World Health Organization information on the amount used, the conditions of such use, and its relevance to that Party's disease management strategy.

Malaria is not endemic in the Republic of Macedonia and therefore no exemption will be filed for the use and production of DDT at the Convention.

Stockholm Convention, Annex C: Unintentional production

This Annex relates to those persistent organic pollutants, which are unintentionally released from anthropogenic sources:

Chemicals
Polychlorinated dibenzo-p-dioxins and dibenzofuranes (PCDD/PCDF)
Hexachlorobenzene (HCB) (CAS No.: 118-74-1)
Polychlorinated biphenyls (PCB)

Furthermore, this Annex lists those industrial sources, which have the capability of significant releases of the above-mentioned chemicals into the environment.

Article 5 of the Convention details the obligations concerning Annex C POPs. The general objective of this part is that each Party shall take certain measures to reduce the total releases derived from anthropogenic sources of each of the chemicals listed in Annex C, with the goal of their continuing minimization and, where feasible, ultimate elimination.

The status of the intentionally produced POPs in the Republic of Macedonia is shown in the following table:

Table 1.3: The state of the production and use of POPs substances in the Republic of Macedonia

POP Chemical	**Status in the Republic of Macedonia**
Aldrin CAS No.: 309-00-2	Insecticide, most intensively used between 1950 and 1970. In the Republic of Macedonia it is banned for agricultural use.
Chlordane CAS No.: 57-74-9	Never used or produced.
Dieldrin CAS No.: 60-57-1	Banned in the Republic of Macedonia since 1976.
Endrin CAS No.: 72-20-8	Banned in the Republic of Macedonia since 1982.
Heptachlor CAS No.: 76-44-8	Never used in the Republic of Macedonia as an insecticide.
Hexachlorobenzene CAS No.: 118-74-1	Never used as a pesticide in the Republic of Macedonia. Inventories on its emissions as a by-product to be completed in the framework of the detailed inventory on POPs foreseen in the NIP.
Mirex CAS No.: 2385-85-5	Never used or produced.
Toxaphene CAS No.: 8001-35-2	Banned in the Republic of Macedonia since 1982.
Polychlorinated Biphenyls (PCB)	Never produced. Detailed inventory along with quantitative analyses to be performed in the distribution network and the larger industrial capacities.

The Global Environment Facility (GEF) approved a financial support for the implementation of the project “Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Macedonia” in November, 2001. The implementing agency was the United

Nations Industrial Development Organization (UNIDO), while the Ministry of Environment and Physical Planning of the Republic of Macedonia was nominated as the executing agency.
The primary objective of the given project was to assist the Republic of Macedonia in developing its first National Implementation Plan. The accomplishment of the project resulted in the endorsement of the NIP, and consequently, Government commitment in ratifying the Stockholm Convention. The Project implementation was divided into five phases:

1. Determination of project coordinating mechanism and organizing process;
2. Preliminary inventories of sources and emissions of POPs and assessment of infrastructure capacities;
3. Priorities assessment;
4. Formulation of NIP and specific action plans;
5. Endorsement of the NIP by the main stakeholders from the industry, agriculture and the Government.

A **National POPs Unit** was created within the Ministry of Environment and Physical Planning. It coordinated all the national activities directed towards the preparation of a comprehensive National Implementation Plan (NIP). Those who participated in the development of the NIP are listed in Annex 1.

2. COUNTRY BASELINE

2. COUNTRY BASELINE

2.1 COUNTRY PROFILE

2.1.1 Population and geography

Geography

The Republic of Macedonia is located in the center of the Balkan Peninsula, in South Europe, between 40˚ and 42˚ north latitude and between 23˚ and 20˚ east longitude. Neighboring countries are Albania in the West, the S.R. Federation of Serbia and Montenegro in the North, Bulgaria in the East and Greece in the South. The Republic of Macedonia has a total area of 25,713 km^2.

	Latitude North	Longitude East (Greenwich)
North	42^0 22’ 21”	22^{0}18’ 04”
South	40^0 51’ 16”	21^0 07’ 33”
East	41^0 42’ 33”	23^0 02’ 12”
West	41^0 31’ 04”	20^0 27’ 32”

Table 2.1 Geographic coordinates

The Republic of Macedonia is a mountainous country with many lowlands. The average altitude of the whole territory is 850 meters. According to the spatial plan of the country, 1.9% of the territory is covered by water (lakes), 19.1% are plains and valleys, and the largest part consists of 79% in hills and mountains.

Plains and valleys in Macedonia occupy a total area of 4,900 km^2. Their area is different, from 25 km^2 - Debarsko Pole, up to 1,200 km^2 Pelagonija, or Bitolsko-Prilepsko Pole. They are also at a different average elevation - from 80 meters of Gevgelisko-Valandovsko Pole up to 880 meters in Prespansko Pole. Other larger plains and valleys are Skopsko Pole, Kumanovsko Pole, Tikvesh, Polog, and Ovce Pole.

According to the hypsometry, the territory can be classified into three categories of high-, mid- and lowland. The highland area is the one with an absolute height over 2,000 meters, the midland area consists of land between 1,000 to 2,000 meters above sea level, and the lowland area is land below 1,000 meters in height.

The total territory of the highland in Macedonia is 354.26 km^2 or 1.38% of the territory of the country. The highest mountain is Korab (Golem Korab peak is 2,764 meters) and the lowest is Belasica (2,029 meters). Other significant high mountains include the Shar Planina, Bistra, Stogovo, Jakupica, Galichica, Pelister, Nidze, Kozhuf, and Osogovo.

The midland area covers 7,528.22 km^2 or 29.28% of the country. The highest mountain in this category is the Plakenska Planina (Plake peak is 1,998 meters) and the lowest is Konechka Planina (1,158 meters). Other important mountains in this category include Maleshevski Planini, Plachkovica, Busheva Planina, Babuna, Ograzden, Selechka Planina, and Skopska Crna Gora.

The lowland area of the country below 1,000 meters is spread over the entire territory. The total area in this category is 17,830.52 km^2, or 69.34%. Out of this territory 4,900 km^2 are plains and valleys, while the remaining are low mountains and hills.

Climatic specifics

The climate in Macedonia is diverse. In the southern part of the country it is altered Mediterranean, in the central and northern areas it is mild continental and high mountains or mountainous. The average annual temperature is 11.50 C°. The warmest month is July with an average air temperature of 22.0 C°, while the coldest is January, with an average temperature of -3.0 C°. The temperatures are higher in the southern parts of the country. Thus, moving towards the north, the average annual temperature gradually declines: Gevgelija 14.5 C°, Kavadarci 13.5 C°, Skopje 12.4 C° and Tetovo 11.3 C°. The calendar of precipitation in Macedonia, as well as their type shows significant irregularities. Hence, although the average precipitation equals 680 mm, the mountainous region of western Macedonia gets much more precipitation – over 1,000 mm – while the middle part, especially the middle of the Povardarie (Vardar Valley) gets under 500 mm of precipitation. The most frequent winds in Macedonia are “Vardarec” and “Jugo.”

Population and employment

The Republic of Macedonia had a population of 2,046,209 in 2001, with an average population density of 80 persons per sq km. Some 62% of the population lives in urban areas, mainly in the five largest cities: the capital Skopje, Bitola, Prilep, Kumanovo, and Tetovo. The Republic of Macedonia has one of the most complex ethnic populations in Europe. The country is inhabited by, apart from the Macedonians (64,18%), several ethnic minorities including Albanians at 25,17%, Turks at 3,85%, Rhomas at 2,66%, Serbs at 1,78%, Bosniacs at 0,84, Vlachs at 0,48% and others.

Since the end of the Second World War, Macedonia's population has grown steadily, with the greatest increases occurring in the ethnic Albanian community. The western part of the country, where most ethnic Albanians live, is the most heavily populated, with around 40% of the total population. As the population grew, more people moved into the cities in search of employment. Between 1948 and 1994, the urban population grew from 28.7% to 58.4% of the total population.

Table 2.2 Employed population (in thousands)

	2000	2001	2002	2003
Population at mid-year	2031	2035	2020	NA
Economic activity of population	811	862	825	861
Number of employed persons according LFS	550	599	561	545
Number of unemployed persons according LFS	257	263	263	316
Persons outside of the labor force	722	692	742	718
Rate of unemployment according to LFS	32.2%	30.9%	31.9%	36.7%
Rate of activity	52.9%	55.5%	52.6%	54.5%
Rate of employment	35.8%	38.6%	35.8%	34.5%

1) Estimated data

Table 2.3 Table Life expectancy

Life expectancy	1997-1999	1998-2000	1999-2001	2000-2002
Total	72.49	72.68	73.05	NA
Men	70.37	70.48	70.68	NA
Women	74.68	74.77	75.21	NA

2.1.2 Political profile of the country

The Republic of Macedonia is a country with a democratically elected head of state (President) and Parliament. It has a coalition government and the Prime Minister is elected, upon the proposal of the President, by Parliament.

Macedonia is a uniform country, administratively divided into 123 municipalities headed by mayors and municipal councils. With the new Law on teritorial organisation of local aithorites (OG RM 55/04), the number of local self-authorites is 84 plus the City of Skopje. State intervention in local self-government is executed through government administrative units or branches, organized in individual municipalities or, organized as a single unit covering several small municipalities together. The administrative units deal primarily with matters concerning internal affairs, defense, health, environment and physical planning.

2.1.3 Profiles of economic sectors

At independence in September 1991, Macedonia was the least developed of the Yugoslav republics, producing a mere 5% of the total federal output of goods and services. The collapse of Yugoslavia resulted in the collapse of the former free trade and institutionalization. An absence of infrastructure, UN sanctions on Yugoslavia, one of Macedonia's largest markets, and a Greek economic embargo over a dispute about the country's constitutional name and flag hindered economic growth until 1996. GDP subsequently rose each year through 2000. However, the leadership's commitment to economic reform, free trade, and regional integration was undermined by the ethnic Albanian insurgency in 2001. The economy shrank 4.5% because of decreased trade, intermittent border closures, increased deficit spending on security needs, and investors' uncertainty. Growth barely recovered in 2002 to 0.3%, then rose to 2.8% in 2003. Unemployment, which is approximately one-third of the workforce, remains the most critical economic problem. However, even this issue is overshadowed by the fragile political situation.

National accounts

Table 2.4 Gross Domestic Product

	2000	2001	2002 [1)]	2003 [2)]
GDP at current prices (in million denars)	236389	233841	243970	253493
GDP in1995 denars (in million denars)	196222	187342	188941	194988
GDP real growth rates	4.5	-4.5	0.9	3.2
GDP per capita in US $	1924	1830	1859	NA

1) Previous data 2) Estimated data

Table 2.5 Investments in assets (In million denars under current prices)

	1999	2000	2001	2002
Total	34710	38332	34716	40448
Machinery and equipment	15000	18122	15930	17917
Construction	18755	19333	16653	20802
Other	955	877	2673	1729

Table 2.6 Foreign direct investments (In thousands US$)

1999	2000	2001	2002
38079	252270	449104	77812

Table 2.7 Registered enterprises

	2000	2001	2002	2003
Total	128802	138501	148037	158091
Private	114728	123698	132255	141611
Other [1)]	9872	14803	15782	16480

[1)] This item contains business subjects with mixed corporate, state and public ownership including the enterprises that have already passed the transformation according to the Law on State Ownership but they are not 100% privatized.

Table 2.8 Prices

	2001/2000	2002/2001	2003/2002
Total Index of cost of living	105.5	101.8	101.2
Index of increase of real pay	105.2	101.4	102.4
Index of prices of products of industrial producers	102.0	99.1	99.7

Table 2.9 Salaries

	2000	2001	2002	2003
Rate of nominal pay increase	5.5	3.5	6.9	4.8
Rate of increase of real pay	-0.3	-1.9	5.0	3.6
Average net pay per employee (in US$) 1)	155	155	174	218

1) According to the official exchange rate of the National Bank of the Republic of Macedonia

Table 2.10 Industry

	2001/2000	2002/2001	2003/2002
Index of total volume of industrial production	96.9	94.7	104.7

The list of the national economy sectors (later on referred to as sectors), which are potential producers of POPs in Macedonia, was based on Annex C to the Stockholm Convention. These are the sectors that have a potential for comparatively high formation and release of these chemicals. These industries are as follows:

- Agricultural production
- Textile industry
- Metallurgical industry-ferrous and non-ferrous
- Electric power plants and heating plants
- Chemical production – unintentional POPs production.
- Open burning of wastes including landfills

Agricultural production takes place on 1,316,000 hectares of land. The value of total agricultural exports is between 180 and 230 million US$ at an average and represents about 20% of the total exports of the country. The most important export products are tobacco, wine, fresh and processed vegetables. The existing mountain pastures and meadows, favor the production of fodder and the capacity is over 350,000 tons per year. These, along with the facilities for milk processing and dairies, slaughter-houses and meat processing plants (the seven slaughter-houses registered by the EU) give an opportunity for cattle breeding development, and a significant rise in livestock num-

bers. This sector is included also because of the previous applications of DDT.

Textile industry. The equipment used in the installed production lines is mainly from the European Union, Switzerland and the US. The textile industry exports 90% of its production. About 70% of the export goes to the countries of the European Union and the US. The textile industry imports the following raw materials: raw cotton, wool, viscose rayon, artificial fibber, dyes and chemicals, silk yarn and fabric.

Non-ferrous metallurgy. Over 80% of the production is exported to the European Union and neighboring countries, while a small part of the production is shipped to the countries of Central and Eastern Europe, and to the Middle East.

Ferrous metallurgy represents about 5% of the economic structure of the country. The following industries are relevant in light of the Stockholm Convention:

- Ferromanganese and silicomanganese – a facility with a capacity of 260,000 tons of sintered material per year, where up to now maximum annual production was 70,000 tons;
- Smelting in electro-reduction furnaces with a maximum capacity of 48,000 tons per year and a maximum production of 42,000 tons per year;
- Ferronickel – a sintering facility on Leopold bars and pre-reduction in rotation furnaces and smelting in electro-reductive furnaces with a capacity of 16,000 tons per year and a maximum production of 5,600 tons per year;
- Ferro silica, siliceous ferrochrome – a facility with a capacity of 100,000 tons of raw metal per year and an actual maximum production of 35,000 tons per year;
- Steel - electric arc furnace with waste gas streams purification, with a capacity of 350,000 tons per year and a maximum production of 260,000 tons per year;
- Sintering (180,000 tons per year) and smelting (91,000 tons per year) of lead-zinc concentrates;
- Re-melting Aluminum and alloys (capacity for 10,000 tons per year) with a maximum production of 9,000 tons per year;
- Re-melting of copper alloys (estimated capacity 12,000 tons per year) and maximum production of 11,000 tons per year.

The production is predominantly export-oriented, mainly to the European Union and the neighboring countries, while part of it is exported to Central and Eastern Europe and the US, and just a small fraction of about five to ten percent is sold on the domestic market.

Electric industry works with equipment and technology that is predominantly EU and US made. The electric industry maintains business relations, based on the principle of industrial cooperation and licensing, with “SIEMENS” – Germany, to make 12, 24 and 36 KV vacuum switches, 12 and 24 KV RMU systems, and electricity meters. It produces low-voltage switches and contactors in cooperation with “FAPPEL” – Germany. Distribution of transformers is licensed by “BRUSH” – United Kingdom, modular low-voltage systems are licensed by BBS from Germany, electrostatic filters are licensed by FLEKT – Sweden, electric power tools are made in cooperation with “DALMAR” – Germany, cooling equipment and cooling systems are made in cooperation with “International prestige” from Italy, etc. Their installed capacity is: 2,100 tons 10 to 2,500 KWA transformers; 350,000 units of small home appliances; 350,000 units of cooling equipment (refrigerators, freezers, commercial cooling cabinets, ice-machines, etc); control switches, rugged switches, divisors, contactors, relays, 700 units of other protection equipment; welding apparatus and machines 600 units; lead starter car batteries 27,000 units; electric cookers 30,000 units; electric water heaters 400,000 units; insulated conductor-cables, made of copper and aluminum 20,000 tons; electric motors for home appliances 1,200,000 units; printed plates 45,000 square meters; electric lamps and lighting equipment 12,000,000 units. Over 80% of the production is exported to the neighboring countries, the European Union, the Russian Federation, Central and Eastern Europe, the Middle East and the US.

Electricity production: 6,465 billion kWh (2001) Electricity production by source: fossil fuel - 83.7%, hydro - 16.3%, other - 0%, nuclear - 0%.

The chemical industry participates with 9.13 %, in the structure of total production. Foreign investment has shown very positive tendency. ICN – USA invested in the pharmaceutical industry, Turkish companies invested in the production of lubricants and plastic fabrications. SOL SpA – Italy investment in the production of technical gases, etc. Around 75 % of the production is exported, predominantly to the markets of the Balkan countries, the European Union, Canada, the US, and Japan. There is an installed capacity for the production of some important products such as: sulphuric acid 115,000 tons; phosphoric acid 40,000 tons; monochlorine acetate acid 5,000 tons; plant protection chemicals 8,000 tons; NPK fertilizers 120,000 tons; polyacrylic-nitril fibbers 10,000 tons; PVC (polyvinyl-chloride) 48,000 tons; PVC granulate and compounds 24,000 tons; PVC pipes 10,000 tons; medicines 800 tons; detergents 30,000 tons; production of various plastic products 30,000 tons; polyurethane foams 5,000 tons.

2.1.4 Environmental overview

Short summary

The Ministry of Environment and Physical Planning has a legal obligation to create the policy of the Republic of Macedonia and to lead the national activities in the field of protection of the environment and careful exploitation of spatial and natural resources.

According to the Framework Law on Environment consisting of the general principles of environmental protection,the Ministry of Environment and Physical Planning is responsible for the monitoring of the state of the environment, water, soil, flora, fauna, air and ozone layer protection; protection against noise, radiation, conservation of biodiversity, geodiversity, national parks and protected areas; restoration of polluted areas; waste, spatial planning, spatial information system, survey and control; and other activities specified by the law.

Air

The NEAP (1997) identified air pollution as a major environmental problem affecting the urban area and health of population. The major sources of air pollution are: stationary emission sources (industry, energy sector, heating, agriculture and forestry, waste treatment) and mobile sources (traffic). It is important to mention that there are separate data on air pollution and it is difficult to get a comprehensive overview. According to the 1998 inventory, even incomplete, combustion and transformation of energy are the major sources of SO_2, while production processes are the main sources of dust. CO is mainly produced by road traffic, and NO_2 from energy production and mobile sources as main emitters.

Three national networks operate with monitoring stations in the country. Air pollution (SO_2, smoke, NO_2, CO, total oxidants, ground level ozone, inert dust and suspended particles), is monitored on a regular basis. Heavy metals are measured only occasionally. There are insufficient statistical data, because of the fact that the monitoring network does not cover the whole territory.

The legal framework and the instruments governing air quality management are updated. The new Law on the Quality of Ambient Air (2004) will regulate the conditions, the measures and the manner of organization and implementation of air protection and quality improvement. It would also regulate: air quality limit values, including emission limit value and limit values for pollutants in fuel; monitoring and the establishment of a monitoring information system, including an inventory of air polluters; and management of air quality, measures for air pollution against potential disasters.
Regarding international obligations, greenhouse gases, ozone depleting substances and POPs chemicals are also an interest of ongoing donor projects.

Water

There are three hydro graphic catchments areas in Macedonia: Vardar, Crn Drim, and Strumica basin; the three largest natural lakes are Ohrid, Prespa and Dojran Lake; underground waters from karsts and aquifers have their watersheds usually in high mountains areas where there are no industrial or other type of polluters.

Water resources, i.e. ground and surface waters are relatively clean in their upper course, and rapidly worsen along

their middle and lower courses. This is result of improper treatment of the wastewater discharges from human settlements, industry and agriculture.

Currently, surface water resources are monitored at 11 gauging stations, and 115 measurement points are used for groundwater monitoring. Monitoring of the surface water is performed by a network of 20 measuring points located on rivers, lakes and reservoirs. The quality control is based on a different laboratory analysis measuring the physical, chemical, toxic and saprobiological parameters.

Protection of the quality of the water basins was never seriously defined in any part of legislation. In that purpose, a new Law on Waters was prepared by the MEPP (2004) and it is expected to be adopted by the Parliament by the end of the year. This Law was set as framework and comprehensive, regulating the general issues and principles on water use and allocation, protection of waters from pollution and pollution control, protection from adverse effects as well as mitigation of consequences resulting from the harmful impact of waters. At the same time, this law is setting-out a strategy and policy for development of the management of waters in Macedonia. The general standards and requirements are incorporated in articles.

Most of the water bodies have a trans-boundary character and impact the country downstream. That is why the country has water use and protection obligations towards neighbors, most on bilateral and international agreements.

Waste

Waste is one of the major environmental problems identified in the country. The poor condition of existing landfills poses a continuous threat to the environment. All hazardous and non-hazardous waste is disposed of in landfills. There is no selection of recyclables and hazardous components of municipal waste. There are some data for municipal waste and newer comprehensive data for industrial waste generation was identified. Municipal waste is collected and deposited by public enterprises, and industrial is mainly stored on, or close to the industry premises.

There are lots of landfills operated by municipalities, but only Drisla landfill, near the capital city, is a legal landfill.

Information on environmental pollution by landfill is limited. No comprehensive monitoring program exists, and there are no sufficient facilities and monitoring equipment. Waste management is under the responsibility of several governmental institutions. The new Law on Waste Management was prepared by the MEPP (2004). It is already adopted by the Parliament. The content of the Law should provide prevention and reduction of waste generation, utilization of the recycled waste materials, sustainable development through protection and preservation of the natural resources and prevention of harmful impact on the environment, life and human health, disposal of waste in an environmentally sound manner and a high level of protection of the environment, animal and human health.

Nature and biodiversity

The Biodiversity Strategy, as a basic planning document (developed by the MEPP in 2003) defines an integrated approach to the conservation and sustainable use of the components of biodiversity, while the Action Plan encompasses specific activities which must be accomplished in order to achieve the overall aim and objectives defined by the Strategy.

Due to global environmental changes, significant influences on biological resources and the functioning of ecosystems have been identified. Activities on a local, national and regional level should be undertaken in relation to prevent, reduce and mitigate harmful effects to biodiversity. In that order, Biodiversity Strategy and Action Plan define the national priorities for effective and integrated conservation, as well as actions, projects and programs for biodiversity conservation.

In accordance with the relevant international criteria, the natural heritage of the Republic of Macedonia has been validated and protected by specific regulations. Protected areas are classified into six classes (according to the IUCN criteria) and the Law on Natural Rarities Protection (1973). A significant number of protected natural reserves, monuments of nature (MN) and specific protected areas are also documented.

Natural habitats (14 sites with a total area of 2645 hectares) of wild flora species, fungi and fauna species are distinguished. They are populated mainly with protected species of dendroflora (most of all pine tree, fir tree, yew, juniper, oak tree, beechLaw on Nature protection (2004), which regulates the protection of the biological and landscape diversity, and the natural heritage in and outside of the protected areas

2.2 INSTITUTIONAL, POLICY AND REGULATORY FRAMEWORK

2.2.1 Environmental policy, sustainable development policy and general legislative framework

The environmental policy of the Republic of Macedonia is built to achieve:

-Preservation, protection, restoration and improvement of the quality of the environment;

-Protection of human life and health;

-Protection of biodiversity;

-Rational and sustainable utilization of natural resources, and

-Implementation and improvement of measures, which deal with regional and global environmental problems.

The context of the Macedonian environmental policy has evolved significantly over the past decade, partly through initiatives for improving the legislative and regulatory framework and partly by harmonizing it with the legislation of the European Union. Ratification of international legal documents tackling environmental issues also strengthens the capacity of the environmental institutions at national and local levels. Environmental policy also evolved through decisions directly affecting the environment such as adoption of the First National Environmental Plan in 1997, adoption of the National Health Environmental Plan in 1998, development of the National Strategy and Action Plan for Protection of the Biodiversity, preparation of the First National Communication on Climate Changes, and approval of the Master Plan for Phasing out Leaded Petrol. Several on-going projects such as the Second National Environmental Plan, the National Waste Management Plan, and the National Implementation Plan for POPs, LEAPs for certain municipalities and Agendas 21 will further strengthen the environmental policy.

Public governance has been recognized and practiced since the adoption of the First National Environmental Plan, and Sustainable Development Concept. The signing of the Stabilization and Association Agreement between the Republic of Macedonia and the European Union and the Member States of the EU, and the Interim Agreement on Trade and Trade Issues between the Republic of Macedonia and the European Community on 9 April 2000, in Luxemburg, as well as the ratification of the Stabilization and Association Agreement by the Assembly of the Republic of Macedonia on 12 April 2001, represent historic steps in the acceleration of the approximation process of the Republic of Macedonia into the European Union. In this context, in 2000, the Ministry of Environment and Physical Planning asked the Institute for Sociological, Political and Juridical Research to carry out a Conceptual Approach towards Creation and Implementation of the National Strategy for Sustainable Development of the Republic of Macedonia. In 2002, on the eve of the World Summit for Sustainable Development (Johannesburg,

2003), the Government of Republic of Macedonia presented an assessment of the achieved progress in implementation of the recommendations of the Agenda 21. The findings were published in a document "National Assessment for Sustainable Development" which was adopted by the Government.

In 2003, the Ministry of Environment and Physical Planning and the Institute for Sociological, Political and Juridical Research undertook a further step by preparing a Research Concept in development and implementation of the National Strategy for Sustainable Development of the Republic of Macedonia.

The environmental legislative framework of Republic of Macedonia is based on the ***Constitution***, which determines the protection of the environment as a basic principle (Article 8). Article 43 develops further this concept and prescribes that a healthy environment is a basic human right. It also stipulated that the environment must be protected and it is the obligation of the state to provide a healthy environment for its citizens. At the local level, ***the Law on Local Self-Government*** in Article 22[2], § 2, prescribes the obligation of the local self-government for protection and pollution prevention of the environment.

Further, the national environmental legal framework is developed through the ***Law on the Environment.*** It contains all environmental issues, which are characteristic for a modern European Environmental Protection Act. It stipulates the main principles, while legal and technical details are elaborated in secondary legislation.

The draft of new Law on the Environment lays the groundwork for implementation of EU legislation on transposition of Access to Environmental Information, Strategic Environmental Assessment of certain Strategies, Plans and Programs. Environmental Impact Assessment of certain projects, and Integrated Pollution Prevention and Control are also referred to in this law.

The Law establishes two permitting systems. The upper system regulates the so called "A- installations," which covers the major industrial installations identified by the EU IPPC Directive. These industries shall comply with Best Available Techniques. The lower system regulates industrial installations with lower capacity of environmental pollution. These "B installations" are not obliged to comply with BAT standards. A special chapter deals with the existing A and B installations and requests those facilities to improve their environmental performance over a 10-year period.

[2] The Law on the Environment, Article 13: *If there is a justified suspicion that a certain activity may have environmentally harmful consequences, necessary measures for protection of the environment shall be undertaken, rather than wait for available scientific evidence.*

The Law also prescribes the establishment of the register of dangerous substances, cadastre of polluters and contains issues on planning, monitoring, informing, supervision and enforcement. It contains provisions which give the public extensive rights to participate in the planning and permitting process and stipulates their right to complain. The Law transposes the Aarhus Convention and EC Directives on access to environmental information. The provisions of the Law on the Environment are mainly based on the following EU Directives:

- Directive 85/337/EEC as amended by Directive 97/11 on the assessment of the effects of certain public and private projects on the environment;
- Directive 2001/42/EC on the assessment of the effects of certain plans and programs on the environment;
- Directive 96/61/EC on Integrated pollution prevention and control;
- Directive 2003/4/EC of the European Parliament and of the Council on public access to environmental information and repealing Council Directive 90/313/EEC;
- Directive 2003/35/EC of the European Parliament and of the Council for public participation in respect to the drawing up of certain plans and programs relating to the environment and amending with regard to public participation and access to justice;
- Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances;
- Proposal for a Directive of the European Parliament and of the Council on environmental liability in regard to the prevention and remedying of environmental damage (Brussels, 23.1.2002, 2002/0021 COD);
- Directives 93/12/EC on the quality of fuels and 98/70/EC on the quality of petrol and diesel fuels, regarding “Master Plan for phasing out Leaded Petrol;”
- Council Directive 91/692/EEC of 23 December 1991 standardizing and rationalizing reports on the implementation of certain Directives relating to the environment.

The Macedonian framework environmental legislation is further developed by the Law on the Quality of the Ambient Air, Law on Waters, Law on Waste Management and Law on Nature Protection.

The Law on the Quality of Ambient Air identifies the sources of air pollution (stationary sources – industrial and energy installations, mobile sources of pollution). The Law also prescribes certain limit values (limit values for the quality of the ambient air and alarming thresholds, limit values for emissions from stationary sources, limit values for emissions from mobile sources and the content of the dangerous substances in fuels). The Law defines the management of the quality of ambient air through regular assessments. The Law provides authorization for bans for actions that pollute the air above the limits determined by the law and its subsequent sub-legislation. The EU

Council Directive 96/62/EC on the assessment of the ambient air and its management is fully transposed in this law.

The Law on Waters (in draft) is a general framework law intended to regulate the basic water management principles. The water management refers to all measures and activities for rational and effective use of waters and sustainable development of water resources. This matter focuses on three major areas: (1) use of waters; (2) protection of waters and control of pollution; and (3) protection from adverse effects. This law is structured in order to determine general standards and principles for management of waters in the Republic of Macedonia. It directly transposes the following EU Directives in the water management area:

- Water Framework Directive, 2000/60/EC, amended by Decision on establishing the list of priority substances 2455/2001/EC
- Bathing Water, 76/160/EEC
- Potable Water 98/83/EC
- Urban Waste Water Treatment, 91/271/EC
- Nitrates Directive, 91/676/EEC, but also the Law takes into consideration:
- Sewage Sludge Directive, 86/278/EEC
- Plant Protection Products, 91/41/EEC
- Biocides Directive, 98/8/EC

The Law on Waste Management focuses on the institutionalization of instruments supporting the sustainable development by promoting the rational use of natural resources and preventing and eliminating the dangers to human health and the environment from wastes. The Law provides for the creation of a prevention-oriented hierarchy of obligations (minimization of waste before processing, disposal is the last final solution). It encourages the prevention or reduction of waste generation. It aims to reduce the harmful effects of wastes by encouraging clean technologies, technical developments and new products on the market, which were produced by waste recycling. Waste minimization during technology is also appreciated.

This Law focuses on waste and on the modalities of the management, disposal, collection and recycling thereof, as well as on the obligations of the generators and holders of waste. It is an obligation that all necessary measures for processing or disposal of waste be undertaken without endangering human health and without damaging the environment. The Law requires that waste management be carried out based on a system of permits issued in

accordance with planning documents.

The Law also stipulates an obligation for recording and reporting all phases of waste management. The Law contains separate parts concerning:

- Hazardous Wastes, which aims to provide legal basis for implementing a controlled management,
- Import, export and transit of wastes, which aims to reduce the amounts of transboundary movement of wastes by implementing efficient control at the international level,
- Landfilling which aims to prescribe basic provisions on the requirements for disposal of certain type of waste in certain classes of landfills,
- Incineration and co-incineration, which aims to set requirements of these installations and their operation,
- Special waste streams including Waste Oils, PCBs, End of the life-vehicles (ELVs), Waste Electric and Electronic Equipment (WEEE) etc.

All above mentioned Laws are *framework* environmental laws stating main regulations and objectives, while leaving more technical aspects to sub-legislation. In this context, it should be mentioned that some regulations in the field of waste have been prepared (*Regulation on Hazardous Waste, Regulation on identification, recording and reporting on waste, Regulation on phasing out PCBs, Regulation on management of waste oils*), but they should be assessed by the relevant stakeholders before being passed to the Government for adoption.

The Law on Waste Management directly transposes the following EU Directives:

- Council Framework Directive on Waste (75/442; 91/156)
- Council Directive on Hazardous Waste (91/689, 97/640; 96/302. 2000/532) but also the Law takes into consideration:
- Council Directive on Landfills (91/31)
- Council Directive on Waste Oils (75/439)
- Council Directive on PCB/PCT (96/59, 01/68)
- Council Directive on Incineration of Waste (00/76)
- Council Directive on Incineration of Hazardous Waste (94/67, 97/283, 98/184)

- Council Directive on Batteries and Accumulators (93/86; 91/157)
- Council Directive on Packaging and Packaging Waste (94/62; 94/62)
- Council Directive on ELVs (2000/53, 2002/151, 2003/138)

The Law on Nature protects the biological and landscape diversity, and natural heritage.

Biological diversity protection is implemented by the establishment of a system of measures and activities regulating the protection of wild species, including their genetic material, habitats and ecosystems, for providing sustainable use of the components of the biological diversity and maintenance of natural balance.

Landscape diversity protection establishes a system of measures and activities for conservation and maintenance of characteristic values of the landscapes that derive from natural configuration and/or from human activity.

Natural heritage protection establishes a system of protection that shall specify the measures, procedures and methods for acquiring the status of natural heritage and for implementation of its protection.

The Republic of Macedonia has signed several international legal documents (besides the Stockholm Convention), which contribute to the development of the General Environmental Policy and Sustainable Development Concept. These are the Basel Convention for the Control of the Transboundary Movement of Hazardous Waste and its Disposal (1997), Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice (1999), ESPO Convention on Environmental Impact Assessment in a Transboundary Context (1999), Kiev Protocol for Strategic Environmental. Assessment (2003), Vienna Convention (1994), Montreal Protocols for the Protection of the Ozone Layer, United Nation Framework Convention on Climate Change (1997), Kyoto Protocol on Climate Change (2004), initiative for ratification of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, etc.

The Constitution of the Republic of Macedonia, in Article 118, stipulates that the international legal documents ratified by Republic of Macedonia are part of the domestic legal system and cannot be changed by a law, but their implementation may be supported by national legislation. The legislation adopted in the Republic of Macedonia as well as ratified international documents are promulgated in the Official Gazette of the Republic of Macedonia.

It is worth mentioning that the Macedonian framework environmental legislation fully complies with general features

of the Stockholm Convention.

The Convention provides a framework, based on the precautionary principle, for elimination of production, use, import and export of the initial twelve priority persistent organic pollutants. It stipulates their safe handling and disposal and elimination or reduction of releases of certain unintentionally produced persistent organic pollutants.

The "precautionary principle" [3] is one of the principles of the Macedonian framework environmental legislation. The Law on the Environment in the Article 13, the Law on Waters in Article 5[1], point 2, and the Law on Waste Management in Article 9, prescribe the "precautionary principle" as one of the basic principles in the protection of the environment and human health. The inclusion of this principle in all framework environmental legislation is a solid base for implementation of the provisions of the Convention with all the Annexes. Adoption and promulgation of the specific sub-legislation that are among the priorities of the Ministry of Environment and Physical Planning shall speed up the implemental process of the Stockholm Convention.

3 The implementation of the precautionary principle in the Law on Waste Management is stipulated in Article 43 by the authorization of the Minister of the Environment to undertake all necessary measures for removal of the immediate danger, if an estimate can be made, on the basis of the knowledge arising from the existing level of development of the science and technique, that certain activities related to waste management could produce negative effects on the environment and on the life and health of people, prior to generating scientific evidence that the harmful effects will occur.

2.2.2 Roles and responsibilities of ministries, agencies and other governmental institutions involved in POPs life cycles (from source to disposal, environmental fate and health monitoring)

The management of chemicals (including POPs) through the stages of their life cycle is a shared responsibility of several Ministries as shown in the following table:

Table 2.11: Inter-ministerial responsibilities on POPs

Stage of Life Cycle / Authorized Ministry	Trade	Production	Use	Transport	Unintentional Production	Waste Import /Export	Waste Disposal
Environment	X[4]	X[4]	X[4]		X[5]	X	X
Health	X	X	X				X
Economy	X		X				
Transport and Communication				X			
Agriculture	X	X	X				X
Labor		X	X		X		X
Finance-Custom Office	X					X	

The overview of the general responsibilities of the Ministry, presented in the following table, shows that its sectors may cover a wide range of activities necessary for the implementation of the Convention.

Table 2.12: Responsibilities of the Sectors of the Ministry of Environment and Physical Planning and their contribution to the implementation of the Stockholm Convention

Unit	Functions – Primary responsibilities	Foreseen contribution to POPs Management
Sector for Regulation and Standardization	Permitting Legislation, Standards and Regimes Human Resource Management Protocol; Procurement	-Promulgation of legislation (including bans/restrictions of production and use of POPs as well as emission limits from unintentional sources) -Permitting
Sector for European Integration	Cooperation: International, Multilateral, Bilateral	International cooperation in providing technical assistance on POPs
Sector for Sustainable Development	Policy Cooperation with Local Self-Government Donor Project Coordination (Ohrid)	-Focal Point for Stockholm Convention; - Coordination of the activities of POPs of all involved departments; - Contribution to the establishment of the emission limits of POPs from unintentional production and bans/restrictions on intentional production and use; -Preparation and Implementation of National Strategies and Plans for implementation of the concept of Sustainable Development

Unit	Functions – Primary responsibilities	Foreseen contribution to POPs Management
Sector for Physical Planning	Policy Control and supervision of LSG units	
Macedonian Environmental Information Centre	Monitoring Data Management Information	-Statistical data on POPs
Office for Environment	Permitting Enforcement Capacity Building Laboratory	- Permitting - POPs screening - Waste Disposal - Import, Export, Transit of Waste POPs
State Environment Inspectorate	Enforcement	Enforcement of Legislation on POPs
Environment Fund	Financing	Contribution in providing funds for implementation of the Convention
Public Relations Office	Information Public Relations	Public information, awareness and education

Organization and detailed description of the responsibilities of the Sectors of the Ministry of Environment and Physical Planning are presented in Annex 2.

Current Budget of the Ministry of Environment and Physical Planning

The 2004 budget of the Ministry is allocated in four programs: Administration, Environment, Spatial Planning and Management and Development of Water Resources. The Ministry should receive around 5 million Euro from the national budget, 2,5 million from the two funds, the water and environmental fund, and less than half a million from foreign donors (for a total of approximately 8 million Euro). The budget of the Ministry represents 0,54% of the entire budget of the country.

Table 2.13: Budget Allocation of the Ministry of Environment and Physical Planning for 2004 (EUR)

	Total	Budget	Donations	Self financing activities (environmental fund, water fund)
Ministry	**489.067**	**311.376**	**23.466**	**154.225**
Administration	11.011	11.011	-	-
Environment	316.147	228.106	23.466	**64.575**
Spatial Planning	39.444	39.444	-	-
Management and Development of Water Resources	121.465	32.815	-	**89.650**

Table 2.14: The structure of planned expenditures of the budget of the Ministry (EUR)

Percent (%)	Total	State Budget	Donations	Self financing activities (environmental fund, water fund)
Program cost	83,62	84,28	75,76	**83,49**
Staff cost	6,74	10,15	0,00	**0,88**
Running cost	9,64	5,57	24,24	**15,63**
TOTAL	100	100	100	**100**

2.2.3 Relevant international commitments and obligations

As the environment knows no boundaries, the environmental pillar of sustainable development may be realized only through multilateral and multinational approach. The Republic of Macedonia is therefore committed to promoting environmental protection at an international level. The challenges of environmental policy in an international setting in the face of existing economic pressures are a complex task. Macedonia has not yet been able to engage in all international agreements and mechanisms. However, efforts are being made and the following list of international documents proves it. Technical and financial support by the international community will help all obligations and duties be fully implemented in the near future, and besides others, an effective mechanism of supervision over hazardous substances and more specifically over POPs, will be established.

Table 2.15: List of International Documents ratified and initiated for ratification by the Republic of Macedonia

No.	Title of the International Document	Year of the Ratification/signing
1.	Stockholm Convention on Persistent Organic Pollutants	2004
2.	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1999
3.	Convention on Environmental Impact Assessment in a Transboundary Context (ESPO)	1999
4.	Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice	1999
5.	Kiev Protocol for Strategic Environmental Assessment	2003,signed
6.	Protocol on Pollutant release and transfer registers	2003, signed
7.	European Agreement on International Carriage of Dangerous Substances by Road	1994
8.	Convention on Biological Diversity	1997
9.	Convention on the Wetlands of International Importance, especially as Waterfowl Habitat	1997

No.	Title of the International Document	Year of the Ratification/signing
10.	Convention on the Conservation of European Wildlife and Natural Habitat	1997
11.	Convention on the Conservation of Migratory Species of Wild Animals	1999
12.	Convention on the Protection of World Cultural and Natural Heritage	1974
13.	Convention on International Trade with Endangered Wild Animals and Plant Species	1999
14.	Vienna Convention for the Protection of the Ozone Layer and subsequent Montreal Protocols	1994
15.	United Nation Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol on the Climate Change	1997 and 2004, respectively
16.	United Nations Convention to combat desertification in countries experiencing serious drought and/or desertification, particularly in Africa	2002
Initiatives for Ratification		
1.	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	
2.	Convention on Protection and Use of Transboundary Water-courses and International Lakes	
3.	European Convention for Protection of Vertebra for Experimental and Other Scientific Purposes	

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade is a very important convention related to chemicals and subsequently to the Stockholm Convention. The provisions of both conventions will be transposed to the national legislation on chemicals.

Preparation of the new, comprehensive Law on Chemicals is stipulated in the National Strategy for integration of the Republic of Macedonia into EU, as well as in the Action plan for European Partnership . In accordance with the National Programme for approximation, it is expected by the year 2007, the new Law on Chemicals to be adopted.

2.2.4 Description of existing legislation and regulations addressing POPs (manufactured chemicals and unintentionally produced POPs)

During the inventory of current legislation, it was decided that the current legal measures should be compared to the obligations of the Stockholm Convention. Therefore, in the following table the current legislation, which has relevance to POPs, is linked to the corresponding Articles of the Stockholm Convention. For easier reference the abbreviations of the legal measures are indicated and they are elaborated in detail in Annex 3 and by clicking on the hyperlinks the corresponding legislation will open automatically. A brief description is provided under chapter 2.2.6.

Table 2.16: Detailed POPs related legislation review in light of the provisions of the Stockholm Convention.

Article	No			Brief description	Corresponding Macedonian legislation
3	1	a	i	Prohibition of production of Annex A POPs	LPP; LTP(59/82); LTHS (7/84; 9/86;18/87 and 33/88); LT, LNP, LE
			ii	Prohibition of import and export of Annex A POPs	LPP; LTP(59/82); LTHS (7/84; 9/86;18/87 and 33/88); LT, LNP, LE
		b		Restriction of the production and use of Annex B POPs	LWM, LE
	2	a	i	Import of Annex A and B POPs is only for disposal	Not allowed, LWM
			ii	Import of Annex A and B POPs is for use and is permitted	Measures are taken; LTP (59/82)

Article	No			Brief description	Corresponding Macedonian legislation
3	2	b		If exemption is granted for Annex A or B POPs, they are	No exemption is filed
			i	exported for environmentally sound disposal	Addressed in the LWM
			ii	to a party permitted to use them	Addressed in the LWM
			ii i	to a non party, (certification)	Addressed in the LWM
					Addressed in the LWM
		c		If exemption is no longer valid for Annex A POPs, it is exported only for disposal	Addressed in the LWM
	3			If registers for new pesticides and industrial chemicals exist prevent production and use of new chemicals, if criteria of §1 of Annex D is met	LTP (7/84 and 57/82)
	4			If registers for pesticides and industrial chemicals exist include criteria of §1 of Annex D when conducting assessment is done for chemicals currently in use	LTP (7/84 and 57/82)
	6			If exemption is granted ensure that during production or use exposures and releases are minimized (standards and guidelines)	No exemptions are filed
4				If exemption is filed	No exemption is filed
				Procedures for updating it	Not applicable
				Procedures for withdraw	Not applicable
5		a		Development of an action plan within two years to address Annex C POPs	LE, LQAA
			i	inventories of Annex C POPs	LE, LQAA
			ii	evaluation of the efficacy of the laws, policies	LE, LQAA
			ii i	strategies to meet the obligation (i and ii)´	LE, LQAA

Article	No			Brief description	Corresponding Macedonian legislation
5		a	iv	guidelines on education and training on the strategies	LE, LQAA
			v	process to review the strategies every 5 years	LE, LQAA
			vi	schedules for the implementation of this action plan	LE, LQAA
		b		promotion of release reduction or source elimination	LE, LQAA
		c		promotion of modified materials, products, processes	LE, LQAA
		d		require the use of BAT/BEP for new sources within 4 years (Part II Annex C)	LE, LWM, LWM/PCB, RMWO
		e	i	promote the use of BAT/BEP for existing sources (Part II and Part III of Annex C)	LE, LWM, LWM/PCB, RMWO, LQAA
			ii	promote the use of BAT/BEP for new sources (Part III of Annex C)	LE, LWM, LWM/PCB
		g		Release limit values and performance standards may be used	LE
6	1	a	i	Development of strategies for identifying stockpiles of Annex A and B	LPP; LTP, LWM, LWM/PCB
			ii	Development of strategies for identifying products and articles and wastes containing of Annex A, B or C	LWM, LWM/PCB
		b		Identification of stockpiles of Annex A and B	LTP
		c		Management of stockpiles in environmentally sound manner (Annex A, B)	LTP; LTP(9/86)
		d	i	Wastes, products, articles should be handled, collected transported in environmentally sound manner	LTTS(1/83), LTHS, LTHS (82/90), LWM, LWM/PCB
			ii	Wastes, products, articles should be disposed of irreversibly	LTP(1/83), LWM, LWM/PCB

Article	No			Brief description	Corresponding Macedonian legislation
			iii	recycling should not be permitted	LWM, LWM/PCB
			iv	wastes, products, articles should not be transported across borders without relevant rules	LWM, LWM/PCB
		e	1	Development of strategies for identification of contaminated sites (Annex A, B and C)	LWM, LWM/PCB
			2	Remediation should be undertaken in an environmentally sound manner	LWM, LWM/PCB
7	1	a		NIP development	Already developed
		b		NIP submission in 2 years	In progress
		c		Periodic review of the NIP (frequency not yet decided)	As decided by the CoP
	2			NGOs involvement in the NIP preparation and updating	Yes
	3			integration of the NIP into the sustainable development strategy (if applicable)	Yes
8	1			Submission of proposals for listing chemicals in Annex A, B and/or C (if applicable)	LTP(57/82)
9	1	a		Facilitation of information exchange on reduction or elimination of POPs use, production and release	Appropriately addressed LE
		b		Facilitation of information exchange on POPs alternatives	Appropriately addressed LE
	2			Mechanism for information exchange through the Secretariat	Appropriately addressed LE
	3			Designation of POPs focal point	Appropriately addressed LE
	5			Health related information should not be confidential	Appropriately addressed LE

Article	No		Brief description	Corresponding Macedonian legislation
10	1	a	Awareness raising among decision makers	LTP(9/86)
		b	Provision of all POPs related info to public	Appropriately addressed LE
		c	Development and implementation of educational programs for women, children, least educated	Appropriately addressed LE
		d	Public participation in POPs issues	Appropriately addressed LE
		e	Training of workers, scientists, educators, technical and managerial personnel	LTHS (76/90) , LTHS (17/91)
		f	Development and exchange of educational materials	Appropriately addressed LE
		g	Development and implementation of education and training programs	Appropriately addressed LE
	2		Ensure public access to information on awareness raising activities, information is kept up-to-date	Appropriately addressed LE
	3		Encourage professionals to promote awareness raising	Generally included LE
	4		Establishment of information centers	Appropriately addressed LE
	5		Use of PRTR to disseminate information	Appropriately addressed LE
11	1		Encourage R&D and monitoring on	
		a	Sources and releases into the environment	Generally addressed LE
		b	Presence, levels and trends in humans and environment	LW reg
		c	Environmental transport and fate	Generally addressed LE
		d	Effects on human health and environment	Generally addressed LE
		e	Socio-economic and cultural impacts	Not addressed LE

Article	No			Brief description	Corresponding Macedonian legislation
		f		Release reduction and/or elimination	Generally addressed LE
		g		Harmonized inventories and analytical techniques	Not addressed LE
	2	a		Support and develop international programs	
		b		Strengthen national scientific and technical capacities	
		d		Undertake R&D for alleviating effects on reproductive health	
		e		Make the results of R&D accessible and up-to-date	
		f		Encourage storage and maintenance of R&D info	
15	1			Effectiveness reporting	
	2	a		Statistical data on production, import, export,	
		b		List of states from which it has exported and to which it has exported (Annex A, B)	
	3			Periodicity not yet decided	
Annex A Part II		a		Identify, label and remove from use PCB-containing equipment by 2025	
			i	10% PCBs >5 liters	
			ii	0,05% PCBs >5 liters	
			iii	0,005% PCBs > 0,05 liters	
		b		Reduce the risk of exposure by	
			i	use of intact equipment only	
			ii	not use equipment where food is processed or produced	
			iii	protect electrical failure and undertake regular inspection	

Article	No			Brief description	Corresponding Macedonian legislation
		d		Not allow the recovery of PCBs>0.05	
		e		Dispose of PCBs by 2028	
		f		Identification of PCB-containing open systems	
		g		Progress report on PCBs elimination every 5 years	
Annex B Part I			iii	Notification of the Secretariat on closed-system site-limited intermediate quantities (if applicable)	
Annex B Part II	1			Elimination of DDT production and use unless notification is filed	
	2			Restrict production and use for disease vector control	
	3			Notification of the Secretariat and WHO on the use of DDT	
	4			Report on the amounts used and conditions of DDT use to the Secretariat and WHO every 3 years	
	5	a		If DDT is used, Action plan should be developed	
			i	Restrict DDT use to disease vector control	
			ii	Implementation of alternatives	
			iii	Strengthen heath care to reduce incidences of the disease	
		b		Promote R&D on safe alternatives to DDT	

2.2.5 Key approaches and procedures for POPs chemical and pesticide management including enforcement and monitoring requirements

In the Republic of Macedonia, the Ministry of Environment and Physical Planning, the Ministry of Health and the Ministry of Agriculture, Forestry and Water Economy Management are responsible for protection of the environment with respect to the chemicals management. The management of toxic chemicals, plant protection chemicals, their residues, drafting legislation regarding these issues, inspections, and international cooperation are also among their tasks.

The State Inspectorate under the Ministry of Environment and Physical Planning enforces the environmentally related issues. Currently there are less than ten inspectors that highlight the necessity of capacity building and human resource enlargement. They have the authority to take samples and control the working processes in order to check if the protection of the environmental is implemented.

The Customs Administration is in charge of control and enforcement of the regulation related to trade, export and import of goods. The employees on the border are frequently moved from one post to another in order to avoid any legal deviations. For the control of food, pesticides and plant material import and export (quarantine) the inspectors from the Sanitary Inspection and Directorate for Plant Protection are in charge.

The Ministry of Health is responsible for the preparation of regulations on poison management. It participates in plant protection substance management, the procedure for classification of substances (new chemicals) in the group of poisons, and their inclusion in the list of approved chemicals. It is also involved in inspections. The Ministry of Health is responsible for the first stage of the registration of new plant protection substances through toxicological analysis and classification in toxic groups. The analysis is undertaken in the Institute for Pre-Clinic and Clinic Pharmacology and Toxicology and the Institute for Toxicological Chemistry.

The laboratory analysis on plant protection substance residues are performed by the National Agency for Health Protection. Inspections are the responsibility of the Sanitary and Health Inspection under the Ministry of Agriculture, Forestry and Water Economy.

The Bureau for medicals under the Ministry on Health, the Unit for Medicals and Poison Supply, prepare the primary and secondary regulations on poisons and plant protection substance residues present in goods.

The State Health and Sanitary Inspectorate and National Agency for Health Protection are also involved in the procedure.The Bureau for Medicals undertakes the first phase on plant protection substance registration (toxicological assessment of active ingredients and preparation and classification in the right toxicity groups). The enforcement of the above

mentioned regulations is under the State Health and Sanitary Inspectorate.

Other bodies, which are involved in chemical-related issues, are as follows:

- **Sector for Professional Advisory Issues**, which has the following units: products, poison trade and transport, performs administrative support and control of poison production and trade.

- **Sector on Professional Operative Issues** has two chemical-related units**:**

- **Unit for border health and sanitary inspections** controls import, export and transport of hazardous chemicals (including plant protection substances in the poison list and control of their residues in imported food).
- **Unit for internal control** controls the domestic poison trade and plant protection substance residues in goods inside the country.

According to the new Law on Food Safety, the **Agency for Food** has been established. A few units of the Health and Sanitary Inspection will be functioning under the auspices of this agency.

Ministry of Agriculture, Forestry and Water Economy

The Plant Protection Administration and the State Agricultural Inspectorate under the Ministry of Agriculture, Forestry and Water Economy are responsible for controlling plant protection substances.

The Plant Protection Administration creates policy and legislation, covers administrative issues (permits issuing) and international cooperation. It informs the public about import controls as well. The procedure and documentation assessment (physical and chemical analysis) is under the authorized institutions (Institute for Agriculture, Faculty of Agriculture and Food, Institute for Southern Crops, Institute for Tobacco, Faculty of Forestry).

2.2.6 Legal problems connected with the preparation of NIP

Chapter 2.2.4 details the current legislation compared to the provisions of the Stockholm Convention. The constraints, which impede upon the full adoption of the Convention, are detailed in Annex 3. However some of the major constraints and gaps in the current legislation are repeated below.

Article 3: Measures to reduce or eliminate releases from intentional production and use and Annex A and Annex B

Elimination of import, export, and use of Annexes A and B (excluding PCBs) POPs in the Republic of Macedonia should be implemented by promulgation of:

- **Decision on the prohibition of POPs production and use** *and*
- **Decision on the prohibition of POPs import, export and transit**.

The legal base for these Decisions are in Article 21 on the Prohibition of production, trade and consumption of goods and services for the purpose of environmental protection and in Article 22 on the Restriction and control of export and import of certain products.

Article 5: **Measures to reduce or eliminate releases from unintentional production and Annex C**

The requirements of Article 5 are almost completely covered by framework environmental legislation. The NIP on POPs should take care and provide that all Source Categories listed in Annex C, Part II and as much as possible of Part III, are included in the List of Installations which are obliged to obtain A-Integrated Ecological Permit, where the use of BAT is obligatory.

The control of unintentional release into the air may be supported by promulgating specific Decisions on limit values of the emissions into air for Source Categories of Part II and were practical of Part III in Annex C to the Convention. It can be implemented through the provisions of the Law on Quality of Ambient Air, for example:

- **Decision** on emissions of air pollutants from Secondary Aluminum Production;
- **Decision** on emissions of air pollutants from Secondary Zinc Production;
- **Decision** on emissions of air pollutants from Secondary Copper Production;
- **Decision** on emissions of air pollutants from Sinter Plants in the Iron and Steel Industry;
- **Decision** on emissions of air pollutants from the Cement Industry;
- **Decision** on emissions of air pollutants from Pulp and Paper Plants having bleaching facilities;
- **Decision** on emissions of air pollutants from Shredder Plants for ELVs and WEEEs;
- **Decision** on emissions of air pollutants from Thermal Metallurgical Processes;
- **Decision** on emissions of air pollutants from Residential Heating Plants and Industrial Boilers;
- **Decision** on emissions of air pollutants from Plants producing chlorophenols and chloranil;
- **Decision** on emissions of air pollutants from Crematoria;
- **Decision** on emissions of air pollutants from Mobile Sources;

- **Decision** on emissions of air pollutants from Textile Dying and Finishing Plants;
- **Decision** on emissions of air pollutants from Waste Oil Refineries

The releases of POPs into waters may be regulated by adoption and promulgation of the regulation on the wholesomeness of the potable water (working version has been prepared).

The secondary legislation based on the Law on Waste Management should be adopted and promulgated. In the context of the requirement of the Convention, promulgation of the following regulations should have priority:

- Regulation on Management of Hazardous Waste (working version has been prepared)
- Regulation on Identification, Recording and Reporting of Wastes (working version has been prepared)
- Regulation on Landfills
- Regulation on Incineration/Co-incineration
- Regulation on Waste Oils Management
- Regulation on ELVs
- Regulation on WEEEs

Article 6: Measures to reduce or eliminate releases from stockpiles and wastes

Obligation of Article 6(1) (a) and (b) have the legal base in all framework environmental legislation (sections of planning) and should be implemented during the execution of the NIP.

The Law on Waste Management provides a legal basis for Article 6(1)(c) in general, and regulates specifically the obligation of Annex A Part II (PCBs).

Regulation on phasing-out of PCBs (working version has been prepared) should urgently be approved.

The provisions of Article 6(2) are covered in the Law on Waste Management by Article 105. To address the obligation of the Convention explicitly, based on Article 106(4), the following legislation should be developed:

Regulation on Import, Export and Transit of Wastes

The implementation of environmental legislation depends on the legislation on chemicals and dangerous substances. There are many promulgated legal documents concerning chemicals and dangerous substances in Macedonia. The main laws in this field are:

- Law on production of Poisons (Official Gazette of SFRJ, 18/76),
- Law on trade of Poisons (Official Gazette of SFRJ, 13/91),
- Law on the transportation of dangerous goods (Official Gazette of SFRJ, 27/90),

There are also several regulations in force, which facilitate the implementation of these laws. The main weaknesses of the existing legislation concerning chemicals and dangerous substances are their incompleteness, fragmentation and lack of clarity. Furthermore, many legal documents are still from the former Yugoslavia and thus are no longer appropriate. The provisions of the Law on the Environment to establish a Register of Dangerous substances and preparations practically may not be fulfilled. The implementation of the Regulation on the Management of Hazardous Waste is not possible, because it relies on the EU legislation on classification, packaging and labelling of dangerous substances and preparations (EU Directives 67/548 and 99/45). Therefore, the current legislation covering the field of management of chemicals will be changed and harmonized with EU legislation, when the EU promulgates it. In this context, the following legislation will be adopted and promulgated:

- The framework **Law on Chemicals** based on the EU Commission proposal COM(2003)644, which should establish a REACH (Registration, Evaluation and Authorisation of Chemicals) system. Its aim will be to protect human health and the environment while maintaining the competitiveness of the economy. It will enhance the innovative capability of the chemical industry. It will be in line with Regulation No. 304/2003 on the export and import of dangerous chemicals.

- A framework **Law on classification, packaging and labelling of dangerous substances and Law on classification, packaging and labelling of dangerous preparations**. They are developed in the Council Directive 67/548 and Council Directive 99/45 and their plentiful amendments. Their aim is to protect public health and the environment while ensuring the free movement of such products.

- **Law on Good Laboratory Practices** based on Council Directive 2004/9/EC.

The Articles of the Convention, beginning with Article 9, have a legal base in the framework environmental legislation and may be implemented successfully by NIP on POPs.

2.3 ASSESSMENT OF THE POPS ISSUE IN THE COUNTRY

2.3.1 Assessment with respect to Annex A, part I chemicals (POPs pesticides): historical, current and projected future production, use, import and export; existing policy and regulatory framework; summary of available monitoring data (environment, food, humans) and health impacts.

No POPs pesticides have been produced in the Republic of Macedonia.

The Law on Plant Protection banned the application of POPs pesticides from 1982.

Stockpiles of the former use of pesticides have not been assessed in detail. Additional analyses for the evaluation of the present situation are to be made.

DDT, Toxaphene, Endrin and Hexachlorobenzene must be banned by modification of the existing legislation.

Regular analysis on residuals of organochlorine pesticides in the imported food should be part of the monitoring system in the country.

General information

Nine of the 12 chemicals identified in the initial list of Persistent Organic Pollutants (POPs) are pesticides. Chlordane and dieldrin, as well as lindane and endosulfan, are known to be endocrine disrupting chemicals. Six pesticides out of the nine initial POP pesticides are subject to the “Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.” They have been banned in most industrialized and many developing countries, including the Republic of Macedonia. However, they remain in limited use, legally and illegally.

According to the review on permitted pesticides and the evidence on pesticides in trade and use, obviously it has been found that there are no POPs pesticides in trade or in use in agricultural or veterinary practice in the Republic of Macedonia. As to OCP applications in public hygiene, additional analyses for the evaluation of the present situation are to be made.

The Law on Trade and Use of Poisons does not exclude DDT, Toxaphene and Endrin from trade and use. The fact that the Decision on the Classification of Goods Intended for Export and Import permits the import of Hexahlorbenzene with approval obtained from the Ministry of Health, indicates a possibility for trade in and the use of these pesticides.

Table 2.17: Quantities of imported pesticides for the period 1992-2002

Year	Imported pesticides [kg]
1992	796,677
1993	917,573
1994	795,946
1995	834,919
1996	1,098,109
1997	759,470
1998	933,959
1999	1,055,371
2000	1,159,549
2001	947,948
2002	1,018,971

(Source: Ministry of Agriculture Forestry and Water Economy)

Table 2.18: Statistical data on used quantities of pesticides for the period 1980-2000

Year	Quantity(tones	Year	Quantity(tones
1980	3,479	1990	1,738
1981	3,137	1991	1,290
1982	2,445	1992	970
1983	2,706	1993	659
1984	2,135	1994	540
1985	2,513	1995	573
1986	2,173	1996	556
1987	2,068	1997	506
1988	1,841	1998	529
1989	1,840	1999	462
		2000	308

(Source: Ministry of Agriculture Forestry and Water Economy)

Statistical data on the quantities of plant protection chemicals in comparison with the consumption in 1950 and within a period of 30 years are as follows:

Table 2.19: Consumption of plant protection materials in the period 1950-2000 [t]

Year	Consumption
1950	200
1979	2,584
1989	1,840
1999	462

(Source: Ministry of Agriculture Forestry and Water Economy)

Plant protection chemicals consumption increased until 1980. Since then, it has been decreasing due to the reduced economic power of the producers, application when and where monitoring had indicated that the pest would cause unacceptable economic damage, as well as due to the production of more concentrated plant protection chemicals.

The statistical data refer to the quantities consumed in the public sector. Data on the private sector do not exist. There is no separate evidence on POPs use prior to their exclusion from the list of allowed chemicals.

According to evidence from the Ministry of Agriculture, Forestry and Water Economy, the import and local production of plant protection chemicals, as per decades and quantities, are as follows:

Table 2.20: Imported quantities and local production of plant protection chemicals [t]

Year	1950	1960	1970	1980	1990	2000
Quantity	206	760	1,980	6,808	2,200	1,100

(Source: Ministry of Agriculture Forestry and Water Economy)

Existing legislative framework

The Law on Production of Poisons (SFRJ - Official Gazette No. 18/1976) and the Law on Trade of Poisons (SFRJ - Official Gazette No. 18/1976), being two important legal instruments concerning POPs pesticides are adopted as valid regulations stated in Article 5 of the Constitution of the Republic of Macedonia.

These two laws deal with the following issues: conditions of pesticides production, packaging, shipping, declarations, labeling, application, determining the toxicity level, proper wrapping materials, storage, procedure for the collection and destruction of obsolete pesticides including their packaging, instruction on proper application and cautions for the users (consumers). These two Laws contain suitable regulations stating many precise criteria:

- Regulation stating the criteria for classifying poisons in group of poisons and methods of determining the toxicity level of certain poisons (SFRJ - Official Gazette No. 1/83, 79/91);
- Regulation on labeling of poisons on the domestic market (SFRJ - Official Gazette No. 32/86);
- Regulation on the procedures for destruction of obsolete poisons including their packaging and method of their withdrawal from the market (SFRJ - Official Gazette No. 7/83);
- Decision for determination of the List of poisons allowed for trade (SFRJ - Official Gazette No. 59/82, 7/84, 33/88, 9/86 and 18/87).

The Ministry of Health is a national institution for enforcement and control of the above-mentioned regulation.

Trade of Poisons such as Aldrin, Dieldrin, Hexachlorbenzene, Heptachlor and Chlordane as Persistent Organic Pollutants are not allowed under the Law on trade of poisons.

Toxaphene, Endrin and DDT are stated in the list of toxic substances, the trade and use of which are allowed. Although, with special permit of the Minister, it is permitted to import and use these three pesticides, according to the evidence at the disposal of the Ministry of Agriculture, Forestry and Water Supply and veterinary practice, these substances are not marketed or used in the Republic of Macedonia.

In the decision made on the classification of goods for export and import (Official Gazette of R. M. No. 49/2002) under register No. 2903 62 00 00, Hexachlorbenzene, although excluded from the list of permitted toxic substances for trade and use, is allowed to be imported and used with special approval from the Ministry of Health.

Pesticides used in agriculture are controlled by suitable regulations, such as:

- Law on Plant Protection (Official Gazette of R.M. No. 25/98 and No. 6/2000);
- Regulation on the criteria of the Book of Rules for granting licenses for trading in plant protection substances (Official Gazette of R. M. No. 65/2001 and No. 99/2003);
- Book of Rules on the conditions to be met by legal entities concerning the equipment, instruments and structures used for testing plant protection substances (Official Gazette of R. M. No. 54/2001);
- Book of Rules on the conditions to be met by legal entities concerning the equipment, instruments and structures used for the production, wholesale and retail, of plant protection chemicals and the content and the way of reporting on these activities (Official Gazette of R. M. No. 54/2001);
- Book of Rules on the method of declaring plant protection chemicals prior to trade and use (Official Gazette of R. M. No. 54/2001);
- List of chemicals for plant protection permitted for application.

The exclusion of POPs pesticides from use in agriculture is based on the principles for the registration of plant protection chemicals, arising from the Law and the Book of Rules on plant protection having been based on data from and directives of the World Health Organization, the International Code of Conduct on the Distribution and Use of Pesticides, the UNEP Code of Ethics on the International Trade in Chemicals and EU Council directives such as:
Council directive 91/414/EEC on the trade in plant protection chemicals; including also the technical amendments to the Annexes and especially Directive 91/43/EEC, being stated in Annex VI "Uniform principles for the evaluation and authorization of plant protection chemicals."

- Council Directive 79/117/EEC prohibiting the placement on the market and use of plant protection products containing certain active substances, as amended by Directive 91/188/EEC.

- Directive 67/548/EEC on the classification, packaging and labeling of hazardous substances.

- Directive 78/631/EEC on the classification, packaging and labeling of hazardous substances (pesticides).

- Directive 90/311/EEC on free access data in respect of the environment, etc.

The national institution responsible for enforcement and control according to the above-mentioned regulation is the Ministry of Agriculture, Forestry and Water Supply through the following departments:

- Plants Protection Administration

- Government Inspectorate for Agriculture

- Authorized scientific and professional institutions and laboratories involved in confirming the quality, efficiency, limitations and exclusions from use of plant protection chemicals are:

  • PSI (Public Scientific Institution), Institute of Agriculture – Skopje;

  • The Faculty for Agriculture and Food – Skopje;

  • PSI Institute for Southern Crops - Strumica;

  • PSI Institute for Tobacco – Prilep.

The Law on Medicines, Additional Remedies and Medical Aids (Official Gazette of R. M. No. 21/98) specifies the conditions, registration principles and approval for the use of pesticides in animal health, such as Toxaphene, Endrin and DDT. According to the above-mentioned Law, the list of medicines being used in veterinary medicine was approved for the period between 1 June 1997 and 1 June 2002 (Official Gazette of R. M. No. 68/2002).

The Ministry of Agriculture, Forestry and Water Supply – Veterinary Administration is the national institution responsible for control and practical application.

2.3.2 Assessment with respect to Annex A, Part II chemicals (PCBs)

In the Republic of Macedonia, most of the equipment and the total amount of insulating oils are imported.

Preliminary inventory was carried out based on the total amount of equipment in the country, the age and the type of equipment.

Based on the field analyses there are indicators that approximately 45-50% of the equipment is contaminated or cross contaminated with PCBs.

Further actions require identification, detailed analysis and inventory of the transformers oils quantities of liquid dielectric.

It must be considered that stocks of PCB containing spare oils still exist. Their quantities should be determined during the implementation of the NIP

2.3.2.1. Introduction

PCBs (Polychlorinated Biphenyls) belong to the group of POPs (Persistent Organic Pollutants). PCBs have serious health and environmental effects, including carcinogenicity, reproductive impairment, and immune system changes. PCBs are extremely stable and perfect isolators and therefore it was common to use PCBs as cooling fluids in electrical equipment such as transformers and capacitors. These closed systems were mainly installed in sensitive areas like airports, hospitals and public buildings. Furthermore, PCBs were also used in open systems such as paints in the car industry, sealants in the construction industry, etc. As these materials are usually not labeled as hazardous waste at the time of disposal, PCBs find their way into the environment.

Although PCBs had already been synthesized in 1866 for the first time, commercial production began only in 1929 at the American Monsanto-Chemical Company under the trade name “Ascarel.” PCBs are colorless liquids and a class of chlorinated organic compounds. Depending on the number of chlorine atoms in their molecules, their physical, chemical and toxicological properties vary considerably. A total of 209 PCB compounds with the same basic organic structure but with a varying number of chlorine substitutes could be possible, but only approximately 50 of these compounds have been found in commercial mixtures. After World War II its production also started in Europe and in the late 1960s the maximum production limits were reached with over 60,000 tons per year.

PCBs are only very slightly volatile and the greatest danger is ingestion of contaminated food and absorption of these substances through the body surface, for example, due to splashes while working with PCB containing equipment. In addition, PCBs adsorb into dust particles and thus can enter the respiratory organs. Depending on the work to be performed, appropriate personal protective measures must be taken. Extensive safety measures should always be undertaken when handling PCBs, due to their bioaccumulative nature.

PCBs find their way into the environment when PCB containing materials and products – which have not been identified as such – are removed, dumped or incinerated. The former use of PCB containing materials in the construction industry can constitute a potential health risk for their user in case of long-term exposure.

PCBs usage in the Republic of Macedonia

According to available information, there are PCB containing electrical units in various industries in use. Apparently, the responsible persons operating these equipments are not always aware of the problems of PCB cooling fluids. Due to the lack of legal regulations and procedures for maintenance and disposal, there is a serious risk of incidents causing cross contamination and relevant hazard to the environment and human health.

The information in tables 2.21 to 2.27 should be regarded only as a preliminary inventory of potential PCB containing equipment.

Table 2.21: Potential Owners of PCB Containing Equipment in Macedonia - ESM

Transmission and Distribution	
Electric Power Company of Macedonia (ESM)	Transmission and distribution of electricity
Electric Transmission and Distribution Branches	Transmission of electricity
Thermal and Hydro-Electric Power Stations (Production)	
TEPS Bitola	Production of electricity
TEPS Oslomej	Production of electricity
TEPS Negotino	Production of electricity
HEPS Mavrovo	Production of electricity
HEPS Tikvesh	Production of electricity
HEPS Shpilje	Production of electricity

Table 2.22: Potential Owners of PCB Containing Equipment in Macedonia – Other Stakeholders

Enterprise	POPs sources
Cement factory «USJE» - Skopje	Cement factory
FENIMAK – Kavadarci	Ferro-nickel industry
EMO – Ohrid	Electrical industry and engineering
Chemical Industry – Veles	Chemicals processing
Steelworks	Iron and steel industry
MZT (Metal works)	Factory for gray, nodular cast iron and Al-Si alloys
OKTA – Skopje	Oil refinery
Zinc and lead smelter – Veles	Zinc and lead smelter
Alumina – Skopje	Aluminum semi-finished products, metal constructions
OHIS – Skopje	Organic chemistry industry
Teteks – Tetovo	Textile industry
Macedonian railways	Railway transportation
Rade Konchar	Production and maintenance of transformers
Zletovo Batteries	Production of batteries

Representative samples have been checked for PCBs, and results show that approximately 45-50% of the transformers are contaminated. The contamination was in all cases above 50ppm. Unintentional cross-contamination by transformer manufacturers, oil manufacturers or during maintenance services within the ESM workshops could be the reason for this high percentage. Furthermore, PCB contamination could have been caused by the use of cisterns or drums wherein PCBs had been stored earlier. The same applies to pumps, hoses and other equipment that were once used for PCBs.

It is obvious that only a complete inventory including visual checks of all electrical units and a strict analytical investigation can result in a comprehensive database about the actual PCB situation in Macedonia. The following tables list the result of the first phase of the inventory exercise, the assessment of the transformer units and their oil content.

Table 2.23: Overview of Transformers (ESM and other Stakeholders) From the 9,297 units, 3,955 transformers are from the ESM whereas the remaining 5,342 are from other stakeholders.

Power (kVA)	Number of Units	Oil Quantity (Tons / Unit)	Total Oil Quantity (Tons)
30	33	0.07	2
50	1,263	0.10	126
100	1,229	0.19	234
160	998	0.25	250
250	1,562	0.34	531
400	1,461	0.38	555
630	2,452	0.60	1,471
1,000	280	0.90	252
1,600	19	1.10	21
Total	**9,297**		**3,442**

Table 2.24: Transformers with Highest Voltage Level 35, 110, 220, and 400 kV from Power Production in ESM

Facility	Total Number of Units	Total Oil Quantity (Tons)	Total Oil Quantityper Facility (Tons)
SPP «Bitola»	12	360	397
SPP «Oslomej»	5	102	111
SPP «Negotino»	7	123	132
HEPS «Mavrovo»	12	231	242
HEPS «Tikves»	4	72	79
HEPS «Spilje»	4	74	79
HEPS «Globocica»	3	47	50
Total	**48**	**1,010**	**1,088**

Table 2.25: Number of Transformers with Highest Voltage Level 35, 110, 220, and 400 kV from Transmission and Distribution in ESM

Facility	Total Number of Units	Total Oil Quantity (Tons)	Total Oil Quantity per Facility (Tons)
ESM Transmission and Distribution	249	3.242	3.362

Table 2.26: Overview of Transformers from Other Stakeholders (Direct Consumers of ESM)

Facility	Number of Units	TotalOil Quantity(Tons)
Cement Factory	2	40
FENIMAK	7	209
Chemical Industry Veles	2	16
Bloomery	18	294
MZT	23	15
OKTA	no information available yet	no information available yet
Smeltery «Veles»	no information available yet	no information available yet
Alumina	no information available yet	no information available yet
OHIS	no information available yet	no information available yet
Teteks	no information available yet	no information available yet
Macedonian Railways	no information available yet	no information available yet
Total	**52**	**574**

Table 2.27: Estimated quantity of solid (weight of empty transformers) and liquid in transformers based on oil content [tons]

	Location	total oil	total solid	solid and liquid
1	ELECTRO SKOPJE	1.020.25	2.380.58	3.400.83
2	KUMANOVO	166.05	387.45	553.50
3	KRIVA PALANKA	38.64	90.16	128.80
4	PROBISHTIP	31.2	72.80	104.00
5	KOCHANI	73.51	171.52	245.03
6	VINICA	34.21	79.82	114.03
7	DELCEVO	40.43	94.34	134.77
8	BEROVO	30.05	70.12	100.17
9	S.NIKOLE	41.7	97.30	139.00
10	SHTIP	109.52	255.55	365.07

	Location	total oil	total solid	solid and liquid
11	RADOVISH	51.49	120.14	171.63
12	STRUMICA	118.52	276.55	395.07
13	GEVGELIJA	88.6	206.73	295.33
14	NEGOTINO	47.3	110.37	157.67
15	KAVADARCI	72.64	169.49	242.13
16	VALANDOVO	20.62	48.11	68.73
17	VELES	124.63	290.80	415.43
18	PRILEP	133.75	312.08	445.83
20	BITOLA	226.03	527.40	753.43
21	RESEN	50.11	116.92	167.03
22	OHRID	111.15	259.35	370.50
23	STRUGA	91.31	213.06	304.37
24	KICEVO	67.65	157.85	225.50
25	DEBAR	78.55	183.28	261.83
26	MAK.BROD	79.45	185.38	264.83
27	KRATOVO	24.03	56.07	80.10
28	GOSTIVAR	126.21	294.49	420.70
29	TETOVO	344.38	803.55	1.147.93
	Total	**3.442**	**8.031**	**11.473**

Table 2.28: Total Quantities of Transformer Oil (not including ESM)

In use	8,268 tons
Stockpiles (PSE)	110 tons
Waste oils	21 tons
Annual consumption	577 tons

Table 2.29: Import of equipment containing Liquid Dielectric Transformers

Year	up to 650 kVA	650-1,600 kVA	1,600-10,000 kVA	> 10,000 kVA
1992	15	1	0	0
1993	13	32	0	0
1994	680	0	10	1
1995	41	78	13	0
1996	42	17	0	1
1997	16	0	0	4
1998	0	1	0	2
1999	110	6	3	1
2000	91	7	0	13
2001	72	1	0	0
2002	460	5	0	0

The above table shows that in the Republic of Macedonia, significantly large quantities of equipment containing insulating oils and transformer oils are imported. Further actions require identification, detailed analysis and inventory of the transformers oils.

As PCBs were also widely used in hydraulic oils, mainly due to their high fire resistance, it must be considered that some relevant quantities of PCB-containing hydraulic oils were and are still in use in the Macedonian mining industry. The Working Group on PCBs estimates the following quantities stated in table 2.30. Few samples of hydraulic oil have been analyzed by a Dexsil L2000 analyzer. Due to the limited number of samples, the results could not be used to extrapolate for the whole country, however it could be mentioned that all the samples contained more than 50 ppm PCBs.

Table 2.30: Annual Consumption of Hydraulic Oil

Branches	**Quantity (Tons/Year)**
Electric industry	23
Power Supply	64
Construction industry	53
Chemical and pharmaceutical industry	5
Paper and cellulose industry	9
Leather-processing industry	2
Communal services	28
Metallurgy	187
Transportation	21
Textile industry	5
Agriculture	27
Total	**424**

It can be assumed, that the stakeholders of potential PCB-containing equipment are known. It is of great importance to provide the responsible departments of MEPP with strong working tools, such as a PCB regulation, in order to enable them to carry out a detailed inventory including the analytical testing of the electrical devices. The inventory should be followed by the phasing-out of PCB containing devices according to a list of priorities (faulty and leaking equipment first, then electrical devices at frequented places like public buildings, schools, hospitals, etc.).

A detailed database of the national material and substance import such as for transformers and all kinds of technical cooling fluids and oils has only been available since 1992. Due to the general abandonment of the use of PCBs in the late ‘80s, this information is useful only to a certain extent. It must be considered that stocks of PCB-containing spare oils still exist. All equipment, regardless of its age, should be inventoried, sampled and analytically tested.

Existing legislative framework

Hazardous waste management is a part of solid waste management in Macedonia. Several laws regulate it, such as:

- Law on the Protection and Promotion of the Environment and Nature (OG RM 69/96, 13/99, 41/00, 45/02)

- Law on Waste (OG RM 37/98),
- Law on Waste Management (OZ RM 68/04) (operational in the second quarter of 2005 and will complete repeal Law on Waste OG RM 37/98)
- Law on Communal Affairs (OG RM 45/97, 13/99)
- Law on Local Self-Government (OG RM 52/95)
- Law on territorial organization of local authorities in RM (OZ RM 55/04)
- Law on the Ratification of the Basel Convention (international shipment of hazardous waste) (OG RM 49/97)

With the new Law on Waste Management, the MOEPP is responsible for management of the hazardous waste. The final set-up will depend on the upcoming decentralization process and depends on the many upcoming laws.

The Ministry of Environment and Physical Planning is responsible for the enforcement of the provisions of the Basel Convention as well.

2.3.3 Assessment with respect to Annex B chemicals (DDT)

In the Republic of Macedonia the import and use of DDT has been banned since 1982.

The last application was in 1973 for plant protection of forests areas.

There is a preliminary inventory on DDT residues in soil and cow milk, carried out by the POPs Unit during 2003.

Obsolete stocks of DDT are estimated at about 2.5 tons. Its management is included in the NIP action plan. Further analyses for potential stockpiles should be carried out in the country.

General information

DDT, along with Toxaphene and Endrin, is stated in the list of toxic substances with controlled trade and use. The Ministry of Agriculture, Forestry and Water Economy conducts the continued evidence of its trade and application. The records show that no import in the Republic of Macedonia. The last application of DDT, as insecticide was recorded in 1976 for plant protection of the forests. However, there are unofficial reports for illegal import and application of DDT for plant protection in the agricultural regions bordering Albania and Greece.

For malaria eradication, DDT had been used most frequently between 1947-1959. Since that time, there is still a large amount of obsolete stock in the storage house of Health Protection Agency (2,500kg) that need to be destroyed in environmentally sound manner.

The problem of Malaria and the use of DDT in the Republic of Macedonia

The problem of malaria had existed in these regions since the beginning of the century, with special emphasis on the Dalmatian coast, the Panonia valley and the inner parts of the Balkans. In the period between the two world wars, it made a tremendous impact on public health and social developments in Macedonia, causing a significant increase in the mortality rate.

The following malaria vectors were identified: *Anopheles maculipennis, Anopheles superpietus, Anopheles bifurcates, Anopheles hircanus* and *Anopheles nigripes.* The main vectors of malaria disease among them were *A. maculipennis* and *A. superpietus.* The most widely spread was *Anopheles maculipennis* with the subspecies of *A. maculipennis* var. *typicus*; *A. maculipennis* var. *messae*; *A. maculipennis var. subalpinus*, out of which *A. subalpinus* was the most dangerous vector of malaria. The first larvae used to develop in March, and the first generation during the months of April and May, depending on the temperature. Under the climatic conditions of Macedonia nine to ten generations could develop during the year, the most frequent one being in July and August.

The malaria eradication program commenced in 1946 with the first applications of DDT. It was used both as a larvicide and an adultocide.

DDT as larvicide - The swamps in a 2-3 km radius around towns and other inhabited areas were treated, up to 1200 a.s.l. The biological potential of the vector mosquitoes was controlled by 200-300 g/day of 26% DDT in a 2-5% solution. The applications were carried out manually, by machines or by planes. During 1946 a total area of 247 200 m? was treated with DDT. In 1947 DDT was used to control the mosquito larvae in an area of 20 431 196 m?. The rice fields in Kocani and Strumica had also been treated on an area of 39705 ha. These treatments were regularly carried out until 1958. The total amount of DDT spent as larvicide in this period was 23 910 kg.

As an adulticide, DDT was used for treatment in residential areas (ceiling and side walls of houses, buildings and stables). These residual treatments were carried out to control the adult mosquitoes, by 26% emulsion in dosages of 0.8 up to 1.4 g/m^2 of technically clean DDT. The treatments were usually applied during May 1946 five times per year and from 1949 three times per year.

In 1973 the Government of the Socialist Federative Republic of Yugoslavia (SFRJ) and the World Health Organization (WHO) carried out the final eradication program. In the framework of this project all the hot spots of the disease were located, and the qualitative assessment of mosquito vector populations was carried out. Then an extensive eradication started. The following table demonstrates the applied quantities.

Table 2.31: Regions treated with DDT in the Republic of Macedonia in 1973

Localities	Treated surface [ha]
Crna Reka and Pelagonija	25 000
Selechka Reka and Peshternica	15 000
Vardar and Anska Reka, between the towns of Gevgelija and Valandovo	2 000
Vardar between the towns of Tetovo and Gostivar	1500
Vardar and Crna Reka between the towns of Negotino and Kavadarci	1 500
Babuna and Topolka near Veles	600
Vardar in the region of Skopje (Katlanovo swamp) and the river Pchinja	1 500
Strumichka Reka (Monospitovo swamp)	8 000
Bregalnica between the towns of Shtip, Kochani and Zletovo	3 000
Crn Drim near Struga	600
Golema Reka near Lake Prespa	3 500
Svetinikolska Reka	800
Total	63 000

(Source: National Agency for Health Protection)

There are some data on the residuals of pesticides applied in the past decades in the Republic of Macedonia. In order to have a general idea about the level of contamination with DDT and its metabolites, during the inventory exercise, soil samples have been analyzed from the regions that had been most frequently treated with this pesticide. Samples were taken from the Katlanovo swamp, the rice fields in Kocani and the Monospitovo swamp. In the same regions samples from cow milk were also analyzed along with a control sample from a region that had never been treated with DDT (Berovo). All samples have also been analyzed for the presence of lindane (γ-HCH).

Table 2.32: Concentration of DDT and its metabolites and γ-HCH in soil samples [mg/kg]

	1	2	3	4	5	6	7
2,4 DDE	1.37	1.73	1.49	0.94	1.25	1.05	0.73
4,4 DDE	6.43	1.45	2.15	ND	0.39	1.06	1.08
2,4 DDD	0.09	0.82	0.26	ND	0.14	0.30	0.35
4,4 DDD	1.40	1.01	0.44	0.75	0.18	0.66	0.38
2,4 DDT	0.83	3.80	1.63	6.40	3.42	1.59	8.35
γ-HCH	2.17	4.08	2.60	1.22	2.38	4.17	4.83

(Source: POPs Unit and the Institute of Agriculture)

1 - Kocani, vicinity of the town – depth 20 to 40 cm

2 - Kocani, v.Trkanje – depth 20 to 40 cm

3 - Kocani, v.Obleshevo – depth 20 to 40 cm

4 - Strumica, v.Monospitovo – depth to 20 cm

5 - Strumica, v.Monospitovo – depth 20 to 60 cm

6 - Katlanovo – depth to 20 cm

7 - Katlanovo – depth 20 to 60 cm

Table 2.33: Concentration of DDT and its metabolites and γ-HCH in cow milk samples [mg/g milk fat]

	1	2	3	4	5
2,4 DDE	3.10	4.26	3.47	3.07	4.58
4,4 DDE	7.88	6.89	11.86	4.79	4.19
2,4 DDD	ND	3.16	ND	3.35	ND
4,4 DDD	ND	ND	ND	ND	ND
2,4 DDT	ND	ND	ND	ND	ND
γ-HCH	4.38	2.48	0.67	1.10	1.97

(Source: POPs Unit and the Institute of Agriculture)

1 - Dairy Enterprise Bitola, region of Pelagonia

2 - Dairy Enterprise Bitola, region of Pelagonia

3 - Region of Strumica, v. Monospitovo

4 - Region of Berovo

5 - Dairy farm in the Katlanovo region

According to these results, it is obvious that the DDT concentration in cow milk is at a low level, but it is recomended to go through with additional analyses on different food products, particularly on imported food.

2.3.4 Assessment of releases from the unintentional production of Annex C chemicals (PCDD/PCDF, HCB and PCBs)

The preliminary inventory on Dioxins and Furans emissions was done according to the recommendations of the UNEP Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases.
According to the results of this inventory, the major source of PCDDs and PCDFs releases is uncontrolled combustion.
A new law prescribes the necessity for establishing a national cadastre for collecting the necessary information for assessing dioxin and furan releases.
Because of the lack of information and financial resources, PCBs and HCB emissions are not included in the inventory. It is planned to be developed during the preparation of the detailed POPs release inventory.

General information

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), commonly referred to as 'dioxins' have received significant attention in the press in recent years, mainly due to public concern over potential dioxin emissions from municipal waste incineration as proposed by local and regional authorities in their Waste Management Plans. Several of these Waste Management Plans have recommended thermal treatment as a means of waste destruction. There is currently no mass thermal treatment facility for municipal solid waste in Macedonia.

No dioxin emission inventory currently exists for Macedonia. This emission inventory is therefore the first carried out in Macedonia.

It should be noted that PCDDs and PCDFs are referred to collectively throughout the following text as "dioxins." The standard unit of measurement for dioxins is grams of toxic equivalent (g TEQ). Toxic equivalency factors have been developed for individual PCDD/PCDF congeners allowing the quantification of complex congener mixtures as a single numerical descriptor.

A number of polychlorinated biphenyls (PCBs) are also reported to exhibit dioxin-like behavior. There are 209 PCB congeners. However, only 13 of these congeners are reported to have dioxin-like toxicity (USEPA 1998). They are those PCBs which have four or more chlorines with a single or no substitution in the ortho position. Mixed brominated and chlorinated biphenyl congeners are also reported to have dioxin-like toxicity though very little is currently known about these compounds. It is reported that the toxicity of dioxin-like PCBs are generally lower than known toxic PCDDs and PCDFs although their environmental concentrations are usually higher.

Unlike dioxins that are unwanted by-products and serve no useful purpose, PCBs were produced in large quantities for

use in products such as dielectrics, hydraulic fluids, plastics and paints. PCBs may be released through the use or disposal of PCB containing products and can be formed as by-products during the manufacture of certain organic chemicals and as products of incomplete combustion of certain materials (USEPA 1998).

Emission sources in the Republic of Macedonia

During the inventory exercise, the UNEP *Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases* was used to calculate the annual dioxin and furan releases. Task teams could not collect accurate information for one particular year for the inventory. Therefore, it was decided that for this preliminary inventory for each source category the most representative year would be selected. During the detailed inventory part, the selected representative year is indicated.

The Toolkit addresses direct releases and transfers of PCDD/PCDF in the following five compartments and/or media.

- Air
- Water (fresh, ocean, estuarine; then subsequently into sediments)
- Land (soil)
- Waste (including liquid, sludge, and solid residues, which are handled and disposed of as waste or mainly recycled)
- Products (such as chemical formulations or consumer goods such as paper, textiles, etc.)

Due to the lack of funds and shortage of time during the inventory process, it was decided that only the dioxins and furans release inventory would be developed. The PCBs and HCB release inventories will be developed during the implementation of the National Implementation Plan.

In this report, a short summary of the PCDD/Fs inventory is presented. For further information, please refer to the Inventory of Dioxins and Furans in the Republic of Macedonia Skopje, June 2003.

Table 2.34 describes the summary of the dioxin and furan releases. In figure 1 and 2 the results are also presented for easier reference. It can be concluded that source category No 6, Uncontrolled Combustion Processes have the biggest contribution to the PCDD/Fs releases; therefore, most of the release reduction strategies in the action plan part address the industries in this particular source category.

Table 2.34: Preliminary dioxin inventory

Category	Source Categories	Annual Releases [g TEQ/a]				
		Air	Water	Land	Products	Residue
1	Waste Incineration	22.000	0.000	0.000	0.000	0.100
2	Ferrous and Non-Ferrous Metal Production	4.660	0.000	0.000	0.000	5.600
3	Power Generation and Heating	1.422	0.000	0.000	0.000	2.100
4	Production of Mineral Products	0.886	0.000	0.000	0.000	0.800
5	Transportation	0.284	0.000	0.000	0.000	0.000
6	Uncontrolled Combustion Processes	133.560	0.000	0.000	0.000	0.000
7	Production of Chemicals and Consumer Goods	0.006	0.000	0.000	0.000	0.012
8	Miscellaneous	0.000	0.000	0.000	0.000	0.000
9	Disposal/Landfill	0.000	3.141	0.000	0.000	0.000
1-9	**Total**	**166.0**	**3.141**	**0.0**	**0.0**	**8.612**

Main source category I. Waste incineration

In Macedonia currently, there is only one facility which belongs to this main source category. It is the Drisla medical waste incinerator. Table 2.35 details the annual dioxin releases from this plant.

Currently there are no municipal waste incinerators in the country, therefore municipal waste is transported to landfill sites and is burnt there in a uncontrolled manner.

Table 2.35: Waste incineration

Subcategory		Annual Releases g TEQ/year				
		Air	Water	Land	Product	Residue
3	**Medical/hospital waste incineration**					
	Controlled, batch, no or minimal APCS	22	NA	NA	NA	0.11

The public company of Drisla organizes the collection of waste from medical institutions in Skopje. This management includes: collection and transport of the medical waste (black and yellow plastic bags, containers for needles and other blades, containers for blood), based on a contract (at least twice a week per hospital). The incinerator works with a capacity of 200 kg, per hour and at the temperature of 750°C different infectious, toxic solid waste materials are burnt. The facility works 12 hours daily with minimal air pollution control.

Main source category II, Ferrous and non-ferrous metal production

The iron and steel industry as well as the non-ferrous metal industry constitute a very significant part of the Macedonian industry. The most relevant emissions are those into the air. Furthermore, the processing of secondary materials and the reuse and recycling of solid residues constitute a large part of industrial activities. Ores and concentrates contain quantities of certain metals other than the prime target metal. Therefore, processes are designed to obtain a pure target metal and to recover other valuable metals as well. The latter tend to concentrate in the residues from the primary processes and in turn, these residues form the raw material for other metal recovery processes. Lastly, filter dusts can be recycled within the same plant or used for the recovery of other metals at other non-ferrous metal installations by a third party.

Table 2.36: Details the dioxin releases to air from 1990 to 2000. Year 2000 was considered as the baseline for this source category.

Total PCDD/PCDFs emission to air from ferrous and non-ferrous metallurgy (1990-2000) (g/y)										
	Mn sinter	Steel	Aluminum	Feni pellets	Ferro-alloys	Manganese-alloys	Sinter Veles	Lead Zinc	Copper molding	Total g annually
1990	0,123	2,466	1,326	0	0,008	0,00023	0,913	0,008	0,160	5,007
1991	0,052	2,211	1,174	0	0,007	0,00018	0,900	0,009	0,092	4,448
1992	0,088	1,743	0,772	3,234	0,010	0,00038	0,812	0,008	0,027	6,697
1993	0,065	1,382	0,722	3,444	0,007	0,00012	0,788	0,007	0,016	6,435
1994	0,002	0,685	0,748	3,054	0,006	0,00003	0,650	0,006	0,011	5,164
1995	0,026	0,321	0,556	3,756	0,007	0,00011	0,766	0,006	0,015	5,456
1996	0,065	0,234	0,588	2,298	0,006	0,00034	0,954	0,008	0,020	4,175
1997	0,084	0,296	0,834	4,062	0,005	0,00021	0,972	0,009	0,047	6,312
1998	0,193	0,486	0,877	4,446	0,009	0,00041	0,956	0,008	0,080	7,060
1999	0,232	0,490	0,762	1,458	0,006	0,00024	0,866	0,008	0,076	3,900

Table 2.37: Total PCDD/PCDFs emission to residues from ferrous and non-ferrous metallurgy (1990 to 2000) (g/y).

Total PCDD/PCDFs emission to residues from ferrous and non-ferrous metallurgy (1990 to 2000) (g/y).							
Year	Steel	Sinter Manganese	Iron mould	Steel mould	Aluminum	Pellets FeNi	Rest total
1990	3,700455	0,00092	0,02887	0,025	3,53640	0	7,291648
1991	3,31746	0,00039	0,02417	0,050	3,13160	0	6,523629
1992	2,615775	0,00066	0,01355	0	2,06000	0,01617	4,706156
1993	2,073585	0,00049	0,00589	0	1,92760	0,01722	4,024794
1994	1,02759	0,00002	0,00614	0	1,99640	0,01527	3,045425
1995	0,482145	0,00020	0,00311	0	1,48360	0,01878	1,987836
1996	0,351525	0,00049	0,00214	0	1,56960	0,01149	1,935243
1997	0,44541	0,00063	0,00239	0	2,22440	0,02031	2,693144
1998	0,730245	0,00145	0,00880	0	2,34000	0,02223	3,102735
1999	0,736365	0,00174	0,00850	0	2,03320	0,00729	2,787102
2000	2,56365	0,00127	0,00875	0	3,05640	0	5,630071

There is no data about releases to water, soil and products of the industries of source category No 2. The foundries for ferrous metals comprising the copper alloys, mainly brass and some bronze do not play a large part in the emission of PCDD/F in Macedonia. The only danger, which can be caused, is at the local level in the area near the foundries, such as Cuprum, so it requires special observation and the following of their work and eventual emission calculation.

Main source category No. III, Power generation and heating

This category includes power stations, industrial furnaces and heating installations, which are fired with fossil fuels, biogas and biomass only. The main releases could be into the air and residues. Releases into the soil can occur if residues are dumped on the ground. The preferred basis to report emissions of PCDD/PCDF is the heating value of the fuel. Because of that, this main source category relates the default emission factors derived from available data to the heating value of the fuel. Thus, instead of reporting default emission factors in g I-TEQ/t of fuel, these factors are given in g I-TEQ/TJ of heat input. The reason for this is based on the extremely wide variety of fuels used for power generation.

The following table demonstrates the major sources of dioxin and furan releases from this source category.

Table 2.39: Annual releases of PCDD/Fs from power generation and heating (year 2000)

		Source Categories	Production	Annual release				
Sub cat.	**Class**		**TJ/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**
		Power Generation and Heating/Cooking		**Air**	**Water**	**Land**	**Products**	**Residues**
a		**Fossil fuel power plants**	82,002	0.629	0	0	0	0.8
	1	Fossil fuel/waste co-fired power boilers		0.000				
	2	Coal fired power boilers	58,628	0.586				0.8
	3	Heavy fuel fired power boilers	15,427	0.039				
	4	Light fuel oil/natural gas fired power boilers	7,947	0.004				
b		**Biomass Power Plants**	0	0.000	0	0	0	0. 0
	1	1. Other biomass fired power boilers		0.000				
	2	2. Wood fired power boilers		0.000				0.0

		Household heating and cooking - Biomass	7,627	0.763	0	0	0	0.2
d	1	Contaminated wood/biomass fired stoves		0.000				0.0
	2	Virgin wood/biomass fired stoves	7,627	0.763				0.2
e		**Domestic heating - Fossil fuels**	1,629	0.030	0	0	0	1.2
		Coal fired stoves	235	0.016				1.2
		Oil fired stoves	1,394	0.014				
		Natural gas fired stoves		0.000				
		Power Generation and Heating/Cooking		1.422	0	0	0	2.1

Fossil fuel/waste co-fired power boilers

There are no Power Boilers in the Republic of Macedonia using fossil fuel in a combination with co-combustion of waste or sludge.

Coal fired power boilers

The main combustion facilities in the Republic of Macedonia are Thermal Power Plants using lignite. Namely, the majority production of electricity in the Republic of Macedonia, about 80%, is based on the thermal power plants: EMPS “Bitola” – Bitola, EMPS “Oslomej” – Kicevo and TPS “Negotino” - Negotino.

Heavy fuel fired power boilers

Eight kilometers downstream from Negotino, on the right bank of the river Vardar in the area of Dubrovo, TPP “Negotino” is situated. With an installed capacity of 21 OMW and possible annual production of 1,2 billion kilowatt-hour energy it uses crude oil as an operating fuel and represents an important capacity in the Macedonian electricity power industry. Its active role is expected to be realized in dry years.

Light fuel oil/natural gas fired power boilers

Light oil is fired mainly in industry for heating production (metallurgy, food production etc.) and in small heating boilers for space heating. A natural pipeline in the Republic of Macedonia has been in use for five years. Only one heating plant from central heating plants in Skopje uses natural gas for heating production (50 % heavy oil and 50 % natural gas). Only a few factories in Skopje use natural gas for their heating boilers.

Biomass power plants (wood, straw, other biomass)

Only a very small number of companies use wood for power and heat production. Metallurgy is the main consumer using wood for power production in furnaces. The most representative is the ferrochromium production plant Jugohrom in Jegunovce.

Landfill, biogas combustion

There is no biogas production from landfill.

Household heating and cooking with biomass (wood, other biomass)

Heating and cooking in residential households with wood is a common practice in the Republic of Macedonia. This is very specific for the villages and other cities except Skopje, because of the absence of central heating plants. Natural gas is not in use in the Republic of Macedonia for heating and cooking.

Main category IV, Production of Mineral Products

Table 2.40: Annual releases of PCDD/Fs from production of mineral products (year 2000)

		Source Categories	Production	Annual release				
Sub cat.	Class		t/a	G TEQ/a	g TEQ/a	g TEQ/a	g TEQ/a	G TEQ/a
		Production of Mineral Products		Air	Water	Land	Products	Residues
a								
		Cement kilns	801,099	0.481	0	0	0	0.080
	1	Wet kilns, ESP temperature >300 °C		0.000				0.000
	2	Wet kilns, ESP/FF temperature 200 to 300 °C	801,099	0.481				0.080
	3	Wet kilns, ESP/FF temperature <200 °C and all types of dry kilns		0.000				0.000

b		**Lime**	33,951	0.340	0	0	0	0
	1	Cyclone/no dust control	33,951	0.340				
	2	Good dust abatement		0.000				
c		**Brick**	58,341	0.012	0	0	0	0
	1	Cyclone/no dust control	58,341	0.012				
	2	Good dust abatement		0.000				
d		**Glass**	1,331	0.000	0	0	0	0
	1	Cyclone/no dust control	1,331	0.000				
	2	Good dust abatement		0.000				
e		**Ceramics**	256,417	0.051	0	0	0	0
	1	Cyclone/no dust control	256,417	0.051				
	2	Good dust abatement		0.000				
f		**Asphalt mixing**	30,400	0.002	0	0	0	0.000
	1	Mixing plant with no gas cleaning	30,400	0.002				
	2	Mixing plant with fabric filter, wet scrubber		0.000				0.000
		Production of Mineral Products	1,181,539	0.886	0	0	0	0.080

Cement production

In the cement factory “Usje” Skopje, which is situated in a settled city zone, there have not been any emission measurements from PCDD/F; however there is a control over the outgoing gasses.

Lime production

This source category was assigned as potentially relevant due to large uncertainties, which generate a high maximum emission estimate.

The few results from lime production plants indicate the significant relevance of this kind of industry for the total PCDD/F emissions in Macedonia. Yet, due to the absence of measured results it cannot be ruled out that single plants may be

found in Macedonia, which could have a local impact, such as Veles or Strumica. Additional dioxin measurements at lime producing plants are recommended; investigations should only be carried out if suspicious factors exist that their dioxin emissions might be substantial.

Brick production

The main producer of bricks in Macedonia are Tipo-Skopje, Kiro Cucuk - Veles and in Arbinovo.

Ceramics production

The production process of ceramic is identical to brick making. Ceramic production for home and sanitary uses, as well as refractory materials for the metallurgical industry, is currently undertaken in Macedonia. The main production for home ceramic is in Veles and Skopje; the tiles are produced in Veles and Pehcevo; sanitary ceramic in Strumica, and refractory bricks in Gostivar. Installed capacity for all this production is significant for the Macedonian economy; but in last ten years production was at a very low level. By utilizing the entire capacities of the ceramics production, a more significant contribution to the total emission of PCDD/F in Macedonia can be suspected.

Asphalt mixing

The production of asphalt mixing depends on road construction activity in the country. In the years of greater activity, such as 1999, when the larger highways are constructed, emission of PCDD/F presented a significant part in total emissions from main category 4.

Main category V, Transportation

Currently, there are three types of fuel on the market in Macedonia:

- Leaded fuels – MB 86 and MB 98
- Unleaded – BMB 95 [numbers in the label of the fuel type show the octane number according to the research method (RON)]
- Diesel and Heavy oils

Unleaded fuel was introduced to the market in the middle of the ‘80s for the needs of vehicles with an installed catalytic converter. The share of unleaded fuel in the total consumption of fuel reached 44.7% in 2002. Heavy oil is only used for power generation and therefore it is not included in this source category. The following table summarizes the dioxin and furan releases in 2001.

Table 2.41: Annual releases of PCDD/Fs from the transport sector (statistical data from 2001)

		Source Categories	Consumption	Annual release				
Sub cat.	Class		t/a	g TEQ/a	g TEQ/a	g TEQ/a	g TEQ/a	g TEQ/a
		Transport		Air	Water	Land	Products	Residues
A		**4-Stroke engines**	162,000	0.249	0	0	0	0
	1	Leaded fuel	113,000	0.249				
	2	Unleaded fuel without catalyst		0.000				
	3	Unleaded fuel with catalyst	49,000	0.000				
B		**2-Stroke engines**	0	0.000		0	0	0
	1	Leaded fuel		0.000				
	2	Unleaded fuel without catalyst		0.000				
C		**Diesel engines**	70,000	0.035	0	0	0	0
	1	Diesel engines	70,000	0.035				
D		**Heavy oil fired engines (NA)**	0	0.000	0	0	0	0
	1	All types		0.000				
		Transport		0.284	0	0	0	0

This inventory is an initial analysis, which has to be processed and elaborated in more detail. According to the data received it should be considered whether measurements and analysis should be initiated or the emissions of dioxins and furans in the following phase will be determined in accordance with the statistical data and data received from various sources.

Main category VI, Uncontrolled Combustion Processes

Except for the landfill Drisla, which is under permanent control all other landfills function only as places for the disposal of communal waste. This results in frequent fires due to accidents or arson, which last for a long time with expected emissions of PCDD/PCDF. The public communal enterprises operate about 35 city landfills (outside Skopje), the largest ones of which, such as the ones in Bitola, Prilep, Gostivar, Veles, Kumanovo, Stip, Gevgelija, Negotino, Ohrid, etc., are constantly on fire and therefore they should be treated as the most significant sources of emissions of PCDD/PCDFs. Having in mind the composition of the waste, which is extremely hazardous, it represents a potential source. The following table summarizes the annual PCDD/Fs releases from uncontrolled combustion.

Landfills	Quantity of disposal m^3/day	Quantity of disposal, thousand m^3/year	Mass in thousand t/year	Thousand t of burning (conditionally 50%)	mg TEQ/a
Ohrid	335	100.5	30,15	15,075	15075
Tetovo	330	99	29,7	14,85	14850
Kumanovo	300	90	27	13,5	13500
Kocani	290	87	26,1	13,05	13050
Bitola	250	75	22,5	11,25	11250
Veles	228	68.4	20,52	10,26	1026
Stip	210	63	18,9	9,45	9450
Gostivar	175	52.5	15,75	7,875	7875
Gevgelija	160	48	14,4	7,2	7200
Negotino	150	45	13,5	6,75	6750
Prilep	120	36	10,8	5,4	5400
Kavadarci	110	33	9,9	4,95	4950
Struga	100	30	9	4,5	4500
Vinica	76	22.8	6,84	3,42	3420
Strumica	65	19.5	5,85	2,925	2925
Resen	35	10.5	3,15	1,575	1575
Probistip	34	10.2	3,06	1,53	1530
Total					**133560 mg = 133,56 g**

*emission factor during waste burning from landfills in air: 1000µg TEQ/t

Table 2.42: Calculation of the emission of PCDD/PCDF from waste burning on the landfills for 1993

The additional emissions of dioxins and furans from uncontrolled waste burning in the rural areas is estimated to be about 50% of the total quantity of the waste burnt in the unofficial landfills in Macedonia: It is 66,73 μg TEQ/TJ a year. The total PCDD/Fs releases from the unofficial landfills are estimated at 200,3 g TEQ a year.

Conclusion/recommendation: The state institutions, most of all the inspectorates should actively be included in the monitoring of the conditions at the communal landfills and through application of law acts they should put pressure for sanitation of all permanently burning landfills. Through public campaigns and education, the population can be informed of the consequences of burning waste and other by-products from agriculture, especially in the rural areas.

Main category VII, production of chemicals – consumer goods

Table 2.43: Annual PCDD/Fs releases from production of chemicals – consumer goods

		Source Categories	**Production**	**Annual release**				
Sub cat.	Class		**t/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**	**g TEQ/a**
		Production of Chemicals, Consumer Goods		**Air**	**Water**	**Land**	**Products**	**Residues**
A		**Pulp and paper mills**						
		Sludge	430		0.002			0.043
	1	Kraft process, old technology (Cl2)	430		0.002			0.043
B		**Chemical industry**						
		ECD/VCM/PVC	*12,422*	0.0059	9.32E-05	0	0.000	0.012
	1	Old technology, EDC/VCM, PVC			0			

	2	Modern plants	*6,211*	0.0059	9.32E-05		0.000	0.012
		EDC/VCM and/or EDC/VCM/PVC	6,211	0.0059	9.32E-05		0.0001863	0.012
		PVC only		0	0		0.000	0.000
C		**Petroleum refineries**	0	0	0	0	0	0
	1	All types						
D		**Textile plants**	0	0	0	0	0	0
	1	Upper limit					0	
	2	Lower limit					0	
E		**Leather plants**	0	0	0	0	0	0
	1	Upper limit					0	
	2	Lower limit					0	
		All Main Sectors		0.006	0.000	0	0.000	0.012

Paper factory in Kocani

The production of paper was from rice straw and it is not described in the toolkit. A part of the process for production of dioxins and furans is the process of bleaching with chlorine. That is why those emission factors are taken only for this part of the process. The bleaching of the cellulose has not been done since 1996 and the calculation is made for that period.

Chemical industry

The analysis of the production in OHIS factories has shown that emission of dioxins and furans is possible while producing PVC.

Oil industry

The refinery “OKTA” is the sole refinery in Macedonia. The installed capacity of the refinery is 2,5 million tons of crude oil per year. The OKTA refinery produces every largely used liquid fuel in the given area. The quantity and the quality of the products comply with the market needs, i.e. the current standards.

That is why, in the larger part of the previous period, the needs for oil derivates in Macedonia were provided only by the refinery in Skopje. Only occasionally, a certain part of the derivates was imported because the quantities were not provided fully from the refinery's own production (jet fuel, LPG for ex.) The structure and the capacity of the refinery's technological units and its current technical condition, as well as the staff equipment, enable the production of considerably larger quantities of oil derivates than the current ones. The present level of consumption in Macedonia is only 40% of the installed capacity in the refinery. No emission factors are given in the toolkit.

Textile industry

The textile industry exports 90% of its production. About 70% of the exports go to the countries of the European Union, as well as the USA. The total share of the textile industry in the production sector is 8.8%. The equipment used in the installed production lines of the base primary sector is mainly from the European Union, and the USA. At the final products sector, all the production capacities are equipped with modern machines and equipment from the well-known makers such as Brother, JUKI, etc.

Future development in the textile industry is projected towards the primary sector, especially in revitalization and modernization of the existing production of quality cotton and wool fabrics, yarns, etc. It will be achieved by additional foreign investments. Further development and foreign investment are possible in the ready-made clothing and knitted clothing production, through export-oriented profitable products. POPs emissions can be expected in the processes of bleaching and dying of textile.

Leather processing industry

Preservation materials in the leather industry are used when half-products were exported and during summer holidays, when this half-product used to be stored. In that period, the preservation materials used were BAER and BASF. These preservation materials have Krezol basis and do not contain penta-chloro-fenol.

Main category VIII, Miscellaneous

This category has not been assessed during the preliminary inventory.

Main category IX, Disposal/Landfill

Table 2.44: Annual releases from landfills

Source categories Landfill leachate- Drisla	Annual Releases mg TEQ/t				
	air	water	soil	products	Residues
Hazardous waste,	NA	8.3	NA	NA	ND
Non-hazardous waste	NA	1230	NA	NA	ND
Total		1238.3			
Other Landfills in RM					
Hazardous waste,	NA	12.6	NA	NA	ND
Non-hazardous waste	NA	1890	NA	NA	ND
Total		1902.6			
ALL TOTAL in RM		**3140.9**			

Main category X, Hot Spots

Highly contaminated reservoir sites having the potential to act as sources have not yet been addressed in the preliminary inventory.

Summary

The new law prescribes the necessity for establishing a national cadastre for collecting the necessary information for assessing dioxin and furan releases.

2.3.5 Information on the state of knowledge on stockpiles, contaminated sites and wastes, identification, likely numbers, relevant regulations, guidance, remediation measures and data on releases from sites

Due to the significant PCDD/Fs releases from the landfill sites and due to the fact that formerly large quantities of obsolete pesticides had been moved to these sites, all the landfill sites are considered as possible POPs contaminated sites.

These assumptions have to be confirmed with a detailed inventory.

Although not yet included in the list of POPs chemicals, HCH will be considered in the strategic planning, due to the existing quantities of industrial waste containing technical mixture of HCH isomers in the Republic.

Information on POPs stockpiles

During the inventory, exercise number one of the major tasks was to assess the stockpiles of Annex A and Annex B POPs. Since the methodology for assessing the stocks is different for POPs pesticides and PCBs, it was decided that this information together with the methodology would be discussed in separate chapters. POPs pesticides information is discussed under chapter 2.3.1, PCBs related information is tackled in chapter 2.3.2, and DDT related issues are developed in chapter 2.3.3.

Contaminated sites

A *contaminated site* is defined as a site at which substances occur at concentrations: (1) above background levels and pose or are likely to pose an immediate or long-term hazard to human health or the environment, or (2) exceeding levels specified in policies and regulations.

Currently in the Republic of Macedonia, none of the legislation sets levels for contamination for POPs chemicals. As a first step in this inventory, our aim was to identify at least those locations, where POPs contamination could be suspected. To this end, a thorough literature review was undertaken. Not surprisingly, on POPs no information could be recovered. During the mapping of the current situation, first we looked at the waste management practices.

Solid wastes in the country are generated by the following sources:

- humans, daily activities - communal wastes;
- operation of certain industries such as mining, metallurgical and energy - technological or industrial wastes;
- from medical facilities – medical wastes, radioactive wastes

There is only one modern communal waste landfill with appropriate technical solutions, located in the capital city of Skopje. All other landfills are located in the immediate vicinity of major settlements. Landfill locations have been specified without applying modern criteria for landfill location selection. Landfills in the country are, therefore, located mostly at inadequate sites. There is no technical or other legal documentation on any of these landfills.

The collection of communal waste is the competency of public communal enterprises that cover major municipal centers. Organized communal waste collection has not covered rural settlements and minor newly established municipalities. In most of these cases, so-called illegal landfills have emerged.

Industrial wastes are mostly stored near their places of origin/generation. Here as well, no previous analyses were performed of the natural features of these locations and of possibilities and options for storing such wastes.

Some of the industrial wastes are selected and re-used; yet, most of them end up at landfills in the backyards of industrial facilities.

Medical wastes are currently treated as communal waste and are disposed of at communal landfills.

The inappropriate treatment and management of solid wastes coming from sources mentioned above have resulted in numerous and permanent environmental contaminations.

Negative impacts of these conditions may be noticed, for instance, on ground waters, surface waters and the soil in most of the country. Such impacts have even been affecting areas under protection; thus, there have been negative impacts on the eco-systems of some national parks. Additionally, serious degradation has been observed in several fragile ecosystems outside the protected areas as well.

The public communal enterprises, which are responsible for waste collection and management, have been facing severe financial difficulties. Technological/industrial waste management is the competency of relevant facilities. Currently very little attention is paid to the re-use of the wastes generated at the industrial sector. If they were re-used, obvious financial results would be achieved and environmental pressures would be decreased. To improve the situation in this area, the Law on Waste and the Law on Communal Works have been passed.

Hazardous waste in general can be divided into waste that is produced in chemical, agricultural, food and other industries and waste that is created in the mine-smelter and energy sector. The services for maintenance of transformers and electrical equipment represent considerable sources of contamination.

POPs, especially DDT, PCBs and some of the POPs pesticides have been used extensively over the middle of the pre-

vious century. That time the outdated chemicals used to be deposed of at municipal landfill sites. Therefore, we identified all the municipal waste landfill sites (legal and illegal) as possible contaminated locations. Significant contaminations are suspected at those locations, where transformers were and are maintained. Formerly these operations were carelessly undertaken. Our result showed that a high amount of hydraulic liquids are contaminated with PCBs. Therefore, a thorough survey needs to be undertaken at the maintenance locations as well. There are certain industrial facilities, where, due to their previous activities, POPs contaminations are suspected. The following table provides a brief summary of the findings.

The current legislation does not recognize the need nor requests a development of a contaminated sites cadastre. Liability for contaminating the environment is not recognized either. Therefore, these are the major principles, which impede upon the adoption of the obligations of the Stockholm Convention.

Although lindane (HCH) is currently not on the list of the Convention, we decided to include it also in this review, because it has all the characteristics which POPs have (persistency, bioaccumulation, toxicity, low volatility, etc.), and is likely to be included in the Convention.

HCH (1,2,3,4,5,6-hexachlorocyclohexane) was produced by OHIS Skopje (a plant operating in the organic chemical industry and situated in the Macedonian capital) for some 15 years. Production started in the mid-1960s, and ended in the late 1970s.

HCH was produced by photosynthesis from a mixture of benzene and chlorine. The product of synthesis contained 4 or 5 isomers of HCH, named with the first letters of the Greek alphabet. However, only the ?–isomer was used for the formulation of the insecticide called lindane, while the rest of the isomers were only ballast byproducts. Unfortunately, the purchased technology (state-of-the-art in the 1950s) had a poor yield – as much as 86 to 88 percent (m/m) of the produced HCH consisted of inactive isomers. After the extraction of the γ–isomer, the rest of the product mixture was either decomposed to trichlorobenzene and hydrochloric acid or simply disposed of. After an emerging pile of dangerous and odorous HCH byproducts was accumulated, a concrete pool was constructed (and made waterproof) near the HCH-production unit. The pool was filled with an unknown quantity of solid HCH waste (some 15,000 to 30,000 tons are quoted unofficially). On top of the waste, a soil layer to a depth of one meter was compacted. This way the hazardous waste was temporary isolated.

Table 2.45: Possible POPs contaminated location.

Company /location	Type of waste	Deposited quantity (tons)	Hazardous materials	Relevance to POPs
Landfills	Communal Industrial medical	900,000	Contaminated waste	PCDDs PCBs OCPs

OHIS, Skopje	polyacryl nitril polypropylene, PVC, polyethylene polyvinyl acetate, polyester chloral alkaline, detergents, pesticides	unknown (4,000 kg/day)	PVC, monomer, ethyleneglycol, chlor alkaline, acrilates mercury, pesticides
"Godel", Skopje	Residues of leather and other solid waste	5,600	Chemicals with ions of chromium, mercury and other heavy metals
Maintaining facilities for transformers (Rade Koncar, ESM, EMO)	Oils and solids	unknown	Transformer oils and parts containing PCBs
Maintaining sites for hydraulic equipment	Oils and solids	unknown	Hydraulic liquids and metal parts

(Source: NEAP 1996)

The fact that a vast amount of hazardous waste, containing HCH and related chlorinated organic compounds formed by its degradation, had been unsafely dumped in lands for almost 25 years, raised concerns within both the administrative structure and among the public. The pressure finally resulted in starting a field and laboratory investigation aimed to confirm or deny the suspicion that the walls of the concrete pool are not watertight anymore and that HCH and other POPs have been escaping for a long time.

Pollution with lindane, trichloroethylene, total chlorinated organics and other POPs of soil and underground water as well as wastewater and the water of the recipient of wastewater were scientifically proved.

From a preliminary study the following conclusions were drawn:

Leakage of lindane and/or the products of its degradation took place from the concrete pool dumping site (or at any other possible location where lindane was dumped) so that both, soil and aquifer are heavily polluted with POPs. Consequently, the water of the River Vardar might be polluted as well.

Leakage of POPs will continue as long as the lindane is not completely removed from the damaged concrete pool.

Remediation measures are badly needed in order to stop further migration of both POPs and mercury.

Conclusion

During the inventory process, the major locations of POPs contamination were identified. In order to assess its importance in the context of the POPs issue, the following activities are needed:

- New legislation should be developed, which set the limit values for POPs contamination, including liability issues related to the contamination and clean-up procedures
- A national contaminated sites cadastre should be developed, which contains the prioritization principles among the contaminated sites
- Guidelines should be developed for identification and assessment of POPs contaminated sites
- POPs contamination should be analytically confirmed for all the identified locations

2.3.6. Summary of future production, use and release of POPs – requirements for exemptions

The baseline values presented in the table below are the result of the preliminary inventory and will be refined during the detailed inventory development.

Table 2.46: Projected POPs Production, Use and Unintentional Release

Year	2002/03 (Baseline Inventory)	2005	2010	2020	2030
POPs pesticides					
Production	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)
Aldrin	0.00	0.00	0.00	0.00	0.00
Chlordane	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.00	0.00	0.00	0.00	0.00
Endrin	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.00	0.00	0.00	0.00	0.00
Mirex	0.00	0.00	0.00	0.00	0.00
Toxaphene	0.00	0.00	0.00	0.00	0.00
Use	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)
Aldrin	0.00	0.00	0.00	0.00	0.00
Chlordane	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.00	0.00	0.00	0.00	0.00
Endrin	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.00	0.00	0.00	0.00	0.00
Mirex	0.00	0.00	0.00	0.00	0.00
Toxaphene	0.00	0.00	0.00	0.00	0.00

DDT	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)
Production	0.00	0.00	0.00	0.00	0.00
Use	0.00	0.00	0.00	0.00	0.00
PCB	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)
Production	0.00	0.00	0.00	0.00	0.00
Use					
Closed and semi-closed applications	To be estimated	To be estimated	To be estimated	To be estimated	0.00
Open applications	To be estimated	To be estimated	To be estimated	To be estimated	0.00
Releases from Unintentional Production[1]	(g I-TEQ)	(g I-TEQ)	(g I-TEQ)	(g I-TEQ)	(g I-TEQ)
Dioxins and furans (PCDDs/PCDFs)					
Waste incineration	22.10	To be estimated	To be estimated	To be estimated	To be estimated
Ferrous and non-ferrous metal production	10.26	*	*	*	*
Power generation and heating	3.52	*	*	*	*
Production of mineral products	01.68	*	*	*	*
Transport	0.28	*	*	*	*
Uncontrolled combustion processes	133.56	*	*	*	*
Production of chemicals and consumer goods	0.02	*	*	*	*
Disposal	3.14	*	*	*	*
Hot-spots	*	*	*	*	*
Miscellaneous	*	*	*	*	*
Hexachlorobenzene(HCB)	*	*	*	*	*
Polychlorinated biphenyls (PCBs)	*	*	*	*	*

* To be estimated

POPs Pesticides and DDT are not produced in Macedonia. The country has not filed for any exemptions at the Stockholm Convention. According to the latest expert estimation, these chemicals are not in use and this is why the future projections for production and use are zero.

PCBs have never been produced in Macedonia and due to current legislation, no production is projected. The use of PCBs according to the preliminary inventory, which is based on a very rough estimation, is quite significant. Since the figure is not accurate, it is premature to estimate the future use of this chemical. However, in the NIP all legal and operational measures will be identified to phase out their use as soon as possible, but not later than 2025. The use of open PCB-containing applications will be assessed during the implementation of the NIP, therefore they are not included in the table.

The PCDDs/PCDDFs releases for 2002/2003 are total numbers for all possible release pathways (air, water, land, products, and wastes) and are based on the preliminary inventory. It should also be mentioned that different baseline years were set for certain source categories due to the availability and accuracy of the data. The missing data will be developed during the implementation of the NIP. The future projection for Annex C POPs releases will be assessed after the release reduction strategies are developed and approved.

2.3.7.Existing programs for monitoring releases, environmental and human impacts, including findings

Presently there is no system for monitoring of POPs releases established in Macedonia.
The potential sources of POPs, and consequently, their impact on the population, have to be confirmed during the implementation of the NIP.
Although there are few separate case studies on the influence of POPs chemicals on the environment and human health, a systematic and comprehensive analysis should be undertaken to obtain an overall picture of the state of environment and human health.

Declaration and reporting of priority pollutant releases

In the framework of the draft Law on Environment, where the Directive 96/61/EC is transposed the regulation on Integrated Prevention and Pollution Control (IPPC) will be developed. POPs chemicals are not specifically listed in the application form that should be filled out by the producers. The producers are obliged to report once a year the releases of waste and emissions into the environment, therefore this draft legislation will require the annual reporting of POPs releases.

Background on potential sources of POPs impacts

According to the results of the preliminary inventory on POPs chemicals, it can be assumed that the impact of POPs on the population will be the highest in the vicinity of larger facilities, where obsolete POPs are stored and at those locations, where PCB contamination is suspected. Sources are also the service stations of hydraulic equipment and everybody, who is undertaking maintenance, should be included in a detailed screening program.

Current monitoring standards and capacity

At present, there are no sufficient data for preparing a countrywide assessment on POPs contamination. There is no regular monitoring of POPs in any of the environmental compartments either. The data summarized here is taken from different projects that were focusing on the influence of a broader spectrum of pesticides in the environment.

Monitoring of Air Quality

The legal provision for air pollution monitoring is contained in the Law on Air Protection and the recommendations of the

European Community Directive 80/779/EEC. The Law is accompanied by several regulations, defining the organization of this activity in more detail. According to this Law, maximum permissible concentrations of pollutants in urban centers are determined with regard to 13 compounds. However, only those compounds that are most frequently present in urban areas are monitored on a regular basis. These are: sulfur dioxide (SO_2); black smoke (suspended substances); nitrogen oxides (NOx); total oxidants with low layer ozone (O_3) and radioactivity. Annex C POPs are still not included in this group of pollutants.

Air pollution has been monitored since 1973. The monitoring network comprises 20 measuring stations. All of these measuring stations monitor the concentrations of sulfur dioxide and black smoke, and the concentration of nitrogen oxides, while total oxidants are monitored only at one measuring station in Skopje.

Monitoring of Soil Pollution

There is no measurement (monitoring) network for the monitoring of soil pollution. Also, maximum allowed concentration levels for harmful substances in the soil are not specified by the Law. This prevents the continuous control of soil pollution, which should otherwise be the basis for healthy food production and ground and surface water quality management.

Water quality monitoring

Most of the territory of the Republic of Macedonia is considered semi-arid (the Ovce Pole region is the most arid area within the Balkans). This is why the total available water supply is of special importance both to the Republic and to the region it belongs to.

The West of the Republic (the River Crn Drim watershed) is more abundant with waters than the central and eastern parts. Surface waters flow within approximately 250 water sources (watersheds of more than 20 km^2). The largest surface watercourse is the River Vardar. There are three natural lakes: Lake Ohrid, Lake Prespa and Lake Dojran.

In accordance with the existing Law on Waters and Law on Hydrometeorological activities, Water quality monitoring in the Republic of Macedonia is the competency of the National Hydro-Meteorological Agency. In accordance with the Law on organization and operation of State administrative bodies, monitoring of the State of Environment, including water as environmental media, is responsibility of the MOEPP. The new Law on Water overcomes these overlapping of competences and stipulates that the MOEPP is responsible for the overall monitoring of all waters and water bodies in terms on quality and quantity. Hydrological status monitoring is done at regular time intervals according to a special program, approved and financed by the Government. The monitoring is done through 66 water measurement stations, and 3 water measurement stations at the lakes. (Out of the 66 stations 45 have been located within the River Vardar watershed; nine within the Crni Drim watershed; three within the Strumica watershed; and one at each of the lakes, i.e. Ohrid, Prespa and

Dojran). Measurement stations vary in their measurement periods. In addition, the water levels of natural and artificial lakes are continuously monitored.

Evidence of presence of POPs in the environment, food, feed and humans

At present, there are no sufficient data for preparing assessments and projections regarding the contamination of the environment by POPs pesticides. During an extensive literature review the following POPs related studies were found.

According to Kapac et al. (1975) in high mountain pastures in the east, west and south of Macedonia DDT and their metabolites were the most frequent contaminants. From a total content of organochlorine pesticides, DDT participated up to 51.50%, followed by alpha HCH (27.6%), lindane (21%) and dieldrin (1.5%).

Grupche (1994) mentioned that in the same year organochlorine pesticides (OCPs) were detected in the Macedonian lakes, although they were banned from use since 1965. The presence of different organochlorine pesticides (OCPs) was detected in different fish as well. DDT showed the highest concentrations in all fish (max. 24.36 $mg.kg^{-1}$ weight), followed by alpha-HCH (max. 3.95 $mg.kg^{-1}$) and lindane (max. 0.43 $mg.kg^{-1}$).

Spirkovski (2002) suggested that, bearing in mind the negative impacts of the OCPs in the fish from Lake Ohrid, it is necessary to further monitor the same parameters. He suggested that a new approach should be developed to monitor the pathways of the residues within the food web of the lake ecosystem and within the different life cycles of particular fish species. He indicated that special attention had to be given to the reproduction process. 11 fish species (with different nutrition behavior: carnivorous - predators, plantofagous, and detritofagous) from the lake were monitored. The highest values of DDT were recorded in the case of *Acantholingua (Salmothymus) ohridana (belvica)* - 7 $mg.kg^{-1}$ wet weight, followed by *Salmo letnica (Ohrid trout)* - 3 $mg.kg^{-1}$, the lowest concentration levels were measured in the case of *Barbus meridionalis petenyi* (barbell) - 0.4 $mg.kg^{-1}$.

Roganovic-Zafirova et al. (2002) analyzed the xenoestrogenic effect on fish populations in Lake Prespa. The northern part of the Prespa Valley is an agricultural area with apple orchards and other croplands where abundant and poorly controlled application of pesticides, herbicides, insecticides and other chemicals is practiced. It is considered to be the main pollution source in this part of Lake Prespa. The aim of this study was to test whether the fish and other lake inhabitants were suffering xenoestrogenic pressure. The authors obtained a clear indication about endocrine disruption, indirectly connected with the use of pesticides in the apple orchards.

There is no information on the air concentrations of Annex C POPs in the areas of the critical hot spots. Almost no data is available concerning concentrations of these and other POPs substances. Screening of possible exposure on the pop-

ulation based on either breast milk samples or subcutaneous fat samples is still lacking.

However, many research studies were undertaken in the Institute of Pathology at the Faculty of Medicine on fetal and placenta tissue. It could be relevant and useful for further investigation regarding POPs. Some of the results led to the assumption that many of the congenital malformations detected in the area of Skopje could be connected with the possible contamination of the environment with PCBs and some other POPs chemicals. In the last 15 years (1988-2002), there was a significant increase in the mid 90's, with a trend of slight decrease in the last five years in the number of congenital malformations. That should be an indication for additional research in order to determine whether it correlates with POPs.

Potential risk groups

During the initial POPs surveys, task teams identified the following potential risk groups:

- workers at the storage sites of unused outdated electrical equipment such as transformers and capacitors. These operations are highly significant in mines, on railways, etc., where PCB containing devices were and are often used.
- workers engaged in operations with hydraulic devices, which contain PCBs.
- workers engaged in maintaining electric devices. Possible locations include scrap metal companies and similar factories, in which repair and demounting of electric devices, with possible PCB contamination are undertaken.
- workers on waste dumping sites, where PCB-containing waste, especially scrapings from road gutters painted with PCB-containing paints, insulation materials from transformers, emptied and incompletely sealed condensers, and obsolete pesticides are dumped.
- employees at places, where used oils (motor, transformer, hydraulic) are burnt for heating purposes. Locations include medium size companies such as horticultural farms with glass houses, small chemical or manufacturing companies, where extensive heat is necessary for production, etc.
- workers engaged in the collection of used motor oils, transformer oils and hydraulic oils. Locations include filling stations, waste oil transporting and handling companies, etc.
- workers in agricultural companies (namely former ACHP), where the remainder of paints containing PCBs, scrapings, etc. may still be stored.

With the further detailed inventory on the contaminated sites, the potential risk groups will be refined and the possible numbers of impacted populations identified.

2.3.8. Current level of information, awareness and education among target groups; existing systems to communicate such information to the various groups; mechanism for information exchange with other parties to the Convention

According to the provisions of the Aarhus and Stockholm Conventions, the POPs Unit prepared a strategy, as a part of the NIP, on raising public awareness. It addressed the target groups identified in both conventions.
The strategy foresees two directions for acting: introduction to the general public, and introduction to concerned professionals (management and directly exposed workers).
The programs should be tailored to the level of the recipients, thus they have to be easily understandable, learnable, and different based on the targeted population

Overview of public information policy/practice related to environment

By ratifying the Aarhus Convention, the Republic of Macedonia is obliged to enable direct access to the public to environment-related information, public participation in the decision making process, and better access to justice in environmental protection issues. These obligations are reflected in the Law on Environment and the Law on Nature Protection. For better communication with the public and the stakeholders following the ratification, the Ministry of Environment and Physical Planning has established an Environmental Information Center and Public Relations Office. The POPs Unit has a mandate to work on public awareness rising in the field of POPs chemicals.

The base for national action on introduction to the general public and to directly involve them in the decision making process will be developed in the strategy for raising public awareness as a main part of the National Implementation Plan. The strategy foresees two directions for acting: inclusion of the general public, and inclusion of the concerned professionals (management and directly exposed workers).

Present public information tools and mechanisms

The Ministry of Environment and Physical planning through the Public Relations Office and the project units, organizes different campaigns and events (related to the international days of Environment Protection, Protection of the Planet, Ozone day etc), and issues brochures, newsletters etc.

Currently used public information and mechanisms include:

- specialized magazines on the environment as well as commercial magazines;
- generally focused technical and science magazines, which capture a significant part of the technically oriented public;
- weekly and daily reports, focusing on environment related information, such as new technologies for the treatment of hazardous wastes or problems of endangering the ecosystems by the entry of POPs, etc;

-television publicity presents a medium which has the broadest impact on the population.

For TV programs the recommended programs are: information on POPs in general, the Stockholm Convention and its ratifications, POPs-containing wastes with a connection to, for example, used and waste oils. Information on the waste of chlorine chemistry, household and light-breeding wastes, risks associated with PCDDs/Fs could also be provided.

Under consideration is, for example:

- *introductory program,* which indicates the beginning phase of the Enlightening and Propagation Campaign associated with the implementation of the Stockholm Convention

- *use of short clips* such as “Ecology Minutes.” It describes what POPs are; where to dispose dangerous waste; what citizens can do; what the industry is requested to do; what the state will do; what it is allowed to dispose of at dumping sites; etc.

- *forums* associated with film presentation about POPs (OCPs, PCBs, waste containing POPs, their health consequences, in a wider context, the issue of products of chlorine chemistry and in an even wider context such as the support of the prepared legislation).

Television programs are, when compared to other media types, significantly more expensive. Due to the fact that the preparation of TV programs needs specific knowledge and expertise, it is appropriate to entrust a firm with the preparation work. It is also necessary that the contracted company is competent in evaluating the efficiency of the given programs. The company will be selected through a public tender. One of the most crucial aspects of the information campaign is to provide accurate information to the recipients in a manner they can easily understand and learn. The content of such programs will be developed by professionals using qualified background information available at certain universities. These POPs-related programs will be made available on the Internet as well. Very valuable background information can be obtained from appropriate environmental institutions of developed countries where a lot of information for this area is contained.
The programs should target the following groups:

a) The young generation including school-aged children up to university students

b) Workers in facilities where PCBs were used

c) Workers in operations where OCPs were stored

d) The head workers in industrial, transportation companies, specialists from the Environmental Department, etc. who should influence the application of PCBs regulations in given areas

e) The general public, including workers in autonomous districts and city administrations. For the above-mentioned target groups, it is necessary to provide differentiated methods for providing information and determine enlightenment and propagation by corresponding methods.

Chemical contaminant and pollutant release public information programs

Regulation on the Labeling of Poisons allowed for trade prescribes what signs should be used for certain chemicals such as signs of danger (consisting of danger symbols and indications of danger) and a symbol letter of danger. It also regulates what should be written on the label such as R (risk) phrases and S (safety) phrases. POPs chemicals are not yet included in this regulation.

Relevant case studies of public involvement

According to the new Law on Environment, the Government of the Republic of Macedonia determines the facilities that are obliged to follow the procedure for environmental impact assessment. The information about the study on the environmental impact assessment preparation (according to Article 89 of the new Law on Environment) would be published in two national daily newspapers, local radio and TV stations, and the report would be available to the public. Additionally, all involved stakeholders (representatives from NGOs, investing firm, study authors, responsible Governmental institutions, etc.) would be invited to participate in the forum for study presentation. It also includes the public in the decision making process by (1) public hearings and (2) voting.

Assessment of existing public information and awareness

Since the establishment of the POPs Unit the following steps have been undertaken in raising public awareness: starting from September 2001, the POPs office has a web page (http://www.pops.org.mk) that contains the basic information about POPs chemicals, events organized by the National POPs Coordinating Unit (NPCU), the complete text of the Stockholm convention, documentaries (both in English and Macedonian), a cartoon figure developed to represent POPs as an ultimate evil, whose name is “Eternal Danger,” and other useful materials. The POPs matters are rather complex and difficult to be explained and digested by the public in one bite. For that reason, a cartoon character – named Popsi – was created to approach the youngest population. Posters were delivered to several primary schools, along with a comprehensive presentation of the POPs issue. In addition, the members of the POPs Unit participated in the preparation of an education program on the national TV channel, which addressed primary school pupils. However, after a preliminary survey (carried out by phone by the POPs Unit) out of 100 interviewed citizens of Skopje, only two gave correct information on the POPs chemical properties.

Recommendations on strengthening in support of NIP implementation

During the Workshop Strategy for Raising Public Awareness, organized by the POPs Unit, the invited representatives from the media and the stakeholders were divided into two working groups to elaborate on the approach for the general public and the approach for directly exposed workers. One of the conclusions was that the media should be invited to a short training session that would give them a general explanation of the POPs issue. This proposal was approved by the Steering Committee.

2.3.9 Relevant activities of non-governmental stakeholders

Non Governmental Organizations are well informed about the POPs issue.

The NIP foresees their larger involvement in future activities in the field of raising public awareness.

NGOs (Non Governmental Organizations) are focused on activities for the protection of the environment, such as lobbying, organizing public campaigns, round tables on concrete themes concerning environment, and talks with experts in environment-related fields. They are involved in organizing symposiums, public meetings for local problems, direct actions, protests, publishing leaflets, brochures, posters, bulletins, training, workshops, lectures in primary and secondary schools etc.

The complete list of NGOs registered for the protection of the environment encloses 16 non-governmental, non-profit and apolitical associations. One of the largest and most active in the Republic of Macedonia is the Ecologist's Movement of Macedonia-DEM. It is a national association that includes 26 local NGOs as full-members and eight other organizations and institutions as associated members. It was established in 1990 as a necessity to coordinate the work of existing local groups. They are members of the Friends of the Earth - International (FoEI) and International Union for Conservation of Nature. There is also good cooperation and communication with many neighboring NGOs. DEM's objective is to raise public awareness concerning environmental protection, sustainable development, and preservation of nature at the lowest level of destruction.

Communication between the POPs Unit at the Ministry of Environment and Physical Planning and NGOs is maintained by inclusion of one representative in the Steering Committee and permanent involvement in the workshops and meetings. The POPs office supported the DEM in a project for integrated approach to raising public awareness regarding POPs chemicals. The model activities of the NGOs were identified and grouped as follows:

1. Preparing workshop for training members of NGOs about POPs ;
2. Preparing interactive lessons and exercises for pupils about POPs,;
3. Creating, preparing, printing and distribution of brochures for children and adults;
4. Creating, preparing, printing and distribution of leaflets and posters about POPs (dioxins and furans);
5. Organizing tribunes for farmers, NGOs, and institutions that work in this filed and the whole public for raising public awareness about the consequences of POPs;

7. Preparing short films and multimedia CDs with all the available materials for the sources and consequences of POPs in Macedonia;
8. Organizing Balkan conferences for NGOs and institutions of Balkan countries about the situation with POPs in the region.

Taking into consideration the wide network of stakeholders involved in the NGO activities the POPs Unit intends to engage the NGO sector to support the public awareness strategy. Through this cooperation it is projected that all information regarding the NIP implementation and the activities of reduction and elimination of POPs releases will be disseminated through organizing workshops, seminars, forums, round tables and similar tools for public communication.

2.3.10 Overview of technical infrastructure for POPs assessment, measurement, analysis, alternatives and prevention measures, management, research and development – linkage to international programs and projects

Proper waste management facilities do not exist in Macedonia, except for the landfill and incinerator Drisla. Unfortunately, it does not meet international standards.
The detailed inventory on contaminated sites will establish a solid basis for development of remediation strategy and opportunity to assess correctly the existing capacities.
There is incomplete monitoring of some POPs pesticides and PCBs.
For successful monitoring of the POPs presence in different media, fully equipped laboratories and trained staff are necessary.
The future activities in the field of research will be focused on implementation on already tested alternatives and proven BAT&BEP and their adoption in the Macedonian context.

Waste Management Facilities

There is no organized system to accept the waste for land filling even at the modern and unique sanitary landfill “Drisla” in Skopje. The medical waste incinerator (the British Government donation) has a capacity of 200 kg/h. It is manually loaded; packed bags are loaded in time intervals of 15-20 minutes. It is not possible to open the feed door once the incinerator is loaded. Incinerator has no gas cleaning equipment but is in compliance with BS3316 for emission and operating standards. The manual loading of the incinerator causes temperature oscillations making conditions for PCDD/PCDF

emissions. The gas purification is performed only with additional incineration of the exhausting gases through the secondary burner at a temperature from 850-950^{0}C. So there is a possibility for PCDDs/PCDFs , PCBs and HCB releases.

Contaminated Site Remediation Capability

In general, there is no existing hazardous waste recycling and recovery facilities which can deal with large quantities of hazardous waste. It can be stressed that the cement factory in Skopje “USJE” can play a potential role in hazardous waste management. The detailed inventory on contaminated sites will establish a solid basis for the development of remediation strategy and an opportunity to assess correctly the existing capacities.

Environmental Monitoring Capability

Due to the insufficient equipment in the laboratories, and lack of proper training of staff, research in the area of persistent organic pollutants in the Republic of Macedonia is still at the beginning. Financial difficulties further encumber the problem. There is an incomplete monitoring of some POPs pesticides and PCBs. Unfortunately, dioxins and furans are not included in this monitoring because of their expensive analysis.

Health Monitoring Capability

Most of the laboratories in the Republic of Macedonia are not adequately equipped for POPs analyses in food and potable water, especially for the detection and analyses of unintentionally generated POPs. For the successful monitoring of the POPs presence in different media, fully equipped laboratories and trained staff are necessary. In the case of pesticides, there are a few laboratories partially equipped in the country, but there is a need for additional equipment and training of involved staff.

According to the survey made by the task teams, it is obvious that nine institutions are able to make analyses of pesticides. The National Agency for Health Protection and the Veterinary Institute perform analysis on some of the OCPs (HCH, DDT, Aldrin, Dieldrin, Chlordane, Heptachlor, Heptachlorepoxid, Metoxichlor) in food, mainly imported products (90% of the samples). It possesses available data and prepares reports on an annual basis. The available equipment and expertise are detailed in the following table.

Table 2.47: Equipped laboratories for POPs analysis

Institutions equipped to make analysis on pesticides	**POPs pesticides**	**Equipment**
National Agency for Health Protection	HCH, DDT, Aldrin, Dieldrin, Chlordane	Gas chromatography HPLC
Veterinary Institute - Skopje	HCH, Aldrin, Chlordane, Heptachlor, Heptachlorepoxid, Metoxichlor	Gas chromatography with ECD and MS
Faculty for Agriculture and Food	All pesticides formulations	HPLC
Institute of Agriculture – Skopje	All pesticides formulations	Gas chromatography HPLC
Institute of Hydrobiology – Ohrid	HCH, DDT, Aldrin, Dieldrin, Endrin, Chlordane	Gas chromatography HPLC
Faculty of Medicine - Institute of Forensic Medicine	Not quoted precisely	Gas chromatography HPLC
Ministry of Internal Affairs – Laboratory	No	Gas chromatography
Faculty of Technology and Metallurgy	Not quoted precisely	Gas chromatography HPLC
Faculty of Natural Sciences – Institute of Chemistry	Not quoted precisely	HPLC
Institutions equipped to make analyses on PCBs	**PCBs**	**Equipment**
Veterinary Institute - Skopje	yes	Gas chromatography with ECD and MS
Faculty of Sciences - Institute of Chemistry	yes	Gas chromatography with ECD and MS

The National Agency for Health Protection performs regular analysis on pesticide residues in potable water from the public water supply facilities (in accordance with the legal obligations of public enterprises). The Veterinary Institute - Skopje performs analysis on PCB residues in food.

Research and Development Assets

For a complete review on the pollution of the environment and influence of POPs it is also necessary to follow the content of these substances in food, different products, as well in different human tissues and organs. For continuous monitoring of POPs in the Republic of Macedonia, it is necessary to establish a Monitoring System for these substances. Research institutions in the Republic of Macedonia, for the time being do not have the necessary equipment or capacity to work on research and development programs. The future activities will be focused on implementation of already tested alternatives and proven BAT&BEP and their adoption in Macedonian productive conditions. During the survey, task teams could not identify research and development initiations in any of the universities either.

Information Management Capacity

The POPs Unit at the Ministry of Environment and Physical Planning has initiated and developed a database for capacitors and transformers. During the implementation of the NIP and the development of the detailed inventories, this database will be linked to the Public Relations Office at the Ministry and made accessible to the public and international stakeholders. It should be taken into consideration that some of the biggest companies have expertise and accumulated expertise in the management of certain aspects of the POPs issue. During the implementation process, their inclusion will also be sought.

2.3.11 Identification of impacted populations or environments, estimated scale and magnitude of threats to public health and environmental quality and social implications for workers and local communities

According to the preliminary inventory surveys, the adoption of the Stockholm Convention will not have a significant social implication.

Identification of impacted population or environments, estimated scale and magnitude of threats to public health and environmental quality

The gaps on the impact assessment on the affected population, and in the estimation scale and magnitude of threats to public health and environmental quality are presented in chapter 2.3.7.

Social implications for workers and local communities

The social implication on the population engaged with pesticides (Annex A Chemicals) is not expected to be high, taking into consideration that these chemicals have been banned for 20 years. The farmers are already used to Integrated Pest Management (IPM) practices and use of narrow spectrum pesticides. However, additional training should be foreseen in order to avoid the possibility of reuse of OCPs.
PCBs (Annex B chemicals) have not been produced in the Republic of Macedonia either. However, there are relatively large numbers of employees in the sector of electro-distribution and transmission, maintenance of transformers and electrical equipment and civil engineering, who work with PCB-containing oils. Dismantling, replacement, and clean up of the contaminated equipment would result in an increase of the production prices, causing indirectly social implications in the population in general.

Annex C chemicals, (unintentional production) are most difficult for quantification, thus, the influence on the overall social impact cannot be predicted at the moment. It can be assumed that the adoption and implementation of BAT&BEP would cause initial higher expenditure, but in the final instance the balance with the environmental benefits are expected to be positive.

2.3.12 Details of any relevant system for the assessment and listing of new chemicals

The current system for assessment and listing of new chemicals is in line with the obligation of the Stockholm Convention.

It should be stressed that there is no term “chemicals”, or “new chemicals” into Macedonian legislation. In the Republic of Macedonia, registration of poisons is determined, where in accordance with the Law on trade of poisons, Ministry of Health publish the List on poisons which can be put on market. Also, the term “poison” is not in accordance with EU terminology.

In the Republic of Macedonia only officially registered chemicals and/or plant, protection substances are allowed to be imported and used. The substances that are already classified in the official list of poisons/plant protection substances are allowed to be placed on the market. They are listed in the “Official Gazette of the Republic of Macedonia.”

According to current procedure, the poison/plant protection substance registration is divided into several stages. The responsible body in the first phase of the registration is the Ministry of Health (Law on Poison Trade, “Official Gazette of the Republic of Macedonia,” 13/91). The Law regulates the classification of the substances based on their toxicity. Some plant protection substances are in certain toxicity groups. Therefore, this Law regulates the registration of these plant protection substances. The Law contains provisions regulating the toxicity classification and labeling.

In order to determine the toxicity group, the producer submits an application for toxicological assessment of the active ingredients of the chemical/plant protection substance. The authorized institutions for toxicological assessment are the Institute for Pre-Clinical and Clinical Pharmacology and Toxicology and the Institute for Toxicological Chemistry.

Based on the performed toxicological analysis the producer submits the application for classification of the chemical/plant protection substance in a toxicity group. The Commission for Poisons (professionals in the field of pharmacy, medicine, chemistry, agriculture, biotechnology, veterinary are members of the Commission), established by the Ministry of Health, is responsible for confirmation and or classification of the chemical/plant protection substances in the right toxicity group. According to the opinion received from the Commission for Poisons, the Ministry of Health issues a decision and publishes it in the Official Gazette.

The second phase, which is the registration and issuing of a permit for trade and application, is implemented by the responsible ministries. If it is a plant protection chemical, the Ministry of Agriculture, Forestry and Water Economy acts. If it is an industrial chemical then the list of allowed chemicals is authoritative, which is issued by the Customs

Administration. For plant protection chemicals the authorized national laboratories (Institute for Agriculture, Faculty of Agriculture and Food, Institute for Southern Crops) perform the analysis. They check the physical, chemical and biological characteristics of the plant protection substance according to the methodologies accepted by international organizations (WHO, FAO, OECD, EPA, EEA, CIPAC, AOAC). After receiving the official result of the analysis, the producer submits an application to the Ministry of Agriculture, Forestry and Water Economy. According to the Law and Regulation on the criteria for granting licenses for trading of plant protection substances, the applicant cannot be issued a permit if the maximum allowed concentration and food tolerance are not determined (separately for every application and every method of application).

The Commission for Plant Protection Substances, established by the Ministry of Agriculture, Forestry and Water Economy (representatives of the Ministry of Agriculture, Forestry and Water Economy, Institutes for Agriculture, Faculty of Agriculture and Food, Faculty of Forestry are members of the Commission for Plant Protection Substances), reviews the submitted documentation and requests the Plant Protection Administration under the Ministry of Agriculture, Forestry and Water Economy to issue a permit for the applicant. This permit allows the applicant to place the plant protection chemical on the market. The list of the plant protection substances is published in the Official Gazette of the Republic of Macedonia once a year. The permit, depending on the toxicity and effectiveness of the active ingredients, is issued for five to ten years. After it expires the same procedure should be applied.

The registration of the plant protection substances is regulated by the Regulation on the criteria for granting licenses for trading in plant protection substances (“Official Gazette of the RM,” 65/2001 and 99/2003), the regulation on the conditions to be met by legal entities concerning the equipment, instruments and structures used for testing plant protection substances (“Official Gazette of the RM,” 54/2001) and the regulation on the conditions to be met by legal entities concerning the equipment, instruments and structures used for the production, wholesale and retail of plant protection chemicals and the content and the way of reporting on these activities (“Official Gazette of the RM” No. 54/2001).

For industrial chemicals, unless it is classified as toxic, it is the responsibility of the applicant to check if the chemical he aims to market in the country is included in the list of allowed substances. This list is published in the Official Gazette, and amended on an as needed basis.

There are no chemicals under the Stockholm Convention or EU Directive 79/117/EEC included in the list of plant protection substances. The existing Law on Poison Production, Law on Poison Trade and Law on Plant Protection and the regulations under the mentioned laws are harmonized with the Stockholm Convention on POPs and the EU-regulations, especially in the part for prohibition of the production, trade, application, and labeling of the pesticides and industrial chemicals.

In the frameworks of the CARDS Project (NIPS-2004) preparation of a new Law on Plant Protection Substances (harmonized with the EU Directive 91/414/EC) is foreseen. This Law will unite the procedures for plant protection substance classification, packing, labeling. One national body will coordinate the procedure and will be responsible for information exchange (in accordance to the Stockholm Convention Article 9).

2.3.13 Details of any relevant system for the assessment and regulation of chemicals already in the market

The current system for the assessment of chemicals, which are already on the market, is in line with the obligation of the Stockholm Convention.

The detailed regulatory and operational background is described in the previous section, where the assessment of the chemicals/plant protection substances, which are already on the market, is elaborated.

In summary, the permits for marketing of plant protection chemicals are issued for five to ten years. After they expire, a new registration process should be undertaken. Industrial chemicals, which are allowed for marketing, are listed in a cadastre and published in the official gazette. It is the responsibility of the producer or the importer to follow the amendments of the list. If certain chemicals are withdrawn, they should stop marketing those products, which contain the withdrawn chemical/s.

For further information, please refer to the previous chapter (2.3.12).

3. STRATEGY AND ACTION PLAN ELEMENTS OF THE NATIONAL IMPLEMENTATION PLAN

3.*1 POLICY DECISION*

(in draft)

Recognizing that persistent organic pollutants possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water and migratory species,

Aware of the health concerns, resulting from local exposure to persistent organic pollutants, in particular impacts upon women and, through them, upon future generations,

Recognizing the importance of developing and using environmentally sound alternative processes and chemicals,

Determined to protect human health and the environment from the harmful impacts of persistent organic pollutants,

The Government of the Republic of Macedonia adopted the following:

D E C I S I O N

The Government has reviewed the National Implementation Plan for POPs Reduction and/or Elimination submitted by the Ministry of Environment and Physical Planning of the Republic of Macedonia and adopted it along with the Decision the Ministry of Environment and Physical Planning to undertake adequate activities in order to comply with the tasks included in the NIP action plans and meet the Stockholm Convention provisions at the same time:

Strengthen institutional capacities to provide adequate POPs management.
Improve system for monitoring of the POPs presence, release, trade.
Create a comprehensive legal framework governing the POPs issue.
Raise public awareness.

On behalf of the Government of the Republic of Macedonia,

Prime Minister

3.2 IMPLEMENTATION STRATEGY

3.2.1. Overview

The Republic of Macedonia ratified the Stockholm Convention in March 2004. Thus, it is obliged to fulfill the obligations and provisions mentioned in the Convention.

Considering the fact that the NIP consists of different action plans (14 action plans), it is necessary to establish a body which will coordinate their implementation.

It is foreseen that the **National POPs Office** under the Ministry of Environment and Physical Planning will coordinate and harmonize the activities of the Action Plans.

On the other hand, each Action Plan will be executed by the nominated Project Manager (PM) or the adequate institution. Technical committees will review the implementation of the concrete activities in each action plan.

3.2.2. NIP Policy Basis and Implementation Objectives

Based to the obligation in Article 7 of the Stockholm Convention, the Ministry of Environment and Physical Planning, POPs Office, has developed a National Implementation Plan on POPs reduction and elimination.

The main NIP objectives are protection of human health and the environment from the harmful POPs impacts. At the same time, NIP activities are directed towards improvement of the management of POPs and chemicals in general on the country level.

The NIP implementation is an opportunity to an integrated approach in solving the POPs related problems, which will be employed during the coordinating activities. Furthermore, through the implementation of the separate action plans covering different POPs issues, it is foreseen that all the specific provisions of the Stockholm Convention will be fulfilled.

The mandate of the NIP will be identified with the Government Decision on NIP implementation.

The POPs Office will have a role of coordinator of the overall NIP activities. The Strategy will be implemented through the different action plans. Therefore, a coordination mechanism is needed in order to harmonize the execution of the separate activities. This integrated approach is further elaborated in the chapters below.

3.2.3. Implementation Principles

The implementation strategy is based on the following principles:

- Adherence to EU directives;
- Inclusion of public and stakeholder participation;
- Transparency in information sharing and exchange, particularly related to monitoring and reporting on implementation activities;
- Adherence to “the polluter-pays” principle;
- Integration with overall environmental management and sustainable development policies;
- Adherence to and use of technologies and applications of international standards;
- Commitment regarding public awareness and education activities during the NIP implementation;.
- Consistency and accountability during the implementation process;
- Adoption of the particular rules and guidelines

3.2.4. Priorities and Conditionality

Identified priorities during NIP implementation

During the development of the National Implementation Plan, after the finalization of the first preliminary inventories, a prioritization workshop was scheduled. The aim of this workshop was to identify the priorities of Macedonia in the POPs issue. All the stakeholders were represented at this event. They are:

1. Aco Janevski - Ministry of Labor
2. Stanislava Lazarevska - Faculty of Agriculture and Food
3. Liljana Spasevska - Institute of Pathology, Faculty of Medicine
4. Jovan Mickovski - Faculty of Technology and Metallurgy
5. Julijana Cvetkovic - Institute of Agriculture
6. Trajce Stafilov - Faculty of Natural Sciences - Institute of Chemistry
7. Nikola Stojanovski - National Agency for Small and Medium Enterprises Development
8. Josif Blagoevski - Center for Ecotechnology
9. Stevo Gjorcev-Expert for waste management

It was decided that during the NIP development and implementation the following priorities should be considered for POPs management:

1. Detailed inventory of POPs chemicals
2. Establishment of a National POPs Center
3. Inventory of “hot spots”
4. Preventing uncontrolled waste combustion
5. PCB/OCP containing waste management
6. Preparation of new and amendment of existing legislation
7. Monitoring of POPs
8. Providing necessary equipment for and training on POPs monitoring
9. Public awareness and education
10. Evaluation of adverse effects on human health
11. Monitoring of POPs bioaccumulation in living organisms
12. Measures for the reduction of dioxin and furan emission
    a) Promotion of the use of unleaded fuels
    b) Adoption of principles of BAT (best available techniques in the industry)
    c) Safe handling
13. Control of PAHs (In Macedonia large quantities of technical waste (HCH) are stored that need to be solved in a proper manner. Although it is not listed in the Stockholm Convection annexes, it is set as the 13th priority in order to find a prompt solution for this waste.)

These priority areas mean that in the NIP action plans these issues receive more attention compared to other areas. This means that those action plans, which have relevance to the above mentioned priorities, are elaborated in more detailed than the ones which tackle other POPs related measures.

Qualifications and conditions that apply to the implementation

Since the National Implementation Plan is supposed to be a plan, there are certain conditions, which should be fulfilled during the implementation process. Throughout the NIP development process, we considered that the following conditions are present and assured. This plan can only be implemented if these needs are fulfilled and qualifications are available.

- Government commitment in providing the necessary financial and human resources as well as the requested in-kind contributions,
- Commitment among the stakeholders, who participate in the implementation process,
- The availability of international assistance,
- No unexpected events occur,
- The necessary qualification of project personnel is fulfilled

In this context commitment not only means ideological and financial commitments, but it also means that the necessary time is provided, time for those who will participate in the project as consultants or committee members. It is equally important that the responsible authorities act on time. This means for example that certain documents or actions be reviewed in the allocated time, or to take decisions in a certain timeframe.

The Republic of Macedonia has not filed for an exemption at the Stockholm Convention and does not aim to file any. Therefore, this issue will not impede upon the implementation of the NIP.

During the implementation process, certain qualifications are required depending on the role, which the individual is undertaking. To this end, the required qualification will always be developed, decided and advertised before the position is held down.

The updating points of the work-plan and the NIP will be linked to the requirements of the Convention. Since in Article 7 the frequency and manner of the review mechanism are not set, the work plan cannot be considered as final.

3.2.5. Major Milestones

The specific milestones are set within each of the action plans and related to the progress and financial reports on regular (quarterly, semiannual or annual reports).
Given the optimal conditions, both institutional and financial, for implementation of the NIP the major milestone would be the year 2010 for phasing out of PCBs and the year 2015 for remediation of contaminated hot spots in the country.

3.2.6. Institutional/Organizational Arrangements and Assignment of Responsibility

The Implementing Agency of the National Implementation Plan will be the Ministry of Environment and Physical Planning. The ministry is best situated for undertaking the implementation activities. This Ministry was responsible for developing the NIP, which signifies its competence in POPs related issues.

The Ministry of Environment and Physical Planning (EPP) nominated the National POPs Office (NPO) to coordinate the overall activities during the implementation of the NIP. NPO was the executing agency during the NIP development process, and the basis for the implementation process has already been established. The Ministry of EPP and the NPO will agree on a Terms of Reference set out in the coordination part of the NIP. This agency will be responsible for updating the NIP on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties.

There will be a Steering Committee for the coordination of the implementation process of the Action Plans. The same Steering Committee will be used during the implementation, which was working in developing the NIP. It is chaired by the Minister of Environment and Physical Planning. The following ministries are members of this committee: Ministry of Environment and Physical Planning, Ministry of Agriculture and Ministry of Health.The private sector, a representative from the universities and the NGO sector are also among the members. The Steering Committee will review, comment on and approve the coordination work plan. All decisions of the committee, such as respective responsibilities, timelines and the budget will be clearly communicated to those concerned.

The NPO will nominate a POPs Officer (PO). His/her nomination will be approved by the Steering Committee. He/she will report to the Steering Committee and the National POPs Office and will work on a day-to day basis with the POPs Focal Point. The PO will be a technically qualified person to provide overall guidance on the management of the process. The PO will ensure adherence to the Coordination Work Plan, which will be finalized during the initiation of the implementation. His/her main responsibilities will include advising on and monitoring of all coordination aspects of the NIP execution, as well as the financial control over the process. The NPO will engage services that are not available there on a contractual basis.

The staffs of NPO, who have already been involved in the NIP preparation, are sufficiently educated and experienced in the field of POPs management. They will be fulltime and employed on a permanent basis. Their responsibility will be to assist the PO in providing the overall guidance on the management and coordination of the process.

During the implementation process, there will be a Legal Advisor (LA), working fulltime on a contracted basis for the overall coordination of the NIP implementation. He/she shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

Due to the complexity of the NIP coordination, the POPs officer may appoint Reviewers to review certain implementation activities. He/she will work on a contracted basis and will report to the Steering Committee and the POPs Officer.

The NIP execution process will be implemented through sub-contracts. Sub-contracts will be signed between the NPO and the project manager or executing agency (which one is applicable) of each of the action plans.

The NPO will, inter alia

- maintain an office within its premises charged with the successful coordination of the NIP;
- appoint a POPs Officer with day-to-day responsibility for the management and coordination of the NIP activities and reporting to the Steering Committee.

The Steering Committee will

- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the POPs Officer;
- oversee the work of the POPs Office in coordinating different action plans set out in the NIP;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the NIP.

The POPs Officer will

- agree on a subcontract with the National POPs Office for the terms set out in the coordination part of the NIP;
- call principal stakeholders of the Steering Committee to oversee and coordinate the successful implementation of the NIP;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Steering Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using
- terms of reference agreed by the Steering Committee and ensure the quality of their work;
- provide a secretariat function to the Steering Committee and stakeholder workshops;
- report regularly to the Steering Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

The Reviewer will

- monitor and supervise the implementation of certain Action Plans;
- work in close co-operation with the Project Manager of that Action Plan and report to the Steering Committee and the POPs Officer.

3.2.7. Implementation Approach and work plan summary

Implementation approach

The implementation approach is detailed in the previous section 3.2.6. The summary of the work plan of the coordination mechanisms is detailed in a table format. The work plan includes the coordination activities among the different action plans. It lists when certain action plans need to start, reach a certain step, etc. It also indicates that the NIP should be revised on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties.

The POPs Office work plan will include the institutional aspects along with the coordination activities among the different action plans and revision of the NIP on a periodic basis.

Work plan of the coordination activities

The Steering Committee (already established during the preparatory phase) will control overall technical and financial aspects of the NIP realization. The Minister of Environment and Physical Planning is a chairman of the Committee. Depending on meeting schedules, the action plans project managers can participate at the meetings.

The members will develop their working instructions (voting, frequency of meetings, who can call a meeting, etc.). The Committee is the primary decision making body.

Budget:

The budget includes only the cost of the coordination activities as well as the cost of the revision of the NIP.

The financial sources for the budget allocation are the local government contribution and multilateral/bilateral funding as well.

3.2.8. Implementation Strategy Review Mechanisms

The monitoring of the Strategy implementation will be undertaken by technical and financial reports, that will be developed by the respective Project Managers for each of the Action Plans of the Strategy. The Project Managers will submit these reports to the respective Technical Committees. Project Managers will take corrective actions based on the comments and evaluations of TCs.

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of strategy implementation, including outcomes, the budget and timelines for each of the Action Plans of the Strategy. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the respective Project Managers.

An appointed Reviewer will, on contracted bases, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP.

Respective Project Managers will take corrective actions based on the comments and of the National POPs Unit.

Specific Performance Monitoring Indicators and target dates for their achievement are defined in each of the Action Plans of the Implementation Strategy.

3.3 ACTIVITIES, STRATEGIES AND ACTION PLANS

3.3.1 Activity: institutional and regulatory strengthening measures

3.3.1.1 Present National Institutional, Policy and Regulatory Framework

According to the results of the assessments of the POPs situation in the country, there are no authorized government institutions for POPs and chemical management, in the sense of their impact on the environment and human health. Several ministries (Ministry of Environment and Physical Planning; Ministry of Agriculture, Forestry and Water Economy; Ministry of Health) are partially involved in the control of POPs consumption, releases, trade, and legislation.

The adoption of the POPs chemical (for instance POPs-pesticide trade, marketing, application) legislation is initiated in part by the Ministry of Agriculture, Forestry and Water Economy; trade and usage of some POPs chemicals (aldrin, dieldrin, hexachlorobenzene, heptachlor, chlordane, toxaphene, endrin and DDT) are controlled by the Law on Poisons under the Ministry of Health. The import of old equipment containing PCBs is controlled by the Ministry of Environment and Physical Planning, etc.

Regarding the institutional structure for POPs management and chemicals in general, there is no national body (governmental or non-governmental) working on this issue. The POPs Unit under the Ministry of Environment and Physical Planning is the first step towards the establishment of an institutional framework for the creation of a basis for the implementation of chemical management in the future.

The State Inspectorate under the Ministry of Environment and Physical Planning enforces environmentally related issues. Currently there are less than ten inspectors which highlight the necessity of capacity building and human resource enlargement. They have the authority to take samples and control the working processes in order to check if protection of the environmental is implemented.

The following table summarizes the gaps in current legislation which impede upon the full adoption of the Convention.

Table 3.1: Legislative gaps

Article	No			Issues to be included in the legislation
	2	a		Support and develop international programs
		b		Strengthen national scientific and technical capacities
		d		Undertake R&D for alleviating effects on reproductive health
		e		Make the results of R&D accessible and up-to-date
		f		Encourage storage and maintenance of R&D info
15	1			Effectiveness reporting
	2	a		Statistical data on production, import, export,
		b		List of states from which it has exported and to which it has exported (Annex A, B)
	3			Periodicity not yet decided
Annex A Part II		a		
			i	10% PCBs >5 liters
			ii	0,05% PCBs >5 liters
			iii	0,005% PCBs > 0,05 liters
		b		Reduce the risk of exposure by:
			i	use of intact equipment only
			ii	not use equipment where food is processed or produced
			iii	protect electrical failure and undertake regular inspection
		d		Not allow the recovery of PCBs >0,05%
		e		Dispose of PCBs by 2028
		f		Identification of PCB-containing open systems
		g		Progress report on PCBs elimination every five years

Annex B Part I			iii	Notification of the Secretariat on closed-system site-limited intermediate quantities (if applicable)
Annex B Part II	1			Elimination of DDT production and use unless notification is filed
	2			Restrict production and use for disease vector control
	3			Notification of the Secretariat and WHO on the use of DDT
	4			Report on the amounts used and conditions of DDT use to the Secretariat and WHO every three years
	5	a		If DDT is used, Action plan should be developed
			i	Restrict DDT use to disease vector control
			ii	Implementation of alternatives
			iii	Strengthen health care to reduce incidences of the disease
		b		Promote R&D on safe alternatives to DDT

Objectives

The main objectives of this action plan are as follows:

1. To have a harmonized Macedonian legislation in accordance with the principles of the Stockholm Convention by the end of 2007.
2. Updated national institutional infrastructure, which is capable of fully implementing the provisions of the Stockholm Convention:
   a. Designated focal points at each POPs related ministry by 2005,
   b. Proper enforcement bodies, which are capable of overseeing POPs related activities during their every-day practice by 2007.

3.3.1.2 Action Plan Implementation Strategy and Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, while relevant ministries, representatives of the private sector, the NGO sector will also be included. The POPs Officer can at anytime be present at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation, but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC existing national procedures.

The Technical Committee will

- develop its working procedures;
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- Provide technical support to the PM and working teams;
- Approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan

and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will
- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including subcontracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee and to the NPO on the progress of the implementation and the disbursement of the funds.

The action plan implementation strategy will be based on the following objectives:

- Established cooperation among governmental bodies and institutions with clearly defined responsibilities and obligations for implementation of the Stockholm Convention;

- Established national network for monitoring of the implementation of Stockholm Convention, with clearly defined monitoring indicators and methodologies;

- Harmonized Macedonian legislation in accordance with the principles of the Stockholm Convention.

3.3.1.3 Institutional Capacity Strengthening Measures

The following institutional capacity strengthening measures will be undertaken:
- Establishment and functioning of Inter-ministerial Working Group for POPs-related issues in the Republic of Macedonia;
- Appointment of responsible units/focal points in each of the governmental bodies and institutions that are covering POPs issues;
- Institutional capacity building in those governmental agencies, which will be identified by the Inter-ministerial Working Group for POPs;

3.3.1.4 Regulatory Development Initiatives

The following regulatory development initiatives in accordance with EU standards and the Stockholm Convention will be undertaken:

- Finalization and adoption of the laws that are currently in the process of preparation;
- Preparation and adoption of bylaws for support of the implementation of the proposed laws;
- Preparation of economic and cost-effectiveness analysis for implementation of the proposed legislation.

Action plan - 3.3.1 Activity: Institutional and regulatory strengthening measures						
Objectives	Established cooperation among governmental bodies and institutions with clearly defined responsibilities and obligations for implementation of the Stockholm Convention	Institutional capacity building in those governmental agencies, which will be identified by the Inter-ministerial Working Group for POPs;	Harmonized Macedonian legislation in accordance with the principles of the Stockholm Convention			
Activities	Establishment and functioning of Inter-ministerial Working Group for implementation of the Stockholm Convention in Republic of Macedonia	Appointment of responsible units/focal points in each of the governmental bodies and institutions that are covering POPs issues	Needs assessment of the relevant government bodies	Capacity building in the identified government agencies	Finalization and adoption off the laws that are currently in the process of preparation	Preparation and adoption of bylaws for support of the implementation of the prepared laws

Expected results	Operational Inter-ministerial Working Group	Appointed focal points in each of the ministry	Identified Government Agencies for capacity building, assessed needs such as human resources, training, infrastructure and technical support	Government. Agencies which are fully capable of implementing the provisions of the Stockholm Convention	Adopted laws	Prepared bylaws
Responsible institution	PM and relevant stakeholders	Ministries working with POPs	Inter-ministerial Working Group for POPs	To be decided by the PM and the TC during implementation	Ministries working with POPs	Ministries working with POPs
Time period	2005	2005	2005	2005	2006	2007
Estimated budget	5,000.00 EUR	5,000.00 EUR	5,000.00 EUR	200,000.00 EUR	500,000.00 EUR	700,000.00 EUR

The work plan is detailed in chapter 3.5.

3.3.1.5 Action Plan Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

Monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Establishment and functioning of Inter-ministerial Working Group for implementation of the Stockholm Convention in Republic of Macedonia	Operational Interministerial Working Group	- Number of members of the Working Group - Working procedures developed - Number of meetings realized	June 2005	Once a month
Appointment of responsible units/focal points in each of the governmental bodies and institutions that are covering POPs issues	Appointed focal points in each of the ministries and established relationships among governmental institutions	- Number of appointed focal points	June 2005	Once, when the activity is accomplished
Assessment of the needs of the relevant Government bodies	Identified Government Agencies for capacity building, assessed needs such as human resources, training, infrastructure and technical support	- Evaluations of the capacity building needs of the relevant Government agencies	June 2005	Monthly
Capacity building in the identified Government Agencies	Government Agencies which are fully capable of implementing the provisions of the Stockholm Convention	Number of new staff, Amount of training accomplished	December 2005	Quarterly
Finalization and adoption of the laws that are currently in the process of preparation	Adopted laws	Number of laws prepared and adopted	December 2006	Quarterly
Preparation and adoption of bylaws for support of the implementation of the prepared laws	Prepared by laws	Number of bylaws prepared and adopted	December 2007	Quarterly

3.3.2 Activity: measures to reduce or eliminate releases from intentional production and use

Present situation in the Republic of Macedonia

It can be concluded that presently there is no production or consumption of POPs pesticides in the Republic of Macedonia. The Law on Poisons bans the import, export and use of Aldrin, Dieldrin, Hexachlorbenzene, Heptachlor and Chlordane.

Toxaphene, Endrin and DDT are stated in the list of toxic substances with controlled trade and use. The Ministry of Agriculture, Forestry and Water Economy keeps records on their trade and application. The records show these pesticides are not imported into the Republic of Macedonia.

In general, pesticides used in agriculture are controlled by relevant regulations such as the Law on Plant Protection.

While the import of some of the POPs pesticides is prohibited, some pesticides are stated in the Toxic Substances List, such as Endrin, DDT and Toxaphene, which can be imported with a special license obtained from the Ministry of Agriculture, Forestry and Water Economy and about which special analysis should be made in order to determine the state of imported quantities in relation to POPs.

The management of obsolete pesticides is covered in part by the regulations on reporting on import and production according to Article 38 of the Law on Plant Protection. There is no obligation for reporting on residues (packaging or out of date products). There are several warehouses in the country where the above-mentioned products are stored. Legal regulations are in place only for the storage of pesticide residues. There are no rules for safe neutralization. There is no obligation for the reporting of consumed quantities. Pesticide packaging is mixed with communal waste.

The analysis of hazardous waste quantity performed within the project **"National Solid Waste Management System"** shows that there are 200 tons of hazardous agricultural waste (possibly contaminated with pesticides residues) with 0.01% of hazardous components.

According to the study, "Analyzing Hazardous Waste Management in Skopje" prepared by the Mining Institute in Skopje, "Unused Pesticides" are among the waste types not acceptable for disposal in the official landfill "Drisla" in Skopje.

3.3.2.2. Objectives and Priorities of the Action Plan

The action plan implementation strategy is explained in the previous chapter.

3.3.2.3 Proposed Operational Measures to reduce releases from intentional production

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can at anytime be present at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC existing national procedures.

The Technical Committee will:

- develop its working procedures;
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;

• lead stakeholder workshops to develop consensus and commitment of the objectives of the Action Plan.

The Project Manager will:

• agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
• call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
• establish an office within its premises charged with the successful implementation of the Action Plan;
• have day-to-day responsibility for the management and coordination of the implementation activities, including subcontracts, budgets, and reporting to the Technical Committee and the NPO;
• appoint national experts as necessary to undertake the various actions required during the course of the work, using
• terms of reference agreed by the Technical Committee and ensure the quality of their work;
• provide a secretariat function to the Technical Committee and stakeholder workshops;
• report regularly to the Technical Committee and to the NPO on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Introduction of protection and technical measures concerning existing installations;

- Establishment of a national body for long-term permanent monitoring and reporting on releases from intentional production.

3.3.2.4 Implementation of the Action Plan

Action Plan - 3.3.2 Activity: measures to reduce or eliminate releases from intentional production and use		
Objectives	Established system for control of releases from intentional production;	Established system for long-term permanent monitoring and reporting on the releases from intentional production
Activities	Introduction of protection and technical measures concerning existing installations;	Establishment of national body for long-term permanent monitoring and reporting on releases from intentional production

Expected results	- Protection and technical measures established - Reduction of emissions	National body for monitoring and reporting established and in operation
Responsible institution	Ministry of Environment and Physical Planning	Ministries working with POPs
Time period	2005-2015	2006
Estimated budget	100,000,00 EUR	50,000,00 EUR
Sources of financing	Budget of Republic of Macedonia Private sector	Budget of Republic of Macedonia

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribu-

tion will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Introduction of protection and technical measures concerning existing installations;	- Protection and technical measures established - Reduction of emissions	Emissions	2005-2015	Once a year
Establishment of national body for long-term permanent monitoring and reporting on releases from intentional production	National body for monitoring and reporting established and operational	Reports produced by the body	December 2006	Quarterly

3.3.3 Activity: production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, part I. chemicals)

3.3.3.1 Present situation in the Republic of Macedonia

Nine of the 12 chemicals identified in the initial list of Persistent Organic Pollutants (POPs) are pesticides. Chlordane and dieldrin, as well as lindane and endosulfan, are known to be endocrine disrupting chemicals. Six pesticides out of the nine initial POP pesticides are subject to the “Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.” They have been banned in most industrialized and many developing countries, including the Republic of Macedonia. However, they remain in limited use, legally and illegally.

According to the review on permitted pesticides and the evidence on pesticides in trade and use, obviously it has been found that there are no POPs pesticides in trade or in use in agricultural or veterinary practice in the Republic of Macedonia. As to OCP applications in public hygiene, additional analyses for the evaluation of the present situation are to be made.

3.3.3.2 Objectives and Priorities of the Action Plan

The action plan implementation strategy will be based on the following objectives:
Prepared inventories of POPs pesticides;
Elaborated and implemented state support scheme for this problem area;
Secured environmentally sound destruction of POPs pesticides in Macedonia.

3.3.3.3 Proposed Operational Measures for Annex A POPs Pesticides Storage, Handling, Reduction and Disposal

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector and the NGO sector. The POPs Officer can be present anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC through existing national procedures.

The Technical Committee will:
- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- Provide technical support to the PM and working teams;

• Approve the work plan with timelines and budget of the implementation of this Action Plan;
have meetings on a regular basis;
• agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
• oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
• lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:
• agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
• call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
• establish an office within its premises charged with the successful implementation of the Action Plan;
• have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
• appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed to by the Technical Committee and ensure the quality of their work;
• provide a secretariat function to the Technical Committee and stakeholder workshops;
• report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:
- Preparation and adoption of a strategy for inventory completion, collection, and disposal of obsolete pesticide stocks;
- Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes;
- Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area;
- Secure effective support for the program on non-combustion technologies for POPs destruction;
- Disposal of POPs pesticides in Macedonia with state contribution, according to the principles of the Stockholm Convention;
- Establishment of a system for control of illegal import and application of OCPs.

Action plan - 3.3.3 Activity: production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, part I. chemicals)			
Objectives	Prepared inventories of POPs pesticides;	Elaborated and implemented a state support scheme for this problem area;	Secured environmentally sound destruction of POPs pesticides in Macedonia;

3.3.3.4 Implementation of the Action Plan

Activities	Preparation and adoption of a strategy for inventory completion, collection, and disposal of obsolete pesticide stocks	Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes	Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	Secure effective support of the program on non-combustion technologies for POPs destruction	Disposal of POPs pesticides in Macedonia with state contribution, according to the principles of the Stockholm Convention	Establishment of a system for control of illegal import and application of OCPs
Expected results	Prepared and adopted strategy for inventory completion	- Control mechanisms established - Inspections bodies cooperating	The scheme developed, accepted and implemented	Program supported and implemented	Stockpiles destroyed	Illegal import and application of OCP in Macedonia eliminated
Responsible institution	POPs Center	Ministries working with POPs	POPs Center	POPs Center	Ministries working with POPs	Inspection bodies
Time period	2005	2006	2005 - 2010	2005 - 2010	2005 - 2010	2005 - 2015
Estimated budget	10,000.00 EUR	5,000.00 EUR	10,000.00 EUR	20,000.00 EUR	2,000,000.00 EUR	50,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	- Budget of the Republic of Macedonia -Private business	- Foreign donations	- Loans - Foreign donations	- Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period achieving results	Frequency of monitoring
Preparation and adoption of a strategy for inventory completion, collection, and disposal of obsolete pesticide stocks	Prepared and adopted strategy for inventory completion	Proposed actions / content of the strategy	June 2005	Quarterly
Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes	- Control mechanisms established	- Inspections bodies cooperating	- Number of cases of cooperation among inspection bodies	June 2006

Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	The scheme developed, accepted and implemented	- Number of meetings with business sector	- Number of initiatives undertaken by the business sector	2005-2010
Secure effective support of the program on non-combustion technologies for POPs destruction	Program supported and implemented	Number of initiatives undertaken	2005-2010	Once a year
Disposal of POPs pesticides in Macedonia with state contribution, according to the principles of the Stockholm Convention	Stockpiles destroyed	Amount of pesticides disposed	2005-2010	Once a year
Establishment of a system for control of illegal import and application of OCPs	Illegal import and application of OCP in Macedonia eliminated	Number of cases of illegal import and applications of OCPs	2005-2015	Once a year

3.3.4 Activity: production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)

3.3.4.1 Present situation in Macedonia

Polychlorinated biphenyls (PCBs) are compounds used in insulating and transformer oils, and as additives for paints, copying paper and plastics. PCBs are added to insulating transformer oils to increase the dielectric constant. There is no PCB containing equipment (devices) production in the Republic of Macedonia.

The import of PCB containing waste oils is regulated by permits issued by the Ministry of Environment and Physical Planning.

The preliminary inventories prepared by the task teams created by the POPs Unit have identified and given qualitative and partly quantitative information on PCB-containing equipment in the Republic of Macedonia.

The labeling and storage of PCB containing equipment is not covered by national legislation yet. After its independence in 1991 the Republic of Macedonia passed legislation on imports and exports by adopting the Law on Customs Tariff (Official Gazette of R. M. No. 38/96, 45/97, 67/97, 26/98, 15/01, 16/01, 104/01**,** 21/02, 90/02) and the decision on classification forms for imported and exported goods (Official Gazette of R.M. 95/02). The Republic of Macedonia used a classification system for monitoring the trade in goods in and out of its territory that was harmonized with the classification of goods adopted by the World Customs Organization. This system was used up to 14 August 1996 when it was extended by a combined nomenclature adopted by the European Union. This combined nomenclature is in use since 15 August 1996 (Official Gazette of R.M No.38/96) and with the modifications of 2001 and 2002 it is completely compatible with the European Union Nomenclature. The last modifications have entered into force after 2003 with the purpose of meeting the requirements of the World Trade Organization.

Apart from importing substances that are allowed to contain PCBs, it is also possible to import final products containing insulating and transformer oils into the Republic of Macedonia. The import of these products is free and there are no restrictions regarding the control of their dielectric component. These products can be potential PCB pollution sources.

Key problems in solving the current situation regarding waste containing PCBs and PCDDs/Fs are inaccuracies in documentation, unawareness of operators, non-separated waste collecting, possibility of mixing with other oily fluids, inappropriate storage facilities and sites, lack of facilities for electromechanical devices clean-up by non-incineration processes without a previous demounting and separating of metal parts.

There are two on-going projects connected with PCB management: 1) Swiss assistance - SECO Project for ESM and 2) LV and MV capacitors containing PCBs supported by the Norwegian Government.

3.3.4.2 Objectives and priorities of the action plan

According to the current situation in the Republic of Macedonia with reference to PCBs management the following objectives were defined:

- Prepared inventories of equipment containing PCBs;

- Prepared technical standards concerning analysis, transportation, storage, exchange, decontamination and destruction of PCBs;
- Developed system for monitoring of contaminated areas and point sources;

3.3.4.3 Proposed Operational Measures for PCBs and equipment containing PCBs

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures;
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- Provide technical support to the PM and working teams;
- Approve the work plan with timelines and budget of the implementation of this Action Plan;

- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- ead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs;
- Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee PCBs wastes;
- Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area;
- Secure effective support of the program on non-combustion technologies for PCBs destruction;
- Disposal of PCBs in Macedonia with state contribution, according to the principles of the Stockholm Convention;
- Establishment of a system for control of illegal import and application of PCBs.

3.3.4.4 Implementation of the Action Plan

Action plan - Activity: production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)						
Objectives	Prepared inventories of equipment containing PCBs;		Prepared technical standards concerning analysis, transportation, storage, exchange, decontamination and destruction of PCBs		Developed system for monitoring of contaminated areas and point sources	
Activities	Preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs	Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee PCBs wastes	Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	Secure effective support of the program on non-combustion technologies for PCBs destruction	Disposal of PCBs in Macedonia with state contribution, according to the principles of the Stockholm Convention	Establishment of a system for control of illegal import and application of PCBs
Expected results	Prepared and adopted strategy for inventory completion	- Control mechanisms established - Inspections bodies cooperating	The scheme developed, accepted and implemented	Program supported and implemented	PCB wastes disposed	Illegal import and application of PCB in Macedonia eliminated
Responsible institution	POPs Center	Ministries working with POPs	POPs Center	POPs Center	Ministries working with POPs	Inspection bodies

Action plan - Activity: production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)						
Time period	2005	2006	2005 - 2010	2005 - 2010	2005 - 2010	2005 - 2015
Estimated budget	10,000.00 EUR	5,000.00 EUR	10,000.00 EUR	20,000.00 EUR	3,000,000.00 EUR	50,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	-Budget of the Republic of Macedonia -Private business	Foreign donations	- Loans - Foreign donations	Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs	Prepared and adopted strategy for inventory completion	Proposed actions / content of the strategy	June 2005	Quarterly
Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee PCBs wastes	- Control mechanisms established - Inspections bodies cooperating	- Number of cases of cooperation among inspection bodies	June 2006	Quarterly
Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	The scheme developed, accepted and implemented	- Number of meetings with business sector - Number of initiatives undertaken by the business sector	2005-2010	Once a year
Secure effective support of the program on non-combustion technologies for PCBs destruction	Program supported and implemented	Number of initiatives undertaken	2005-2010	Once a year
Disposal of PCBs in Macedonia with state contribution, according to the principles of the Stockholm Convention	PCB wastes disposed	Amount of PCB wastes disposed	2005-2010	Once a year
Establishment of a system for control of illegal import and application of PCBs	Illegal import and application of PCB in Macedonia eliminated	Number of cases of illegal import and applications of PCBs	2005-2015	Once a year

3.3.5 Activity: production, import and export, use, stockpiles and wastes of DDT (Annex B chemicals) if used in the country

Present situation in the Republic of Macedonia

DDT, along with Toxaphene and Endrin, is stated in the list of toxic substances with controlled trade and use, and the Ministry of Agriculture, Forestry and Water Economy continues to monitor its trade and application. These records show no import into the Republic of Macedonia. The last application of DDT, as an insecticide was recorded in 1976 for the protection of forests. However, there are unofficial reports of illegal import and application of DDT for plant protection in the agricultural regions bordering Albania and Greece.

For malaria eradication, DDT was used most frequently between 1947-1959. Since that time, there is still a large amount of obsolete stock in the storage house of the Health Protection Agency (2,500kg) that needs to be destroyed in an environmentally sound manner.

3.3.5.2 Objectives

The action plan implementation strategy will be based on the following objectives:

- Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT in Macedonia;
- Secured environmentally sound destruction of stockpiles of DDT in Macedonia.

3.3.5.3 Proposed Operational Measures

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including subcontracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objective, the following measures should be undertaken:

- Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT;
- Destruction of stockpiles of DDT in Macedonia according to the principles of the Stockholm Convention.

3.3.5.4 Implementation of the Action Plan

Action plan - Activity: production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)		
Objectives	Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT in Macedonia	Secured environmentally sound destruction of stockpiles of DDT in Macedonia
Activities	Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT Destruction of stockpiles of DDT in Macedonia according to the principles of the Stockholm Convention	
Expected results	Prepared and adopted strategy for inventory completion	DDT stockpiles destroyed
Responsible institution	POPs Center	POPs Center
Time period	2005	2005 - 2008
Estimated budget	10,000.00 EUR	100,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation and adoption of a strategy for inventory completion, collection, and disposal of DDT	Prepared and adopted strategy for inventory completion	Proposed actions / content of the strategy	December 2005	Quarterly
Destruction of stockpiles of DDT in Macedonia according to the principles of the Stockholm Convention	DDT stockpiles destroyed	Amount of DDT destroyed	2005-2008	Once a year

3.3.6 Activity: register for specific exemptions and the continuing need for exemptions (article 4)

The Republic of Macedonia has not filed any specific exemptions to Annex A or Annex B chemicals. The country has decided that it will not file such exemptions in the future. Therefore, no activities are required to address the obligation of Article 4 of the Convention.

3.3.7 Action plan: measures to reduce releases from unintentional production (article 5)

3.3.7.1 Present situation in the Republic of Macedonia

The project titled “Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Macedonia” is the first step on the national level for the identification and inventory of unintentionally produced POPs. Unfortunately, there is no national legislation on Annex C POPs emission reduction or control. The new Law on Air Protection, gives possibilities for this issue (for instance, the definition of maximum allowed concentrations) to be covered with regulations under this law in the near future.

The task team working on this issue during the past two years defined the major potential sources for PCDD/F emission. It was concluded that the dumping sites and illegal landfills are the main problem regarding dioxin and furan releases. The public communal enterprises operate about 35 city landfills in Bitola, Prilep, Gostivar, Veles, Kumanovo, Stip, Gevgelija, Negotino, Ohrid etc. They are constantly burning and it can be recognized as the most significant source of emissions of PCDDs/PCDFs. Apart from power generation and heating, there are other industrial branches in the Republic of Macedonia generating and emitting dioxins and furans, as unintentional by-products. The inventory of PCBs and HCB releases had not yet been developed.

3.3.7.2 Objectives of the Action Plan

The action plan implementation strategy will be based on the following objectives:

- Detailed inventory of all Annex C POPs (Please elaborate this in the tables below);
- Educated concerned population;
- Established system for control of releases from unintentional production;
- Established system for long-term permanent monitoring and reporting on the releases from unintentional production.

3.3.7.3 Proposed Operational Measures to reduce releases from unintentional production

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial

control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;

- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Promotion of selective waste collection;
- Gradual substitution of wood and coal with other energy sources (natural gas, renewable energy sources);
- Establishment of a system for control of stubble field burning;
- Established systems for risk reduction in respect to forest fires;
- Introduction of protection and technical measures concerning existing installations;
- Establishment of a national body for long-term permanent monitoring and reporting on the Annex C POPs;
- Definition and adoption of maximum permitted levels of Annex C POPs releases.

3.3.7.4 Implementation of the Action Plan

3.3.7 Action plan - measures to reduce releases from unintentional production (article 5)			
Objectives	Educated concerned population	Established system for control of releases from unintentional production	Established system for long-term permanent monitoring and reporting on the releases from unintentional production

Activities	Promotion of selective waste collection;	Gradual substitution of wood and coal with other energy sources (natural gas, renewable energy sources);	Establishment of a system for control of stubble field burning;	Established systems for risk reduction in respect to forest fires;	Introduction of protection and technical measures concerning existing installations;	Establishment of a national body for long-term permanent monitoring and reporting on Annex C POPs;	Definition and adoption of maximum permitted levels of Annex C POPs releases.
Expected results	Public awareness on selective waste collection raised;	Stakeholders educated on substitution of wood and coal with other energy sources;	- Control mechanisms established; - Reduces emissions by stubble field burning;	- Control mechanisms; established - Reduced forest fires;	Protection and technical measures established; -Reduction of emissions;	National body for monitoring and reporting established and operational;	Maximum permitted levels defined.
Responsible institution	POPs Center in Cooperation with MEIC	POPs Center in Cooperation with MEIC	Ministry of Environment and Physical Planning	Ministry of Environment and Physical Planning	Ministry of Environment and Physical Planning	Ministries working with POPs	Ministry of Environment and Physical Planning
Time period	2006	2006-2015	2005	2005	2005-2015	2006	2006
Estimated budget	100,000 EUR	100,000 EUR	20,000 EUR	20,000 EUR	1100,000,00 EUR	50,000 EUR	50,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia -Loans	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	- Loans - Private sector	- Foreign donations	- Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Promotion of selective waste collection;	Public awareness on selective waste collection raised	Number of initiatives for selective waste collection	June 2006	Quarterly
Gradual substitution of wood and coal with other energy sources (natural gas, renewable energy sources);	-Stakeholders educated on substitution of wood and coal with other energy sources; - Reduction of demand for wood and coal;	- Number of initiatives for substitution of wood and coal; - Demand for wood and coal;	2006-2015	Annually
Establishment of a system for control of stubble field burning;	- Control mechanisms established - Reduces emissions by stubble field burning	Emissions by stubble field burning	June 2006	Quarterly
Established systems for risk reduction in respect of forest fires;	- Control mechanisms established - Reduced forest fires;	Number of forest fires	June 2006	Quarterly
Introduction of protection and technical measures concerning existing installations;	- Protection and technical measures established - Reduction of emissions	Emissions	2005-2015	Quarterly
Establishment of a national body for long-term permanent monitoring and reporting on Annex C POPs;	National body for monitoring and reporting established and operational	Reports produced by the body	December 2005	Quarterly
Definition and adoption of maximum permitted levels of Annex C POPs releases	Maximum permitted levels defined	Values of the defined maximum permitted levels	December 2005	Quarterly

3.3.8 Activity: measures to reduce releases from stockpiles and wastes (article 6)

3.3.8.1. Present Situation in the Republic of Macedonia

POPs, especially DDT, PCBs and some of the POPs pesticides have been used extensively over the middle of the previous century. At that time outdated chemicals used to be deposed at municipal landfill sites. Therefore, we identified all the municipal waste landfill sites (legal and illegal) as possible contaminated locations. Significant contaminations are suspected at those locations where transformers were and are maintained. Formerly these operations were carelessly undertaken. Our result showed that high amount of hydraulic liquids were contaminated with PCBs. Therefore, a thorough survey needs to be undertaken at the maintenance locations as well. There are certain industrial facilities, where, due to their previous activities, POPs contaminations are suspected. Detailed information can be found in chapter 2.3.5.

3.3.8.2. Present Measures to Reduce Releases from Stockpiles and Wastes

The action plan implementation strategy will be based on the following objectives:

- Prepared assessment of current situation with releases from stockpiles and wastes;
- Established procedures for elimination of releases from stockpiles and wastes;

3.3.8.3. Action Plan Implementation Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the

NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Mapping out all ecological burdens containing POPs (locate current information in accessible data sources, actualize information about them);
- Preparation of an Inventory of Sewage Treatment Plants in terms of released POPs concentrations, quality levels, establishment of technological priorities and parameters for detoxification, evaluation of needed investment demands on technological adjustments;
- Determination of the extent of the contaminated area and determination of the level of contamination;
- Establishment of procedures for elimination of releases from stockpiles and wastes;
- Preparation of economical analyses for the sustainability of the process of recycling-burning-dumping technology.

3.3.8.4 Action Plan Implementation Performance Monitoring, Periodic Review Mechanisms and budget

Action plan - Activity: measures to reduce releases from stockpiles and wastes (article 6)					
Objectives	Prepared assessment of current situation with releases from stockpiles and wastes		Established procedures for elimination of releases from stockpiles and wastes		
Activities	Mapping out all ecological burdens containing POPs (locate current information in accessible data sources, actualize information about them)	Preparation of an Inventory of Sewage Treatment Plants	Determination of the extent of the contaminated areas and determination of the level of contamination	Establishment of procedures for elimination of releases from stockpiles and wastes	Preparation of economical analyses for the sustainability of the process of recycling-burning-dumping technology
Expected results	Realized mapping	Prepared inventory	Determination realized	Procedures for elimination of releases established	Economical analysis finalized
Responsible institution	POPs Center	POPs Center	POPs Center	Ministries working with POPs	POPs Center
Time period	2006	2005	2005 - 2010	2005 - 2010	2006
Estimated budget	50,000.00 EUR	20,000.00 EUR	200,000.00 EUR	1,000,000.00 EUR	50,000.00 EUR
Sources of financing	- Foreign donations	- Foreign donations	- Foreign donations	- Foreign donations - Private Business	- Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments and of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Mapping out all ecological burdens containing POPs (locate current information in accessible data sources, actualize information about them)	Realized mapping	Proposed actions / content of the strategy	June 2006	Quarterly
Preparation of an Inventory of Sewage Treatment Plants	Prepared inventory	Number of sewage treatment plants that are in the inventory	December 2005	Quarterly
Determination of the extent of the contaminated area and determination of the level of contamination	Determination realized	Report from the activity	2005-2010	Once a year

Establishment of procedures for elimination of releases from stockpiles and wastes	Procedures for elimination of releases established	Number of initiatives from elimination of the releases undertaken	2005-2010	Once a year
Preparation of economical analyses for the sustainability of the process of recycling-burning-dumping technology	Economical analysis finalized	Report from the analysis	December 2006	Quarterly

3.3.9 Strategy: identification of stockpiles, articles in use and wastes

3.3.9.1. Present situation in the Republic of Macedonia

Currently in the Republic of Macedonia, none of the legislation sets levels for contamination for POPs chemicals. As a first step would be identification of those locations, where POPs contamination could be suspected. To this end, a thorough literature review was undertaken. Not surprisingly, on POPs no information could be recovered. During the mapping of the current situation, first we would firstly look at stockpiles and the waste management practices.

3.3.9.2 Objectives and Priorities the of Action Plan

Development of the action plan implementation strategy will be based on the following objective:
• Prepared inventories of stockpiles, articles in use and wastes.

3.3.9.3 Proposed Operational Measures for Annex A POPs Pesticides Storage, Handling, Reduction and Disposal

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities

will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;

- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objective, the following measures should be undertaken:

- Preparation and adoption of a strategy for inventory completion;
- Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes;
- Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area.

3.3.9.4 Implementation of the Action Plan

Action plan - 3.3.9 Strategy: identification of stockpiles, articles in use and wastes			
Objectives	Prepared inventories of stockpiles, articles in use and wastes		
Activities	Preparation and adoption of a strategy for inventory completion;	Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes;	Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area;
Expected results	Prepared and adopted strategy for inventory completion	- Control mechanisms established - Inspections bodies cooperating	The scheme developed, accepted and implemented
Responsible institution	POPs Center	Ministries working with POPs	POPs Center
Time period	2005	2006	2005 - 2010
Estimated budget	10,000.00 EUR	5,000.00 EUR	10,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	- Budget of the Republic of Macedonia -Private business

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation and adoption of a strategy for inventory completion	Prepared and adopted strategy for inventory completion	Proposed actions / content of the strategy	June 2005	Quarterly
Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes	- Control mechanisms established - Inspections bodies cooperating	- Number of cases of cooperation among inspection bodies	June 2006	Quarterly
Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	The scheme developed, accepted and implemented	- Number of meetings with business sector - Number of initiatives undertaken by the business sector	2005-2010	Once a year

3.3.10 Activity: manage stockpiles and appropriate measures for handling and disposal of articles in use

3.3.10.1 Present situation in the Republic of Macedonia

In general, there is no existing hazardous waste recycling and recovery facilities which can deal with large quantities of hazardous waste. It can be stressed that the cement factory in Skopje “USJE” can play a potential in hazardous waste management. The detailed inventory on contaminated sites will establish a solid basis for the development of remediation strategy and an opportunity to assess correctly the existing capacities.

3.3.10.2 Objectives and Priorities of the Action Plan

According to the current situation in the Republic of Macedonia with reference to stockpiles and articles in use disposal the following objectives were defined:

- Prepared technical standards concerning handling and disposal of articles in use;
- Developed system for monitoring of handling and disposal of articles in use.

3.3.10.3 Proposed Operational Measures for PCBs and equipment containing PCBs

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation and adoption of a strategy for handling and disposal of articles in use;
- Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use;
- Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area.

3.3.10.4 Implementation of the Action Plan

Action plan - 3.3.10 Activity: manage stockpiles and appropriate measures for handling and disposal of articles in use			
Objectives	Prepared technical standards concerning handling and disposal of articles in use;		Developed system for monitoring of handling and disposal of articles in use;
Activities	Preparation and adoption of a strategy for handling and disposal of articles in use;	Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use
Expected results	Prepared and adopted strategy for handling and disposal of articles in use	The scheme developed, accepted and implemented	- Control mechanisms established
Responsible institution	POPs Center	POPs Center	Ministries working with POPs
Time period	2005	2005 – 2010	2006
Estimated budget	10,000.00 EUR	100,000.00 EUR	5,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	- Budget of the Republic of Macedonia -Private business	Budget of the Republic of Macedonia

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

3.3.11 Strategy: identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an envronmentally sound manner

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation and adoption of a strategy for handling and disposal of articles in use	Prepared and adopted strategy for handling and disposal of articles in use	Proposed actions / content of the strategy	June 2005	Quarterly

Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use	- Control mechanisms established	- Inspections bodies cooperating	- Number of cases of cooperation among inspection bodies	June 2006
Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	The scheme developed, accepted and implemented	- Number of meetings with business sector - Number of initiatives undertaken by the business sector	2005-2010	Once a year

3.3.11.1 Situation in the Republic of Macedonia

The occurrence of POPs in the natural environment and in polluted areas or in different areas in general is a function of the technological development of the country and its past production infrastructure. In the past, POPs and their effects on human health and the environment were not sufficiently known and therefore, no effective regulation for their production, spread, use and liquidation existed.

Obligations relevant to contaminated areas are listed in part 1.2 of the Convention. The Stockholm Convention requires that all parties develop their own strategy for identification of areas contaminated by POPs compounds listed in Annexes A, B or C. Moreover, if remediation of these areas is planned, this should be carried out in an environmentally appropriate manner.

A joint study of MEPP and UNEP in 2001 identified the main industrial polluters and contaminated sites in the country. PCB was recognized as a significant environmental hazard that should be handled with priority.

Some of the ‘hot spots’ in respect to POPs chemicals have been identified. However, these are not limited to locations where considerable amounts of POPs-containing equipment is installed and used, stored or dumped, locations where, historically, OCPs pesticides had been applied, and industrial capacities with larger significant unintentional production of POPs chemicals.

3.3.11.2 Objectives for identification of contaminated sites

The action plan implementation strategy will be based on the following objectives:

- Prepared environmental assessment of contaminated areas;
- Prepared strategy for contaminated areas recovery;
- Realized decontamination activities.

3.3.11.3 Action Plan Implementation Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;

- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation of an implementation strategy for these activities;
- Preparation of a methodology of the assessment;
- Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk;
- Preparation of technological and technical work procedures;
- Carrying out decontamination activities.

3.3.11.4 Action Plan Implementation Performance Monitoring, Periodic Review Mechanisms and budget

Implementation Performance Monitoring and Periodic Review Mechanisms

Action plan - 3.3.11 Strategy: identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner					
Objectives	Prepared environmental assessment of contaminated areas		Prepared strategy for contaminated areas recovery	Realized decontamination activities	
Activities	Preparation of an implementation strategy for these activities	Preparation of a methodology of the assessment	Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk	Preparation of technological and technical work procedures	Carrying out the decontamination activities
Expected results	Prepared strategy	Methodology for assessment defined	Priorities set	Prepared procedures	Decontamination activities realized
Responsible institution	POPs Center	POPs Center	POPs Center	POPs Center	POPs Center
Time period	2006	2007	2008-2009	2010	2011-2015
Estimated budget	20,000.00 EUR	20,000.00 EUR	200,000.00 EUR	100,000.00 EUR	5,000,000.00 EUR
Sources of financing	- Foreign donations	- Foreign donations	- Foreign donations	- Foreign donations - Private Business	- Foreign donations - Budget of the Republic of Macedonia

The work plan is detailed in chapter 3.5.

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation of an implementation strategy for these activities	Prepared strategy	Proposed actions / content of the strategy	December 2006	Quarterly
Preparation of a methodology of the assessment	Methodology for assessment defined	Structure of the methodology	December 2007	Quarterly
Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk	Priorities set	List of priorities	2008-2010	Once a year

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation of technological and technical work procedures	Prepared procedures	Procedures	2010	Once a year
Carrying out decontamination activities	Decontamination activities realized	- Number of decontaminated sites - Decontaminated area (in km^2)	2010-2020	Once a year

3.3.12 Activity: facilitating or undertaking information exchange and stakeholder involvement

3.3.12.1 Present situation in the Republic of Macedonia

According to the new Law on Environment, the Government of the Republic of Macedonia determines the facilities that are obliged to follow the procedure for environmental impact assessment. The information about the study on the environmental impact assessment preparation (according to Article 89 of the new Law on Environment) would be published in two national daily newspapers, local radio and TV stations, and the report would be available to the public. Additionally, all involved stakeholders (representatives from NGOs, investing firm, study authors, responsible Governmental institutions, etc.) would be invited to participate in the forum for study presentation. It also includes the public in the decision making process by (1) public hearings and (2) voting.

3.3.12.1 Objectives for information exchange and stakeholders involvement

The action plan implementation strategy will be based on the following objectives:

- Established National Focal Point;
- Introduced effective system for information exchange by responsible institutions and the National Focal Point.

3.3.12.2 Action Plan Implementation Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be

a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;

- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation of institutional and technical set up for establishment of a National Focal Point;
- Development of mechanisms for provision of information related to POPs to the National Focal Point;
- Definition of formats for information exchange related to POPs.

3.3.12.3 Action Plan Implementation Performance Monitoring, Periodic Review Mechanisms and budget

Action plan - Activity: facilitating or undertaking information exchange and stakeholder involvement			
Objectives	Established National Focal Point	Introduced effective system for information exchange by responsible institutions and the National Focal Point	
Activities	Preparation of institutional and technical set up for establishment of National Focal Point	Development of mechanisms for provision of information related to POPs to the National Focal Point	Definition of formats for information exchange related to POPs.
Expected results	- Established National Focal Point - Clearly defined responsibilities of the National Focal Point - Clearly defined rights of the National Focal Point	Clearly defined mechanisms for provision of information	Format for provision of information developed
Responsible institution	Government of Republic of Macedonia	POPs Center	POPs Center
Time period	2005	2005	2005
Estimated budget	50,000.00 EUR	10,000.00 EUR	10,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation of institutional and technical set up for establishment of a National Focal Point	- Established National Focal Point - Clearly defined responsibilities of the National Focal Point - Clearly defined rights of the National Focal Point	- Responsibilities of the National Focal Point - Rights of the National Focal Point	December 2005	Quarterly
Development of mechanisms for provision of information related to POPs to the National Focal Point	Clearly defined mechanisms for provision of information	Quality and quantity of information provided to the National Focal Point	December 2005	Quarterly
Definition of formats for provision of POPs related information to the National Focal Point	Format for provision of information developed	Structure of formats for provision of information	December 2005	Quarterly

3.3.13 Activity: public awareness, information and education (article 10)

3.3.13.1 Situation in the Republic of Macedonia

By ratifying the Aarhus Convention, the Republic of Macedonia is obliged to enable direct access to the public to environment-related information, public participation in the decision making process, and better access to justice in environmental protection issues. These obligations are reflected in the Law on Environment and the Law on Nature Protection. For better communication with the public and the stakeholders following the ratification, the Ministry of Environment and Physical Planning has established an Environmental Information Center and Public Relations Office. The POPs Unit has a mandate to work on public awareness rising in the field of POPs chemicals.

The base for national action on introduction to the general public and to directly involve them in the decision making process will be developed in the strategy for raising public awareness as a main part of the National Implementation Plan. The strategy foresees two directions for acting: inclusion of the general public, and inclusion of the concerned professionals (management and directly exposed workers).

3.3.13.2 Objectives for information exchange and stakeholders involvement

The action plan implementation strategy will be based on the following objectives:

- Educated and trained national government officials for implementation of the Stockholm Convention;
- Educated and trained local government officials for implementation of the Stockholm Convention;
- Educated and trained business sector representatives for implementation of the Stockholm Convention;
- Educated general public for the principles of Stockholm Convention

3.3.13.3 Action Plan Implementation Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector, and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC's existing national procedures.

The Technical Committee will:

- develop its working procedures,
- monitor the execution by means of progress reports and close contact with the PM;
- evaluate the efficiency of the project management, including outcomes, the budget and timelines;
- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;

- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation and realization of training for national government officials for implementation of the principles of the Stockholm Convention;
- Preparation and realization of training for local government officials for implementation of the principles of the Stockholm Convention;
- Preparation and realization of trainings for business sector representatives for implementation of the principles of the Stockholm Convention;
- National Public Awareness campaign for implementation of the Stockholm Convention;

3.3.13.4 Action Plan Implementation Performance Monitoring, Periodic Review Mechanisms and Budget

Action plan - Activity: public awareness, information and education (article 10)				
Objectives	Educated and trained national government officials for implementation of the Stockholm Convention	Educated and trained local government officials for implementation of the Stockholm Convention	Educated business sector representatives for implementation of the Stockholm Convention	Educated general public for the principles of Stockholm Convention
Activities	Preparation and realization of training for national government officials for implementation of the principles of the Stockholm Convention	Preparation and realization of training for local government officials for implementation of the principles of the Stockholm Convention	Preparation and realization of training for business sector representatives for implementation of the principles of the Stockholm Convention	National Public Awareness campaign for implementation of the Stockholm Convention

Expected results	Trained national government officials for implementation of the Stockholm Convention	Trained local government officials for implementation of the Stockholm Convention	Trained business sector representatives for implementation of the Stockholm Convention	Increased public awareness on principles of the Stockholm Convention raised
Responsible institution	POPs Center	POPs Center	POPs Center	POPs Center
Time period	2006-2010	2006-2010	2006-2010	2006-2008
Estimated budget	200,000.00 EUR	250,000.00 EUR	150,000.00 EUR	200,000.00 EUR
Sources of financing	- Foreign donations	- Foreign donations	- Budget of the Republic of Macedonia - Business sector	- Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation and realization of training for national government officials for implementation of the principles of the Stockholm Convention	Trained national government officials for implementation of the Stockholm Convention	- Amount of training completed - Number of participants at the training - Level of knowledge gathered in the training	2006-2010	Quarterly
Preparation and realization of training for local government officials for implementation of the principles of the Stockholm Convention	Trained local government officials for implementation of the Stockholm Convention	-Amount of training completed - Number of participants at the training - Level of knowledge gathered in the training	2006-2010	Quarterly
Preparation and realization of training for business sector representatives for implementation of the principles of the Stockholm Convention	Trained business sector representatives for implementation of the Stockholm Convention	- Amount of training completed - Number of participants at the training - Level of knowledge gathered in the training	2006-2010	Quarterly
National Public Awareness campaign for implementation of the Stockholm Convention	Increased public awareness on the principles of the Stockholm Convention	- Number of people targeted with the campaign - Changing the attitude of the people	2006-2008	Quarterly

3.3.14 Activity: effectiveness evaluation (article 16)

Presently there is no system for monitoring of POPs presence and releases established in Macedonia. In order to facilitate effectiveness evaluation of the NIP and the Stockholm Convention provisions at the same time, the Republic of

Macedonia needs to create a monitoring system that will comply with the systems in the neighboring countries and in the region in general.

This will improve the assessment, data and information exchange and cooperation among the countries in order to obtain a clear picture of the POPs presence and management in certain regions.

3.3.15 Activity: Reporting

Reporting requirements, that are established by the Stockholm Convention and that should be fulfilled by the Republic of Macedonia are provided in the following table:

CONVENTION OBLIGATION	DESCRIPTION OF REQUIREMENT	PERIOD
Article 5, subparagraph (a) Measures to reduce or eliminate releases from unintentional production	Requires each Party to develop an action plan, or, where appropriate, a regional or sub-regional action plan, and subsequently to implement it as part of its national implementation plan specified in article 7, designed to identify, characterize and address the release of the chemicals listed in Annex C of the Convention.	Within two years of the date in which the Convention enters into force for that Party
Article 5, subparagraph (a) (v): Measures to reduce or eliminate releases from unintentional production	Requires a review to be undertaken of those strategies pursuant to the development of an action plan to identify, characterize and address the release of unintentionally produced persistent organic pollutants listed in Annex C, and of their success.	Every five years
Article 7: Implementation plans	Requires each Party to develop and endeavor to implement an implementation plan and transmit it to the Conference of the Parties, and requires each Party to review and update its plan on a periodic basis and in a manner to be specified in a decision of the Conference of the Parties.	Transmission to the Conference of the Parties within two years of the date on which the Convention enters into force for that Party.

Article 15: Reporting	Each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of the Convention and on the effectiveness of such measures in meeting the objectives of the Convention. Each Party shall provide to the Secretariat: (a) Statistical data on its total quantities of production, import and export of each of the chemicals listed in Annex A and Annex B or a reasonable estimate of such data; and (b) To the extent practical, a list of the States from which it has imported each such substance and the States to which it has exported each such substance.	To be decided by the Conference of the Parties.
Article 16: Effectiveness evaluation	Requires an evaluation of effectiveness commencing four years after the date of entry into force of the Convention and periodically thereafter. Requires also reports and information, including the reports and monitoring information called for in paragraph 2 of article 16 (results of monitoring activities on a regional and global basis), the national reports submitted pursuant to article 15 and non-compliance information provided pursuant to the procedures to be established under article 17.	Commencing four years after the entry into force of the Convention.
Annex A, part II subparagraph (g)	Requires each Party to provide a report every five years on progress in eliminating polychlorinated biphenyls and submit it to the Conference of the Parties pursuant to article 15.	Every five years
Annex B, part II, paragraph 4	Each Party that uses DDT is required to provide to the Secretariat information on the amount used, the conditions of such use and its relevance to that Party's disease management strategy in a format to be decided by the Conference of the Parties in consultation with the World Health Organization.	Every three years

The National POPs Unit will be responsible for fulfillment of these requirements. The National POPs Unit will provide required information and reports to the Secretariat of the Convention on the basis of the reports that are going to be prepared during the realization of the action plans.

The reporting obligations will be elaborated on and implemented in the country when all of the reporting requirements are developed and approved by the Convention.

3.3.16 Activity: research, development and monitoring (article 11)

3.3.16.1 Present situation in the Republic of Macedonia

Due to the insufficiency of equipment and training of staff in laboratories and financial difficulties in making the analysis in the country or abroad, research in the area of persistent organic pollutants in the Republic of Macedonia is still at the beginning. There is partial monitoring of some POPs pesticides and PCBs. Unfortunately Annex C POPs are not included in this monitoring because of the costly analysis.

There is no information about the air concentrations of dioxins and furans in the areas of critical hot spots. Nearly no data are available concerning the concentrations of these and other POPs substances, the exposure of or load on the adult population on the basis of monitoring breast milk and subcutaneous fat, and epidemiological studies relating data about loads on population groups to possible health risks.

3.3.16.2 Objectives for research, development and monitoring

The action plan implementation strategy will be based on the following objectives:

- Established network for cooperation, data and information exchange of scientific institutions involved in POPs research activities;
- Established and adopted an internationally accepted system of standardization of methods for residue analysis in abiotic and biotic matrices;
- Developed system of quality assurance and quality control in Macedonian labs.

3.3.16.3 Action Plan Implementation Process

Throughout the implementation of this action plan, there will be a Project Manager (PM), who reports to the Technical

Committee (TC) and the National POPs Unit and works during the implementation on a contracted basis. The PM will be a technically qualified person to provide overall guidance on the management of the process. The PM will ensure adherence to the work plan, which will be finalized during the first phase of the implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the Action plan implementation as well as the financial control over the execution. The PM will work in close cooperation with the POPs Officer.

During the implementation of this action plan, the Legal Advisor (LA), working fulltime on a contracted basis of the overall coordination of the NIP implementation, shall facilitate the execution of the proposed activities and handle all legal aspects, such as procedures for tender, contract and agreement preparation.

A Technical Committee (TC) will be established and will act as the Steering and Coordinating Committee for the execution of this Action Plan. It will be chaired by the PM, with relevant ministries, representatives of the private sector and the NGO sector. The POPs Officer can be present at anytime at the meetings as an observer. The TC will decide on the frequency of the meetings and its working procedures. This is the forum where the NGO sector can also raise questions and comment on the discussion topics. The TC will hold its regular sessions throughout the implementation but additional meetings can be held if necessary.

The TC will oversee the project-related work of the PM and the implementation team. The TC 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 concerned. Activities will be implemented through sub-contracts. Submitted tenders will be reviewed and evaluated by the TC existing national procedures.

The Technical Committee will:

- develop its working procedures;
- monitor the execution by means of progress reports and close contact with the PM;

evaluate the efficiency of the project management, including outcomes, the budget and timelines;

- provide technical support to the PM and working teams;
- approve the work plan with timelines and budget of the implementation of this Action Plan;
- have meetings on a regular basis;
- agree to working arrangements and implementation plans with the Project Manager and the POPs Officer;
- oversee the work of the national experts engaged to undertake various activities required by the Action Plan and receive and review their reports;
- lead stakeholder workshops to develop consensus and commitment to the objectives of the Action Plan.

The Project Manager will:

- agree on a subcontract with the National POPs Office for the terms set out in this Action Plan;
- call principal stakeholders of the Technical Committee to oversee and coordinate the successful implementation of this Action Plan;
- establish an office within its premises charged with the successful implementation of the Action Plan;
- have day-to-day responsibility for the management and coordination of the implementation activities, including sub-contracts, budgets, and reporting to the Technical Committee and the NPO;
- appoint national experts as necessary to undertake the various actions required during the course of the work, using terms of reference agreed by the Technical Committee and ensure the quality of their work;
- provide a secretariat function to the Technical Committee and stakeholder workshops;
- report regularly to the Technical Committee, and to the NPO, on the progress of the implementation and the disbursement of the funds.

In order to achieve the objectives, the following measures should be undertaken:

- Preparation of an inventory of scientific institutions involved in POPs research activities;
- Establishment of a network for cooperation, data and information exchange of these institutions;
- Establishment of an internationally accepted system;
- Development of a scheme for adoption of the system by scientific institutions;
- Development of standards for quality assurance and control;
- Development of a scheme for adoption of the standards by the scientific institutions.

3.3.16.4 Implementation of the Action Plan

Action plan - 3.3.16 Activity: research, development and monitoring (article 11)						
Objectives	Established network for cooperation, data and information exchange of scientific institutions involved in POPs research activities		Established and adopted an internationally accepted system of standardization of methods for residue analysis in abiotic and biotic matrices		Developed system of quality assurance and quality control in Macedonian labs	
Activities	Preparation of an inventory of scientific institutions involved in POPs research activities	Establishment of a network for cooperation, data and information exchange of these institutions	Establishment of internationally accepted system	Development of scheme for adoption of the system by the scientific institutions	Development of standards for quality assurance and control	Development of scheme for adoption of the standards by scientific institutions
Expected results	Prepared inventory	- Network established - Scientific institutions cooperating	System established	System adopted and applied by scientific institutions	Standards for quality developed	Standards for quality accepted and applied by scientific institutions
Responsible institution	POPs Center	Ministries working with POPs	POPs Center	POPs Center	POPs Center	POPs Center
Time period	2005	2006-2008	2006 - 2008	2006 – 2008	2006 – 2008	2006 - 2008
Estimated budget	10,000.00 EUR	20,000.00 EUR	20,000.00 EUR	50,000.00 EUR	20,000.00 EUR	50,000.00 EUR
Sources of financing	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	Budget of the Republic of Macedonia	Foreign donations	Budget of the Republic of Macedonia	Foreign donations

The work plan is detailed in chapter 3.5.

Implementation Performance Monitoring and Periodic Review Mechanisms

Reporting to the TC

The monitoring of the project execution will be undertaken by technical and financial reports, which will be developed by the PM. He/she will submit these reports to the TC on a regular basis indicated in the table below. The PM will take corrective actions based on the comments and evaluations of the TC.

Reporting to the Steering Committee

Technical and financial reports will also be requested by the Steering Committee. These reports will evaluate the efficiency of project implementation, including outcomes, the budget and timelines. Their frequency will be decided, when the subcontract is developed between the National POPs Unit and the PM. Payment distribution will also depend on these reports. An appointed Reviewer will, on a contracted basis, assist the National POPs Unit in evaluating these reports and the implementation progress. He/she will be nominated by the Steering Committee which is responsible for coordinating the implementation of all Action Plans in the NIP. The PM will take corrective actions based on the comments of the National POPs Unit. The following table details the reporting requirements of this Action Plan.

Activities	Expected results	Indicators of success	Period for achieving results	Frequency of monitoring
Preparation of an inventory of scientific institutions involved in POPs research activities	Prepared inventory	Number of institutions in the inventory Structure of the inventory	December 2005	Quarterly
Establishment of a network for cooperation, data and information exchange of these institutions	- Network established - Scientific institutions cooperating	- Number of cases of cooperation among scientific institutions	2006-2008	Once a year
Establishment of an internationally accepted system	System established	Structure of the system	2006-2008	Once a year

Development of a scheme for adoption of the system by the scientific institutions	System adopted and applied by the scientific institutions	Number of scientific institutions that are applying the system	2006-2008	Once a year
Development of standards for quality assurance and control	Standards for quality developed	Structure of the standards	2006-2008	Once a year
Development of scheme for adoption of the standards by scientific institutions	Standards for quality accepted and applied by scientific institutions	Number of scientific institutions that are applying the standards	2006-2008	Once a year

3.3.17 Activity: Technical and financial assistance (articles 12 and 13)

The Republic of Macedonia in going through a period of development, reconstruction of the economy in transition and, for the successful implementation of the Convention, is heavily dependent on the financial assistance from developed countries.

Following the directions, recommended by EU and international community, at this moment, it is very difficult to obtain efficient funds to deal with economic problems.

3.4 DEVELOPMENT AND CAPACITY-BUILDING PROPOSALS AND PRIORITIES

3.4.2. Key Investment Requirements and Priorities

For the initial phase of NIP implementation no key investment requirements are foreseen. With development of the issue specific action plans, it is expected that the key investment requirements will be additionally defined. Those will be included in the following, updated version of the NIP.

3.5 TIMETABLE FOR PLAN IMPLEMENTATION AND MEASURES OF SUCCESS

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
3.3.1 Institutional and regulatory strengthening measures																						
Establishment and functioning of Inter-ministerial Working Group																						
Appointment of responsible units/focal points in each of the governmental bodies and institutions																						
Assessment of the needs of the relevant governmental bodies																						
Capacity building in identified governmental agencies																						
Finalization and adoption of the laws																						
Preparation and adoption of bylaws																						
3.3.2 Activity: measures to reduce or eliminate releases from intentional production and use																						
Introduction of protection and technical measures																						
Establishment of national body																						

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
3.3.3 Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides																						
Strategy for inventory completion, collection, and disposal of obsolete pesticide stocks																						
Preparation and establishment of control mechanisms																						
Development of schemes for positive influence in the business sector																						
Secure effective support of the program on non-combustion technologies for POPs destruction																						
Disposal of POPs pesticides in Macedonia																						
Establishment of a system for control of illegal import and application of OCPs																						
3.3.4: Production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)																						
Preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs																						

Year																					
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																					
Preparation and establishment of control mechanisms																					
Development of schemes for positive influence in the business sector																					
Secure effective support of the program on non-combustion technologies for PCBs destruction																					
Disposal of PCBs in Macedonia																					
Establishment of a system for control of illegal import and application of PCBs																					
3.3.5 Activity: production, import and export, use, stockpiles and wastes of DDT																					
Preparation and adoption of a strategy for inventory completion																					
Destruction of stockpiles of DDT																					
3.3.7 Measures to reduce releases from unintentional production (article 5)																					
Promotion of selective waste collection																					

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
Gradual substitution of wood and coal																						
Establishment of a system for control of stubble field burning																						
Established systems for risk reduction in respect to forest fires																						
Introduction of protection and technical measures concerning existing installations																						
Establishment of national body for long-term permanent monitoring and reporting on dioxins and furans																						
Definition and adoption of maximum permitted levels of dioxins and furans emissions into the air and waters																						
3.3.8: Measures to reduce releases from stockpiles and wastes (article 6)																						
Mapping out all ecological burdens containing POPs																						
Preparation of an Inventory of Sewage Treatment Plants																						

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
Determination of the extent of the contaminated area and determination of the level of contamination																						
Establishment of procedures for elimination of releases from stockpiles and wastes																						
Preparation of economical analyses																						
3.3.9 Strategy: identification of stockpiles, articles in use and wastes																						
Preparation and adoption of a strategy																						
Preparation and establishment of control mechanisms																						
Development of schemes for positive influence in the business sector																						
3.3.10 Activity: manage stockpiles and appropriate measures for handling and disposal of articles in use																						
Preparation and adoption of a strategy																						
Preparation and establishment of control mechanisms																						

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
Development of schemes for positive influence in the business sector																						
3.3.11: Identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner																						
Preparation of an implementation strategy for these activities																						
Preparation of a methodology of the assessment																						
Prioritization of contaminated areas for their recovery																						
Preparation of technological and technical work procedures																						
Carrying out decontamination activities																						
3.3.12: Facilitating or undertaking information exchange and stakeholder involvement																						
Preparation of institutional and technical set up for establishment of a National Focal Point																						
Development of mechanisms for provision of information related to POPs to the National Focal Point																						

Year																						
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																						
Definition of formats for provision of information related to POPs to the National Focal Point																						
3.3.13: Public awareness, information and education (article 10)																						
Preparation and realization of training for national government officials																						
Preparation and realization of training for local government officials																						
Preparation and realization of training for business sector representatives																						
National public awareness campaign																						
3.3.16 Research, development and monitoring (article 11)																						
Preparation of an inventory																						
Establishment of a network for cooperation																						
Establishment of a system																						
Adoption of the system																						

Year																				
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Activity																				
Development of standards for quality																				
Adoption of the standards by the scientific institutions																				

3.6 Resource requirements

Activity	Year													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Coordination	Total	%
3.3.1: Institutional and regulatory strengthening measures	2,015,000	500,000	700,000									225,050	3,440,050	23.91
3.3.2: Measures to reduce or eliminate releases from intentional production and use	9,091	59,091	9,091	9,091	9,091	9,091	9,091	9,091	9,091	9,091	9,091	10,500	160,501	1.12
3.3.3: Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides	352,878	347,878	342,878	342,878	342,878	342,878	4,545	4,545	4,545	4,545	4,545	146,650	2,241,643	15.58
3.3.4: Production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)	519,545	514,545	509,545	509,545	509,545	509,545	4,545	4,545	4,545	4,545	4,545	216,650	3,311,645	23.02
3.3.5: Production, import and export, use, stockpiles and wastes of DDT	35,000	25,000	25,000	25,000								7,700	117,700	0.82

Activity	Year													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Coordination	Total	%
3.3.7: Measures to reduce releases from unintentional production (article 5)	340,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	100,800	1,540,800	10.71
3.3.8: Measures to reduce releases from stockpiles and wastes (article 6)	220,000	300,000	200,000	200,000	200,000	200,000						92,400	1,412,400	9.82
3.3.9 Strategy: identification of stockpiles, articles in use and wastes	11,667	6,667	1,667	1,667	1,667	1,667						1,750	26,752	0.19
3.3.10 Activity: manage stockpiles and appropriate measures for handling and disposal of articles in use	26,667	21,667	16,667	16,667	16,667	16,667						8,050	123,052	6.25
3.3.11: Identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner		20,000	20,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	58,800	898,800	0.82
3.3.12: Facilitating or undertaking information exchange and stakeholder involvement	70,000											4,900	74,900	0.52
3.3.13: Public awareness, information and education (article 10)		186,667	186,667	186,667	120,000	120,000						56000,07	856,001	5.95
3.3.15: Research, development and monitoring (article 11)	10,000	53,334	53,334	53,334								11900,14	181902	1.26
Total/year	**3,609,848**	**2,144,849**	**2,174,849**	**1,554,849**	**1,409,848**	**1,409,848**	**228,181**	**228,181**	**228,181**	**228,181**	**228,181**	**941,150**	**14,386,146**	**100.00**

LOCAL EXPERTS

POPs Unit

1. Gordana Popsimonova – POPs Unit Manager
2. Teodora Grncarovska – Focal point and liaison with the MEPP
3. Antonio Nedelkov – Assistant Project Manager
4. Suzana Andonova – Technical Assistant
5. Aleksandar Mickovski - Technical Staff

Members of the Steering Committee are:

1. Mr Ljubomir Janev - Minister of Environment and Physical Planning
2. Prof. Gjorgji Martinovski, PhD Faculty of Agriculture;
3. Panche Nikolov, Ministry of Agriculture Forestry and Water Economy;
4. Prof.Ljupcho Melovski, PhD Association of Ecologists of Macedonia-NGO;
5. Nikola Stojanovski, MS NGO
6. Prof. Dragan Gjorgjev,MD Ministry of Health
7. Marin Kocov, MS Ministry of Environment and Physical Planning

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2	Aco J. Janevski	PhD	OHIS - Organic Chemical Industry
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4	Bozidar Stojcevski	Ing.	Central Electrical Repairing
5	Cvetanka Bozinovska	PhD	Clinic of Toxicology
6	Dana Prelic	PhD	Faculty of Natural Sciences - Institute of Biology
7	Emilija Kupeva	Ing. Tech	Ministry of Environment and Physical Planning
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9	Gordana Golabovska	Dr.	Health Protection Agency

10	Gordana Ristovska	MSc. Dr.	National Health Protection Agency
11	Ilija Kacarski	Ing	Ministry of Economy
12	Jadranka Ivanova	Legal exp.	Ministry of Environment and Physical Planning
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14	Josif Blagoevski	Ing.	NEPA
15	Josif Taneski	PhD	Pharmachem
16	Jovan Mickovski	PhD	Faculty of Technology and Metallurgy
17	Julijana Cvetkovic	PhD	Institute of Agriculture
18	Kaja Sukova	Ing. Tech	Ministry of Environment and Physical Planning
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23	Momcula Jordanoski	PhD	Institute of Hydrobiology
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27	Roza Nakova	Ing. Agr.	Ministry of Agriculture Forestry and Water Economy
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31	Slobodan Sofeski	Ing	Chamber of Economy, Macedonia
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33	Sonja Srbinovska	PhD	Faculty of Agriculture – Skopje
34	Stanislava Lazarevska	PhD	Faculty of Agriculture – Skopje
35	Stefan Gorcev	Ing.	Expert on Risk Assessment
36	Stojko Mojancevski	Ing.	ESM - Electric Supply Company
37	Svetomir Hadzi Jordanov	PhD	Faculty of Technology and Metallurgy
38	Tatjana Kadifkova	MSc	Faculty of Pharmacy
39	Tomislav Stojanovski	Ing.	Customs Administration

40	Trajce Naumovski	Ing.	Institute for Hydrobiology
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Laperriere	Francine	Environment

Organizational Chart of the Ministry of Environment and Physical Planning, Republic of Macedonia

Proposition for amending the Macedonian legislation according to the Stockholm Convention

Type	**Law**	
Number	Official Gazette of Socialistic Republic of Macedonia, 18/76	
Official title	**Law on the Production of Poisons (LPP)**	
Competent administrative bodies	Republic Sanitary Inspectorate which is under the authority of the Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Governs the conditions of preparation, manufacturing, packaging, storage and internal (within production facilities) transportation of poisons and preparations containing poisons; the provisions are also addressed to the production of plant protection chemicals, medicines and goods aimed for public use containing poisons if not regulated by other legal documents. The law generally covers the requirements concerning the organizational and technical conditions for production of poisons and preparations. The Law determines the basic technical requirements for keeping stockpiles of poisons and preparations whether they are raw materials, products or by-products (Articles: 10, 11, 13, 16) The Law prescribes the obligation and manner of keeping records for all substances included in the production	**Convention, Annex IA and B: 1.** Prohibit production of aldrin,dieldrin,endrin,heptachlor, toxaphen, PCBs 2. Allows specific exemptions for production of chlordane, hexachlorobenzene and mirex if Party is registered (which understands allowance by the Secretariat) and for DDT if used as vector disease control. **LPP:** The law does not give any direct legal base for ban of production of some specific poisons and preparation (as are for example poisons covered by the Stockholm Convention). Indirectly, the ban on production arises from the Law on trading and use of poisons, which stipulates ban on some poisons and preparations and authorizes the Ministry of Health to ban other poisons and preparations by issuing a Decision. The ban on trade in fact makes the production unreasonable. **Convention, Article 6,** on	**1. Promulgation of the Law on chemicals** that shall encompass the entire matter of chemicals including POPs covered by the Convention, and shall repeal the old legislation. **2.Temporary solution: 2.1 Amend the Law on production of poisons** by authorizing MEPP in cooperation with the Ministry of Health and the Ministry of Economy to issue Decisions on ban, restriction (including specific exemptions if necessary) of production of poisons and preparations in order to fulfill the state obligations undertaken by ratified international documents related to the environment (some legal base exists in Article 1 which stipulates that the Law is promulgated in order to protect human lives and health; the environment is not mentioned and shall be added in the

process.	Measures to reduce or eliminate releases from stockpiles and wastes, **subparagraph d, (i), (ii);** **LPP: Article 5:** prescribes environmentally sound disposal of wastes; **Article 17:** prescribes obligation for irreversible transformation if such measures are available. **Convention, Article 6 (1)** on Measures to reduce or eliminate releases from stockpiles and wastes, **subparagraph a, (i), (ii), b and c** (first sentence) **LPP:** Prescribes (satisfactorily) the basic technical conditions for safe, efficient and environmentally sound manner of keeping stockpiles of poisons as well as the manner of keeping records.	article 1 also with the amendment). **2.2 Decision on ban and restriction of production of some poisons** (which shall cover the obligation undertaken by the country according to Annex A, B as well as the possible extension of the List of POPs according to Annexes D, E and F). **Already Regulated Ban:** Production of the ninth POP from Annex A – PCBs/PCTs is explicitly prohibited by the Law on Waste Management (Article 69(1), which is planned to come into force beginning with the second quarter of 2005. PCBs and any object containing PCBs are wastes according the definition on waste (**"Waste"** shall mean any substance or object that the generator or the holder discards, intends to discard or **is required to discard.**)
Type	**Law**	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 13/91	
Official title	**Law on Trade of Poisons (LTP)**	
Competent administrative bodies	**Ministry of Health* Ministry of Economy** in cooperation with the Ministry of Health**	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The Law stipulates the con-	**Convention: Annex IA and IB:**	***1. 1. Law on the classification, packaging and labeling of hazardous substances and***

*- issues Decision for prohibition of trade of some poisons;
- issues decision for classification of poisons into groups on the basis of prior opinion of the Commission for poisons;
- issues Decision for authorization of enterprises performing toxicological assessment of poisons (based on the opinion of the Commission);
- issues decision for use of poisons for hygienic purposes;
- performs supervision on the implementation of this Law and Regulations based on this Law. Supervision of the enterprises which make toxicological assessment is under the authority of the Ministry of Health by the State Health Inspectorate

** issues Regulations on derogation for trade of some poisons aimed for industrial use purposes

ditions under which trade of poisons and supervision of the trade are to be conducted in order to provide protection of human life and health and the environment from the harmful effects of the poisons as well as preventive measures in order to eliminate the abuse of the poisons. The Law stipulates the obligation for environmentally sound disposal of poisons and preparations and their packaging. The law stipulates basic conditions for accreditation of organizations for toxicological assessment of the substances and preparations and authorizes the Ministry of Health (after obtaining the opinion of the Commission for poisons) to determine and promulgate the List of accredited organizations. The Law determines the basic technical requirements for keeping stockpiles of poisons and preparations still in use. The Law prescribes the manner of keeping records for the input and output i.e. inventory of poisons during trading and use.	1. Ban the use of endrine and toxaphen; 2. Provide specific exemptions for the use of other POPs; **LTP:** **1.** Prescribes prohibition for trade of some POPs as Aldrin, Chlordane, Dieldrin,Heptachlor Hexachlorobenzene; 2. Prescribes authorization of the Ministry of Health to ban other poisons and preparations by issuing a Decision. 3. Authorizes the Ministry of Economy in cooperation with the Ministry of Health for issuing legal documents for exemptions if the poisons and preparations are to be used for industrial production. 4. Bans the trade of poisons and preparations that are banned for use in the country, where they are produced. 5. Bans the use of poisons and preparations for which, based on their use, it will be concluded that they are harmful for human health and the environment (Articles: 17(2), 18-22). **Convention, Article 6 (1)** on Measures to reduce or eliminate releases from stockpiles and wastes, **subparagraph a, (i), (ii), b and c (**first	***preparations*** *(if the matter shall not be included in the Law on Chemicals)**;*** ***1.2. Law on Good Laboratory Practices;*** **2 Temporary solution: 2.1 Amend the Law on trade of poisons** by authorizing MEPP in cooperation with the Ministry of Health and the Ministry of Economy to issue Decisions on bans and restrictions (including specific exemptions if necessary) for trade of poisons and preparations in order to fulfill state obligations undertaken by ratified international documents related to the environment (legal base exists in Article 1 which stipulates that the Law is promulgated in order to protect human lives and health and the environment). **2.2 Decision on bans and restriction of use of some poisons** (which shall cover the obligation undertaken by the country according to Annex IA, IB as well as the possible extension of the List of POPs according to Annexes D, E and F). **2.3 Decision on import and export of some poisons and preparations** (which shall cover the obligation undertaken by the country according the Article 3 of the Convention). **2.4 Decision on derogation** of the authorization prescribed by Article 12 when the POPs chemicals prescribed by Article 4(1) and (3) are in question; this decision shall ask to eliminate the import of hexachlorobenzene even

	sentence) **LTP:** Prescribes (satisfactorily) the basic technical conditions for safe, efficient and environmentally sound manner of keeping stockpiles of poisons as well as the manner of keeping records (Article 33).	with a permit. **Regulated Ban:** Import, sale and use of the ninth POP from Annex A - PCBs/PCTs are explicitly prohibited by the Law on Waste Management (Article 69(1)) which is planned to come into force beginning with the second quarter of 2005. PCBs and any object containing PCBs are wastes according the definition on waste. Specific exemption of elimination of their use is fully prescribed by the **Regulation on elimination of PCBs** which is in compliance with Annex A, Part II shall be fine tuned and promulgated. The Law on Waste management also prescribes obligations to identify the stockpiles in a manner fully compliant with Convention Article 6(1).
Type	Regulation	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 1/83	
Official title	Regulations setting out the Criteria for the Classification of Poisons into Groups and the Methods for determining the Level of Toxicity of Individual Substances	
Competent administrative bodies	Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Determines the criteria for classification of poisons into groups regarding the level of hazard and average lethal dose.	The used criteria and recommended methods may be deemed as not compliant with the screening criteria of Annex D of the Convention	***Law on classification, packaging and labeling of hazardous substances and preparations*** *(if the matter shall not be included in the Law on chemicals)**;***

Type	Regulation	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 7/83	
Official title	Regulation on procedures of destruction of obsolete poisons, including their packaging and the method of their withdrawal from the market	
Competent administrative bodies	Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes the manner for destroying the wastes of poisons and preparations including the decontamination and destruction of their packaging.	**Convention, Article 6,** on Measures to reduce or eliminate releases from stockpiles and wastes, **subparagraph d, (i), (ii);** **The Regulation** treats to some extent the requirements of the Convention. The obligations under Convention – Article 6(2) are not contained in the Regulation, but they are encompassed by the Law on Waste Management (and subsequent sub-regulations which should be developed in accordance with this Law) as well as by the obligation undertaken by the state (through MEPP) by ratification of the Basel Convention.	**Regulation on Management of Hazardous Waste** as a sub-law of the Law on Waste Management (which is already under preparation). This regulation shall probably repeal the Regulation on destruction of obsolete poisons. **Regulation on Import, Export and Transit of Wastes** (legal base in the Law on Waste Management, Article 106 (6)), which will be developed in accordance with the Basel Convention and EU legislation, shall take under consideration the obligation of Stockholm Convention, Article 6.

Type	Regulation	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 9/86	
Official title	Regulation on Technical and Sanitary-Hygienic Conditions which the Organizations of Associated Labor, trading in poisons, are obliged to fulfill	
Competent administrative bodies	Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Stipulates technical and sanitary-hygienic conditions for organizations trading in poisons (including handling and storage).	**Convention, Article 6** on Measures to reduce or eliminate releases from stockpiles and wastes, **paragraph 1, first sentence of subparagraph c** **Regulation:** stipulates technical details on management of stockpiles of poisons (including packaging) in a safe, efficient and environmentally sound manner. The Regulation prescribes technical details on management of stockpiles of poisons, which are flammable and explosive, too. **Convention, Article 10** on public information, awareness and education **Paragraph 1,** on training of workers. **Regulation: Article 20** on the education of workers, handling poisons; keeping records on the education carried out is obligatory.	The Regulation may be adopted as sub-legislation of the proposed **Law on chemicals;** wastes are adequately treated by the legislation on wastes.

Type	Regulation	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No.32/86	
Official title	Regulation on the Labeling of Poisons Placed on the Domestic Market	
Competent administrative bodies	Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes and describes signs of danger (consisting of danger symbols and indications of danger), the symbol letter of danger, R (risk) phrases and S (safety) phrases.	Labeling of PCB containing equipment	***Law on the classification, packaging and labeling of hazardous substances and preparations*** *(if the matter shall not be included in the Law on chemicals)****;*** the Regulation is not up-dated according to EU legislation.
Type	Regulation	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 57/82	
Official title	Regulation on Institutes Meeting the Conditions for the Issuing of Toxicological Evaluations of Poisons	
Type	*Amendments to the Regulation*	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 7/84, 5/85, 18/87. 43/88	
Official title	Amendments to the Regulation on Institutes Meeting the Conditions for the Issuing of Toxicological Evaluations of Poisons	
Competent administrative bodies	Ministry of Health and the Commission on poisons	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
	Convention, Article 8 on Listing of chemicals in Annexes A, B	**Regulation is not** up-dated in order to encompass the screening criteria

	and C and Annex D on Information requirement and screening criteria **Regulation is not** up-dated in order to encompass the screening criteria on POPs	on POPs **Law on Good Laboratory Practices** and **Sub-legislation** based on: the **Law on Accreditation** promulgated in Official Gazette of the RM, No. 54/2002
Type	Decision	
Number	Official Gazette of The Socialist Federal Republic of Yugoslavia, 7/84 and 57/82	
Official title	Decision on the Organizations of Associated Labor Authorized to Determine the Efficiency of Individual Poisons Used in Maintaining Hygiene in Premises, Public Facilities and Public Areas and Those for the Extermination of Harmful Insects and Other Pests	
Competent administrative bodies		
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
	Convention: Annex D **Decision;** all screening criteria are not encompassed	**Law on Good Laboratory Practices and Sub-legislation** based on: the **Law on Accreditation** promulgated in the Official Gazette of the RM, No. 54/2002
Type	Decision	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No. 59/82	
Official title	Decision on the listing of poisons permitted for trade	
Competent administrative bodies	Ministry of Health and the Commission on Poisons	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Lists the poisons in which trade is	**Convention: Annex A,** does not	**Decision:** includes Toxaphen under

permitted and describes their international names and chemical composition, classifies them into four groups of poisons/preparations and determines their permitted use.	allow any use of Toxaphen **Decision:** includes Toxaphen under number 530 as permitted for trade as insecticide and rhodenticide	number 530 as permitted for trade as insecticide and rhodenticide **Law on chemicals** and as **Temporary solution:** **-** amend the Law on Trade of Poisons adding Toxaphen, Endrin and Mirex under the ban, according to authorization of the Ministry of Health prescribed in Article 4(3) **as well as (obligatory)** removeToxaphen,Endrin and Mirex from the List by amendment.
Type	*Amendments to the Decision*	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, Nos. 7/84, 9/86, 18/87, and 33/88	
Official title	Amendments to the Decision on the Listing of Poisons Permitted for Trade	
Competent administrative bodies	Ministry of Health and the Commission on Poisons	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The List from Decision 59/82 is enlarged. Chemicals under numbers 440 and 441 (some PCBs previously permitted to be used for paints and varnishes) are removed from the List (O.G. 9/86)	**Convention: Annex A,** does not allow any use of Endrin and **Annex B** allows specific objective of allowed use and some specific exemptions for the use of DDT. **Amendments on the Decision:** include Endrin as permitted for trade and DDT as permitted for trade.	New **Law on chemicals** and as **Temporary solution:** **-** amend the Law on Trade of Poisons adding Endrine under the ban, according the authorization of the Ministry of Health prescribed in Article 4(3) **or** follow the procedure proposed for amending the Law (which may solve the problem of Endrine as well as of DDT) **and (obligatory)** remove Endrine and DDT from the List prescribed by these Amendments of the Decision promulgated by O.G.59/82 by new amendment.

Type	**Law**	
Number	Official Gazette of the Republic of Macedonia, No. 16/2004	
Official title	Law on Trade- Decision on classifying types of goods for import and export- 56/2004 **(LT)**	
Competent administrative bodies	Ministry of Finance	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Classifies goods in the forms for export and import	**Convention, Annex A :** Provide specific exemptions for the use of hexachlorobenzene **Decision:** allows import of hexachlorobenzene under the special permit of the Ministry of Health.	**1. Law on Chemicals and Regulations based on the law** **2 Temporary solution:** **2.1 Amend the Law on trade of poisons** by authorizing MEPP in cooperation with the Ministry of Health and the Ministry of Economy to issues Decisions on bans and restrictions (including specific exemptions if necessary) for trade of poisons and preparations in order to fulfill state obligations undertaken by ratified international documents related to the environment (legal base exists in Article 1 which stipulates that the Law is promulgated in order to protect human lives and health and the environment). **2.2 Decision on ban and restriction of use of some poisons** (which shall cover the obligation undertaken by the country according to Annex A, B as well as the possible extension of the

		List of POPs according to Annexes D, E and F). **2.3 Decision on import and export of some poisons and preparations** (which shall cover the obligation undertaken by the country according to Article 3 of the Convention).
Type	**Law**	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No. 27/90	
Official title	Law on the Transportation of Hazardous Substances **(LTHS)**	
Competent administrative bodies	Ministries for: Internal Affairs; Health; Transport and Communications	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes conditions for the transportation of hazardous substances and related procedures, including supervision of the implementation of the law.	Article 6 d (i)	POPs waste to be specified
Type	Regulation	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No. 76/90	
Official title	Regulations on Technical Requirements on Companies Training Drivers of Motor Vehicles Carrying Hazardous Substances and Other Persons Involved in Such Transportation	
Competent administrative bodies	Ministries for: Internal Affairs; Health; Transport and Communications	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Training of staff handling hazardous substances during transport	Article 10 e	To be related to POPs safety measures

Type	Regulation	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No. 82/90	
Official title	Regulations on the Manner of Transportation of Hazardous Goods by Road	
Competent administrative bodies	Ministries for: Internal Affairs; Health; Transport and Communications	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes the manner of transportation of hazardous substances	Article 6 d (i)	To be related to POPs safety measures
Type	Regulation	
Number	Official Gazette of the Socialist Federal Republic of Yugoslavia, No. 17/91	
Official title	Regulations on the Training of Drivers of Motor Vehicles Carrying Hazardous Substances and Other Persons Involved in the Transportation of Hazardous Substances	
Competent administrative bodies	Ministries for: Internal Affairs; Health; Transport and Communications	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The law is aimed at safety at work, which comprises measures, means and methods to create safe work conditions. Among others, the law prescribes as a measure for safety at work, the restriction of the use of harmful and hazardous substances, which may provoke occupational diseases or injury at work.	There is not a direct connection with the Convention, but it may be of importance for the occupational health conditions in facilities where there is a possibility for unintentional releases of POPs.	

Type	**Law** and its *Amendments*	
Number	Official Gazette of the Republic of Macedonia, Nos. 31/85,51/88, 23/90, 17/91, 32/03	
Official title	Law on Labor Inspection	
Competent administrative bodies	Ministry for Social Affairs and Labor, Labor Inspectorate	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
	There is not a direct connection with the Convention, but it may be of importance for the occupational health conditions in facilities where there is possibility for unintentional releases of POPs.	
Type	**Law**	
Number	Passed to the Parliament for adoption (expected to be in force in 2004)	
Official title	Law on the Environment **(LE)**	
Competent administrative bodies	Ministry of the Environment and Physical Planning in cooperation with the Ministry of Health, the Ministry of Economy, and the Ministry of Agriculture, Forestry and Water-economy	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes the basic principles of preservation, protection, restoration and improvement of the quality of the environment; -protection of human life and health;	Almost all provision of the Convention has a legal base to be regulated at the national level through provisions of the Law on the Environment. Some of them are as follows:	**Ban on production and use** according to the obligation of the country to the Convention (Article 3 (1)) based on **Article 21** which stipulates that: "*Prohibition of production, trade and*

-protection of biodiversity; -rational and sustainable utilization of natural resources, and - implementation and improvement of measures of regional and global environmental problems.	**Principles of:** integration, sustainable development, polluter pays, precaution, cleaner production, international cooperation, participation and access to information, raising public awareness on the importance of the environment **are compliant with the Convention.** **Convention, Article 5** is completely covered by the provisions of the Law: -Planning: Chapter IX - Monitoring: Chapter V - Research and Education: covered by Chapter VII - Best Available Techniques Chapter XII on the A-Integrated Ecological Permits	*consumption of goods and services for the purpose of environmental protection"* may be a legal base for execution of Annexes A and B from the Convention. **Ban on import and export** according to the obligation of the country to the Convention Article 3 (2) based on **Article 22** which stipulates that "*for the purposes of protection of the environment and human health, the Minister heading the body of the state administration competent for the execution of the works from the area of environment, in consultation with the Minister of Economy and the Minister of Health, shall issue the definition of hazardous and harmful substances and products, as well as substances and products on which there is a ban on import, export and transit to/ from/through the Republic of Macedonia*. Obligations under **Article 5 of the Convention** on Measures to reduce or eliminate releases from unintentional production may be considered that shall be fulfilled according the provisions of Chapter XII. INTEGRATED ENVIRONMENTAL PERMITS (IPPC) FOR INSTALLATIONS WITH AN ENVIRONMENTAL IMPACT It will be necessary to provide those source

		categories listed in Annex C, Part II and as much as possible of these listed in Part III, to be a subject of A-IPPC Permit which besides other obligations shall be obliged for BATs.
Type	**Law**	
Number	The law has been passed to the Parliament for adoption (expected to be in force in 2004)	
Official title	Law on Waste Management (LWM)	
Competent administrative bodies	Ministry of the Environment and Physical Planning in cooperation with the Ministry of Health, and the Ministry of Economy	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The Law regulates waste management; plans and programs for waste management; rights and obligations of the legal and natural entities related to waste management; the manner and the conditions in which one can collect, transport, treat, process, store and dispose of waste; waste import, export and transit; monitoring; information systems and financing.	**Convention Article 6** Measures to reduce or eliminate releases from stockpiles and wastes 1para, second sentence **LWM, Article 25(1) point3,** List of wastes; products whose date for appropriate use has expired **Convention Article 6(2)** Measures to reduce or eliminate releases from stockpiles and wastes **LWM: Article 105** stipulates: Import, export and transit of hazardous waste shall be carried out in accordance with the Basel Convention on control of	Provisions of the Convention of Article 6 for stockpiles, which shall be deemed as wastes are covered by the Law. Regulation on disposal methods of POPs excluding PCBs (which are separately regulated) may be promulgated. The stipulated provisions on PCBs and authorization of MEPP to prescribe the detailed manner of handling of PCBs by sub-laws comply with the obligation posed by the Convention. Adopt and promulgate Regulations on Landfills and Incineration/Co-incineration.

	transboundary transfer and storage of hazardous waste. **Convention, Annex A, Part II** **LWM: Article 69** **Handling of PCB/PCT** (1) It is hereby prohibited to: produce, import and trade in PCB/PCT re-use and recycle used PCB/PCT to re-fill and top up equipment with PCB/PCT (2) The legal and natural entities holding PCBs, used PCBs and equipment must register the quantities, origin, nature and content of PCBs, used PCBs, as well as equipment, with the Ministry of the Environment and Physical Planning (3) The legal and natural entities shall label the equipment that contains or had contained PCBs (4) The legal and natural entities handling PCBs, used PCBs and equipment shall keep records in accordance with this law and other regulations (5) The Minister of Environment and Physical Planning shall prescribe the manner and conditions for handling of PCBs, the manner and the conditions to be fulfilled by installation and facilities for disposal and decontamination of PCBs, used	

	PCBs, as well as the manner of synchronal equipment containing PCBs **Convention Article 5 and Annex C, Part II and III** on Measures to reduce or eliminate releases from unintentional production **LWM: Chapter VI on Landfills and Chapter VII on incineration and co-incineration,** contain basic provisions which correspond to the requirements of the Convention	
Type	Regulation	
Number	Working version, not made available to the stakeholders	
Official title	Regulation on the phasing-out (elimination) of PCBs	
Competent administrative bodies	Ministry of Environment and Physical Planning	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The Regulation aims at phasing out PCBs and PCTs. Article 4 thus prescribes a comprehensive inventory of all appliances containing PCBs and PCTs. The Regulation prescribes the phasing out process, including identification and analysis of the properties of the different kinds of PCBs and PCTs. The activities in this process can only be performed by persons holding the appropriate license. To facilitate a synchronized inventory, the Regulation includes a form, which should be applied by all stakeholders.	Complies (in some provisions it is even more stringent) with the provisions of the Convention. Together with the provisions of the Law on Waste Management, entirely covers the obligation under the Convention	It should be fine tuned, made available to the stakeholders, adopted and promulgated

Regulation determines the allowed disposal operations.		
Type	Regulation	
Number	Working version, not made available to the stakeholders	
Official title	Regulation on Management of Waste Oils **(RMWO)**	
Competent administrative bodies		
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The Regulation should only be applied to waste oils (as defined in Article 2), which can be re-processed or used as substitutes for other fossil fuels. Polychlorinated oils are excluded.	**Convention, Annex C, Part II, (a and b)** **RMWO** contributes to the provisions of the Convention by: **Article 19** (1) Only those waste oils that contain no more than 10 mg of PCBs and PCTs per 1 kg of oil may be used as fuel in heating plants. (2) Heating plants or industrial furnaces in which waste oils are used as fuel shall, with regard to the emission of substances into the atmosphere, be in compliance with the conditions set out in the regulation governing the emission of substances into the atmosphere from heating plants or industrial furnaces. **Article 20** (1) The incineration of waste oils	It should be fine tuned, made available to the stakeholders, adopted and promulgated

	in industrial furnaces may be performed only if the waste oils contain a maximum of 50 mg of PCBs per 1 kg of oil. (2) Waste oils containing more than 50 mg of PCBs per 1 kg shall be incinerated in an incinerator for hazardous waste. (3) In the event that waste oils that do not have the properties referred to in the first paragraph of this article are incinerated in industrial furnaces, they shall fulfill the conditions of the regulations governing the incineration of hazardous waste.	
Type	**Law**	
Number	The law has been passed to the Parliament for adoption (expected to be in force in 2004)	
Official title	Law on the Quality of Ambient Air **(LQAA)**	
Competent administrative bodies	Ministry of the Environment and Physical Planning	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
The Law identifies the sources of air pollution (stationary sources – industrial and energy installations, mobile sources of pollution – engines built in the transport means and fuels). The Law also prescribes the types of limit values (limit values for the quality of ambient air and alarming thresholds, limit values for emissions from station-	**Convention, Article 5 and Annex C, Part II and III** **LQAA:** Prescribes authorization to MEPP to determine the emission limit values into the air.	Decisions on emission limits for processes listed in Annex C, Part II and as practical for processes of Part III as: - **Decision** on emissions of air pollutants from Secondary Aluminum Production; - **Decision** on emissions of air pollutants from Secondary Zinc

ary sources, limit values for emissions from mobile sources and the content of hazardous substances in fuels). The Law defines the Management with the quality of ambient air through its assessment and adoption of planning documents. The Law provides authorization for bans for actions which pollute the air above the limits determined by the law and its subsequent sub-legislation.		Production; - **Decision** on emissions of air pollutants from Secondary Copper Production; - **Decision** on emissions of air pollutants from Sinter Plants in Iron and Steel Industry; - **Decision** on emissions of air pollutants from the Cement Industry; - **Decision** on emissions of air pollutants from Pulp and Paper Plants having bleaching facilities; - **Decision** on emissions of air pollutants from Shredder Plants for ELVs and WEEEs; - **Decision** on emissions of air pollutants from Thermal Metallurgical Processes; - **Decision** on emissions of air pollutants from Residential Heating Plants and Industrial Boilers; - **Decision** on emissions of air pollutants from Plants producing chlorophenols and chloranil; - **Decision** on emissions of air pollutants from Crematoria; - **Decision** on emissions of air pollutants from Mobile Sources; - **Decision** on emissions of air pollutants from Textile Dying and Finishing Plants; - **Decision** on emissions of air pollutants from Waste Oil Refineries

Type	**Law**	
Number	Law on Nature Protection (LNP)	
Official title	The law has been passed to the Parliament for adoption (expected to be in force in 2004)	
Competent administrative bodies	Ministry of the Environment and Physical Planning; Ministry of Agriculture, Forestry and Water Economy	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply wit**
The Law regulates nature protection by protecting biological and landscape diversity, and the protection of natural heritage in and outside of protected areas.	The Law on Nature Protection encompasses the use of pesticides in areas under special treatment, where the use of specific pesticides with adverse effects on biodiversity can be prohibited by a common decision adopted by two ministries, the Ministry of the Environment and Physical Planning and the Ministry of Agriculture, Forestry and Water Economy.	There is not a comprehensive authorization for prohibition of use as required by the Convention as the authorization is specifically connected to the area under special treatment.
Type	**Law**	
Number	The law has been passed to the Parliament for adoption (expected to be in force in 2004)	
Official title	Law on Waters **(LW)**	
Competent administrative bodies	Ministry of Agriculture, Forestry and Water-management, the Ministry of Health, and the Ministry of Environment and Physical Planning	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
This Law focuses on three major areas: use of waters, protection of waters and control of pollution, and protection from adverse effects of	(Annex B, article 3)	

waters. This law is structured in order to determine general standards and principles for the manner of management of waters in the Republic of Macedonia.		
Type	Regulation	
Number	At the level of a working version	
Official title	Regulation on the quality of potable water	
Competent administrative bodies	Ministry of Health	
Brief description	**Relevance to the Stockholm Convention**	**Feasible legislative solutions in order to comply with obligations under the Stockholm Convention**
Prescribes all parameters of the quality of drinking water	Determines maximum allowed concentrations of PCBs in drinking water as 0,0005 mg/l	It should be fine tuned, made available to the stakeholders, adopted and promulgated