

PESTICIDES: A REAL THREAT



The overview of activities of non-governmental organisations of Eastern Europe, Caucasus and Central Asia region for identification of unauthorised storages of banned and obsolete pesticides

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The publication is intended for non-governmental organisations, students of environmental specialisations, officials of federal and regional state administrations dealing with pesticide management and inventories of stockpiles of banned and obsolete pesticides, international environmental organisations, donor institutions that provide assistance to environmental NGOs.

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International POPs Elimination Network – IPEN

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Eco–Accord Centre proposes a new brochure for your attention:
PESTICIDES: A REAL THREAT

Now, the role of the non–governmental sector in addressing different problems, including environmental ones, steadily grows, both worldwide and in countries of Eastern Europe, Caucasus and Central Asia (EECCA).

Non–governmental organisations protect citizens' rights and propose new initiatives that often result in launch of new local, national and international projects and programs. NGOs attract attention of policy–makers and governmental agencies to major problems and propose alternative options to resolve them, applying their experience, knowledge and enthusiasm.

What do EECCA NGOs do to reduce environmental contamination by toxic chemicals in general and obsolete and banned pesticides, in particular? How should NGOs become more active participants of these activities?

This publication seeks to answer these questions. This unique publication will promote development and strengthening of partnerships between NGOs and international organisations, different governmental levels and the academic community, promoting development of more efficient policies, plans, programs and specific projects. Moreover, this brochure will become a valuable resource for non–governmental organisations, that are concerned about environmental contamination by hazardous chemicals and plan to launch their own activities in the sphere.

We would greatly acknowledge your comments on the brochure. Please, send your comments by e–mail to: accord@ntserver.cis.lead.org and speransk2004@mail.ru. Besides that, we are interested to get additional information on NGOs' experience in addressing pesticide–related problems, your successes and obstacles you faced. These information materials may be published in our further publications on the issue.

Olga Ponizova
Eco–Accord Executive director

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Editorial Note

According to the World Health Organisation (WHO), environmental factors account for about 25–30% of “contributions” into human health problems. Taking into account complicated problems of environmental contamination by extremely hazardous and toxic chemicals in the region of Eastern Europe, Caucasus and Central Asia (EECCA), as well as intentions of governmental facilities and members of the general public to improve the situation, many environmental NGOs of EECCA countries started to participate actively in addressing problems, associated with pesticide-generated environmental contamination, including prevention of accumulation of stockpiles of banned and obsolete pesticides and pesticides which are persistent organic pollutants (POPs). In the course of their activities, many NGOs have managed to focus on addressing priority problems and attracting attention of governmental agencies, international organisations and local residents.

One of the key activities of NGOs in the sphere of addressing problems of health and environmental impacts of pesticides was associated with facilitation of public participation in identification of unauthorised storages of banned, obsolete and unmarked pesticides and transfer of these data to regional/local authorities and state administration for relevant response actions. These data should be incorporated into official inventories of banned, unusable and obsolete pesticides in EECCA countries.

In parallel with search for unauthorised pesticide storages, many NGOs seek to substantiate health hazards of pesticides–POPs. We hope that our publication will become a valuable information resource to assist NGOs in their activities.

Besides general information on environmental and health impacts of POPs and POPs pesticides, the publication provides specific examples of projects under way in EECCA region, that were initiated and implemented by NGOs. These projects seek to initiate a broad public movement for reduction of adverse health and environmental impacts of banned and obsolete chemicals. The published data will allow donors and other potential providers of finance and information assistance to NGOs to get information on their specific projects in EECCA region.

We acknowledge assistance of all persons who provided us their information materials and supported development of the publication, particularly: L. Astatina (“Greenwomen” Environmental Information Agency), V. Garaba (Chisinau Territorial Organisation of Moldova Environmental Movement), B. Dinham (Pesticide Action Network, UK), D. Levashov (Eco–SPES Environmental NGO), S. Kalinovich (the National Academy of Sciences of Belarus), E. Manvelyan (NGO “Armenian Women for Health and Healthy Environment”), M. Sobol (NGO “The Women’s Network at the Urals”), I. Trombitskiy (“Eco–TIRAS” International Environmental Association of River Warriors), I. Khodzhamberdyev (NGO “For Civil Society”, Kyrgyzstan), O. Tsyuleva (NGO “MAMA–86–Kharkov”), K. Shafer (the Pesticide Action Network).

Besides that, information materials for the publication were also provided by UNEP Chemicals, the Public Health Ministry of the Russian Federation, the Ministry of Natural Resources of the Russian Federation, the Russian Academy of Sciences, the Ministry of Environment of Armenia, the Ministry of Ecology of Georgia, the State Committee for Nature Protection of the Republic of Uzbekistan, the State Department for Chemification and Plant Protection of Kyrgyzstan, the International POPs Elimination Network, the Basel Action Network, the Arctic Council and US EPA.

The publication also contains information materials from published works of M. Avdeev (Chelyabinsk State Agro–industrial University), E. Volkova (Ural State Medical Academy of Post–Graduate Education, Ya. Zhakova (Chelyabinsk State Medical Academy), E. Zhukovskaya (Chelyabinsk Regional Movement “Gematologists of the World for Children”), G. Lestchenko (Chelyabinsk State Agro–industrial University), G. Tyunina (Chelyabinsk Municipal Culture Department), A. Uralshin (Chelyabinsk Oblast Centre for Sanitary and Epidemiological Control).

Besides that, the publication incorporates some extracts from book “POPs: Our Future under the Threat”, produced under the editorship of Eco–Accord Centre.

The publication was developed in the framework of Eco–Accord project “Capacity Building of the Russian Public to Address POPs–related Problems”. The project is implemented in co–operation with Russian and international organisations, in partnership and with financial support of the International POPs Elimination Network.

*By Olga Speranskaya
Head of Eco–Accord Program on Chemical safety*

CHAPTER 1

PESTICIDES: A REAL THREAT

Pesticides are defined as toxic chemical substances used to control pests (including some rodents, insects, fungi, lichen, microorganisms, viruses, etc., that damage agricultural plants and products), as well as some weeds and undesirable plant species. In public health practices, pesticides are used to kill vectors of some dangerous infections, including malaria, plague, tularaemia, encephalitis, sleeping sickness, elephantiasis, other skin and intestinal diseases. In veterinary medicine pesticides are used as disinfectants, in industry they are used to protect non-metal materials (polymers, timber, textiles), for antifouling purposes, particularly in warmer seas, to suppress sulphobacteria and to prevent biocorrosion of pipes.

Besides that, pesticides incorporate also some other chemicals:

- plant growth stimulators (auxins, gibberellins);
- desiccants;
- defoliants;
- deflorants;
- attractants;
- repellents, etc.
- chemicals, used to kill some rodent species (rodenticides), etc.

Broad application of pesticides, without accounting for local climate conditions, non-compliance with relevant application rules, including safety requirements, result in serious problems:

- Poisonings
- Biodiversity losses
- Killing of livestock and wildlife
- Interruption of natural pest control processes
- Accumulation of stockpiles of banned and obsolete pesticides
- Pesticide contamination of food
- Water pollution
- Undesirable import

The most serious problems are associated with adverse health impacts of pesticides, particularly their adverse impacts on child development. The latter problem was, in particular, studied by Greenpeace experts in India. Their research results demonstrated retardation of intellectual development of children in rural areas where pesticides are applied intensively. The study covered 18 villages in six states of the country. Development parameters of children under study were compared with relevant parameters of the control group children – children of the same age group, who were not affected by pesticide exposure.

Tests results of children of the age group from 4 to 5 years suggest that children of the control group demonstrate 87% better development vs. their counterparts of the study group. In the case of older children (the age group from 9 to 13 years), study results also suggested 85% retardation of intellectual development of the study group.

Such results shocked even the researchers themselves. They did not expect that impacts of pesticides could affect intellectual development of children so dramatically. The Greenpeace report particularly emphasised that children of the study group did not work in the agriculture – they attended schools and kindergartens. Nevertheless, they were exposed to pesticides in the air, water and soils. In many households, empty pesticide packages are used for domestic needs, while pesticide-impregnated dry cotton branches are used as a domestic fuel.

Children are more vulnerable to pesticide impacts

- Children are more vulnerable to pesticide intake and bioaccumulation (per unit of body weight) from air, food and through skin.
- Children may play at pesticide-contaminated ground. Dirty hands may result in pesticide intake.
- Pesticide vapours are denser than air, due to small body height, children may inhale air with higher concentrations of pesticides.
- Children may ignore written warnings and signs.
- Immune system of a child is less developed than that of an adult.
- Children are more vulnerable to impacts of synthetic pesticides – hormone-disruptors.
- Developing human cells are more vulnerable than developed ones. In the period of intensive growth, children's cells undergo more intensive fission, as a result, there is a higher risk of malignant tumours development under impact of toxic chemicals.
- Small doses of neurotoxic pesticides may seriously undermine intellectual development of children.

Health status research studies in regions with different intensities of pesticide application were carried out in 1986–1990, in 259 agricultural districts of 9 republics of the former USSR. The research results demonstrated that child morbidity levels (in the age group of 0 to 14 years) in areas of intensive pesticide application increased relevant figures in areas with minimal pesticide loads in 2 times or even higher.

Toxic effects of xenobiotics were identified among rural residents who have permanent contacts with pesticides. In districts of intensive application of agricultural chemicals, rural residents are 2 times more likely to fall ill and to die 7–10 years earlier than urban dwellers. Even in environmentally safe zones, where pesticides are applied in standards doses according to cultivation technologies, children of early years of life intake high doses of chlorinated organic pesticides with food – these

How should one protect children from adverse impacts of pesticides?

In 1992, experts of US EPA conducted research studies that confirmed that pesticides are used by 82% of households – these results suggest potentially higher cancer risks for children.

In 1997, specialists of the National Cancer Institute (US) analysed cancer statistics and found that children are more vulnerable to pesticide impacts. Marion Moss, the Director of the Pesticides Training Centre in San Francisco, believes that it is important to apply available alternatives to pesticide use:

- to use insect traps instead of pesticide sprays.
- to use organic fertilisers and non-toxic herbicides instead of synthetic chemicals.

doses may be 4 times in excess of the maximal allowed daily intakes as set by WHO. Besides that, breast milk may contain from 5 to 45 times higher levels of chlorinated pesticides comparatively to cow milk (depending on duration and intensity of women's exposure to pesticides in pregnancy and after childbirth). Children of women under pesticide exposure have reduced health status: every fourth child has a health problem. Every consecutive year, the child mortality rate increases by 4–5 cases per 1000 live new born. About 60% of children under 14 years suffer diagnosable gastroenterological diseases, while their health indices vary at the level of only 6–8%. Their children are not expected to be more healthy, as a result, these developments suggest the threat of degradation of the nation.

Now, the population of Russia decreases by about 200 thousand persons annually. For the first time in 40 recent years, the number of deaths exceeded the number of the new born in 30 oblasts of the Russian Federation and nation-wide. Biologically inadequate and environmentally unsafe food surely contributes to these negative developments.

According to the Public Health Ministry of the Russian Federation, incidence of occupational diseases among persons, who handle pesticides, is 2 times higher than among workers of other industries of Russia. It is worth to note that sometimes it is difficult or simply impossible to identify a causal linkage. For example, according to reports of health care workers of Chelyabinsk Oblast, they have registered no patients with pesticide-related poisonings. However, many specialists believe that in Chelyabinsk Oblast (similarly to other regions of Russia) one should rather focus on chronic pesticide poisonings instead of acute ones. Due to long-term storage of pesticides at the territory of the oblast, many pesticide packages disintegrated. 70% of the overall volume of obsolete and unusable pesticides cannot be identified. If

decomposed by solar light, pesticides release toxic decomposition products, as a result, their stockpiles pose even higher risks to human health. It is important to note that in 30 recent years, no research studies

PESTICIDES – INDUCED DISEASES

- sideropenic anaemia
- respiratory diseases
- asthma
- kidney and liver disorders
- endocrine disorders
- high incidence of gynaecological diseases
- psychomotor retardation
- higher incidence of allergies
- CNC dysfunctions
- higher incidence of development defects
- high general infant morbidity.

were conducted in Chelyabinsk Oblast to assess health impacts of pesticides. However, there are preconditions for such studies there. Some NGOs of the oblast have already initiated studies to estimate pesticide levels in blood, urine and breast milk.

There are some available statistical data on a high incidence of children diseases in Azerbaijan (respiratory diseases, nervous, gastric–intestine, immune disorders, etc.), associated with pesticide contamination of breast milk, groundwater sources of drinking water, air, soil and some food products. After the agrarian reforms in Azerbaijan, land was privatised and rural residents use their land plots at their discretion. Under these conditions, about 50% of the country's population heavily rely on agriculture and animal husbandry as the mainstream source of income. About 49% of the country's population (mainly rural residents) have income levels under the poverty line. Under these conditions they have to use all possible means to increase land productivity, including application of pesticides to reduce impacts of pests and plant diseases. However, due to poor safety measures in the course of pesticide use, transportation and storage, pesticides cause different health problems among local residents – gastric–intestine, skin diseases, nervous disorders, respiratory diseases, etc. Women and children are particularly affected. These health problems are caused by consumption of contaminated drinking water or agricultural products. Rural residents, who cultivate cotton, greenhouse vegetables, grapes, vegetables, tobacco, etc. are the most heavily affected.

SYMPTOMS AND RESULTS OF PESTICIDE IMPACTS

Vomitus
Diarrhoea
Convulsions
Nausea
Allergy
Asthma
Fever
Tachycardia
Eyesight reduction
Headaches
Arthralgia
Dizziness
Blackouts
Chest pains
Chronic fatigue
Immune deficiency problems
Flu-like symptoms
Hypertension
Urogenital problems
Skin, nose, eyes and throat irritation
Multiple chemical sensitivity
Voluntary muscle contractions, loss of co-ordination
Behaviour anomalies: hyperactivity, atony
Cardiac and liver dysfunctions
Genotype alterations
Different types of cancer
Paralysis
Convulsions
Coma
DEATH

Based on materials of the Pesticide Action Network

Health impacts of pesticides do not manifest themselves immediately, as a result, people tend to underestimate associated risks. Therefore, pesticide health impacts are even more dangerous. Highly toxic chemicals are used without necessary protection gear. Agricultural workers and rural residents are exposed to pesticides in the course of field works after pesticide spraying, while they wash their clothes, when they store pesticides in their housing facilities, when they use empty pesticide packaging to store food or water, or when they drink contaminated water. Owners of greenhouse facilities, especially in floriculture, seeking to get high crop yields and preserve products, often ignore safety requirements (e.g. do not follow safety time limits of access to workplaces after pesticide application) and sometimes use particularly toxic pesticides.

Sometimes, adolescents and women of child-bearing age are allowed to work with pesticides. In many cases, the only efficient method to reduce incidence of pesticide poisonings is limited to ensuring strict compliance with sanitary rules and standards of pesticide application, reduction of access to hazardous chemicals and increasing access to less toxic ones.

INTERNATIONAL AGREEMENTS ON PESTICIDE MANAGEMENT

Health impacts of pesticides pose a serious problem that necessitates close attention of the international community, particularly if we account for the fact that the list of registered pesticides exceeds now 1500 brands.

For the time being, there are several international environmental agreements in force that regulate pesticide management issues, including management of stockpiles of banned and obsolete pesticides. These agreements include *inter alia* the Stockholm Convention on Persistent Organic Pollutants (POPs), the Rotterdam Convention on Procedures of Prior Informed Consent for International Trade in Some Hazardous Chemicals and Pesticides, the Basle Convention on Control of Transboundary Transportation of Hazardous Waste, the International Code of Conduct on Distribution and Application of Pesticides.

THE STOCKHOLM CONVENTION ON POPs

The Stockholm Convention was opened for signature in May 2001 and became effective only three years after – in May 2004. Such a swift process means that countries paid a major attention to provision of the Convention that regulate management of 12 specific extremely hazardous organic substances. The Dirty Dozen is the minimal set of toxic substances that endanger security of all countries. According to the Convention, these substances should be prohibited for application, their production should be banned and all stockpiles should be eliminated – moreover these substances are prohibited for transfrontier movement between Parties of the Convention. The list of chemicals is open for incorporation of other chemicals, however, the new candidates, similarly to the initial listed chemicals, should be categorised as “persistent organic pollutants”, i.e. they should be:

1. Toxic. It is worth to note that all candidate substances for incorporation into the Stockholm list should be highly toxic, like 12 initial POPs;
2. Persistent. In other words, these substances should be durable in environmental media, causing their accumulation in natural components and living organisms;
3. Prone to bio-accumulation, i.e. prone to accumulation in food chains.

4. Prone to long-range transfer and accumulation in environmental media.

12 controlled substances under the Convention, incorporate 8 banned and obsolete pesticides, namely:

1. DDT (trichloro-bis-chlorophenyl-ethane)
2. Aldrin
3. Dieldrin
4. Endrin
5. Chlordane
6. Mirex
7. Toxaphen
8. Heptachlor

All these pesticides (except DDT) are banned for application and associated production facilities were decommissioned long ago. Now there are only storages of these substances and contaminated land areas. As for DDT, many countries still use it to combat vectors of dangerous diseases, such as malaria and encephalitis.

For the time being, from 124 countries that applied to GEF for finance assistance to develop National Implementation Plans of the Stockholm Convention, 118 countries have already got financing and develop their Implementation Plans.

Russia, Kyrgyzstan, Tajikistan and Ukraine selected UNEP as implementing organisation of the Global Environmental Facility (GEF). The Republic of Belarus selected the World Bank and UNEP. Moldova selected the World Bank.

Azerbaijan and Armenia selected UNIDO – the UN Industrial Development Organisation

Georgia and Kazakhstan selected UNDP – the UN Development Program.

Uzbekistan now decides on matters of accession to the Convention.

According to G.F.Shkolenok, the Senior Scientific Advisor of UNEP Chemicals, a country should decide on ratification of the Convention by December 2004 or by early January 2005. Only after ratification of the Stockholm Convention, a country will be entitled to GEF finance assistance for specific national action plans.

According to experts of the North American Pesticide Action Network, 20% of all food products in the USA contain traces of POPs–pesticides, moreover, fairly often a particular food product may contain more than 5 different POPs.

POPs may remain unchanged in environmental media for many years, they are prone to long-range transfer and accumulate in fat tissues. Even extremely low human exposures to POPs pose a serious health hazard.

The most common POPs include DDT, its metabolites and dieldrin. Expert assessments suggest that estimated daily intakes for

dieldrin only exceed threshold risk levels for children, set by US EPA and the US Agency for Toxic Substances Control.

Eating a full day's diet of items contaminated with DDT, including eggs, milk, fish, fruit, vegetables, toast and potatoes, at levels permitted by the US Food and Drugs Administration would bring an adult's level of exposure to 90 times the safe limit.

Organochlorine (OC) insecticides pose an enormous problem to organic food producers, says Charles Benbrook of Benbrook Consulting Services (Idaho). Sixty per cent of US samples of organic vegetables tested contained pesticides contaminated with OCs, he says. Some are still in use, including endosulfan. Lindane also continues to be widely used to treat head lice.

Prevention of further food contamination must be a national health policy priority in every country. Early ratification and rapid implementation of the Stockholm Convention should be an urgent priority for all governments.

THE ROTTERDAM CONVENTION ON PROCEDURES OF PRIOR INFORMED CONSENT FOR INTERNATIONAL TRADE IN SOME HAZARDOUS CHEMICALS AND PESTICIDES

The Convention was signed on September 10, 1998, at the Conference of Plenipotentiaries in Rotterdam and came into force on February 24, 2004. The key aim of the Convention is associated with establishment of an early warning system on trade in hazardous pesticides. The Convention requires Parties to inform importers that pesticides/chemicals are banned in other countries due to their health or environmental effects, as a result, the importing country gets the right to refuse the import. Among EECCA countries, Armenia, Kyrgyzstan and Ukraine are Parties of the Convention. Tajikistan signed the Rotterdam Convention, but has not ratified it yet.

The Convention urges to implement new provisions voluntarily, pending the effective date of the Convention. This means that pesticides of the voluntary Prior Informed Consent (PIC) schemes are covered, while new pesticides (and other chemicals) may be incorporated to the list. Overall, the PIC list includes 26 pesticides and five industrial chemicals, namely:

Pesticides under PIC procedures (as at January 2002.)

Pesticides banned or severely restricted*

Severely hazardous pesticide formulations

2,4,5-T (dioxin contamination)

Aldrin

Binapacryl (INC6)

Captafol

* The POPs endrin and mirex are not included in the PIC list as there was no evidence of production or trade.

Chlordane
Chlordimeform
Chlorobenzilate
DDT
Dieldrin
Dinoseb and dinoseb salts
1,2-dibromoethane (EDB, or ethylene dibromide)
Ethylene dichloride (INC7)
Ethylene oxide (INC7)
Fluoroacetamide
HCH, mixed isomers
Heptachlor
Hexachlorobenzene
Lindane
Mercury compounds, including:
1. mercuric oxide
2. mercurous chloride, Calomel
3. other inorganic mercury compounds
4. alkyl mercury compounds
5. alkoxyalkyl / aryl mercury compounds
Pentachlorophenol
Toxaphene (INC6)

The following formulations are included in PIC

- monocrotophos 600 g/l (SL) formulation and higher
- methamidophos 600 g/l (SL) formulation and higher
- phosphamidon 1000 g/l (SL) formulation and higher
- methyl parathion emulsifiable concentrates (EC) with 19.5%, 50%, 50%, 60% active ingredients and dusts containing 1.5%, 2% and 3% active ingredient)
- parathion all formulations – aerosols, dustable powder (DP), emulsifiable concentrate (EC), granules (GR) and wettable powders (WP) of this substance are included, except capsule suspensions (CS)

Industrial chemicals in PIC

- Crocidolite
- Polybrominated biphenyls (PBB)
- Polychlorinated biphenyls (PCB), except mono- and dichlorinated
- Polychlorinated terphenyls (PCT)
- tris (2,3 dibromopropyl) phosphate

Potential effects of the Convention:

1. Dissemination of a broader information on environmental and health problems associated with pesticides.

2. Prevention of undesirable import of hazardous chemicals incorporated into the Convention list.
3. Improvement of pesticide management, particularly in developing countries.
4. Facilitation of search for safer alternatives, including integrated pest control options.

Comparatively to the Stockholm Convention, the Rotterdam Convention provides more limited opportunities for elimination of pesticides, but it provides a broader scope for early warning. Information of governmental decisions to ban/restrict pesticides should be submitted to the Secretariat for regular dissemination, as a result the information is more readily accessible, even in the case of substances that are non PIC-listed.

THE BASLE CONVENTION ON CONTROL OF TRANSBOUNDARY TRANSPORTATION OF HAZARDOUS WASTE

Besides the above conventions, POPs in waste flows are regulated by the Basle Convention of 1989. The Basle Convention does not define POPs, but it refers to some substances that were later incorporated into the group. For example, Annex 1 to the Convention, that lists categories of regulated substances, refers to different chemicals and waste, that include pesticides, *inter alia* banned and obsolete ones.

Below extracts from the document provide general outline of commitments of Parties of the Convention.

In particular, the Preamble emphasises that Parties of the Convention agreed to act, accounting for health and environmental risks of hazardous waste and other types of waste and their transboundary movements. The Parties realise the growing threat to human health and environment associated with growing production and transboundary movements of hazardous waste, other types of waste of complex nature. They recognise that countries should take necessary steps to ensure that use of hazardous and other waste (including their transboundary movements) is compatible with health and environmental considerations, regardless of waste disposal locations. The Parties should ensure that producers are obliged to transport and dispose off hazardous and other waste in an environmentally sound manner, regardless specific waste disposal locations.

The Parties recognise that every sovereign nation-state has the right to ban import or disposal of hazardous and other waste of any other country at its national territory, as well as their eagerness to prohibit transboundary transportation of hazardous waste and their disposal in other nation-states, particularly in developing countries.

Signatories of the Convention expressed their belief that hazardous waste and other types of waste should be disposed off in a country of producer, while transboundary movements of such waste should be allowed only if they are executed in a manner that does not pose health and environmental risks and complies with terms and conditions of the Convention.

THE INTERNATIONAL CODE OF CONDUCT ON THE DISTRIBUTION AND USE OF PESTICIDES

The International Code of Conduct on the Distribution and Use of Pesticides was signed in November 2002. Comparatively to the previous Code (version of 1985), the new version sets more rigid standards of pesticide use and provides more specific guidelines to national governments, agricultural, industrial and trade operators.

It is very important, that the new Code refers also to food-processing industries and consumers, as these stakeholders have a major role to play in reduction of use of hazardous products.

The new Code recognises the need to protect the environment and biodiversity, to minimise adverse impacts of pesticides on water resources, soils, air and living organisms that are not target species of pesticide application.

The new Code is intended to improve pesticide management in developing countries. Now these countries report more than 95 of severe pesticide poisonings and deaths, while application of pesticides in these countries continues to grow.

The Code provides recommendations on integrated pesticide management, that facilitates pesticide control measures. Integrated pesticide management should be supported by research data, farmers' participation and training, as well as by involvement of research consultants into farming practices.

CHAPTER 2

STOCKPILES OF BANNED AND OBSOLETE PESTICIDES AS A PROBLEM OF EECCA COUNTRIES

Close attention of the international community to the problems of pesticides, as well as their health impacts reaffirm the need of regular inventories of these hazardous chemicals, including banned, obsolete and unusable pesticides, and pesticides – persistent organic pollutants. Inventories of potential sources of pesticides releases into the environment allows to identify contaminated territories, stockpiles of banned and obsolete pesticides, abandoned storages of chemicals and to propose environmentally sound options of their elimination.

In the region of Eastern Europe, Caucasus and Central Asia (EECCA), besides modern and duly equipped storage facilities of banned and obsolete pesticides, these sources incorporate old pesticide burial sites of 1960s – 1970s. Pesticides and associated packaging materials were buried into ditches (2 – 5 metres deep, insulated by 1 metre thick waterproof clay layers). Pesticides of 1st grade hazard class (arsenic and mercury substances, zinc phosphide, barium preparations, etc.) were buried in similar ditches, in 1–2 m. deep concrete bunkers.

Pesticides and packaging materials were buried in the ditches with use of bulldozers and excavators, resulting in potential damaging of pesticide containers and mixing of different substances. After filling of the ditches, pesticides were covered by a clay layer (not less than 1 m. thick) and then covered by excavated material.

Pesticide burial sites were marked by concrete poles with warning signs “Attention, toxic chemicals!” and enclosed by barbed wire fences. Local authorities decided on the need to maintain control of a burial site at their own discretion.

According to preliminary estimates, overall, in the USSR, more than 50,000 tons of pesticides were buried (more than 40 different pesticide brands). The largest share of buried pesticides incorporated wetttable powders and pastes of DDT with 30–75% content of the active agent, as well as dusts, HCCH, heptachlor, phenthiuram, arsenic, cyan and mercury compounds, nitrophenols, phosphorous–organic insecticides, dithiocarbamates, sim–triazines, that are classified as POPs or pose high risks for human health.

Buried pesticide preparations incorporate some components that might react with other substances, generating heat and toxic gases (phosgene, phosphine, carbon bisulphide, carbon monoxide, nitrogen oxides, etc.), some chemical reactions might even ignite pesticide

mixtures, posing thus a higher threat to the environment and human health.

These large scale pesticide burial works were completed more than 25 years ago. Now, we have numerous but scattered data about poor quality of pesticide burial sites. There were many reports on soil subsistence at pesticide burial sites, destruction on upper cover of ditches filled with pesticides, flooding of pesticide burial sites by groundwater and floodwater, infiltration of pesticides to groundwater, releases of toxic gases to the air, self-ignition of pesticides, poisoning of animals and birds. Some pesticide burial sites become surrounded by residential areas, posing a real threat to health of local residents.

It is clear that inventory of pesticide burial sites and further actions in response to the inventory findings should become a priority objective in the sphere of addressing the problem of toxic waste.

Analysis of the inventory findings will allow:

- to identify specific substances and amounts of buried pesticides, particularly POPs and 1st hazard grade ones;
- to implement organisational and technical measures for prevention of their adverse impacts on the environment and human health;
- to account for negative experience of the old burial sites in the course of designing new facilities for liquidation of stockpiles of obsolete, unusable and banned pesticides.

AZERBAIJAN

In the Republic of Azerbaijan, about 3 million hectares of land are allocated for plant cultivation and gardens. In order to control insects and plant diseases, in 1989 alone, more than 40 thousand tons of pesticides were imported to the country (including 84 different brands). Recently, some official documents were found that confirmed cases of application of DDT in Neftechalinskiy district of Azerbaijan in 1989. In terms of pesticide application per hectare, Azerbaijan was the leading republic of the former USSR. Pesticides that were not used since the Soviet period, are not controlled and their storage conditions do not meet applicable sanitary standards.

According to findings of the research studies of 1989, in Azerbaijan, excessive levels of residual pesticides in environmental media reached 29.2 % (comparatively to 4.6% in Russia in the same period of time). Pesticides were mainly applied by aerial spraying – the method's efficiency in terms of delivery to the target plants reaches only 6%, while the rest of the applied dose (94%) dissipates in different environmental media. In 1995, a court case was heard in Udjarskiy district on large-scale cattle poisoning due to cattle exposure to obsolete POPs. In 1998,

“Azerbaijanselkhozkhimia” Association was liquidated — as a result, more than 80 chemical storages (with storage capacity up to 10,000 tons each) became unusable. The only existing pesticide burial site in the country (in Gobustanskiy district, with overall site area of 1.5 hectares) contains 8,000 tons of pesticides, including POPs. The burial site is almost uncontrolled, local residents steal concrete plates and some pesticides, heaps of pesticides are open to winds and rainwater, resulting in contamination of adjacent land areas and water sources. The burial facility in its current conditions poses a major threat to the environment and local residents.

Chemical industry of the country generates from 15 to 30 thousand tons of toxic waste annually. DDT traces were found in groundwater aquifers even at depth of 80 m., while DDT level in irrigation channels sometimes exceeded applicable standards in more than 10 times.

POPs circulation in the country is almost out of control. Being inadequately aware of associated risks, local residents take pesticides from abandoned storage facilities, use pesticide packaging for household needs and apply obsolete POPs in their subsistence agriculture.

There are no facilities for neutralisation of hazardous waste in the country, nobody monitors waste disposal activities and environmental impacts of waste.

Available research findings suggest that areas of intensive application of agricultural chemicals and pesticide-contaminated soils in Azerbaijan represent man-made geochemical anomalies of permanent adverse health impacts on local residents. These areas demonstrate higher levels of general population morbidity, higher incidence of birth defects, physical and intellectual development retardation.

ARMENIA

According to the Ministry of Natural Resources of Armenia, pesticide sales in the country substantially decreased (106 tons in 2000 and 123 tons in 2001).

The problem of obsolete pesticides was (and still is) fairly relevant in Armenia, since early 1970s, when the issue of utilisation and burial of accumulated stockpiles of obsolete pesticides was raised. In early 1980s, the republican government issued a decree on inventories, collection and burial of banned, obsolete or unusable pesticides. For these purposes, a special burial site was established nearby Bardzrashen village. About 500 tons of obsolete pesticides were buried at the site, including about 250 kg of organochlorine ones.

Now, due to economic transformations and changes in property relations, the burial site does not have an official owner. The situation is further aggravated by the fact, that the burial site is located in a

landslide-prone area. Landside processes may destroy the site constructions and cause pesticide releases of pesticides to nearby soils and groundwater. These assumptions were confirmed by selective monitoring sampling around the site. Measurements confirmed soil levels of organochlorine pesticides (DDT, DDE and HCCH) in excess of applicable MACs (in tens and hundreds times). Accounting for these findings, it is absolutely necessary to decide on further fate of the burial site, as a failure to act might severely affect human health and environment.

Residual levels of DDT, DDE and HCCH are still found in surface water of Sevan Lake, nearby rivers, soils and breast milk of rural mother. Soil samples in gardens and vineyards of Armavir and Ararat regions of the country contain particularly high residual levels of DDT+DDE. Some water and soil samples were found to contain their levels in excess of MACs in 2 – 18 times.

BELARUS

In 1999 – 2000, environmental research studies were carried out in the Republic of Belarus to assess environmental impacts of pesticide burial sites. Overall estimated stockpiles of obsolete and unusable pesticides in the country reaches 1,566 tons.

Overall, about 100 tons of pesticides were buried in Postavskiy district. The burial site is poorly insulated from groundwater. Laboratory testing of 40 soil samples, taken in different places in close proximity to the burial site, allowed to identify DDE levels in plant materials and soils up to 500 times in excess of applicable standards. However, pesticides were not found in samples taken from deeper soil layers.

In Gorodokskiy district, 414.4 tons of pesticides were buried. Analytical testing of more than 50 soil samples allowed to identify DDE levels of 0.13 mg/kg (1.3 MAC) in soil and plant samples taken at the Eastern part of the burial site. In the case of samples taken in the Western part of the burial site, DDE and DDT levels were found to reach 0.18 and 0.24 mg/kg, respectively (or 1.8 and 2.4 MAC).

The pesticide burial site in Verkhnadvinskij district contains 454.5 tons of pesticides. The initial burial site design stipulated its location in a forest, far away from water bodies and watercourses. Moreover, the site developers foreseen isolation of especially hazardous substances in a concrete bunker with storage capacity of 50 m³. However, the site construction works were implemented with major deviations from the design – the site was moved far away from the stipulated location, and the concrete bunker was not constructed. As a result, the burial site is just a common landfill, containing obsolete pesticides of more than 50 different brands. The site is located in the watershed area of two

streams – tributaries of the Turia River. Trace concentrations of organochlorine pesticides were found in soil samples and water samples taken in the South–eastern part of the burial site, streams and washouts. The identified pesticide levels reflect alteration of natural hydrochemical processes in the river drain.

The pesticide storage site with capacity of 1420 tons is located in Petrikovskiy district of Gomel Oblast, far away from human settlements and water bodies; the water table lies at the dept of 6 meters. Chemical analysis of samples, taken at the site, revealed DDE and DDT traces only in 3 points (in soil depressions of about 0.7 m).

In Dribinskiy district, 541 tons of pesticides are buried. The burial site is located in a forest. Hydrogeological conditions of the site are considered as unfavourable due to lack of a reliable confining bed and high groundwater table. Laboratory analysis of 50 soil samples (the samples were taken from different levels in 6 boreholes) revealed presence of organochlorine pesticides. Only one soil sample may be considered as an exception – it contained 0.076 mg/kg (i.e. a level close to the applicable standard). The exception may be attributed to complete washout of pesticides due to unfavourable hydrogeological conditions.

Analysis of environmental conditions has demonstrated that all existing burial sites release pollutants to the environment to a greater or lesser extent.

From the overall stock of banned and obsolete pesticides in the Republic, about 50% belong to moderately hazardous pesticides (3d hazard class) and about 40% of pesticides are stored in mixtures. These pesticides are distributed at the whole territory of the Republic and pose serious risks to the population and the environment. Now, the majority of obsolete and banned pesticides are stored at the territory of Minsk and Grodno oblasts (excluding burial sites).

Since 1997, at the territory of Belarus, the international project “Study and Utilisation of Accumulated Obsolete Pesticides in the Republic of Belarus” was implemented. For purposes of the project, the specialised regional facility for processing and neutralisation of toxic industrial waste was constructed in the country.

GEORGIA

The problem of chemical management is relevant for Georgia. Now, the country experiences the general production decline and chemical industry is not an exception. Consumption of pesticides and fertilisers decreased.

From the overall land area of Georgia (6945.4 thousand hectares), 3019.7 thousand hectares are used for agricultural purposes, and pesticides were applied at all these lands up to 1990s. The share of

persistent organochlorine pesticides reached about 80% of the overall amount of pesticides applied. Unregulated application of pesticides resulted in high soil levels of these substances.

Now, at the territory of Georgia, about 400 tons of obsolete pesticides were accumulated (plus the unknown amount of pesticide packaging), these pesticides are stored at the open air polluting the environment.

Persistent organochlorine pesticides, such as DDT, HCCH, aldrin and some others were excluded from the official publication of Georgia – “The List of Chemical and Biological Agents for Pest, Plant Diseases and Weeds Control, Plant Growth Regulators and Pheromones, Allowed for Agricultural Use (1999–2003)” and their application was banned.

The problem of obsolete pesticides is further aggravated by lack of inventories of storages and burial sites for toxic substances.

The key spheres of activities to prevent adverse impacts of obsolete pesticides in Georgia, incorporate:

- a comprehensive inventory of pollution sources;
- identification of priority pollution sources;
- development of regional co-ordination plans for phase-out/elimination of the most hazardous substances.

KAZAKHSTAN

According to official reporting, about 500 tons of unidentified pesticides are stored in the country. The preliminary inventory findings suggest that toxaphen, HCCH and DDT are also stored (15, 24, 0.5 tons, respectively, i.e. about 40 tons in total). Toxaphen is stored in Akkainskiy district (Northern Kazakhstan), HCCH at the Plague Control Facility in Atyrauskaya Oblast, and DDT is stored nearby Zhangiz–Tyube village (Zharminskiy district, Eastern Kazakhstan). The pesticide packaging (plastic bags) are adequate.

In the period of late 1990s, pesticide management problems (including POPs management) were particularly serious – at that time the land area under cultivation decreased by 31%. As a result, large amounts of obsolete pesticides were accumulated in inadequate and poorly equipped storage facilities. According to estimates of oblast–level Environmental Directorates, overall, the country accumulated 1200 tons of pesticides, that need utilisation (including POPs).

KYRGYZSTAN

By 1970, the country banned some highly toxic preparations, such as: chlordane, isadrin, dildrin, mercaptophos, phosdrin, phosphamide, dimephox, timet, pyrophos, endrin, M–74 and some others. At the same time, DDT and HCCH were used in 1970s – early 1980s.

According to the State Department for Chemification and Plant Protection, as at late 1989, 48 tons of banned pesticides were stored, while by late 1994 the figure increased up to 171 tons, suggesting some uncontrolled import of banned pesticides.

Banned pesticides are stored in inadequate storage facilities (98 facilities in Chuiskaya valley, including 38 standard ones; 44 facilities in Southern zone, including 27 standard ones; 52 facilities in Issyk–Kul zone, including 5 standard ones). Overall, 72% of existing storage facilities in the country do not meet environmental and sanitary standards (makeshift storage facilities).

There were several accidents in recent years, for example, in 1976, due to flooding of a pesticide storage facility, all fish stocks were killed in Son–Kel Lake (the second largest lake of the country).

Aldrin and DDT were banned in the republic in 1960s – 1970s, however, as at 1990, pesticide storage facilities in Kurgak–Ukok and Tashbak (Kungeiskiy district) contained, respectively, 764 tons and 225 tons of banned pesticides (including 70 tons of aldrin). Besides that, 230 tons of banned pesticides are stored in other districts of Kyrgyzstan.

Now, DDT and HCCH are officially replaced in Kyrgyzstan by pyretrin derivatives (organophosphoric pesticides). Registered annual application of these pesticides reaches about 33 tons, suggesting about 75% replacement of organochlorine pesticides. At the same time, poor customs control and numerous private farms allow one to assume existence of uncontrolled application of obsolete pesticides and excessive pesticide loads.

MOLDOVA

Economic and political crisis in the Republic of Moldova resulted in a sharp decline of living standards and provision of public health services, as well as in higher mortality rates. To a large extent, the rise of population mortality and morbidity rates is associated with intensive application of pesticides (including POPs) in the agricultural sector. Besides that, in the right–bank section of Moldova, there are more than 300 dilapidated and roofless storage facilities, that contain more than 3000 tons of obsolete pesticides, including persistent organic pollutants.

RUSSIA

Now, many countries conduct inventories of stockpiles of banned, unusable and obsolete pesticides. For example, in Russia, as at early 2003, more than 24 thousand tons of banned and obsolete pesticides were identified in the course of inventory works, including 1000 tons of mercury–containing preparations. In more than 60% of storage facilities, pesticide storage conditions do not meet applicable sanitary and safety

requirements. Soils are contaminated by DDT. At 30–60% of territories surveyed, excess levels of residual pesticides were identified.

The highest amounts of obsolete pesticides were found in Krasnodar Krai (2.7 thousand tons), in Rostov Oblast, Voronezh Oblast, Kurgan Oblast, Altai Krai (about 1.0 thousand tons in each region).

The below examples illustrate typical situations in many regions of Russia:

- In Voronezh Oblast, unusable pesticides are stored in 242 storage facilities in 28 different districts (including about 90 tons of banned pesticides and 650 tons of unidentified ones);
- In Tver Oblast, about 800 tons of pesticides were found (the pesticides are to be utilised), including 50 tons of chlorinated substances and 230 tons of derivatives of chlorinated aliphatic acids;
- In Astrakhan Oblast and Perm Oblast, major works were implemented to collect obsolete pesticides and deliver them to specialised burial sites in Samara Oblast and Leningrad Oblast (Krasniy Bor). However, 11 pesticide storage facilities still remain in Astrakhan Oblast, the majority of these storage facilities are either dilapidated or do not meet applicable standards;
- In Kurgan Oblast (Lebiazhevskiy district), about 887 tons of banned, unidentified and unusable pesticides were buried. The burial site is expected to be liquidated with utilisation of the pesticides;
- In Omsk Oblast, 327 tons of obsolete pesticides are stored in different storage facilities (including 48 specialised facilities from the overall figure of 111 storages) and buried, now, a project has been developed to relocate these pesticides to the site for utilisation of toxic industrial waste of 1st hazard class;
- In the Republic of Tatarstan, 975 tons of pesticides are stored in more than 800 storage facilities, a comprehensive program was developed in the Republic to ensure safe pesticide/ agrochemical management;
- In Kirov Oblast, in 2003, authorities decided to collect all banned pesticides and store them in a single storage facility;
- There are 366 tons of pesticides in Moscow Oblast, including 134 tons of pesticides in 323 storage facilities (the majority of these facilities belong to substandard storages, and 163 facilities are modified to serve pesticide storage purposes);
- In Orenburg Oblast, from the overall 760 tons of pesticides, 600 tons were temporarily buried onto the ground;
- In Sakhalin Oblast, 91 tons of pesticides are stored in substandard facilities and 297 tons of pesticides were temporarily buried;

- In Tyumen Oblast, 546 tons of pesticides are stored in dilapidated storage facilities and ahead.

In Rostov Oblast, 68 pesticide storage facilities were found to be makeshift storages, 18 storages facilities were found to be dilapidated or even completely destroyed. Obsolete pesticides are stored in paper and PE bags or in corrosion-pitted metal canisters.

At the territory of Bashkiria, more than 300 tons of obsolete and banned pesticides in need of utilisation. In the republic, the available storage capacity for pesticides and mineral fertilisers covers only 60% of the actual need, moreover, in the majority of cases, pesticides are stored in substandard facilities.

In Archangelsk Oblast, the international project – Environmentally Sound Management of Stockpiles of Obsolete Pesticides – is nearing completion now. The overall amount of stockpiles of obsolete pesticides in the oblast is estimated as 56.3 tons. The oblast serves as a demonstration region for implementation of the project. The project was initiated and financed by Finland, Sweden, Norway, Canada and the USA. Gradually, 11 other regions of Russia – the ones of close proximity to the Arctic Ocean – also started participating in the project. At the first stage of the project, the inventory of pesticides in Archangelsk Oblast was completed, while at the next stage of the project, unidentified pesticides were studied (the ones, that lost marking while at storage). Logically, the project should be finalised by elimination of pesticides.

Now, according to the Plant Protection Facility of Chelyabinsk Oblast, there are 142 operational storages, and 52 of them need capital repairs, because these storages were constructed in early 1960s. Pesticides are stored in dilapidated storage facilities, almost in the open air, moreover, the pesticides cannot be identified due to damaged packaging.

It is necessary to take urgent measures for upgrading and technical reconstruction of pesticide storage sites identified in the course of inventory works. It is necessary to collect obsolete pesticides and deliver them to specialised storage facilities pending decision-making on their elimination. These activities might be accounted for in the course of development of regional action plans of implementation of the Stockholm Convention with their eventual incorporation into the National Implementation Plan.

Underlying reasons of contradictions in official inventory data

However, it is important to note that inventory findings do differ. For example, in the case of Chelyabinsk Oblast, the official figures vary: 60 tons, 77 tons, 130 tons, 150 tons. Why?

First and foremost, these contradictions are associated with decay of the state-run agriculture and large territories of Russia – as a result, many storages were simply forgotten and now they are being gradually

found and reported on. Besides that, some pesticides at storage may be still used, even after expiration of shelf life. However, it is important to note that the due Russian legislation stipulates that only plant protection facilities can issue permissions for pesticide application. If a some quantity of pesticides was withdrawn from a storage facility without a permission of experts of a plant protection facility, we should consider it as a criminal act.

Identification of storages of banned and obsolete pesticides as the key problem

There is the obvious need to identify existing stockpiles of obsolete and unusable pesticides in Russia. It is the most important problem to be addressed by governmental entities. Methods of pesticide disposal/burial depend on their hazard grades and solubility. If we mix different pesticides or store them together, it would pose the risk of autoignition.

It is important to note, that all pesticide burial works of recent years do not meet applicable environmental safety requirements. Many pesticide burials need urgent relocation or liquidation, in some cases hazardous substances were found to migrate to soils and groundwater. Moreover, technologies for burial of extremely hazardous chemicals, such as unusable, banned and unidentifiable pesticides, are not environmentally sound. Laws of CIS counties in the sphere of environmental protection and security, as well as international legal acts on these matters prohibit such operations in the majority of cases. It is necessary to take broad measures to ensure repackaging and construction of specialised facilities for controlled storage of unusable pesticides, pending their eventual elimination. It is necessary to develop national and international strategies for management of these preparations; first and foremost, it is necessary to develop and approve the list of appropriate technologies for elimination of unusable pesticides (including their comprehensive assessment, experimental trials, pilot testing and – the most important – granting positive approval of the state environmental assessment).

Now, “Krasniy Bor” facility manages burial of obsolete and unusable pesticides. Several oblasts of the Russian Federation have already used the opportunity and transferred pesticides to the facility for thermal decomposition (however, “Krasniy Bor” accepts only non-inflammable solid preparations). So far, 7 oblasts of Russia have already transported their obsolete pesticides to “Krasniy Bor” for elimination.

Notwithstanding that the problem is considered seriously, so far our country has not completed a comprehensive inventory of pesticide preparations and storage conditions of banned and obsolete pesticides. There were registered cases of illegal import of banned and unusable pesticides to Russia – for example, in 2000, Lithuania transported 109 tons of these pesticides in violation of the Basle Convention, while in

2002, additional 40 tons of pesticides were delivered. In several cases, China made unauthorised discharges of pesticides to the Amur River.

Use of pesticides: the contemporary situation

The pesticides-related situation gradually changes. High prices of pesticides do not allow state-run or private farms to purchase large quantities of these chemicals. Farms buy minimal amounts of pesticides to meet their production needs.

According to experts, the contemporary application of pesticides in Russia is 10 times lower than it was in the Soviet period. Now, chemical agents of high biological activity are used. They are less toxic and do not include chemicals of 1st and 2nd hazard grades, except anti-rodent preparations.

Experts noted that, besides pesticides regulated under the Stockholm Convention on POPs, Russia has also banned the following highly toxic chemicals, namely:

- furazan (1st hazard grade);
- carbamate disinfectants;
- phosphorous-organic insecticides (B-58, durban, etc.);
- capbophos;
- pyrethrin derivatives;
- fastac;
- some zoocides;
- zinc phosphide.

TAJIKISTAN

According to the Ministry for Nature Protection of the Republic of Tajikistan, the economic decline in the country resulted in shortage of agricultural seeds – as a result the country had to import the seeds but the imported ones were found to be vulnerable to plant diseases and pests. In order to protect crops, particularly high pesticide loads were used in the country. In 1998–1999, in some regions of Tajikistan, pesticide loads reached 120 – 2680 kg/km² and even 4800 kg/m² (at cotton fields). DDT and other obsolete pesticides were intensively applied.

TURKMENISTAN

DDT was found in all agricultural districts of the country, while 4 toxic waste burial sites were found to contain 109 tons of residual amounts (Eneev site in Akhalsiy district, Karabota site in Mariiskiy district, Zerger site in Lebepkiy district and Takhta site in Dashoguzmskiy district).

UZBEKISTAN

Now, the inventoried stockpiles of banned and obsolete pesticides in the country reach about 1433 tons (including 118 tons of organochlorine ones). Obsolete pesticides are stored in different regions of the country, but the largest pesticide stockpiles (1022 tons) are located in Surkhandarinskiy and Kashkadarinskiy districts. There are 14 specialised underground pesticide storage facilities, made of reinforced concrete. Official bodies monitor their conditions. Besides that, there are numerous smaller open, unsealed storage facilities. In 1970s – early 1980s, aerial spraying of pesticides over cotton fields was broadly used in Uzbekistan. Soil contamination levels at associated airfields exceeded applicable standards in more than 100 times, DDT and other pesticides were used. Event 10 – 15 years after the official ban of DDT, its levels in soils exceeded MACs in areas of intensive cotton production (e.g. in 8 times in Ferganskaya Oblast). There are some reports on identification of chlordane stockpiles at some agricultural facilities of the republic (many years after its prohibition in 1990). In Karakalpak Republic of Uzbekistan, HCCH, DDT and HCB were found in breast milk samples. For the sub-group of 12 “mother–child” pairs, relative body level factors were estimated for mother/child body concentrations of HCB, β -HCCH, pp -DDE and pp -DDT. The average factors were found to reach: 2.1; 2.8; 3.0 and 3.3, respectively. In all 41 samples, relatively high levels of HCCH (α - and β -isomers) and pp -DDE. Samples of 68% and 43% of the persons under study, revealed levels of β -HCCH and pp -DDE in excess of 1000 ng/g lipid base.

UKRAINE

According to official statistical data, at the territory of the country, about 20 thousand tons of banned and obsolete pesticides were accumulated from the Soviet period (the share of DDT and chlorinate pesticides reaches about a half of the overall amount). According to the Environmental Centre of the Academy of Sciences of Ukraine, the largest amounts of unusable pesticides are located in Kiev Oblast (2.5 thousand tons), Sumy Oblast (2.5 thousand tons) and Vinnitsa Oblast (1.5 thousand tons). In the majority of cases, banned and obsolete pesticides are stored in inadequate facilities, posing a threat of unauthorised access to storages and use of pesticides by local residents.

The Danish Program for Environmental Co-operation in Eastern Europe (DANCEE) allocated about 8 million grivna to Ukraine in the framework of the first stage of the joint Ukraine–Denmark project

“Elimination of Risks of Obsolete and Banned Pesticides”. According to Jorn Lauridssen, the Danish project manager, since 1999, in the framework of the joint project, the project participants reviewed situation in the sphere of storage of banned and obsolete pesticides and implemented the pilot project at the storage facility in Lozovskiy district of Kharkov Oblast (160 tons of unusable pesticides were repackaged to meet safety requirements).

CHAPTER 3

THE ROLE OF EECCA COUNTRIES NGOs IN ADDRESSING POPs-RELATED PROBLEMS

A brief overview

Participation in Activities of International POPs Elimination Network – IPEN

Activities of EECCA countries NGOs in the sphere of elimination of POPs were substantially facilitated by their co-operation with the International POPs Elimination Network. IPEN is a global network of NGOs that joined their efforts to pursue the common aim of elimination of POPs. The Network seeks to ensure gradual elimination of persistent organic pollutants worldwide, including their stockpiles and sources, in line with principles of social justice.

Any organisation may join IPEN if it shares policies and strategies of the Network and the IPEN Declaration, approved at the Stockholm Conference in May 2001, when the Stockholm Convention on POPs was signed.

Now, IPEN incorporates more than 350 members, including 35 organisations from EECCA region. Many NGOs of the region actively participate in IPEN actions. For example, in 2004, 7 organisations – members of the Network – participated in the Global Day of Action, dedicated to the effective date of the Stockholm Convention. In connection to the action, IPEN activists developed **Guidelines for Campaigns to Support Entry of the Stockholm Convention into Force.**

Many NGOs of EECCA countries used these materials in their activities. They conducted press-conferences, published booklets, newsletters and posters, held meetings with members of the general public, national and regional authorities. Media publications were published in different EECCA countries and regions on results of the Global Day of Action to emphasise importance of entry of the Stockholm Convention into force.

To a large extent, IPEN membership of many EECCA NGOs promoted more active participation of these organisations in international events dealing with problems of POPs and more complex problems of chemical security.

For example, the Forth Intergovernmental Forum on Chemical Safety (November 2003, Bangkok) was attended by representatives of non-governmental organisations of Armenia, Kazakhstan, Kyrgyzstan, Russia and Ukraine. Besides that, they also participated in the meeting of

the First Preparatory Committee for Development of the Strategic Approach to International Management of Chemicals.

Active participation of EECCA NGOs in these meetings and their further activities to disseminate outcomes of the negotiations allowed stakeholders of the region to get information on documents of the Forum and the Preparatory Committee and subsequent international actions to implement comprehensive solutions to problems of chemical security.

Participation of EECCA NGOs in development of national POPs management policies and fulfilment of national commitments under the Stockholm Convention

The IPEN Declaration emphasises the need to provide opportunities for real participation of NGOs in local, national, regional, and global programs of implementation of the Stockholm Convention, including development of national implementation plans, implementation monitoring and efficiency assessments.

Now, 14 projects of direct relevance to POPs problems, are under way in EECCA region. All these projects are implemented in the framework of the International POPs Elimination Project (IPEP), initiated by IPEN, and pursue the following objectives:

- Identification of “hot spots” – i.e. sources of persistent organic pollutants – stockpiles of obsolete pesticides, municipal landfills, garbage incinerators, metallurgical plants, etc.;
- General national surveys of POPs–related developments;
- Analysis of health impacts of POPs in specific regions;
- Development of proposals for mitigation of adverse health impacts of POPs;
- Public participation in identification of cases of unauthorised storage and use of banned and obsolete pesticides;
- Development of proposals for rehabilitation of territories, contaminated by POPs, analysis of existing national strategies in the sphere;
- Analysis of available national POPs–elimination technologies, in terms of their environmental and health impacts;
- Participation of NGOs in development and implementation of National Implementation Plans under the Stockholm Convention;
- Information campaigns to raise public awareness of development and implementation of National Implementation Plans under the Stockholm Convention; and identification of “hot spots”.

Project are implemented in Armenia (3), Azerbaijan (1), Kazakhstan (1), Kyrgyzstan (2), Moldova (3), Russia (3), Ukraine (1).

Overall, 54 non–governmental organisations of EECCA countries participate in implementation of these projects.

Many NGOs of EECCA countries co-operate with governmental bodies and regional authorities to fulfil national commitments under the Stockholm Convention. Some NGOs participate in interministerial commissions for development of national plans for implementation of the Stockholm Convention. For example, in Russia, a group of NGOs (the Association of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation; Eco-Accord Centre and the National NGO "Association of Peoples of Russia) developed the draft strategy on information exchange, education and public awareness raising activities on POPs-associated risks for its incorporations into the Russian National Plan of Implementation of the Stockholm Convention.

Information and awareness raising centre "Greenwomen" (Kyrgyzstan) initiated analysis of opportunities for interministerial and intersectoral partnerships in the country to address POPs problems at the national and local levels. The project stipulates a study of POPs management in the country, development of mechanisms for intersectoral and interministerial co-operation and public participation in decision-making on fulfilment of national commitments under the Stockholm Convention.

NGOs actively develop proposals for incorporation into national implementation plans – "Armenian Women for Health and Healthy Environment" in Armenia, Environmental Society "Ruzgyar" in Azerbaijan, non-governmental association "Greenwomen" Environmental News Agency in Kazakhstan, NGO MAMA-86 in Ukraine. For example, Kharkov city environmental NGO "MAMA-86-Kharkov" implements a project to strengthen partnerships between public and authorities in the course of decision-making on reduction of adverse health and environmental impacts of POPs.

Participation of EECCA countries NGOs in practical projects for implementation of the Stockholm Convention

Identification of unauthorised storages of banned and obsolete pesticides

5 projects of EECCA NGOs seek to address the problem of identification of unauthorised storages of banned and obsolete pesticides (in Armenia, Azerbaijan, Moldova, Russia and Ukraine). In their project activities NGOs use the Methodological Recommendations for Non-governmental Organisations on Inventories of Banned and Obsolete Pesticides, developed by Eco-Accord Centre. Data collected in the course of implementation of these projects, will be submitted to governmental bodies in charge of official inventories of banned and obsolete pesticides in relevant countries. For example, in Moldova, NGO "Eco-Tiras" initiated a project to improve POPs situation in the Trans-Dniesteria region of the country. Primary inventories of stockpiles of

banned and obsolete pesticides are under way in Slobodzeiskiy district of Trans–Dniesteria (Moldova), in the lower river section (in the Soviet period, intensive agricultural practices were applied in the area). Findings of these inventory works will be compiled, submitted to local authorities and used in the course of roundtables and seminars on the Stockholm Convention in main administrative districts of Trans–Dniesteria with participation of all stakeholder groups. Besides that, they plan to publish a brochure and articles in local media outlets.

General national surveys of pops–related developments

4 projects of EECCA countries NGOs are dedicated to national surveys of POPs–related developments. These projects are implemented in Armenia, Kazakhstan, Kyrgyzstan, Moldova and Russia to analyse general POPs–related situation, namely:

- POPs sources (review of abandoned storages, dumps, burial sites, etc.);
- analysis of findings of official POPs inventories;
- analysis of information on health impacts of POPs in particular regions and based on specific research studies.

Results of these surveys will be used by non–governmental organisations to develop proposals for facilitation of ratification of the Stockholm Convention and for development of national implementation plans.

Environmental contamination by PCBs

Armenian NGO “Ecotox” co–ordinates implementation of a project that deserves a particular attention. The project stipulates study of residual levels of PCBs in different environmental media (surface water, soil, food) – the problem is fairly relevant in the country. Monitoring data will be used to rank areas under study by PCBs levels, to identify pollution “hot spots” for implementation of priority remediation actions.

Research results will be used to raise awareness of governmental officials and members of the general public of real levels of PCBs in environmental media and food products in order to facilitate environmental decision–making in the country, including decisions on reduction and elimination of POPs releases in Armenia.

Participation of EECCA NGOs in raising public awareness of POPs–related problems

Many EECCA NGOs that seek to address POPs–related problems, pay major attention to raising public awareness of persistent organic pollutants and the Stockholm Convention. In Russia, these activities are carried out by Eco–Accord Centre, Greenpeace–Russia, “Baikal Wave” NGO, SPES (environmental socio–legal society), “Help the River”,

“Volgograd Ecopress”. For example, web-site of Eco-Accord is regularly updated by new publications and information on health and environmental impacts of POPs (<http://accord.cis.lead.org>), electronic news on POPs-related problems in EECCA region and globally are regularly disseminated.

Environmental News Agency “Greenwomen” actively disseminates information on chemical security matters in Kazakhstan. The organisation posts publications on POPs-related developments in the country at its web-site (www.greenwomen.freenet.kz), as well as annotated summaries of other information materials on health impacts of POPs.

In Moldova, the Chisinau organisation of the Moldavian Environmental Movement implements a project to raise awareness of members of the general public and governmental officials on health and environmental risks of persistent organic pollutants and the key provisions of the Stockholm Convention on POPs. Their action – “Caravan without POPs” – covers settlements of the Chisinau municipality. In the course of the action, they conduct opinion polls – the survey results will be generalised and published in printed media outlets. Besides that, the action incorporates topical roundtable discussions “Let Us Exclude POPs from Our Life”, production of topical leaflets and posters. All activities in the framework of their project enjoy broad media coverage, including printed and electronic media outlets.

Ukrainian NGOs actively disseminate information on POPs-related problems. In September 2004, at the roundtable discussion “Public Awareness and Priorities of Awareness Raising Activities to Address the Problem of Persistent Organic Pollutants in Ukraine”, participants stressed that co-operation of governmental officials, NGOs and mass media outlets is of major importance to raise public awareness of POPs-related problems. They supported the decision of the National Centre for Hazardous Waste Management to develop a public awareness raising program on matters of addressing the problem of POPs in Ukraine. Besides that, participants of the roundtable called editorial boards of central and regional mass media outlets to publish information on POPs. They recommended local authorities to incorporate POPs-related actions into Environmental Action Plans and implement information-dissemination activities to raise public awareness of POPs-related risks.

Capacity Building of EECCA NGOs in the Sphere of POPs

In EECCA region, there is a strong need to disseminate information and knowledge among different stakeholder groups, including NGOs, local authorities, members of the general public and local communities on POPs-related risks, prevention of their generation,

existing technologies of elimination of their stockpiles and environmentally safe alternatives to POPs.

Many EECCA NGOs consider public participation in seminars and trainings on problems of persistent organic pollutants as important sphere of activities. Eco–Accord Centre regularly holds such events. For example, in 2002, experts of the Centre, in co–operation with Greenpeace–Russia, environmental NGO “SPES”, NGO “Volgograd Ecopress”, “The Women’s Network at the Urals” and the Chapaevsk Medical Association conducted seminars in Chapaevsk and Chelyabinsk under the common title: “Capacity Building of the Russian Public in the Sphere of POPs”. These seminars resulted in NGOs’ applications to the Government of the Russian Federation, local authorities and the State Duma of the Russian Federation, with requests to take urgent measures for reduction of adverse health and environmental pressures of POPs.

Public participation in such events allows to disseminate additional information on POPs–related risks, sources of POPs and options of POPs elimination among members of the general public, moreover, it facilitates active involvement of the general public into decision–making on reduction of adverse health and environmental impacts of POPs. For example, in January 2004, in Chelyabinsk, Eco–Accord Centre organised a training on public participation in primary inventories of banned and obsolete pesticides. As a result, project “The Time to Act” was developed. The project stipulates public participation in identification of unauthorised storages of banned and obsolete pesticides in rural settlements at the South of Chelyabinsk Oblast and within the radioactive contamination zone at the Eastern Urals. Eleven NGOs participate in the project.

Problems and Options to Resolve Them

It is obvious, that implementation of projects of NGOs to address POPs–related problems is fairly difficult. EECCA NGOs have a substantial capacity, but in many respects the capacity is not used to its full extent.

First and foremost, this is associated with inadequate information in possession of NGOs on POPs sources, their health impacts, main technologies for elimination of POPs stockpiles. Besides that, there are language barriers, that often prevent EECCA NGOs from intensive use of information from international sources.

Besides that, there are serious concerns about a low information in possession of NGOs on activities under way in EECCA region to address POPs–related problems (including both official governmental information and information on activities of other NGOs in different EECCA countries). The latter factor is particularly unfortunate, because non–governmental organisations are particularly efficient in promoting

cohesion of the civil society in pursuance of environmentally significant objectives.

Many EECCA NGOs encounter serious difficulties in development of co-operation with public authorities and businesses in their countries. At the same time, the problem of chemical safety necessitates joint efforts of all citizens – from policy-makers to housewives and pensioners. Unfortunately enough, in almost all EECCA countries, governmental bodies are characteristically unwilling to establish partnership-based relations with non-governmental organisations. The underlying reasons are not limited to the traditional confrontation between the civil society, public authorities and businesses. Fairly often, governmental officials and businessmen themselves are very poorly aware of risks associated with many chemicals, including POPs.

Inadequate finance resources represent another serious problem of EECCA NGOs. Difficulties of development of grant applications, a limited range of funds that provide grants to NGOs for environmental purposes, unwillingness of national governments and businesses to support projects of NGOs – all these factors negatively affect activities of non-governmental organisations. For many of these organisations, the small funds available in the framework of IPEP represent the only opportunity to implement POPs-related projects in EECCA region.

Many of these barriers might be reduced by establishment of a coalition of NGOs operating in the sphere of chemical safety. As the coalition members, NGOs would be more self-confident both at the international level and in the course of discussing chemical safety issues in their own countries.

CHAPTER 4

EECCA NGOs – PRACTICAL ACTIONS AGAINST ACCUMULATION OF STOCKPILES OF BANNED AND OBSOLETE PESTICIDES

Many NGOs actively participate in development of strict measures to prevent environmental contamination by toxic chemicals, including pesticides, POPs—pesticides and stockpiles of banned, obsolete and unidentified chemicals. Different citizens' groups operate in countries, regions and cities in order to influence development of governmental policies in the sphere of hazardous waste management, including POPs—containing waste, stockpiles of banned and obsolete pesticides.

Key objectives of EECCA NGOs incorporate identification of unauthorised storages of banned and obsolete pesticides. In addition to information on officially registered storages, information of NGOs on unauthorised storage facilities and illegal pesticide dumps can make a substantial contribution into the national pesticide inventory process. Without involvement of local residents and environmental/health NGOs, it would be difficult or even impossible to identify such storages and illegal dumps.

In order to facilitate active participation of EECCA NGOs in national pesticide inventories, Eco—Accord Centre, jointly with the Parliamentary Environmental Committee of the State Duma of the Russian Federation, developed the Methodological Recommendations for Non—governmental Organisations on Inventories of Banned and Obsolete Pesticides.

The Recommendations represent the first document that is not limited to describing the problem of accumulation of stockpiles of obsolete pesticides — the document provides specific recommendations to members of the general public on participation in identification of unauthorised storages and dumps of banned and obsolete pesticides.

Strict compliance with safety rules was a key issues under discussion at the seminar. The Methodological Recommendations particularly emphasised that the publication is of information and reference nature and is not intended to train members of the general public to take samples and participate in pesticide—handling works themselves. Persons who intend to conduct pesticide inventory works professionally, should refer to Governmental Decree No. 340 of May 23, 2002 — the one that approved the Regulations of Licensing Hazardous Waste Management Activities. The Regulations provide procedures of handling hazardous waste, including pesticides. To be granted a license

for hazardous waste management works (including inventories), a person must prove his/her adequate professional training for these works.

The Recommendations are intended to inform members of the general public on places to search for storages of obsolete, banned and unusable pesticides; assessment of quality of storage facilities; primary inventories of pesticide stockpiles in local areas; data formats for submission of the information collected and official bodies that should be approached on these matters.

The Recommendations were presented at the seminar PUBLIC PARTICIPATION IN PRIMARY INVENTORIES OF STOCKPILES OF OBSOLETE PESTICIDES, that was held in Chelyabinsk in January 2004. The seminar was organised by Eco-Accord Centre, jointly with the Women's Network at the Urals NGO.

Chelyabinsk Oblast was selected for the seminar for a reason. The oblast belongs to the leading regions of the Russian Federation in terms of generation and accumulation of toxic industrial waste (including waste, containing persistent organic pollutants). The oblast accumulated huge amounts of banned and obsolete pesticides. In the period from 1994 to 1996, 12 thousand tons of banned and obsolete pesticides were illegally disposed off at the territory of the oblast.

Non-governmental organisations of Chelyabinsk Oblast intend to initiate soil monitoring works to identify pesticide contamination levels. The soil contamination research should be conducted after completion of inventory of storage sites of banned pesticides from the "black list" of the Stockholm Convention. The research works should be primarily focused on agricultural areas under intensive application of pesticides in the period before 1990s.

Accounting for intrinsic complexity of problems associated with toxic pollution in the region and intentions of authorities and NGOs to make a real difference, more than 40 representatives of NGOs actively participated in development of the Regional Environment and Health Action Program. In the course of the Program development they managed to focus their efforts on addressing priority issues and involve residents of remote areas, minor towns and restricted access zones to the Program development.

One of main sections of the Program is dedicated to chemical safety issues. The section focuses on public/community participation in primary inventories of stockpiles of banned and obsolete pesticides with further submission of these data to local authorities and oblast State Administration for relevant response actions. These actions should be incorporated into the regional plan for implementation of the Stockholm Convention, while the data should be incorporated into official inventory reports on stockpiles of banned and obsolete pesticides in the oblast.

The project of public participation in primary inventory of stockpiles of banned and obsolete pesticides in Chelyabinsk Oblast was the first project, implemented under the Program.

As its major component, the project incorporated holding of a seminar to discuss:

- results of the official inventory of stockpiles of banned and obsolete pesticides in Chelyabinsk Oblast;
- public participation in identification of cases of unauthorised storage and application of banned and obsolete pesticides;
- Methodological recommendations for NGOs on primary inventory of banned and obsolete pesticides, developed by experts of the Environmental Committee of the State Duma of the Russian Federation and Eco–Accord Centre;
- selection of pilot districts of Chelyabinsk Oblast for practical implementation of the Methodological Recommendations;
- development of recommendations for further works in the sphere of public participation in primary inventory of stockpiles of banned and obsolete pesticides.

The seminar was attended by more than 50 representatives of non–governmental organisations of the oblast, experts and decision–makers of different governmental bodies.

The seminar participants seriously discussed the issue of awareness raising of pre–schoolers and schoolchildren on issues of health and environmental impacts of plant protection chemicals. Participants referred to the case of death of several soldiers, who used “salt” from a bag they found at a field. If we manage to teach children to be careful with plant protection chemicals from their early years, such cases could not have happened.

In the course of the roundtable discussions, representatives of non–governmental organisations said that residents of rural areas do not perceive pesticides as toxic substances. They simply wash pesticide packaging and use these containers for household purposes.

Is there a need to arrange information meetings to inform on pesticide management issues? All participants of the seminar answered the question positively. They believe that such meetings would reduce incidence of pesticide poisoning cases and stealing of pesticides, enhance responsibility of pesticide users of state–run and private farms.

In the course of discussing potential public participation in practical identification of cases of unauthorised disposal and storage of banned and obsolete pesticides, the seminar participants stressed importance of the Methodological Recommendations for non–governmental organisations on primary inventory of banned and obsolete pesticides.

In the course of discussions, the seminar participants emphasised that governmental agencies alone cannot assess the whole set of inter–

related impacts of pesticides on human health. It is necessary to study health status of residents of areas under heavy pesticide loads. The seminar participants believe that such research works would additionally promote search for alternatives to pesticides, development of alternative agriculture practices, improvement of farming and selection.

The seminar participants stressed importance of public control over decisions of authorities in response to information submitted by members of the general public (information on cases of unauthorised disposal and storage of banned and obsolete pesticides. The public control would allow to achieve really efficient results and make a substantial contribution into addressing the problem of pesticide contamination of Chelyabinsk Oblast.

AZERBAIJAN: NGOs for Rational and Sound Pesticide Management

The Republic of Azerbaijan had signed the Stockholm Convention of Persistent Organic Pollutants and now the country is at the stage of preparation to its ratification and implementation. The Convention stipulates a broad public participation in fulfilment of the Convention's provisions as its key intrinsic requirement (including public environmental inventories of banned and obsolete pesticides, including POPs pesticides).

Several NGOs initiated public activities for identification of unauthorised storages of banned and obsolete pesticides in Azerbaijan, including: "Ruzgyar" Environmental Society, "Gujania" Environmental Fund, Eco-TES-Mingashaur and Environmental Movement "For the Clean Caspian Sea".

"Ruzgyar" Environmental Society is the project co-ordinator. The organisation has substantial experience of public environmental inventories of pollutants and organising public environmental movements. As the key document, they use "The Methodological Recommendations for NGOs on Primary Inventories of Banned and Obsolete Pesticides and Agricultural Chemicals", developed by Eco-Accord Centre. The project stipulates public information on "hot spots" to be identified and lobbying relevant authorities for implementation of measures to deal with unauthorised storages.

Specific objectives of the project:

- To conduct a public environmental assessment of stockpiles of banned and obsolete pesticides in Azerbaijan;
- To find, if conditions of their storage, transportation and application meet requirements of the Stockholm Convention on Persistent Organic Pollutants;
- To initiate a public movement for rational and sound pesticide management and elimination of uncontrolled and obsolete pesticides.

ARMENIA: Future without Toxic Substances

Since 1950s, pesticides were intensively applied in different economic sectors of the republic. Excessive amounts of pesticides accumulated every consecutive year. At that time, there were no officially designated sites to bury obsolete pesticides. As a result, unused pesticides were mainly stored in storage facilities or buried in different places.

In late 1982, the only burial site in the republic was constructed to bury obsolete pesticides. The construction project was commissioned by the Ministry of Agriculture of Armenia. The burial site was constructed nearby Yerevan, at the border with Artashatskiy district. Later on, at the distance of 700 – 800m downhill from the site, a cluster of summer houses was constructed. The pesticide burial site met requirements of the provisional instructions on burial sites for obsolete pesticides in force at that time. The site was equipped with a barbed wire fence, guard facilities and a peripheral drainage system. Obsolete pesticides from different local storage facilities in different districts of the country were delivered to the burial site and duly buried there. Overall, the site contains more than 500 tons of different pesticides. More than 60% of these pesticides are represented by POPs, including DDT, HCCH, HCB.

In 2001, experts of the non-governmental organisation “Armenian Women for Health and Healthy Environment” surveyed the burial site and identified ongoing landslide processes there. Landslides damaged the site drainage system, in some places drainage pipes were moved and clogged by soil. The guard facilities and the barbed wire fence were destroyed. Experts of the organisation taken soil samples in three different periods of time to estimate soil contamination levels. In different samples, DDT, DDE and HCCH levels were found, ranging from trace concentrations to levels up to 30–40 times in excess of applicable MACs. The organisation submitted information on conditions of the burial site to the Public Health Ministry, the Ministry of Agriculture and the Ministry of Environment of Armenia.

In 2003, in the course of implementation of USAID-financed program “Future without Toxic Substances”, NGO “Armenian Women for Health and Healthy Environment” got opportunities to monitor soil levels of organochlorine pesticides and to engage professional experts into study of landslide processes at the territory of the burial site. Sample analysis works were conducted by the certified laboratory of the State Committee for Standardisation of Armenia, 2 times in the course of the project implementation (October – November 2003 and March – April 2004). In each case, 50 samples of soil, water and plants were taken. Results of laboratory measurements suggested that pesticide enclosing structures were damaged, as a result, leaks of organochlorine pesticides were registered (DDT and its metabolites, HCCH and its isomers). In

comparison to data of 2001, when some samples contained pesticide levels of 30–40 times in excess of MACs, in more recent studies, analysis of soil samples, taken at different depths (from 30 cm to 2 m), and at different distances from the burial site (from 5 to 70 m), revealed levels of organochlorine pesticides in excess of several hundreds to 1000 MACs.

According to specialists of the Institute of Geology of the Academy of Sciences of Armenia, the pesticide burial site is located amidst the active landslide area, moreover, in recent time, landslide processes intensified and pose serious risks to the cluster of summer houses and 2 nearby villages. The new survey of the site area at the final stage of the project revealed new cracks in the ground. The information on these matters was submitted to the Ministry of Public Health, the Ministry of Environment, the Emergency Response Directorate, the Parliament and the Government of the country. After a broad media coverage of the situation, topical discussions at seminars, roundtables and press–conferences, organised by “Armenian Women for Health and Healthy Environment”, the Government of Armenia established the Special Commission of representatives of relevant ministries and agencies to ensure safety of the pesticide burial site. On April 24, 2004, based on the Commission’s conclusions, the Government of Armenia approved the Governmental Decree on Approval of the Range of Actions to Ensure Security of the Burial Site of Toxic Chemicals and Allocation of Budgetary Funds in 2004.

KAZAKHSTAN: Beware of POPs!

“Greenwomen” – the Environmental News Agency NGO – actively informs the general public of Kazakhstan on the threat of persistent organic pollutants, including POPs–pesticides. The Agency initiated the Application of national NGOs to the Government of the country, urging to ratify the Stockholm Convention in the nearest future. The Application was submitted to the President of Kazakhstan, the Parliament, UN, the Ministry of Environment and other ministries and agencies.

“Greenwomen” News Agency co–ordinates the survey of POPs–related developments in the country, being conducted by Kazakhstan NGOs now. In the course of the survey works, NGOs focus on pollution sources, e.g. abandoned storage facilities, dumps, burial sites of obsolete pesticides. They analyse results of POPs inventories and information on health impacts of POPs in specific regions.

“Greenwomen” News Agency published a special brochure on these matters – “Beware of POPs!”. A separate section of the brochure is dedicated to results of inventories of banned and obsolete pesticides. In particular, the brochure provides the following information:

In Kazakhstan, about 25 million hectares of land are used for cultivation purposes, up to 1990s, pesticides were applied at all these lands. Overall, 35 – 40 thousand tons of pesticides were applied annually.

In the period from 1986 to 1995, pesticide loads decreased to 1.8 thousand tons. Correspondingly, specific pesticide loads (in tons per hectare) also decreased. Since 1998, pesticide loads increased gradually and now the annual application figures reach 9–11 thousand tons. The major share of plant protection chemicals are represented by herbicides and fungicides. In 1971, DDT was banned in the former USSR, nevertheless, the pesticide was applied in Kazakhstan up to 1990s for veterinary and vector control purposes. In 1985, DDT and DDE were registered in water of the Syr–Darya river (in the river section from the border intake at Uzbek border to Kazalinsk). At that time, fish and birds poisoning cases were registered in the area – fish and bird tissues were found to contain DDT and its metabolites.

In the period from 1982 to 1987, at the territory of Kazakhstan, 14 fish kills were registered – these cases were caused by accumulation of organochlorine pesticides in water bodies. For example, in 1987, DDT was registered in a third of the water bodies surveyed (in water, water plants, invertebrates, fish tissues and bottom sediments).

As for soil contamination in Kazakhstan: average residual DDT levels varied at the level from 1.2 to 5.9 MAC. In 1994, 12 thousand soil samples were taken – about one of ten samples was found to contain organochlorine pesticides. In 1993, the relevant figure reached a fifth. These data suggest that 10–20% of soils are contaminated by organochlorine pesticides, potentially including DDT and other POPs–pesticides.

Organochlorine pesticides form majority in the list of banned pesticides (aldrin, dieldrin, DDT, heptachlor, HCCH, polychloropyren, polychlorocamphen).

In the country, amounts of accumulated obsolete pesticide tend to increase every consecutive year, while amounts of utilised pesticides and pesticide packaging tend to decrease.

Stockpiles of obsolete pesticides cause particular concerns in areas contaminated by salts of heavy metals and radionuclides. Pesticide storages contain chemical preparations, that were applied in agriculture **more than 40 years ago**. In 2001, the first inventory of banned, obsolete and unusable pesticides (including POPs) was carried out in Kazakhstan in the framework of UNEP project.

The inventory of obsolete pesticides revealed that:

- there are more than 1.5 thousand tons of banned, unusable and obsolete pesticides, and unidentified pesticide mixtures (more than 1 thousand tons of pesticides need identification). No POPs–pesticides were identified among the identified

- pesticides;
- the range of identified pesticides incorporates 15 tons of toxaphen in Akkainskiy district of Northern Kazakhstan (the amount was identified in 2001). In 2002, 0.5 tons of DDT were buried in Eastern Kazakhstan. However, POPs–pesticides might be found in the unidentified mixtures;
- the pesticides include organophosphoric and organochlorine compounds, triazine, triazole derivatives, carbamates, derivatives of carbonic acids, biopreparations and other types of substances;
- there are no specialised sites at the territory of the country for burial of pesticides and associated packaging, while owners of the existing waste sites do not have licenses for burial of hazardous waste;
- there are numerous dilapidated and abandoned pesticide storages at the territory of the country, officially these facilities have no owners but pose serious environmental and health risks;
- reforms in the agricultural sector affected plant protection services and agricultural chemical management facilities – as a result, many archives have been lost and now it is impossible to find information on 17 pesticide burial sites.

Therefore, some additional studies will be needed, as the burial option is a temporary solution to isolate pesticides from the environment, while their eventual elimination will inevitably require information on the buried pesticides, their chemical composition and toxic properties.

- large stockpiles of empty pesticide packaging materials are being accumulated now in Kazakhstan. Now, it is necessary to eliminate more than 330 thousand packaging items (plastic canisters represent more than two thirds of these items);
- it is necessary to introduce environmentally sound technologies for elimination of obsolete pesticides and pesticide packaging in Kazakhstan. It is necessary to equip additional burial sites in regions where such sites do not exist now;
- it is necessary to rehabilitate contamination zones of storage site of obsolete pesticides, accounting for environmental risks, available economic and technical capacity;
- it is necessary to develop analytical capacity for the state environmental/sanitary monitoring of POPs levels in environmental media;
- it is necessary to improve relevant laws and regulations and develop a national action plan for elimination of persistent organic pollutants;

- it is necessary to raise public awareness of risks of obsolete pesticides, including POPs–pesticides;
- it is necessary to establish an integrated POPs management system – a centre for management of obsolete pesticides – to fulfil functions of environmental monitoring of hazardous waste.

MOLDOVA without POPs

In the Soviet period, at the territory of Moldova, agricultural technologies with the most intensive application of chemicals were used. As a result, the problem of POPs, particularly the problem of obsolete pesticides, is fairly acute in the country now. Roles of Moldavian NGOs in addressing POPs–related problems, including problems of stockpiles of banned and obsolete pesticides, should be assessed very positively. Non–governmental organisations press the government to develop policies and make decisions on elimination of POPs. However, accounting for high population density in Moldova, the problem of elimination of POPs in the country is fairly difficult.

For example, accounting for difficulties of elimination of POPs and other obsolete pesticides and governmental plans to incinerate these substances in Rezina Cement Plant (owned by French company “Lafarge”), the local NGO “Habitat” (Rezina) conducted assessment of health impacts of the technology and managed to persuade governmental authorities to review these plans.

NGO “BIOS” conducted a detailed survey of awareness levels of the general population and some population groups on the problem of POPs. The survey’s findings revealed a rather low general awareness from the one hand, and biased attitudes of specialists (members of the academic community, public health workers, etc.) from the other. Their results suggest lack of any coherent governmental policy of POPs management, including *inter alia* management of stockpiles of banned and obsolete pesticides.

The Chisinau organisation of the Moldavian Environmental Movement and the International Environmental Association of River Warriors (Eco–TIRAS) implement monitoring projects, pesticide inventory works and raise public awareness of POPs–related problems in different regions of Moldova.

“Eco–TIRAS” conducts these activities in Trans–Dniesteria, in the Dniester basin, jointly with local NGOs (“Turunchuk” in Chobruchi village, “Eco–Dniester” in Tiraspol, “Doctors for the Environment” in Dubossary, “Friends of Animals and the Nature” in Rybnitsa, “Pelican” in Bendery).

The Chisinau organisation of the Moldavian Environmental Movement implements major activities to raise awareness of the Moldova population on POPs-related risks. In partnerships with other NGOs (“Kypmushprul Ecologic” Club of Young Environmentalists, “ECOSPHERA” Association of Environmental Education and Awareness Raising, “Green Wave” NGO, “Green World” NGO, SalvaECO non-governmental association), the organisation implements project “Moldova without POPs”. The project stipulates development of the list of “hot spots” – existing and potential sources of POPs releases – i.e. stockpiles of banned and obsolete pesticides, landfills of solid household waste, illegal dumps, production facilities that release dioxins to the environment. The register of “hot spots” will be submitted to executive bodies for decision-making purposes. Besides that, the register will be broadly disseminated among interested population groups.

RUSSIA: protection of right for healthy environment

Project “The Time to Act”

Now, project “The Time to Act” is under way in Chelyabinsk Oblast. The project is dedicated to public participation in primary inventories and identification of cases of unauthorised storage of banned and obsolete pesticides at territories of 3 rural settlements in Kaslinskiy, Agapovskiy and Krasnoarmeiskiy districts. The project implementation works are managed by NGO “The Women’s Network at the Urals”.

Besides that, the range of project partners incorporates:

- Chelyabinsk Oblast Scientific Society of Students, Russia
- Kasli NGO “Water of Life”, Russia
- Magnitogorsk student eco-NGO “Eco-view”, Russia
- Chelyabinsk oblast School of Public Health
- the General Directorate of the RF Ministry of Natural Resources in Chelyabinsk Oblast
- Chelyabinsk State Agro-industrial Academy
- Magnitogorsk municipal optional education facility “Children’s Environmental Centre”
- Municipal optional education facility “Argo-environmental School” (Verkhneural’skiy district)
- Municipal optional education facility “Argo-environmental School” (Agapovskiy district)
- Municipal optional education facility “Miass Environmental Centre” (Krasnoarmeiskiy district)
- the Agro-environmental college of Krasnoarmeiskiy district

The project stipulates implementation of area surveys according to “The Methodological Recommendations for NGOs on Primary Inventories of Banned and Obsolete Pesticides and Agricultural

Chemicals” with active participation of local residents and NGOs; development of inventory reports and submission of these reports to executive bodies for relevant response actions, as well as broad dissemination of inventory results among interested members of the general public.

The project participants gather information materials, conduct surveys of local residents, develop list of pesticides and their properties, open information focal points on pesticide-related problems. In the course of field visits they analyse local developments, jointly with local residents, select areas for surveys and address associated technical problems (arrangements for transportation services, food and medicine). In the course of these preparatory works they get substantial assistance from sanitary services, municipal environmental/agriculture departments, local residents and high schoolers. Heads of field survey groups conducted methodological trainings on substantive matters of inventory works, safety rules and “Survey Forms”.

The Methodological Recommendations for non-governmental organisations on primary inventory of banned and obsolete pesticides, developed by Eco-Accord Centre, were provided for these training sessions. Field visits and methodological trainings allowed to organise local teams, incorporating representatives of local residents.

Area surveys were launched only very recently, but the project participants hope that the project would allow to identify “hot spots” of unauthorised storages of banned and obsolete pesticides, to develop proposal for reduction of adverse health and environmental impacts of POPs. Participation of representatives of governmental and municipal entities in the project will prove developing partnership relations between NGOs, all levels of public authorities, specialists and experts.

Problems of Safe Pesticide Storage in Schuchanskiy District (Kurgan Oblast)

In the Soviet period, Kurgan Oblast was a transit point of the pesticide distribution system. When the system had collapsed, accumulated pesticide stockpiles were left unclaimed. According to official data, more than 1 thousand tons of banned and obsolete pesticides are now stored in the oblast (including 12 tons in Schuchanskiy district). The problem is associated with the fact that these pesticides are stored in old storage facilities of former collective/state farms without any protection. Banned and obsolete pesticides are stored, because there are no feasible options to eliminate or bury them. The problem of utilisation/burial of pesticides gradually becomes more and more acute due to deterioration of storage facilities (the deterioration is accelerated by decentralisation, lack of due supervision by their owners, lack of funds for repair works and lack of options to transfer them from the district for

eventual elimination). Farm managers cannot improve the situation – sometimes they seal storage facilities, but local residents find ways to get inside. The problem is further complicated by pesticide packaging – mainly metal drums – local residents use these drums for household purposes, ignoring associated health risks.

Schuchanskiy district organisation of the Russian Green Cross initiated discussion on safe storage of pesticides in Schuchanskiy district at the session of the Public Consultative Council. Members of the initiative group applied to commanders of Military Unit 92746 (Planoviy settlement), asking them to assist in survey of pesticide storages, located nearby CW warehouses, using a mobile environmental laboratory. The military responded positively to the public initiative and provided their laboratory for the survey purposes. On March 31, 2004, members of the initiative group launched their survey.

The survey results were depressing. The storage facility in K–Miasskoye village (official reports suggest that the facility contains 4400 kg of toxic chemicals) has no roof and doors, as a result, anyone can access the pesticides easily. Pesticide packaging was damaged: metal drums were rusty, many bags were torn open and lacked marking, some pesticides were simply stored in heaps. The storage facility in Chumlyak village (1851 kg of pesticides) was in a good state, while the storage facility for empty pesticide packaging lacked doors, the fence was destroyed and the adjacent area was flooded by water. In Otradnoye village, no pesticides were found, the survey team members found only ruins of former storage facilities. In Sovetskoye forestry facility, it was impossible to get information on composition of pesticides in the storage site, while a visual observation suggested a pair of tons. The storage site is located in direct proximity to the forest, doors were not locked, as a result, the site is easily accessible for intrusion.

In the surveyed locations, team members took samples of indoor air, adjacent soils and water. In every case, these sampling operations were duly documented and accompanied by video–recording.

Analytical results demonstrated that water samples did not contain pesticide traces (due to their low solubility and a long period of storage). Soil and air samples, taken in storages and at adjacent territories were found to contain high levels of pesticide decomposition products.

Materials of the survey were submitted to decision–making authorities, while residents of the district were informed on adverse health impacts of banned and obsolete pesticides in “Zvezda” district newspaper. Local TV channels demonstrated associated video–materials.

Health Impacts of POPs

Researchers of Kurgan and Chelyabinsk oblasts found that in recent years, notwithstanding a serious agricultural production decline in Russia, the share of hazardous jobs in Russia increased from 18% to 22%.

Intensive application of pesticides adversely affects labour conditions, environmental quality and health status of rural residents. Morbidity levels of workers, who have occupational pesticide exposures, are 2–3 times higher than the average levels among employees of the agro–industrial complex. 70% of all poisoning cases in agriculture are associated with plant cultivation works. Available scientific evidence suggests that besides direct impacts on workers, toxic chemicals may adversely affect health of their children. Further unrestricted application of pesticides poses a serious genetic threat.

Leaders of non–governmental associations believe, that it is necessary to study health status of persons under high exposures to POPs and pesticides in order to assess cumulative interrelated health effects of these chemicals. Such studies would make an additional contribution into development of recommendations and programs for prevention of occupational diseases, particularly among women, who are exposed to adverse workplace factors.

“Iskorka” and “Gematologists of the World for Children” NGOs launched implementation of their project “Health Status of Children of the Impact Zone of Magnitogorsk Metal Works”. In the course of the project implementation they plan to assess human bodily POPs contamination levels. They will use breast milk as the universal contamination indicator. Breast milk samples will be taken by the WHO methodology from 100 women – residents of Magnitogorsk. The study stipulates socio–medical screening of breast milk donors and their family members for further multi–factor analysis of results in order to develop the model of POPs circulation within the population of Magnitogorsk residents. The research results will be presented in a press–release and at a press–conference with participation of public health specialists and representatives of Magnitogorsk residents

Awareness Raising and Education on POPs Problems

Among their different objectives, non–governmental organisations seek to raise public awareness of health and environment problems. NGOs of the Urals Federal District, have a substantial experience of these activities.

For more than 10 years, the regional NGO “Urals Environmental Union” (executive director – G.V.Rastchupkin, Yekaterinburg) has been implementing education and awareness raising activities, the NGO publishes environmental newsletter “Vestnik”, helping its readers to get insight into contemporary environmental problems. “Vestnik” provides

information to NGOs of the Urals on experience of NGOs of Sverdlovsk Oblast in addressing POPs-related problems.

Roundtable discussion “Reduction of Adverse Health and Environmental Impacts of Persistent Organic Pollutants (POPs): Potential Partnerships” was organised by “Urals Environmental Union” with support of the Co-ordination Centre of RF Ministry of Natural Resources in the Urals Federal District, Sverdlovsk oblast State Facility “The Centre for Environmental Monitoring and Control”, Urals Territorial Directorate for Hydrometeorology and Environmental Monitoring. The roundtable discussion was attended by representatives of industries, academic community, journalists and students. In his opening address, Mr. A.G. Veprev – the deputy Chief of the Department of State Control and Long-term Development in the Sphere of Natural Resources and Environmental Protection of RF Ministry of Natural Resources in the Urals Federal District – stressed intrinsic complexity of the issues involved. He noted that in order to understand the problem adequately one should delineate “POPs” and “Sources of POPs releases”. These sources incorporate industrial facilities and agricultural uses of pesticides. In the Urals Federal District, the problem of persistent organic pollutants is further aggravated by the shortage of secure sites for storage of hazardous toxic chemicals.

N.A. Gribovskaya – a specialist of the Centre for Environmental Monitoring and Control – focused on “human factor” in connection with addressing POPs problems. She said that environmental releases of POPs are caused by inadequate perception of the complex situation by chief managers of industrial and agricultural facilities. The problem might be addressed by publication and dissemination of a brochure for senior managers (such a brochure might provide easily understandable information on specific properties and health hazards of POPs, methods of their identifications, rules of safe handling of these chemicals).

Participants of the roundtable discussion were presented initial results of the project “Acting Against POPs” that was implemented by “Urals Environmental Union”. According to the project initiators, its awareness raising component was particularly successful. Members of “Urals Environmental Union” developed and tested their education/awareness raising program for schoolers and adults. Students of Urals State Technical University, led by E.B. Perelman (the Associate Professor of the Chemical Technology Department), developed and tested a series of lectures for schoolers.

Participants of the roundtable discussed priorities of the Regional Action Plan to reduce POPs contamination levels and suggested their proposals to address the problem.

Action “Stop PVC!” was carried out in Spring 2003 in several Russian cities in the framework of project “Acting Against Persistent Organic Pollutants”. The campaign was focused on raising public

awareness of POPs environmental hazards to allow local residents take measures for protection of their health. The action was organised by “Urals Environmental Union” and the student’s movement “Friends of the Nature” (Yekaterinburg). In the nearest future these organisations will continue their actions for protection of human health. Besides that, the environmentalists plan to mail warning letters on POPs/pesticides hazards to district state administrations and to approach large shopping chains, proposing them to purchase only duly marked products and provide information on products’ certificates to their clients.

Interesting experience was accumulated by volunteers of Magnitogorsk Students’ Eco-Education Organisation “Eco-View” (headed by L.Ya. Polonskaya). Based on results of the students’ conference “Modern Land Use and Soil Pesticide Contamination Problems”, in co-operation with children’s NGO “Ecopolice” and the Young Naturalists Station, they established the initiative group to inform local residents on POPs and their health impacts. The volunteers communicate with gardeners, organise field visits to identify unauthorised dumps in the city and at adjacent areas, to identify stockpiles of pesticides and agricultural chemicals in gardens and private households.

The information group maintains visual observations of dumps and storages. Members of the group inform gardeners about pesticides, rules of their use, safety measures. They post their information materials at web-site “Actions against Pesticides”. The organisation believes that these actions should reduce incidence of pesticide poisonings and improve gardeners’ responsibility for use of pesticides in gardens and subsistence agriculture.

Schuchanskiy district NGO “Green Cross” (G.I.Vepreva) and Chelyabinsk UNESCO Club (D.K.Drakova) actively use video-materials on POPs and pesticide risks in their awareness raising activities. Many of these video-materials they developed themselves.

Concrete actions of NGOs contribute to addressing socially significant problems. The already developed information and analytical materials clearly prove that NGOs are able to operate professionally: to maintain dialogue with different social groups and to engage research facilities into addressing POPs-associated problems. The role of local residents in pesticide-related actions allows them to participate personally in environmental improvements, many of them become self-confident and active participants of public actions.

Protection of Rights for Healthy Environment

Protection of citizens’ right for healthy environment is a key objective of SPES environmental NGO (Socio-legal Environmental Society). SPES members conduct public inspections to check state of

wildlife resources, develop environmental advertising, provide assistance to local residents, who face social problems, caused by unhealthy environment in Derzhinsk (Nizhegorodskaya Oblast).

SPES incorporates 11 members. Specialists of chemical facilities, teachers and public health workers participate in activities of the NGO – all of them work as volunteers. To inform the city residents on environmental matters, SPES publishes its environmental newsletter for distribution among other city NGOs, and publishes topical environmental information materials in the local newspaper.

SPES protects citizens' rights for healthy environment, demands provision of social compensations to residents of buffer zones of chemical facilities and patients – former workers of chemical plants with occupational diseases.

The range of persistent organic pollutants, that are registered in Derzhinsk, is dominated by 3 main types of chemicals: DDT, PCBs and dioxins (in addition to several hundreds of other POPs that are not regulated by the Stockholm Convention). Two chemical plants in the city produced DDT up to 1980. For ten years after decommissioning of the production line, the pesticide was stored in Kalinin Chemical Plant (even now some local residents use it to kill potato beetles).

Now, there are 30 patients in the city, who worked earlier at production lines of DDT and PCBs and suffer occupational diseases. SPES members communicate with these patients to identify all victims of POPs. The situation is complicated, because so far no specialised studies were conducted to assess impacts of POPs on health status of Derzhinsk residents.

UKRAINE: Partnerships against POPs

The problem of POPs, including obsolete pesticides, belong to the most complex problems, even at the background of the environmental crisis in Ukraine. These substances pose a particular threat to human health and environment, especially women and children. In its activities, NGO MAMA–86 always pursues principles of empowerment of women–leaders in protection of health and environmental citizens' rights, allowing them to play an active role in Ukraine's transition to sustainable development.

In its activities in the framework of project “Partnerships of NGOs and Research Facilities for Capacity Building to Reduce Adverse Health and Environmental Impacts of POPs”, MAMA–86 seeks to maintain constructive relations with all relevant stakeholders, including public authorities and operating in a highly responsible and professional manner. The project stipulates strengthening partnerships between the general public and authorities in the course of decision–making on reduction of

adverse POPs impacts, particularly impacts of stockpiles of banned, obsolete and persistent pesticides on human health and environment.

Raising public awareness of adverse health impacts of POPs will allow to extend public participation in development and eventual implementation of the National Implementation Plan of the Stockholm Convention and identification of “hot spots”. The project stipulates a multi–sectoral dialogue with engagement of the general public, specialists and public authorities to develop proposals for reduction of adverse health and environmental impacts of POPs in Ukraine. Besides that, the project stipulates implementation of information campaigns to inform citizens on works to reduce health hazards of POPs under the Stockholm Convention, empowerment of citizens to protect their rights for safe and healthy environment.

Annexes

Web-sites on toxic substances

<http://www.chem.unep.ch/> UNEP Chemicals, Persistent Organic Pollutants. UN Environmental Program, documents on the Stockholm Convention on POPs
www.unep.ch/basel United Nations Environmental Program (UNEP) – Basel Convention. The Basel Convention on International Trade in Hazardous Waste and Waste Utilisation

<http://www.chem.unep.ch/> UNEP Chemicals, Persistent Organic Pollutants. The Rotterdam Convention on Procedures of Prior Informed Consent for International Trade in Some Hazardous Chemicals and Pesticides

www.unece.org/env/lrtap UN Environment and Human Settlement Division – Convention on Long-Range Transboundary Air Pollution.

www.fao.org UN Food and Agriculture Organization.

www.oecd.org/ehs/pesticid.htm OECD Pesticide Programme.

www.who.int/ctd/whopes/index.html World Health Organization (WHO) Pesticide Evaluation Scheme.

www.ospar.org The Convention for the Protection of the Marine Environment of the North-East Atlantic (“OSPAR Convention”).

www.amap.no Arctic Council, Arctic Monitoring and Assessment Programme (AMAP).

<http://www.who.int/ifcs/> The Intergovernmental Forum on Chemical Safety. Results of 4th IFCS, the Forum’s contribution to development of the Strategic Approach to international regulation of chemicals

<http://accord.cis.lead.org> Eco-Accord Centre – International POPs Elimination Network – (IPEN) co-ordinator in Russia. Information on POPs in EECCA region, news, materials of conferences and seminars, surveys on chemical safety, press-releases, publications.

<http://www.ipen.org> International POPs Elimination Network. Information of activities of NGOs in the sphere of chemical safety

<http://www.greenwomen.freenet.kz> “Greenwomen” Environmental News Agency. Information on the Stockholm Convention, adverse health and environmental impacts of POPs, publications

<http://www.pan-international.org/> The International Pesticides Action Network. Information on activities of NGOs to reduce adverse health and environmental impacts of pesticides

www.foe.org/ptp/close/vol1no3/persistent.html Friends of the Earth – Persistent Toxics Page. Web-page on persistent organic pollutants

www.greenpeace.org/~toxics/index.html Greenpeace International Toxics Campaign.

www.panna.org/panna Pesticides Action Network (UK). UK NGO seeking alternatives to pesticides

www.igc.org/pesticides Pesticide Education Centre. Training of agricultural workers – pesticide-related risks and problems

www.pmac.net Pest Management at the Crossroads. A US pest control organisation, information on pesticides

www.worldwildlife.org/toxics WWF-US (World Wildlife Fund – US). Information on WWF global initiative against toxic chemicals

Contact details of NGOs dealing with problems of pesticides and POPs–pesticides in EECCA region

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THE INTERNATIONAL POPs ELIMINATION NETWORK

IPEN – International POPs Elimination Network – is a global network of non-governmental organisations, that joined their efforts to pursue their common goal of elimination of POPs. IPEN's mission is – to ensure consistent elimination of persistent organic pollutants worldwide, sources of POPs and stockpiles, accounting for principles of social justice.

IPEN was formally established as the network of a few NGOs in early 1998. In June 1998, in Montreal, at the first session of the Intergovernmental Committee (INC1) for development of an international legally binding instrument on control and/or elimination of persistent organic pollutants (POPs), they officially declared establishment of IPEN as a public forum. After 5 negotiation sessions, the network expanded to incorporate more than 350 non-governmental organisations from 65 countries. These organisations deal with issues of public health, environment, protection of consumers' rights and other issues of direct relevance to POPs. The Network sought to mobilise local support for the international treaty on elimination of POPs.

Besides that, the Network mobilised finance resources, allowing it to develop the forum of NGO representatives and public activists from different countries of the world, who participated in the negotiation processes. IPEN co-ordinated NGO conferences and seminars at all 5 negotiation sessions: Montreal (June 1998), Nairobi (January 1999), Geneva (September 1999), Bonn (March 2000), Johannesburg (December 2000), and the Diplomatic Conferences in Stockholm (May 2001). After completion of official negotiations on the Convention text, IPEN member-organisations and working group continued to participate in UNEP discussions on the Convention and facilitate national-level ratification and implementation of the Convention on POPs – the Stockholm Convention.

Since its establishment in early 1998, IPEN has implemented the following initiatives:

- **The Platform for POPs Elimination was developed** – the Platform provided information on the key proven health and environmental impacts of POPs and the key underlying principles, to be met by the new international agreement on POPs. After completion of negotiations on the Convention, in the Stockholm Declaration, IPEN member-organisations reaffirmed their intentions to continue joint activities for implementation of the Convention.
- **IPEN involved NGOs of six continents, that shared the IPEN Platform, into the Network activities.** IPEN continues to grow and intends to incorporate hundreds of NGOs from different countries of the world.

- **IPEN conducted conferences of NGOs, activists and scientists, in parallel to all negotiating sessions on the Stockholm Convention.**
- **IPEN established its co-ordination and management facilities, including the temporary Observation Committee, Secretariat and two Co-chairs.** IPEN Co-chair for countries of the North – Jack Weinberg – is the Director of the Global Chemical Safety Program of the US Health and Environment Fund. IPEN Co-chair for countries of the South – Dr. Romeo Quijano – is a physician, representing Manila PAN (Pesticide Action Network).
- IPEN is establishing its regional co-ordination centres in Africa, Latin America, Asia-Pacific, East and West Europe. Regional co-ordination centres link IPEN member-organisations in their regions, report to IPEN and inform the Network on needs of NGOs active in their regions.
- Three working groups were established by IPEN in May 2001. These working groups fulfil specific functions in connection with implementation of the Stockholm Convention. The groups include: working group on pesticides with PAN Africa as the group secretariat; working group on dioxins and storages of obsolete pesticides with Czech NGO Arnika as the secretariat; the working group on public monitoring with NGO “For Public Actions on Toxics in Alaska” (Alaska, US) as the group secretariat.
- IPEN maintains its electronic discussion boards, mailing lists and a web-site with information on POPs, activities of IPEN and its member-organisations.

ECO-ACCORD CENTRE

was established in 1992 as a non-governmental, non-commercial organisation of citizens of the Russian Federation. The range of founders of the Centre incorporates graduates of different departments of the Moscow State University who focused their public and research activities on priority environmental and sustainable development problems.

THE KEY AIM OF THE CENTRE is to facilitate transition of sustainable development by:

- **seeking new approaches to address environmental, economic and social problems at the global, national and local levels;**
- **raising public awareness of issues of development and survival of the humankind.**

MAINSTREAM ACTIVITIES:

- **participation in development of environmental policies at national, international and local levels;**
- **seeking ways of transition to sustainable development;**
- **extension of public participation in decision-making on environmentally significant matters, including *inter alia* prevention of environmental pollution;**
- **implementation of information campaigns on implementation of international environmental conventions, including *inter alia* the Stockholm Convention on Persistent Organic Pollutants.**

As a member of the Co-ordination Council of International POPs Elimination Network and as a Russian NGO, that operates in the sphere of raising public awareness of POPs-related issues since 1999, Eco-Accord Centre consistently calls for early ratification of the Stockholm Convention by the Russian Federation and its early implementation.

Eco-Accord expresses its concerns about continuing health impacts of POPs, that cause immune and reproductive disorders, birth defects and cancer. The Stockholm Convention is the first international instrument that obliges national governments to take practical measures for elimination of these pollutants. In this connection, Eco-Accord believes that ratification of the Stockholm Convention by the Russian Federation is extremely important for the country and the international community, because:

- The Stockholm Convention is an important component of international environmental protection processes. Active participation of Russia in implementation of provisions of the document is considered necessary.
- Mechanisms of elimination of POPs, incorporated into the Stockholm Convention (including imposition of bans for production and use of POPs and replacement of POPs by

environment–friendly alternatives), provide opportunities for international co–operation in reduction of POPs emissions and, if possible, in their complete elimination. Use of these mechanisms would allow to improve efficiency of reduction of POPs releases world–wide substantially.

- Ratification of the Stockholm Convention by Russia would allow the country to attract investments (both internal and external) for modernisation of Russian industry, for programs of reduction of dioxin emissions; for development of alternatives to POPs, elimination of accumulated stockpiles of PCBs and other POPs, rehabilitation of contaminated territories and utilisation of POPs–contaminated waste.

Eco–Accord believes, that, in order to use these opportunities efficiently, Russia should develop the necessary infrastructure for implementation of mechanisms of international co–operation in the framework of the Stockholm Convention.

Eco–Accord points out, that Parties and Signatories of the Stockholm Convention need:

- To undertake urgent actions for elimination of POPs.
- To promote extension of the initial list of 12 POPs for incorporation of additional persistent toxic organic substances, that generate adverse health and environmental impacts and must be eliminated.
- To provide finance assistance to developing countries and economies in transition for fulfilment of their commitments under the Stockholm Convention.
- To promote implementation of POPs inventory projects.
- To ensure transparency of the use of funds, allocated for implementation of programs for elimination of POPs and stockpiles of these substances; for rehabilitation of contaminated areas and development of environment–friendly alternatives to POPs.
- To prevent migration of “dirty” technologies, generating releases of POPs and other persistent toxic substances to developing countries and economies in transition.
- To facilitate public participation in the process of implementation of the Stockholm Convention at local, national and international levels.

Eco–Accord urges Russian governmental agencies and other organisations in charge of policy development and decision–making on problems of persistent organic pollutants and other toxic substances that adversely affect human health and environment:

- To recommend the Russian Parliament to ratify the Stockholm Convention promptly;

- To guarantee efficient public participation in activities, associated with implementation of the Stockholm Convention – development of policies, laws and regulations, specific plants, programs and projects. It is necessary to ensure provision of complete and timely information to all concerned public groups, to provide them opportunities to express their views on the matter and to account for these views in decision-making processes. It is extremely important to incorporate public representatives into working groups, councils and official delegations, dealing with relevant issues.
- To guarantee transparency of cash flows, channelled to elimination of POPs and stockpiles of these chemicals, rehabilitation of contaminated areas, development of environmentally sound alternatives to POPs.

