

Ministry of
Environment
and Water



REPUBLIC of BULGARIA

**NATIONAL IMPLEMENTATION PLAN
FOR THE MANAGEMENT OF
PERSISTENT ORGANIC POLLUTANTS (POP's)
IN THE REPUBLIC OF BULGARIA**



PROJECT GF/2732 02 - 4454



EXECUTIVE SUMMARY

National Implementation Body & Coordinator - Ministry of Environment and Water
Sofia, March 2006



MINISTRY OF ENVIRONMENT AND WATER
National Implementation plan for management of POPs in the Republic of Bulgaria

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This publication is composed on the full version of National Implementation Plan for the Management of Persistent Organic Pollutants (POPs) in the Republic of Bulgaria, March 2006.

Project Manager: Dr. Dzhevdet Chakarov
Minister of Environment and Water

National Coordinator: Prof. Georgi Antov, PhD, DMSc

Experts MoEW: Svetla Krapcheva, MSc,
Department Chief of „Operative Control and Management of Hazardous Chemicals", MoEW
e-mail: krapso@moew.government.bg

eng. Tsvetanka Dimcheva, senior expert of MoEW, e-mail: dimcheva@moew.government.bg

BSECEE
Consultants

Prof. eng. Ivan Dombalov, PhD, Director BSECEE, Sofia, e-mail: dombalov@uctm.edu

Assoc.prof. eng. Ekaterina Todorova, PhD, FU, Sofia, e-mail: ektodorova@mail.bg

eng. ecologist Evgeni Sokolovski, MSc, UCTM, Sofia, e-mail: sokolovski@abv.bg

International Implementing Agency: United Nations Environmental Programme
UNEP Chemicals,
International Environment House
15 Chemin des Anemones,
CH-1219, Chatelaine
Geneva, Switzerland
www.chem.unep.ch

Project Manager GEF/UNEP: Dr.David Piper,
Task Manager „POPs enabling activities", Division of GEF Coordination
GF/2732-02-4452 UNEP Chemicals,
„12 pilot country Geneva, Switzerland
NIPs for POPs" e-mail: Dpiper@chemicals.unep.ch

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MINISTRY OF ENVIRONMENT AND WATER
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DECISION

dated 23th of March 2006

of the National Coordinating Committee (NCC) under Bulgarian GF/2732-02-4454 project

The members of the National Coordinating Committee (NCC), coordinating and assisting the development of Bulgarian GF/2732-02-4454 project „National Implementation Plan (NIP) for the management of Persistent Organic Pollutants(POPs) in the Republic of Bulgaria“:

Recognizing that persistent organic pollutants 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,

Aware of the human health concerns, especially in the regions with potential for formation and release of these chemicals to the environment, resulting from the negative effects of persistent organic pollutants, in particular impacts upon women and, through them, upon future generations,

Recognizing the important contribution that the private sector and non-governmental organizations can make to achieving the reduction and/or elimination of emissions and discharges of persistent organic pollutants,

Conscious of the need to take measures to prevent adverse effects caused by persistent organic pollutants at all stages of their life cycle,

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,

Have considered on its meeting on 23 March 2006 the final draft of the National Implementation Plan (NIP) for the management of Persistent Organic Pollutants(POPs) in the Republic of Bulgaria“and have agreed the following

DECISION:

The National Coordinating Committee (NCC) approves and endorses the final draft of the National Implementation Plan (NIP) for the management of Persistent Organic Pollutants(POPs) in the Republic of Bulgaria“.

The endorsed NIP includes a set of measures which implementation shall allow safe storage of POPs and obsolete pesticides stockpiles, gradually phasing out of PCBs equipment and the reduction of unintentional production of POPs releases derived by different industrial sectors.

The successful implementation of the present NIP by responsible authorities and institutions will prepare Bulgaria to meet its obligations set under the Stockholm Convention on POPs.

National Coordinator

Bulgarian GF/2732-02-4454 project
(Prof. Georgi Antov, PhD, DMSci.)

**MINISTER of Ministry of Environment and Water
and Chairman of NCC and Project Manager:**

(DR. DZHEVDET CHAKAROV)



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ACKNOWLEDGEMENT

The Ministry of Environment and Water of the Republic of Bulgaria acknowledges the United Nations Environment Programme for its assistance in obtaining the GEF support for the the Global project „Development of National Implementation Plans for the Management of Persistent Organic Pollutants (POPs)” for twelve pilot countries including the Republic of Bulgaria.

This publication is a result of a collaborative effort and was prepared during the development of the UNEP/GEF Bulgarian Sub Project GF/2732-02-4454 „Development of National Implementation plan (NIP) for the management of Persistent Organic Pollutants (POPs) in the Republic of Bulgaria” under the provisions of the Stockholm Convention on Persistent Organic Pollutants (POPs) with the support of the Ministry of Environment and Water of the Republic of Bulgaria experts, National Coordinating Committee members, international and national experts.

That document was developed due to the contribution and support of all listed persons, members of the National Co-ordination Committee, Representatives of interested institutions, ministers, universities, organizations, NGOs and national experts.

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Ministry of Environment and Water of the Republic of Bulgaria



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LIST OF ABBREVIATIONS

ABEITR	Association of the Bulgarian Enterprises for International Transport and Roads
ADI	Acceptable Daily Intake
BAS	Bulgarian Academy of Sciences
B-B Cube	a reinforced concrete container for storage of hazardous substances
BCC	Bulgarian Chamber of Commerce
BCCI	Bulgarian Chamber of Chemical Industry – non-governmental organisation
BCCI	Bulgarian Chamber of Commerce and Industry
BD	Basin Directorate
BSECEE	Balkan Science and Education Centre of Ecology and Environment
CEFIC	European Chemical Industry Council
CPSA	Civil Protection State Agency
DDD/DDE	Metabolites of DDT
DDT	Dichlorodiphenyltrichloroethane
DLPCBs	Dioxin-like PCBs
EA BAS	Executive Agency Bulgarian Accreditation Service
EAGLI	Executive Agency of the General Labour Inspectorate.
EC	European Commission
EEA	European Environmental Agency.
EEA	Executive Environment Agency.
EIA	Environmental Impact Assessment
ESM	Environmentally sound management
EMEP	Co-operative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
GEF	Global Environment Facility
GDC	General Directorate „Customs“
GVA	Gross Value Added
GDP	Gross Domestic Product
HCB	Hexachlorbenzene
HEF	Higher Education Facility
IAC	Interagency Committee
IACEE	Inter-agency Council of Environmental Experts
IARC	International Agency for Research on Cancer
IERS	International Emergency Response System
IHE	(RIPHPC) Institute of Hygiene and Epidemiology (Regional Inspectorate for Public Health Protection and Control).
IPPC	Integrated Pollution Prevention and Control
I-TEQ	International Toxicity Equivalence
K_{AW}	Air/Water Partition Coefficient
K_{OW}	Octanol/ Water Partition Coefficient
LD₅₀	Median Lethal Dose
LRTAP	Long Range Transport Air Pollutants
MDL	Minimum Detectable Level
MRL	Maximum Residue Limit
MoAF	Ministry of Agriculture and Forestry
MoCT	Ministry of Culture and Tourism
MoD	Ministry of Defence
MoEE	Ministry of Economy and Energy
MoER	Ministry of Energy and Energy Resources
MoEW	Ministry of Environment and Water
MoF	Ministry of Finance
MoH	Ministry of Health



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LIST OF ABBREVIATIONS

Mol	Ministry of Interior
MoLSP	Ministry of Labour and Social Policy
MoTC	Ministry of Transport and Communications
MPATH	Multi-Profile Active Treatment Hospital.
NCHMEN	National Centre for Hygiene, Medical Ecology, and Nutrition
NCPHP	National Centre for Public Health Protection
NCRRP	National Centre for Radiology and Radiation Protection
NEPF	National Environment Protection Fund at the MoEW
NESAP	National Environmental Strategy and Action Plan
NGOs	Non-Governmental Organisations
NHIC	National Health Information Centre
NHIF	National Health Insurance Fund
NIMS	National Institute for Medicinal Substances
NIS	National Institute of Statistics.
NPP	Nuclear Power Plant
NPPS	National Plant Protection Service
NRA	Nuclear Regulation Agency
NROD	National Register of Occupational Diseases
NSFES	National Service for Fire and Emergency Safety
OMO	Occupational Medicine Office
PCBs	Polychlorinated Biphenyls
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PCPPCE	Permanent Commission for Protection of the Population during Calamities and Emergencies
PCPPCEC	Permanent Commission for Protection of the Population during Calamities and Emergencies and Catastrophes
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants, as defined in the Stockholm Convention.
PPCA	Post-Privatisation Control Agency
REACH	Registration, Evaluation and Authorisation of Chemicals
RHC	Regional Healthcare Centre
RIEW	Regional Inspectorate of Environment and Water
SAICM	Strategic Approach to International Chemicals Management
SCEE	Supreme Council of Environmental Experts
SMSA	Standardisation and Metrology State Agency
SNCC	State National Construction Control
TEQ	Toxicity Equivalents
TP	Traffic Police
TPP	Thermal Power Plant
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
WHO	World Health Organisation



1. INTRODUCTION

The aim of the Stockholm Convention is to protect human health and the environment from Persistent Organic Pollutants (POPs) impacts. POPs possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water and migratory species, across international boundaries and deposited far from their place of release, where they accumulate in terrestrial and aquatic ecosystems. **Annex A, B & C list 12 Persistent Organic Pollutants (POPs)** – the POPs pesticides (aldrin, dieldrin, endrin, mirex, toxaphene, hexachlorbenzene, heptachlor, chlordane and DDT), the industrial chemicals – polychlorinated biphenyls (PCBs) and the POPs chemicals, formed and released unintentionally from anthropogenic sources (Polychlorinated dibenzo-p-dioxins and dibenzofurans - PCDD/PCDF, Hexachlorobenzene - HCB and Polychlorinated biphenyls - PCBs).

The Republic of Bulgaria signed the Stockholm Convention on POPs on 23 May 2001 at the Conference of Plenipotentiaries held in Stockholm, Sweden. On 30 September 2004, the Convention was ratified with a Law by the National Assembly (SG No. 89/ 12.10.2004). and it is effective for Bulgaria from 20 March 2005.

With funds granted by GEF (Global environmental facility) and with the assistance of the United Nations Environment Programme the Ministry of Environment and Water, Bulgaria has developed the present National Implementation Plan for the management of POPs (NIP) drawn up under sub-project GF/2732-02-4454 within the frame of Global Project GEF/UNEP: GF/2732-02-4452 „Development Of National Implementation Plans for the management of Persistent Organic Pollutants (POPs)“ for twelve pilot countries. The NIP preparation took 4 years and all the activities were coordinated by a National Coordinating Committee (NCC), appointed by the Bulgarian Project Manager. A number of experts, representatives from interested institutions, ministries, universities, organizations, NGOs, etc., included in the NCC took part actively within the process of formulating and development of Bulgarian NIP for POPs.

The present National Implementation Plan for the management of POPs in Bulgaria is developed on the basis of the requirements of Article 7 of Stockholm convention. Bulgaria shall transmit its implementation plan to the Conference of the Parties within two years of the date on which the Convention enters into force for it, i.e. until 20 March 2007.

The NIP includes a set of measures which implementation shall allow safe storage of POPs and obsolete pesticides stockpiles, gradually phasing out of PCBs equipment and the reduction of unintentional production of POPs releases derived by different industrial sectors.

Generally the present NIP comprises targeted activities that will prepare Bulgaria to meet its obligations set under the POPs Convention.

The National Implementation Plan for the management of POPs in the Republic of Bulgaria (NIP) comprises two main parts.

The First part of NIP summarises:

1. Country Baseline
2. Assessment of the POPs issue in the country, based on the preliminary POPs inventories.

The Second Part of the NIP **includes:**

1. Strategy and action plan elements of the national implementation plan
2. Implementation strategy
3. Specific Action plans:

- **Action plan for POPs Pesticides** - Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Toxaphene and DDT;

- **Action plan for PCBs in Equipment;**

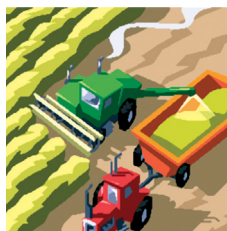
- Action plan for POPs releases from unintentional production (PCDD/PCDFs, PCBs and HCB)

4. Development and capacity-building proposals and priorities
5. Timetable for plan implementation and measures of success
6. Resource requirements preliminary assessment for NIP implementation

The results of the assessment on POPs issues in the country, based on national preliminary POPs Inventory indicate the following:

2. ASSESSMENT OF POPS ISSUE IN R BULGARIA BASED ON INVENTORY RESULTS

2.1.ASSESSMENT WITH RESPECT TO POPS AND OBSOLETE PESTICIDES



POPs pesticides have never been manufactured in the Republic of Bulgaria. Most POPs pesticides have been applied mainly as pest control preparations to treat termites and soil insects. The use of POP pesticides has been largest in the 60s in quantities 100-200 t annually. The import and use of aldrin, dieldrin, endrin and DDT was banned in 1969, toxaphene in 1985 and heptachlor in 1991. Mirex, hexachlorobenzene and chlordanes have not been imported and used in the country. **All POPs pesticides are banned for import and use in agriculture.**

Table 1. POPs pesticides: Production, import, export and year of ban

POPs Pesticides	Production	Import	Period of Import	Imported Amount, t/y	Export	Year of Ban for import and use
Aldrin	No	Yes	1960-1969	135-200	No	1969
Dieldrin	No	Yes	1960-1969	100	No	1969
Endrin	No	Yes	1960-1969	100	No	1969
Mirex	No	No			No	
Toxaphene	No	Yes	1960-1985	100-150	No	1985
Hexachlorobenzene	No	No			No	
Heptachlor	No	Yes	1960-1990	100	No	1991
Chlordane	No	No			No	
DDT	No	Yes	1950-1965		No	1969

The obsolete and useless pesticides, including POPs are stored in centralized and municipal warehouses and BB cubes (steel-concrete containers with size 195x195x195 cm, hermetically sealed with useful volume 5 m³).

The available obsolete pesticides stockpiles, including also POPs pesticides and mixtures, consisting of or contaminated with POPs in RBulgaria at the end of 2004 are:



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Table 2. Available obsolete pesticides stockpiles and assumed POPs pesticides amounts in R Bulgaria at the end of 2004

Nº	Obsolete and useless pesticides stockpiles (OP)	Unit	Quantity
1.	OBSELETE PESTICIDES		
	Total OP stockpiles in warehouses and BB cubes	t	11,222
	In warehouse, including	t	7011
	in 84 centralized warehouses	t	4703
	in 477 unrepaired municipal warehouses	t	2308
	In 1255 BB cubes	t	4211
	Total OP stockpiles, stored in safe centralized warehouses, conforming to all requirements and in BB cubes	t	8914
2.	POPs PESTICIDES AND MIXTURES		
	Total POPs pesticides stockpiles in warehouses, including	t	52,313
	POPs pesticides assumed stockpiles, including		22,255
	Aldrin	t	1,395
	Dieldrin	t	1,595
	Endrin	t	0,204
	Toxaphene	t	0,720
	Heptachlor	t	7,592
	DDT	t	10,749
	Mixtures of 'unknown' obsolete pesticides, consisting of or contaminated with POPs	t	30,058



After the ban of POPs pesticides for import and use, the country took measures for their replacement with alternative registered in Bulgaria insecticides, suitable for agricultural application in any specific case.

In August 2000 under the project „Destruction of Risk Pesticides from Bulgaria in the Netherlands“, 27680 kg of POP pesticides such as DDT, aldrin and dieldrin from Bulgaria's regions Sofia, Plovdiv, Shumen and Burgas have been exported to Netherlands, and destroyed in an incinerator in Rotterdam.



The assumed POPs pesticides stockpile at the end of 2003 in Bulgaria is in the range 22.25 t - 25.82 t. The obsolete pesticides mixtures, consisting of or contaminated with POPs comprise approx. 30.06 t. These could not be identified because of the absence of labels, torn packages and mixing with other Obsolete pesticides. The assumed total POPs pesticides stockpile is thus between 52.3 t and 55.9 t. To identify the specific POPs pesticides, contained in 2308 t obsolete 'unknown' composition, stored in 477 unrepaired municipal warehouses, the implementation of detailed POPs pesticides Inventory is required.



2.1.1. MONITORING

Surface and Ground water

POPs pesticide monitoring indicates excellent condition of surface and ground water on the whole territory of the country. During 2003 in R Bulgaria there are no surface and ground water, polluted with POPs pesticides.

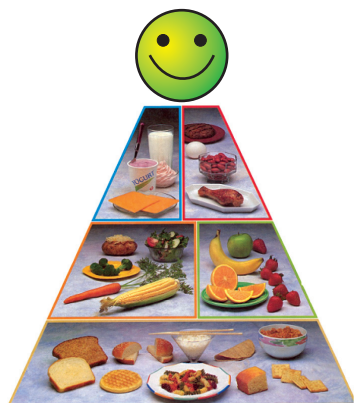


Soil

In all studied regions of R Bulgaria no soils polluted with the following POPs pesticides (aldrin, dieldrin, endrin, heptachlor and hexachlorbenzene) exist. DDT and metabolite residues in soils are still registered in the environment of almost all regions of the country. The summarized analytical data show that about 95% of soils in the country are not polluted with DDT.

No new POPs soil pollution levels were recorded in 2003. At all points the measured content of POPs pesticides, PCBs and HCB is considerably below the reference background values and no potential threat exists from POPs soil pollution. Isolated local cases of DDT soil pollution were registered.

The monitoring results show that at this stage the agricultural activities do not result in further soil load. That fact is due on the one hand to the reduced fertilizer and pesticides consumption, but also to the performed programs for environmental-friendly agriculture and biological production.



Food

No presence of any residues of POPs pesticides exceeding the maximum admissible residual concentration (MARC) in the tested 2200 foodstuffs from vegetable and animal origin for the Year 2003 has been detected.

No cases of acute and chronic intoxication with persistent chlororganic pesticides have been registered in the Republic of Bulgaria.

No presence of any residues from POPs pesticides including such as Aldrin, DDT, Heptachlor epoxide and PCBs in the tested samples of Live Animals, Fresh Meat, Poultry, Fish, Farmed & Wild Game, Raw Milk, Hen Eggs and Bee Honey in Bulgaria for the Year 2003 has been detected.



2.1.2. EXISTING POLICY



During the period 2001 - 2004, steady improvements were made in the management and safe storage of banned and obsolete pesticides.

The construction of centralized municipal warehouses and BB cubes conforming to the legislative requirements for safe disposal, liable storage of available obsolete pesticides stockpiles and cleaning up of emptied warehouses are activities that illustrate consistency in environmental protection policy and sustainable management of obsolete pesticides.



The funds allocated by the Enterprise for Management of Environmental Protection Activities (EMEPA) and National Plant Protection Service (NPPS) have been increasing constantly during the period 1998- 2004 for safe storage of obsolete & unusable pesticides, repairing of warehouses, cleaning up of premises and sites, collection, re-packing, and shifting of chemicals from warehouses in the small urban centres to municipal and centralised warehouses, or disposal in BB cubes. The totally allocated funds by EMEPA for safe storage of obsolete pesticides for the period 1998-2005 equals to approx. 7,5 million BGN as only for 2004 the funds are almost 2 millions BGN. The decreasing of old warehouses and the environmentally sound storage of obsolete pesticides has reduced the threat of environmental pollution and human health risk.



Nevertheless the steady positive trends observed during recent years and constantly increased funds allocated by Bulgarian state for the management of POPs and obsolete pesticides, the Republic of Bulgaria can not cope alone with final solving of POPs and Obsolete pesticides stockpiles without international financial support, due to limited national funding available and the fact that Bulgaria is in Currency Board. To reduce the risk of POPs pesticides impacts on human health and the environment measures should be taken for safe storage and/or environmentally sound disposal abroad, due to absence of appropriate disposal facility in the country. For this purpose the Republic of Bulgaria needs to be supported by providing financial resources from GEF and other international, bilateral, regional and multilateral twinning programmes.

2.2. ASSESSMENT WITH RESPECT TO PCBS IN EQUIPMENT



In Bulgaria PCBs were used mainly dielectric fluids in electrical equipment such as transformers and capacitors. The manufacturers of transformers and capacitors in Bulgaria are 5 companies and of transformer and capacitor oils – 6 companies. None of these manufacturers have ever produced equipment and oils, containing PCBs. For the period 1970 z.41990 z. in the country totally 1954 transformers have been imported, out of which most likely to contain PCBs are the transformers imported from PCBs manufacturing countries – the USSR, West Germany, East Germany, and Czechoslovakia.

Table 3. Annex A, Part II chemicals: PCBs production, import, export, year of ban in RBulgaria for 2003.

Annex A, Part II Chemicals	Production	Import	Export	Year of Ban
PCBs in equipment and oils	No	Yes 1954 transformers	No	1985



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The inventory of equipment (transformers and capacitors) and oils, carried out on the territory of Republic of Bulgaria in 2003, has found out the following.

In 2003 a total of 43644 transformers and 45715 t oils and 17689 capacitors have been inventoried. The preliminary inventory of PCBs in equipment found out the availability of electric equipment, containing PCBs with concentration > 0,05 % by weight and volume > 5 dm³.



Table 4 Electric equipment with volume > 5 dm³ and oils, containing PCBs with concentration > 0,05 % and > 0,005 % < 0,05% by weight

Electric equipment	PCBs oils, tones	PCBs equipment number	Remark
In-use transformers with PCBs concentration > 0,05 % by weight and volume > 5 dm ³ , including waste and fresh oils	327,2	158	The equipment and oils with PCBs assumed are not included here.
In-use transformers with PCBs concentration > 0,005 % by weight and < 0,05 % by weight and volume > 5 dm ³	1642,1	41	Only the amount of oils, containing PCBs had been identified, but not the weight of contaminated equipment
Capacitors, containing PCBs, including in-use, phased-out and spare equipment	7,9	2415	
Total oils/equipment, containing PCBs	1977,2	2614	

Out of the total of 61333 items of electric equipment inventoried, 2614 transformers and capacitors and 1977,2 t oils, containing PCBs > 0,05 % by weight have been identified (*table 4*). Holders of that PCBs equipment are mainly companies from electric power sector, metallurgy, mining and chemical industry.

Table 5 shows detailed data for the status of equipment and oils, containing PCBs.



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Table 5. In-use, phased-out and spare equipment, containing PCBs and oils, containing PCBs, including in-use, waste and fresh on stock in Bulgaria for 2003

Nº Equipment and oils, containing PCBs and PCBs assumed	Unit	Quantity
1. TRANSFORMERS		
In-use transformers with PCBs concentration > 0,05 % by weight and volume > 5 dm ³	pcs	158
In-use transformers with PCBs concentration > 0,005 % by weight and volume > 5 dm ³	pcs	41
In-use transformers with PCBs assumed	pcs	3082
2. TRANSFORMER OILS		
In in-use transformers with PCBs concentration > 0,05 % by weight and volume > 5 dm ³	t	310,5
In in-use transformers with PCBs concentration > 0,005 % by weight and volume > 5 dm ³	t	1642,1
In in-use transformers with PCBs assumed	t	2483,6
3. WASTE TRANSFORMER OILS		
waste transformer oils with PCBs concentration > 0,05 % by weight	t	9,88
waste transformer oils with PCBs assumed	t	10,24
4. FRESH TRANSFORMER OILS ON STOCK		
fresh transformer oils with PCBs concentration > 0,05 % by weight	t	6,8
fresh transformer oils with PCBs assumed	t	36,84
5. CAPACITORS		
In-use capacitors, containing PCBs	pcs	1769
In-use capacitors with PCBs assumed	pcs	2159
6. SPARE CAPACITORS ON STOCK		
Spare capacitors, containing PCBs	pcs	32
Spare capacitors with PCBs assumed	pcs	245
7. PHASED-OUT CAPACITORS ON STOCK		
Phased-out capacitors, containing PCBs	pcs	614
Phased-out capacitors with PCBs assumed	pcs	230
8. CAPACITOR OILS		
In in-use capacitors, containing PCBs	t	7,9
In in-use capacitors with PCBs assumed	t	3,3



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Only PCBs transformer & capacitor oils have been identified. The weight of PCBs equipment has not been reported, causing gaps in the data declared. In many cases, PCBs equipment owners declared either the number of items of equipment or the oil quantity but not both. Hence the PCBs quantity in equipment and oils is assumed to be higher than the found out by the inventory. To identify the actual PCBs quantity a detailed inventory of PCBs is needed.

2. 3. Assessment of PCDD/PCDF, HCB and PCBs releases

The emissions are calculated in relation with National CORINAIR - 94 methodology, approved by the Minister of Environment and Waters. It was developed by adapting the emission inventory Guide - CORINAIR-94, SNAP-94 for the Bulgarian conditions, taking into account the national specificities concerning the respective activity, technologies and equipment.



National annual POPs emissions (Dioxins/Furans, PCBs and HCB)

In comparison to base year 1990, the annual emissions of **dioxin/furans** for 2003 show a downward trend of 53,9% or 2,2 times had been observed, following the European trend. According to official data for PCDDs/PCDF emissions in Europe within the period 1990-2003, the decrease is 2,7 times (63%). The annual **PCBs** emissions for the period 1990-2003 are almost the same. For the period 1990-2003, the **HCB** emissions in the atmosphere show a significant downward trend. Compared to the base year 1990, for the HCB emission in 2003, a sharp decrease with 91,7% or 12,1 times has been registered due to the decline of industrial production.



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Table 6 National annual emissions of POPs releases in the atmosphere for the period 1990-2003

Year	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
PCDDs/Fs, g I-TEQ/y	554,2	456	340,9	309,7	288,3	245,2	232,5	200,9	218,5	255
PCB, kg/y	258,5	382,3	261,7	226,9	252,8	234,3	228,5	211,9	250,1	260,7
HCB, kg/y	544	79	87	47	76	46	54	42,5	38	45

Figure 1. Annual PCDDs/PCDFs releases in the atmosphere by years

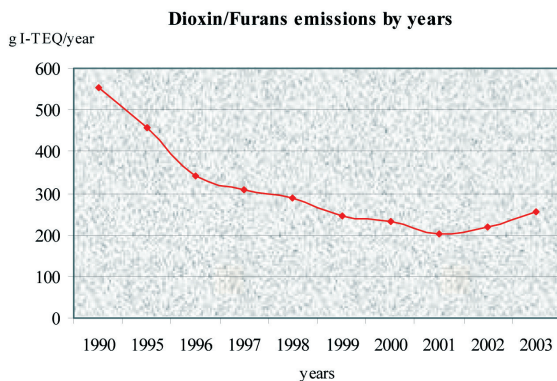
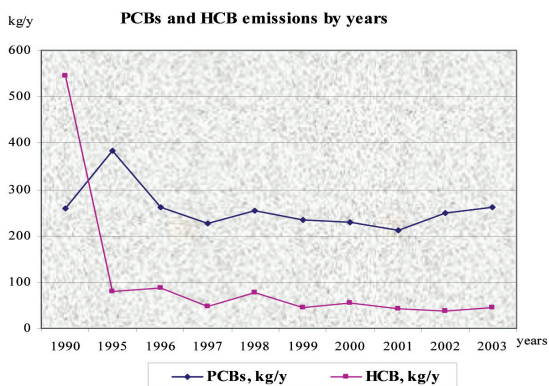


Figure 2. Annual PCBs and HCB releases in the atmosphere by years





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National annual sector POPs emissions by category sources
POPs releases, generated in Bulgaria in the past 5 years are within the range as follows:

- **Dioxins/Furans:** 200 - 255 g I-TEQ/y, and in 2002 have reached 254,9 g I-TEQ/y.
- **PCBs:** 212 ч 261 kg/y, and for 2003 have reached 260,7 kg.
- **HCB:** 38 ч 54 kg/y, and for 2003 being 45 kg.

Compared to the base year 1990, **PCDDs/PCDFs and HCB** note a sharp decline, respectively with 53,9% or 2,2 times and with 91,7% or 12,1 times. The annual PCBs emissions for the same period are almost the same, which could be explained with upward or downward change of the PCBs emissions formed by various category sources.

The registered decline in **PCDDs/Fs** emissions into the atmosphere for 2003 compared to base year 1990 is due mainly to the categories „waste treatment and disposal” – 95%, „combustion processes in industry” – 88%; „industrial processes” - 46% and „road transport and other motor vehicles and machines” – 43%. The lowest decline show category sources „combustion processes in trading, administrative and household sectors, in agriculture, in agriculture, forestry and fishing” – 25% and „combustion processes in energy generation and transformation” – 23%.

Table 7. Unintentional Production of POPs Releases for 2003 by category sources

Categories of POPs releases	PCDDs/Fs, g/y	PCBs, kg/y	HCB, kg/y
Combustion processes in energy generation and transformation	122,6	46,14	0
Combustion processes in public and household sectors	70,9	164,61	0
Industrial combustion processes	9,7	2,26	0
Production processes	23,5	0	21
Road transport	10,5	37,05	0
Other motor vehicles and machines	10,5	10,51	0
Waste treatment and disposal	7,3	0,14	24
Total annual POPs releases	254,983	260,71	45

The registered decline in **PCBs** emissions into the atmosphere for 2003 compared to base year 1990 is due mainly to the categories „road transport and other motor vehicles and machines” – 54% and „combustion processes in energy generation and transformation”- 18%. PCBs emissions from categories „combustion processes in trading, administrative and household sectors, in agriculture, in agriculture, forestry and fishing” have increased considerably with 88,8%, which could be explained mainly with the growth in the consumption of wood and coal in household sector during past 5 years.



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The main sources of **HCB** emissions in air for 2003 are the categories „waste treatment and disposal“ and „industrial processes“ with lasting downward trend. Compared to base year 1990 a sharp decline of HCB emissions with 91% or 11 times is registered for the category „waste treatment and disposal“.

The combustion processes are the main source of **PCDDs/Fs and PCBs** emissions for 2003.

- Thermal electric power stations emit about 48,1% of total annual **dioxin/furans** emissions, followed by combustion processes in household sector – 27,8%, combustion processes in industry – 13% and road transport and other motor vehicles and machines – 8,2%.

- The biggest source of **PCBs** emissions in 2003 are the combustion processes in trading, administrative and household sectors, in agriculture, in agriculture, forestry and fishing, representing 63,1% of total PCBs annual sector releases, followed by road transport and other motor vehicles and machines – 18,2% and the combustion processes in energy generation and transformation – 17,7%.

The main sources of **HCB** emissions in 2003 are the categories „waste treatment and disposal“-53,4% and „industrial processes“ – 46,7%, being for 2003 – 45 kg.

2.3.1. MONITORING

The monitoring data of PCBs and HCB in soil , ground water and food indicate:



In soil

The total PCBs content of soils is significantly (by a multiple factor) below the levels of concern which allows the assumption that no potential threat exists for pollution of soil with PCBs. There are no HCB polluted soils in Bulgaria.



In ground water

In Bulgaria for 2001 there are no ground water polluted with PCBs. All values were below the ecological threshold and this classifies the ground water as ground water in excellent condition. There is no HCB polluted ground water in Bulgaria for the investigated period. All values were below the minimum detection level in the period 1998 – 2002 and this classifies the ground water as ground water in excellent condition.



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In food

No presence of any residues from PCBs in the tested samples of Live Animals, Fresh Meat, Poultry, Fish, Farmed & Wild Game, Raw Milk, Hen Eggs and Bee Honey in Bulgaria for the Year 2003 has been detected.



In wild animals

The analysis of PCB in subcutaneous fat of a bear killed in April 2004 in Central Stara Planina, Troyan area, showed 142 ng/g fat of polychlorinated biphenyls.



In human body

No presence of any residues from **PCBs** in the tested samples of Live Animals, Fresh Meat, Poultry, Fish, Farmed & Wild Game, Raw Milk, Hen Eggs and Bee Honey in Bulgaria for the Year 2003 has been detected. No investigations for **PCDDs/PCDFs and HCB** in food had been performed.

WHO carried out periodically monitoring programmes on the levels of PCDD/PCDFs and dioxin-like PCBs in human milk. The results of the third round of the WHO 2001-2002 co-ordinated exposure study show that **the lowest levels of PCDDs/Fs have been found in Bulgaria** (median value of 6,14 pg WHO-TEQ/g fat) and of **dioxin-like PCBs – being one of the lowest** (median value of 4,21 pg WHO-TEQ/g fat) after Hungary.



2.3.2. POPS EFFECTS ON HUMAN HEALTH

Many laboratory experiments have been conducted to test the relationship between POPs exposure and a range of adverse outcomes in animals. *Table 8* shows some possible effects that can be produced by some of POPs – dioxins/furans, PCBs and HCB and Category of carcinogenicity by JARC.

Table 8. Potential effects of individual POPs

Types of Effects	PCDDs	PCDFs	PCBs	HCB
Reproduction and/or development	X	X	X	X
Cytochrome P450 system	X	X	X	X
Porphyria	X	X	X	X
Immune system	X	X	X	X
Thyroid and retinol effects	X	X	X	X
Skeletal changes	X	X	X	
Endocrin disruptor	X	X	X	
Carcinogenic effects	X	X	X	X
Category of carcinogenicity IARC*	Group 1 - carcinogen to humans: Only for 2,3,7,8 - Cl ₄ DD Group 3 - not classifiable as carcinogen to humans: For all other PCDDs	Group 3 - Not classifiable as carcinogen to humans	Group 2A - probable carcinogen to humans	Group 2B - possible carcinogen to humans

* **IARC** – Classification of agents, mixtures and exposures according to their carcinogenic risk to humans in accordance with the procedures adopted as standard IARC practice: Group 1 - carcinogenic to humans; Group 2A - probably carcinogenic to humans; Group 2B - possibly carcinogenic to humans; Group 3 - not classifiable as to carcinogenicity to humans.



The risk is negligible in all regions if the risk quotient DI/Netherlands TDI is used for the calculation.

The annual average concentration of DDT and Dieldrin in all monitored districts present no health risk for the general population.

One of the lowest levels of PCBs and PCDDs/PCDFs in breast milk within the European countries have been found in Bulgaria for the period 2001 – 2002.

Potential risk for environmental pollution in case of accidents in the regions close to old non-repaired warehouses for storage of obsolete pesticides.

Regions with potential for formation of POPs emissions (PCDDs/PCDFs, PCBs and HCB) are theregions, close to the big thermal electric power stations, using lignite coal and mazut, the large



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industrial manufacturers, using mazut as fuel and the large cities, where the main roads and R.W. lines of the country pass by. The risk of air pollution with dioxins/furans and PCBs from forest fires, the municipal waste disposal sites and uncontrolled burning of solid municipal waste, stubbles and tires should not be neglected.

3. STRATEGY AND ACTION PLANS OF NIP FOR POPS

Based on the results obtained from preliminary inventory of various POPs categories **SWOT analysis** on the possibilities to meet the provisions of Stockholm convention in R Bulgaria has been implemented. Based on the SWOT analysis, the major objectives for the future development of the country in the field of management of persistent organic pollutants (POPs).

Strategic goal and specific objectives are presented as a major long-term strategy and specific national objectives in medium-term and short-term, the country is facing out (*Objectives tree*). Within the technology of strategic planning SWOT-Analysis (Strengths, Weaknesses, Opportunities and Threats) is of key importance for the strategic planning process. It helps to prioritise the results of the environmental scan analysis and to structure them in such a way as to allow for the setting of the strategic goals and specific objectives of the Republic of Bulgaria to be pursued in the coming years. The analysis showed that R Bulgaria has good institutional, professional and scientific capacity to meet its obligations under Stockholm convention.

The implementation strategy of NIP for POPS is based on the following principles:

- Adherence to Stockholm Convention provisions;
- Adherence to EU directives provisions;
- Adherence to „the polluter-pays“ principle;
- Adherence to and enforcement of international standards;
- Integration within overall environmental management and sustainable development policies;
- Public and stakeholder participation and transparency of the decision making process regarding POPs issues;
- Transparency in information sharing and exchange on POPs issues;
- Provision to the public of available information on POPs and training of professionals on the implementation of measures and activities, included in the NIP for POPs;

The longterm strategic goal of the National Implementation Plan for management of POPs in R Bulgaria is: *to protect human health and the environment from harmful impact of Persistent Organic Pollutants based on the environmental policy for sustainable development.*

The National implementation plan for management of POPs formulates the following **8 major national objectives** addressed to:

1. Develop and Strengthen Institutional and Administrative Capacity at national, regional and municipal levels;
2. Eliminate intentional production and use of POPs;
3. Minimize or prevent releases from sources of unintentional production of POPs (Dioxin/Furans, HCB and PCBs);



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4. Reduce or eliminate obsolete pesticides stockpiles, containing and/or contaminated with POPs;
5. Develop and endeavour to apply Action plans for implementation of measures, envisaged in the NIP;
6. Encourage and promote research, development and monitoring pertaining to POPs including on their:
 - presence and levels in humans and the environment;
 - effects on human health and the environment.
7. Raise public awareness with regard to POPs;
8. Attract investments and encourage activities with regard to POPs management.

During the NIP development process the following **10 priorities of national significance** among POPs categories were defined:

1. Development and enforcement of plan for environmentally sound management stockpiles and wastes in order to reduce/eliminate obsolete pesticides, containing/contaminated with POPs;
2. Development of plan for identifying and remediation of contaminated sites.
3. Development of strategy for identification, marking and step-by-step phase-out of use of PCBs operating equipment;
4. Development of an action plan for safe storage and environmentally sound disposal of equipment and oils, containing PCBs;
5. Development an action plan for reduction/elimination of releases from unintentional production (D/Fs, HCB and PCBs);
6. Evaluation of negative POPs impacts on human health and monitoring of POPs levels in humans and the environment;
7. Encouragement and support for research on POPs effect on humans and the environment;
8. Promotion and facilitation of public awareness raising with regard to POPs;
9. Securing the financial resources for the implementation of NIP measures by attracting investments from international finance institutions and donors.
10. Integration of the NIP in the existing National Environmental and Sectoral policies;

To achieve the main national objectives, three specific Action plans for each POPs were developed building on the findings of the preliminary assessment on POPs inventories results:

- **Action plan for POPs - Pesticides**
- **Action plan for PCBs in Equipment**
- **Action plan for POPs releases from unintentional production (D/Fs, PCBs and HCB).**

The proposed Action plans cover the period 2006-2028 and includes the major measures and activities envisaged for the implementation of the NIP for POPs.

By the adoption and the implementation of the present plans, it is aimed that optimal balance between the different legislative, institutional, economic and technical measures and implementation of integrated approach for POPs management to be achieved. The plans determine also the responsibilities of the various institutions and organizations related to the implementation of the proposed activities in NIP, the expected costs and the probable sources of funding.



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Table 9. Short Summary of the proposed activities, included in the Specific Action Plans for each POPs category

N°	Action plan	Activities
1.	Enforcement and Regulatory strengthening measures for POPs management	<p>Effective enforcement of existing legislation, regulating POPs management:</p> <ul style="list-style-type: none"> - Enforcement of existing legislation, regulating POPs pesticides management; - Enforcement of existing legislation, regulating the management of PCBs in equipment; - Enforcement of existing legislation, regulating the Emission Limit Values of D/Fs, released into atmosphere from facilities and activities with stationary point sources.
2.	Measures for providing methodology support for the enforcement of POPs management legislation	<p>Development of Obsolete and POPs Pesticides Storage and Stock control Manual and Guidelines for the environmentally sound Management of obsolete and unwanted pesticides.</p> <p>Development of technical Manual and Practical Guidelines supporting the enforcement of PCBs Regulation – for carrying out inventory of PCBs equipment; for labelling, decontamination/clean-up and dismantling of PCBs equipment, and safe storage of PCBs waste oils.</p> <p>Updating of „Methodology for Determination of the Emissions of Dioxin and uran Releases in the Air” based on CORINAIR Methodology.</p>
3.	Administrative capacity strengthening of authorities, responsible for POPs management	<p>Strengthening of municipal administrative capacity for control and safe storage of obsolete pesticides’ stockpiles, including appointment of additional personnel.</p> <p>Strengthening of administrative capacity of RIEWs for control and inspection of operating PCBs equipment and for the conditions for storage of dismantled equipment and wastes, containing PCBs</p>
4.	Measures for personnel qualification raising/training and technical resources	<p>Carrying out Seminars and Training Workshops for qualification raising of experts of relevant state authorities over the NIP implementation.</p> <p>Training Workshop for qualification raising of industry professionals and personnel, engaged in MoEW in regard to:</p> <ul style="list-style-type: none"> - Carrying out detailed PCBs equipment inventory; - ES storage, decontamination and disposal; - Control of PCBs equipment and wastes, containing PCBs; <p>Strengthening of laboratory infrastructure for control and analysis of PCBs and HCB in waste gases, waste water, soils, air, food of vegetable and animal origin.</p> <p>Strengthening the laboratory infrastructure for analysis of POPs pesticides in the environmental media, in foods of vegetable and animal origin and the levels in human tissues; including delivery of necessary equipment, personnel training and lab accreditation.</p> <p>Strengthening the laboratory infrastructure for analysis of PCBs in oils and accreditation of sufficient labs.</p>



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N°	Action plan	Activities
5.	Measures to ensure sufficient and reliable data on POPs	<p>Updating NIP for POPs every 5 years.</p> <p>Annual updating of the data base for obsolete pesticides stockpiles</p> <p>Carrying out of a Detailed inventory of 2308 t of „unknown“ obsolete pesticides not yet secured, stored in 477 unrepaired in-use warehouses with the aim to identify the assumed available between 22.3 t - 25.8 t POPs pesticides and approx. 30 t mixtures, consisting of or contaminated with POPs.</p> <p>Carrying out of a Detailed inventory of equipment (in-use and phased out) and oils, containing PCBs.</p> <p>Establishment of Software and data base for in-use and phased out PCBs equipment and waste, containing PCBs and its regular updating.</p> <p>Annual updating of data base for Dioxins/Furans, PCBs & HCB in emissions.</p>
6.	Measures to reduce or eliminate releases from intentional production and use, according Article 3.	<p>Observing the ban for import and use of POPs pesticides.</p> <p>Observing the ban for import and export of PCBs.</p> <p>Obeying the permitted use of PCBs in closed systems – transformers and capacitors.</p>
7.	Measures to reduce or eliminate releases from unintentional production, according Article 5.	<p>Promote the application of available, feasible and practice measures for a realistic and meaningful level of POPs release reduction or source elimination by including in the requirement of the issued Integrated permits of BAT and BEP for the facilities from energy, metallurgy, chemical and cement industries and domestic solid waste burning plants, where it deems appropriate.</p>
8.	Measures to reduce or eliminate releases from stockpiles and waste, according Article 6.	<p>Environmentally sound storage Obsolete pesticides stockpiles - Handling, collecting, repacking, transporting and storing in an environmentally sound manner of obsolete pesticides in newly constructed or repaired centralized and municipal storages facilities or capsulation in BB-cubes</p> <p>Development of a long-term business plan for gradual disposal of POPs and obsolete pesticides currently in long-term storage and site remediation.</p> <p>Safe and environmentally sound disposal of obsolete pesticides stockpiles:</p> <ul style="list-style-type: none">- Removal and disposal abroad of 2308 t of „unknown“ obsolete pesticides, stored in 477 unrepaired in-use warehouses and site remediation, if international funding is provided;- Removal and partial disposal of obsolete pesticides, identified as consisting of or contaminated with POPs abroad, if international funding is provided;- Gradual disposal of obsolete pesticides stockpiles currently in long-term storage and site remediation. <p>Safe operation of in-use PCBs equipment (transformers and capacitors) and gradual phasing out:</p> <ul style="list-style-type: none">- Prepare short-term plan for labeling and decontamination/refilling of in-use PCB equipment;



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N°	Action plan	Activities
9.	Measures for control and monitoring, according Article 11.	<ul style="list-style-type: none">- Prepare long-term plans for phase out of in-use PCBs equipment, dismantling, decontamination, safe storage, appropriate disposal ahead of national legislation deadlines;- Develop detailed business plans for environmentally sound end-of-life management for highest risk PCBs equipment and waste;- Labelling of in-use PCBs equipment - transformers and capacitors;- Decontamination of transformers with PCBs concentration above 0,05 % by weight and volume above 5 dm³;- Gradual Phasing-out of equipment with PCBs concentration above 0,05 % by weight and volume above 5 dm³. <p>Collection and safe storage of phased-out equipment and oils, containing PCBs: Provision of the necessary storage sites for safe storage of phased out PCBs equipment and wastes, containing PCBs - transformer and capacitor oils.</p> <p>Disposal of the equipment and wastes, containing PCBs:</p> <ul style="list-style-type: none">- Export for disposal of 20,12 t waste PCBs transformer oils abroad, if international funding is provided;- Export for disposal of 844 phased out PCBs capacitors abroad, if international funding is provided;- Gradual disposal of highest risk phased out equipment with PCBs concentration above 0,05 % by weight and volume above 5 dm³. <p>Exercising permanent control over the implementation of legal requirements for safe storage of obsolete and unusable pesticides stockpiles and regular inspections of storage facilities status.</p> <p>Development of a Manual for the procedures and requirements for monitoring, and inspections of the PCBs equipment.</p> <p>Exercising permanent control over in-use PCBs equipment and over the conditions for storage of dismantled equipment and wastes, containing PCBs.</p> <p>Observing of existing admissible emission norms for Dioxins/Furans, PCBs and HCB by exercising permanent control over the implementation of the requirements of the issued Integrated permits.</p> <p>Exercising permanent control over the implementation of existing limit values of PCBs releases in the air of working media.</p> <p>Monitoring of soils with local spot POPs pollution, including spot points where DDT and metabolites values exceeding the maximum admissible concentration and intervention concentration level were registered.</p> <p>Monitoring of ground waters for POPs content in the regions close to storages for obsolete and out-of-use pesticides.</p>
10.	Information exchange, according Article 9.	<p>Facilitate and undertake the exchange of information relevant to POPs:</p> <ul style="list-style-type: none">- Performance of information exchange among the stakeholders, responsible for POPs management;



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N°	Action plan	Activities
11.	Measures for Public information, awareness and education, according Article 10.	<p>- POPs information dissemination & networking of scientific publications, developed projects, seminars and scientific forums on POPs Web-page of MoEW.</p> <p>Educational and Public awareness raising programmes on POPs issues:</p> <ul style="list-style-type: none">- Development of educational public awareness programmes on POPs issues, as well as on their health effects, especially for women, children and the least educated;- Development of educational programmes and suitable school text books for pupils and students knowledge on POPs issues. <p>Provision of Public access and awareness raising on POPs issues:</p> <ul style="list-style-type: none">- Publication of NIP for POPs on the Web page of MoEW;- Updating of MoEW's Web page by including available information on POPs;- Publication and dissemination of NIP for POPs - hard copy of NIP Executive summary;- Provision to the public available information on POPs through Information centers at MoEW, EEA and at RIEWs;- Providing opportunities for public input, opinions and statements and raise questions & responses, addressing POPs management through the Forum „Green Graphite“ on the MoEW's Web site;- Carrying out Information Campaigns by ecological NGOs for POPs effects on human health and the environment at regional level. <p>Development and dissemination of public awareness materials at the national level for POPs and their health and environmental effects:</p> <ul style="list-style-type: none">- Development, publication and dissemination of POPs popular brochures for their human health and environmental effects;- Development, publication and dissemination of POPs popular brochures and leaflets for awareness raising on POPs pesticides and their effects on human health and the environment among the farmers and rural population;- Development, publication and dissemination of POPs popular brochures and leaflets for PCBs issues and their effects on human health among operators of PCBs equipment;- „POPs: Be careful“ Strengthening NGOs' capacity in realization of the information campaigns and improve communications with local community and other counterparts;- Sharing information about POPs Public awareness campaign on POPs „Planet without POPs“- dissemination of POPs popular brochure. <p>Development and carrying out „round-tables“ discussions for public awareness raising on POPs effects on human health and the environment with gender focus on young people and target groups of local communities and other counterparts.</p>
12.	Measures to encourage research and development, according Article 11.	<p>Carrying out representative research investigations for POPs levels of accumulation in risky groups of population, especially women and children in rural areas close to the storages for obsolete pesticides.</p> <p>Carrying out representative research investigations for POPs pesticides levels in soils and products of vegetable origin in field farming areas close to the storages for obsolete pesticides.</p>



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N°	Action plan	Activities
13.	Reporting according Article 15.	<p>Carrying out investigations on identifying PCBs level accumulation in human tissue and population health status assessment with priority to risky groups in the regions with high concentration of PCBs equipment.</p> <p>Carrying out representative investigations of PCBs accumulation levels in reast milk and fat tissue in women – suckling mothers in the regions with high concentration of PCBs equipment.</p> <p>Undertake research works geared on alleviating the effects of POPs on reproductive health.</p> <p>Carrying out representative comparable investigations for Dioxin/Furans & PCBs content in chicken eggs in the regions close to the large thermal power plants (TPP).</p> <p>Carrying out investigations for Dioxin/Furans & PCBs concentrations in food (hen eggs and eggs products, milk and diary products, fresh meat and animal products,reach in fats, sea and river fish).</p> <p>Development of a Progress Report for the the NIP implementation and providing it to Secretariat.</p>



Based on the measures and activities envisaged in the NIP for the management of POPs, a preliminary assessment of the funds required for the successful implementation of NIP has been performed. The total budget required to implement all activities planned under the NIP exceeds 50 millions BGN (approx. 30 millions US \$), excluding the costs needed for the construction of the National centre for treatment of hazardous waste (87 million BGN) and lab infrastructure for DIOX/Fs determination in environmental media (approx. 6 million BGN).

To implement the most urgent activities related to reduce the negative impacts of POPs on human health and the environment, the Republic of Bulgaria requires funds amounting to 27 455 000 BGN (approx. 17 069 000 US \$). The state budget could cover about 10%, mostly as contribution in-kind, providing necessary experts support, offices, technics (computer and copy equipment), communications (Internet, telephone, fax, mail services), office supplies, etc.



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The Republic of Bulgaria can not cope alone with the full incremental costs of meeting the obligations of the Stockholm Convention and requires international financial support. To reduce the risk to human health and the environment of POPs stockpiles urgent measures should be taken for safe storage and/or environmentally sound disposal abroad, due to absence of appropriate disposal facility in the country. For this purpose the Republic of Bulgaria needs to be supported by providing financial resources from GEF and other international, bilateral, regional and multilateral twinning programmes.



The Republic of Bulgaria requires urgently funding amounting to 21,7 million BGN (approx. 13,6 million US \$) for the following activities:

- For carrying out a detailed inventory and disposal abroad of 2308 t obsolete pesticides stored in 477 unrepaired operating warehouses – 14,7 million BGN (approx. 9,2 million US \$);
- For carrying out a detailed inventory of PCBs equipment and wastes, containing PCBs and disposal abroad of 844 phased out PCBs capacitors and 20,12 t waste transformer oils, containing PVBs - 7 million BGN (approx. 4,4 million US \$);

The implementation of the POPs NIP will also require capacity strengthening in both technological/laboratory infrastructure and human resources/qualification raising as well as management capacity building.

For the implementation of the NIP for the management of POPs, it should endeavour to provide financial resources by attracting investments on international and national source funding scale, as well as to promote taking measures by the enterprises' operators, intentionally or unintentionally producing and/or using POPs [construction of facilities for treatment and destruction of POPs, introducing the best available techniques (BAT) & the best environmental practices (BEP), etc.

To enable Bulgaria to implement the measures set out in the POPs action plans, international financing will be sought. Bulgaria will promote multiple-source funding approaches & arrangements, twinning programmes and funding through other bilateral, regional and multilateral sources and channels. Efforts shall be put to use the existing financial mechanism of the Global Environment Facility (GEF) and bilateral, regional and multilateral finance resources.



Ministry of Environment and Water

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“TO PRESERVE THE NATURAL HERITAGE

OF BULGARIA

AND

TO ASSURE A HEALTHY ENVIRONMENT FOR

THE POPULATION”

