## International POPs Elimination Project

***Fostering Active and Efficient Civil Society Participation in Preparation for Implementation of the Stockholm Convention***

# Survey of the POPs-related Situation in the Republic of Georgia


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**Republic of Georgia**
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## About the International POPs Elimination Project

On May 1, 2004, the International POPs Elimination Network (IPEN http://www.ipen.org) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;

- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;

- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see http://www.ipen.org

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## General information on the country

Georgia (Sakartvelo or the Republic of Georgia) is located in central and western Transcaucasia. At the west, the country has access to the Black Sea. Various geographical and cultural statistics include: Land area: 69.7 thousand $km^2$; Population: 5432 thousand (as at 2000), including 56% of population as rural residents; Ethnic groups: Georgians (3787 thousand, according to Census-1989), Osetians, Abkhazians, Armenians, Russians, Azerbaijani, etc; Official language: Georgian; Orthodox Christians prevail among the religions; Capital city: Tbilisi.

The President is the head of state and the highest legislative body is the Parliament. Georgia incorporates Abkhazia, South Osetia (*de facto* the Central Government does not control these republics) and Adjaria. Administrative units include 65 districts, 62 cities and 52 townships (as of 1989). Mountains cover a large part of the country's territory. The Caucasus mountain ranges run across the south side of the country and on the north side the highest mountains are the Shkhara (5068 m) and Kazbek (5033 m), separated by Kolkhida lowland, Kartli valley and by the Alazan valley on the eastern side.

In November 2003, the Rose Revolution happened in Georgia. The revolution was of a peaceful and democratic nature. It was provoked by rampant corruption, and economic and political crisis in the country. In two years, the Constitution was substantially amended, the new administration started to eradicate corruption, restore armed forces and law enforcement bodies, stabilise the national economy, reform the education sector, restructure governmental bodies and promote reduction of the shadow economy.

The Government of Georgia pays major attention to development of the power industry and agriculture, and to poverty eradication. Now, the Government has launched the second stage of institutional reforms in order to improve infrastructures in the country, create new jobs, promote development of small- and medium-sized enterprises (SMEs) etc.

## Georgian economy

The Georgian economy has developed in line with market-based principles. The range of key priorities of the country's government incorporates development of a favourable investment climate and attraction of foreign investments. The strategic geopolitical location of Georgia favours development of international economic relations.

Contemporary structural reforms in Georgia promote economic growth in the country. In 2003, industry, communications and construction of the Baku - Tbilisi - Jeihan oil pipeline contributed about a third to the overall GDP growth. In 2004, economic development continues, however, due to some reasons, the GDP growth rate reached only 6.2%, while in the first quarter of 2005, it

increased to 7.3%. Forecasts of GDP growth suggest 8.5% in 2005 and about 5% on the average in the period from 2006-2008. Main sectors of the national economy incorporate:

- Agriculture.
- Industry.
- Transport.
- Power industry.

## What are POPs

Persistent organic pollutants are defined as organic compounds with high resistance to photochemical, biological and chemical destruction. POPs migrate with air flows over large distances and reach different parts of the planet, even areas at distances of many thousand kilometres from the nearest source of POPs releases.

POPs often contain halogen atoms and they are often poorly soluble in water but are highly soluble in oil, fat and lipids. The group of POPs mainly incorporates pesticides (insecticides) of the first generation, such as DDT, aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, and several industrial chemicals. e.g. polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzo-p-furans (PCDF) and polychlorinated biphenyls (PCBs).

Many of these chemicals were used and are still used throughout the world in large quantities. Due to their persistence in the environment and tendency to dissolve in fat, POPs bioaccumulate in fat tissues and undergo biomagnification. As a result of high persistence and mobility of POPs, these compounds may be found almost everywhere, on all continents and in all regions, representing all main climate/geographic zones.

Some POPs may remain unchanged in the environment for many years and due to bioaccumulation their concentrations may increase in up to 70 thousand times. Due to biomagnification processes, organisms at higher levels of food chains are under much higher POPs impacts. POPs accumulate at higher levels of food chains. They can enter a human body and cause serious health impacts.

Scientists have proven real health and environmental impacts of POPs. Some POPs may induce development of malignant tumours and adversely affect reproductive and immune systems of many generations of people. Recent studies confirmed that POPs suppress immune systems of infants and children, resulting in higher incidence of infections, development, neurological and behavioural disorders. Some scientists believe that certain POPs may pose a serious threat of various types of cancer.

## POPs sources

In Georgia, main sources of POPs releases incorporate agriculture (due to a broad application of pesticides), industry (inc. chemical industry), the power industry sector, as well as non-deliberate POPs releases in the course of industrial processes, burning of fossil fuel and waste.

## Agriculture

Agriculture always was an important economic sector in Georgia. The overall area of cultivated land reaches 1.1 million hectares (including 0.5 million hectares of irrigated land); grasslands cover 1.9 million hectares and forests cover 3.0 million hectares. The range of mainstream crops includes: corn (227,000 hectares), wheat and other cereals (160,000 hectares), citrus fruits (13,000 hectares), grapes (70,000 hectares), vegetables (57,900 hectares), and potatoes (35,000 hectares). It is necessary to note that pesticides have been applied on all these territories, but recently the intensity of their application has been almost halved.

Improvement of the national legislation, and technical and finance assistance of international organisations substantially facilitated recovery of the agricultural sector of Georgia. As a result of economic transformations, the sector was predominantly re-oriented to the domestic market, however, now, there is a growing interest to export-oriented crops, including tea and grapes. Nuts are of high demand. Bio-farming agriculture begins to develop gradually.

Before the transition to a market economy, the agricultural sector of Georgia dominated in the national economy, generating up to 55% of GDP and 47-49% of GNI. The agro-industrial sector controlled 48% of fixed assets and provided jobs to 42% of employable residents.

In 1990-1994, the agro-industrial sector suffered a major economic recession due to disruption of traditional economic contacts, loss of main markets for raw and processed food products, the civil war, high crime rates and hyperinflation. Due to these factors, rural residents reduced application of pesticides for agricultural purposes (mainly due to lack of money) and used obsolete pesticides from abandoned storage facilities (such pesticides were often sold without any control).

Later, key laws were enacted ("On Ownership of Agricultural Land", "On Lease of Agricultural Land", "On Land Melioration" and "On Water"). According to the State Water Management Program (the Program for Comprehensive Land Melioration) wholesale tariffs for water supply and drainage services were set, as well as rules of use of meliorated lands.

Citizens of Georgia privatised 918 thousand hectares of land, including 750.1 thousand hectares of cultivated land (inc. 431.7 thousand hectares of ploughland and 181.8 thousand hectares of land under perennial crops). Overall, 1026 thousand families privatised land (0.9 hectare per an average family). 57.8% of all cultivated land areas were privatised (ploughland and land under perennial crops), as well as 27.9% of haylands and 4.3% of grazing areas. Landowners pay the land tax.

Pesticides have not been produced in Georgia. They were delivered to the republic (25 - 30 thousand tons annually) and were distributed between 18 pesticide storage and distribution facilities of "Gruzselkhoskhimia" Association. These 18 facilities were designed to store 21 thousand tons of chemicals and were duly equipped for the purpose. Pesticides were transported from these facilities to district-level storages, managed by collective and state farms. Now, many of the latter storages are damaged. In the last 15 years, all these facilities were almost destroyed, their sites were privatised, and residual chemicals were either stolen by local residents or mixed with soil and are slowly washed out by rainfall. From 212 storage facilities surveyed, we found chemicals at only 44 sites.

**Table 1. Pesticide storage facilities in Georgia**

| N | Regions | Storage facilities surveyed | Storage facilities with residual chemicals | The number of soil samples | |
|---|---|---|---|---|---|
| | | | | Unknown chemicals | Contaminated soil |
| 1 | Adjaria | 2 | 2 | 11 | |
| 2 | Imeretia | 12 | 7 | 18 | 6 |
| 3 | Djavakhetia | 5 | 2 | 4 | |
| 4 | Internal Kartli | 8 | 8 | 11 | |
| 5 | Khashuri | 19 | 10 | 1 | 9 |
| 6 | Kakheti | 8 | 3 | 16 | |
| 7 | Guria | 22 | 2 | 2 | |
| 8 | Mtskheta Mtianeti | 5 | 5 | 11 | |
| 9 | Mengrelia | 86 | - | | |
| 10 | Lechkhumi (Lower Svanetia) | 16 | - | - | - |
| 11 | Racha | - | - | - | - |
| 12 | Lower Kartli | 7 | 5 | 3 | |
| 13 | Tbilisi | - | - | | |

Large storage facilities of the former "Gruzselkhoskhimia" Association were transferred to the newly established "Gruzagroservis" Company.

After liquidation of the former "Gruzselkhoskhimia" Association, the majority of old storage facilities were privatised by private individuals, who use that for different purposes (some facilities are used to store fodder or to keep cattle). Refugees use some of the former storage facilities as residential housing, particularly in Samegrelo. There are no chemicals there any more, but nobody can exclude the possibilities of health impacts of residual pesticides.

Burial sites of unknown pesticides need particular attention. Most often, in the course of construction of these burial sites, applicable rules of handling of hazardous chemicals were not fully complied with. Hazardous chemicals were simply covered by soil. Later on, rainwater washed the upper layer of soil out. Now, there are visible surface spots of pesticides mixed with soil and a strong smell of chemicals. In the course of economic difficulties in 1990s, rural residents removed pesticides from these dumps and used them on their land plots, having no idea of their composition and associated rules of application. As an example we may refer to the case of Ali village of Khashurskiy district, where 50 tons of pesticides were buried in 1980s.

Besides that, substantial risks are posed by pesticide storage facilities in such cities as Batumi (up to 20 tons of different plant protection chemicals) and Samtredia (5 tons of unidentified chemicals are stored there at the open ground). Nearby Kobuleti, in Choloki village, about 10 tons of chemicals are stored in a destroyed storage. The storage site is not fenced, it is accessible for animals, and a corn field is located at a distance of 40 metres from the site.

Now, there are about 160 tons of chemical waste in the form of plant protection chemicals) in the country.

**Table 2. Residual pesticides in various cities**

| N | Regions | Residual chemicals | |
|---|---|---|---|
| | | kg | L |
| 1 | Adjaria | 15000 | |
| 2 | Shida Kartli | 18500 | 100 |
| 3 | Imereti | 10000 | 100 |
| 4 | Mtskheta-Mtianeti | 23000 | 500 |
| 5 | Samtskhe-Djavaneti | 4200 | |
| 6 | Kakhetu | 35020 | |
| 7 | Khashurskiy district | 50500 | |
| 8 | Kvemo-Kartli<br>Yagludji burial site | 4500<br>2700000 | 500 |
| 9 | Guria | --- | --- |
| 10 | Samegrelo | --- | --- |
| 11 | Kvemo Svaneti-Lechkhumi | --- | --- |
| 12 | Racha | --- | --- |
| 13 | Tbilisi | --- | --- |
| | **Sub-total:** | **160 720**<br>**2 700 000** | **1200** |
| | **Total:** | | **2 862 000** |

According to results of an inventory conducted in 1990, there were 2364 tons of pesticides in the republic. Now, their stockpiles have decreased to 160 tons.

Among organochlorine pesticides, DDT and HCCH (lindane) were broadly used. After the ban on application of organochlorine pesticides in the former USSR (1976), a pesticide burial site was constructed in Georgia in Kvemo-Kartli (at Yagludji hill) for final disposal of 2559 tons of chemicals. There are no documentary reports on the actual amounts of pesticides buried there. The former "Gruzselkhoskhimia" Association does not exist any more however, former employees of the Association, who participated in the final disposal of organochlorine pesticides, banned by the Order of the Chief Sanitarian of the former USSR, support the above amount. The burial site was designed and constructed in compliance with applicable safety requirements. However, in the difficult 1990s, the burial site was damaged, concrete slabs were removed and buried pesticides were left unprotected. Local residents said that they often saw how some people stole construction materials and pesticides from the site. Samples from opened places at the burial site clearly confirm that the site contains organochlorine pesticides.

It is worth noting that in addition to agricultural use, DDT was used in Georgia for malaria control. Since 1976, DDT application for these purposes also ceased. Now, specialised WHO malaria-prevention programs are under way in the country.

As for imported plant protection chemicals, it is necessary to note that only preparations, registered in the Register of Chemicals Approved for Application, may be sold in retail sale facilities.

## Industry

In 2004, industry generated 13.2% of GDP and its share increased by 12.2% compared to 2003. In the country, 92 mining companies operate, as well as 2920 manufacturing companies and 198 companies in the sphere of power generation, including extraction of natural gas and water.

In the past, the chemical industry was a leading industrial sector of Georgia. Since 1954, Rustavi Chemical Plant has been producing nitrogen and other fertilisers and synthetic fibres. Tsulukidi Chemical Plant produces PE and PVC films. In addition, other chemical facilities produce barite concentrate, synthetic ammonia, plastics and plant protection chemicals. Important petrochemical facilities produce paints, fodder yeast, etc. Petrochemical and chemical plants are concentrated in major cities of the country: Tbilisi, Kutaisi, Rustavi, Batumi and Sukhumi. Large ore-processing and metallurgic facilities operated in Kvaisi and Madneuli.

Besides that, Georgia was a republic with well developed engineering, metal processing industries, ferrous and non-ferrous metallurgy, production of construction materials, etc. These industries (including production of arsenic, cement, asphalt, chemicals) were the key sources of POPs releases to the environment.

Major ferrous metallurgy plants operated in Rustavi and Zestafoni. Manganese ore was mined in Chiatura, while in Zestafini ferrous alloys were produced in electric furnaces.

In Madneuli, a large complex deposit is located, mining operations at the site are associated with production of copper, lead, zinc, barite, copper and gold concentrates.

The sector of production of construction materials in Georgia incorporates production of cement, asbestos-cement and reinforced concrete (e.g. building blocks, light fillers, cement, marble, firebricks, asbestos-cements plates and pipes, perlite, bentonite). Major production facilities are located in Kaspui, Metekhi, Rustavi, Avchala, Sagaredjo, Kutaisi, Batumi and Sukhumi.

In contemporary Georgia, the power industry belongs to the key production sectors of the country, as a result, it is rather important to assess its contribution to environmental contamination (power industry facilities use dielectric liquids, potentially contaminated by PCBs and operate power equipment filled by these liquids).

However, in addition to power industry facilities, different types of mineral oil are broadly used in different industries and in households (lifting gear, transformers, compressors, etc.). As a result, the problem of replacement and liquidation of PCBs-containing equipment is fairly relevant for the country.

A preliminary analysis of production operations of industrial facilities of Georgia allowed us to assess potential sources of PCDD and PCDF releases and their emissions from identified and quantified sources in the period from 1985 to 2001.

Dioxins may be generated by chemical reactions with involvement of PCBs, chlorinated benzene and phenol derivatives, PVC or hydrocarbons, polystyrene, cellulose, lignin, carbon particles in the course of burning in presence of chlorine, oxygen or air.

Dioxins may be formed at relatively low temperatures (150 - 200ºC), when chlorine compounds are burned with organic compounds in conditions of excessive air/oxygen levels.

Sources of chlorine compounds may incorporate residual amounts of PVC, inorganic chlorine compounds and residual chlorinated paraffins of used oil. Similarly to other countries of the former USSR, in Georgia, numerous industrial facilities operate that use chlorine and other chemicals. Technological processes at these facilities may generate dioxins and furans, including production of ferrous and non-ferrous metals (copper, aluminium, molybdenum, gold, lead, ferromolybdenum, molybdenum compounds, iron and steel melting operations), footwear and textile facilities, lime kilns in almost every village, cement production, transport (diesel oil and kerosene), production of glass and ceramics, production of asphalt, utilisation of used oil, broad application of capacitors and transformers (overall, there are more than 10,000 transformers and capacitors in the country). In addition, uncontrolled waste burning at waste dumps and landfills is common in the country.

Available information suggests that production and power industry facilities dominate among other sources of dioxins, furans and PCBs releases, due to technical factors (specific production technologies, use of outdated and worn-out equipment, unstable production), as well as due to some economic factors (conditions of the transition period).

Due to economic and power supply problems in the last 10 - 15 years, the majority of the country's residents had to use all available fuel for residential heating (e.g. paper, wood, household waste, kerosene, diesel oil, plastics, old footwear, clothes, old tires, technical oil, inc. used oil, rubber, etc.). In many schools, heaters, fuelled by diesel oil or kerosene, are still used in classrooms. All these factors result in poor quality of indoor air and in releases of dioxins and furans.

It is necessary to note, that military sites of the former Soviet Army still contain about 500 tons of obsolete missile fuel "Samin" (xylidine-based corrosive carcinogenic fuel) and about 950 tons of missile fuel "Melange" (unstable, toxic, and highly reactive fuel component). Underground bunkers of former military sites still contain unknown chemicals that need to be inventoried. Different chemicals were found at the site of Akhaltsykhskiy Antiaircraft Division including DDT, stored on the open ground and a 300-litre canister with some unknown liquid. In Mziuri village (Gallskiy district) 14 canisters with obsolete pesticides were found.

All these facts suggest that there are numerous sources of POPs generation and releases in Georgia. Due to their chemical and physical properties, persistence in environmental media and biological objects, as well as due to their ability to migrate to long distances, POPs may easily spread to the whole territory of the country and outside the national territory.

## POPs contamination levels

The problem of POPs environmental contamination in Georgia emerged in 1960s as a result of broad application of organochlorine pesticides. Such a large-scale application of organochlorine pesticides was associated with their universal toxicity. Many of them were efficient acaricides,

insecticides and fungicides. Both in terms of intensity of application and in terms of different pesticide preparations, organochlorine pesticides dominated among all other chemical pesticides, excluding traditional ones (hydrated lime, copper sulphate and sulphur preparations).

According to results of research studies of the Sanitary Service of the republic, in 1960s, organochlorine pesticides (DDT and HCCH, including gamma-HCCH or lindane) were found in many food products, particularly in food products of animal origin. Residual levels of pesticides were found in soils and surface water bodies of the republic.

It can be fairly difficult to prove causal links between impacts of POPs and health problems. It can be difficult to identify pesticide impacts even in cases of acute poisonings. The task becomes even more complicated in conditions of real use. As a result, many pesticides-induced health effects are often registered as other health problems.

Results of monitoring of residual POPs levels suggest that no organochlorine pesticides were identified in 50 breast milk samples, collected in maternity wards of Western Georgia. In samples of fish, caught nearby Poti, DDT levels in excess of MACs were found. Besides that, DDT and DDE levels over relevant MACs were found in samples of well water from Guria.

## Adverse effects of POPs

Residual POPs levels are relatively low however in conditions of their long-term chronic human intake they may induce growth of morbidity rates. However, it is difficult to identify symptoms of pesticides-induced health disorders due to polytrophic health effects of pesticides, including organochlorine ones. Therefore, it is rather important to study the health status of the country's residents in connection with application of pesticides, particularly organochlorine ones.

The socio-hygiene study of health status of rural residents of the country relied on correlations between population morbidity levels (including incidence of diseases, induced by environmental factors) and intensity of application of pesticides. Analysis of trends and proven cases of causal linkages suggests that application of pesticides, particularly organochlorine ones, adversely affects the health status of rural residents (1988-1991).

Statistical analysis of data of the Public Health Ministry of Georgia on different diseases that might be potentially induced by POPs, suggests that application of pesticides is particularly dangerous for children's health. A statistically significant correlation between pesticides and incidence of asthma among children was found to be much higher compared to relevant figures for adults. Correlation coefficients for linkages between levels of organochlorine pesticides and malignant tumours among children were also found to exceed relevant figures for adults.

Children are particularly vulnerable to impacts of different environmental factors due to specific metabolic processes in the childhood age and higher consumption of air, water and food relative to bodyweight. Impacts of adverse environmental factors in childhood may provoke health problems in the future.

Many authors have noted negative trends in health status of local residents in areas of intensive application of pesticides. Children are more often affected by pesticides due to their higher vulnerability at the stage of intensive physical and mental development.

Results of socio-environmental assessments and the above trends suggest that application of pesticides, particularly organochlorine ones, negatively affects the health status of children in rural areas of the country.

Studies of health impacts of POPs, generalisation of available results of epidemiological studies and available clinical data also suggest adverse occupational impacts of POPs on workers of chloroprene production, mining and metallurgy facilities of Georgia.

## Laws and regulations on POPs

Now, management of chemicals in Georgia is regulated by the Law on Hazardous Substances and the Law on Pesticides and Agricultural chemicals. Both laws were approved in 1998.

Issues, pertaining to application of chemicals and specific standards are settled in implementing regulations of the above laws.

It is necessary to note that the national legislation does not incorporate a specialised law that could regulate control of POPs. However, issues of POPs management might be incorporated into the Law on Hazardous Substances and the Law on Pesticides and Agricultural Chemicals.

The above laws do not refer to POPs *per se*, but they define hazardous chemicals as chemicals that have toxic and carcinogenic properties (i.e. the key properties of POPs). A detailed classification of hazardous chemicals is provided in Order of the Minister of Occupational Safety, Public Health and Social Welfare of April 7, 2003 - On Approval of the Regulations on Classification of Hazardous Chemicals. Clause 4 of the Regulations states that chemicals are classified according to their physical, chemical and toxic properties, as well as according to their health and environmental impacts.

Import and application of pesticides in the country must comply with requirements of the State Register.

According to the Law on Hazardous Chemicals, the State Register is a unified system of standardised information on new or already used chemicals in the country, licenses on their use and applications. Rules of registration of hazardous chemicals are defined by the joint order of two ministries (the Public Health Ministry and the Ministry of Agriculture) on the State Register and rules of their registration.

Production of pesticides and agricultural chemicals is regulated by the Law on Licenses for Production and Trade, Issuance of Permits for Export and Transit and Export/Import of Controlled Products of Plant Origin.

In order to apply for a license for any chemical production, a proponent is obliged to conduct an environmental impact assessment (EIA). In 2001, the Order of the Public Health Minister approved

the List of Especially Hazardous Chemicals, Banned for Use, and Production in the Territory of Georgia and Export/Import (the list incorporates POPs).

The Law on Issuance of Environmental Permits, as well as other laws and regulations (the Tax Code, the Law on Protection of Ambient Air, Order No. 72 "On Approval of the Register of Agricultural Chemicals, Approved for Application in Georgia in 2001 - 2006" of 01.05.2001), regulate transportation of chemicals by major roads, their construction and safety.

## Status of ratification of the Stockholm Convention

The Republic of Georgia signed the Stockholm Convention on May 23, 2001, in Stockholm. The Convention focuses on protection of human health and the environment from persistent organic pollutants (POPs). So far, the Parliament of Georgia has not ratified the Stockholm Convention.

## Recommendations on elimination of POPs

We believe that priority activities to improve environmental quality in Georgia should incorporate the following:

- establishment of an efficient system of registration and control of import and application of pesticides by strengthening relevant laws and regulations;
- establishment of a system for exchange of obsolete pesticides (particularly organochlorine ones) for modern plant protection chemicals, in order to provide incentives to owners of small and medium-sized farms;
- establishment of a system for regulation of pesticides levels in environmental media and introduction of unified standards and methodologies on pesticides;
- development and introduction of unified methodologies for estimation and control of pesticide levels in environmental media in order to improve safety of agricultural products;
- establishment of a specialised fund to support and facilitate research studies on health and environmental impacts of POPs;
- raising public awareness on POPs-related health and environmental risks by publication of popular articles, brochures, posters, etc.;
- facilitation of incorporation of POPs-related issued to curricular programs of higher education facilities (medical, chemical and environmental ones).
- Ratification of the Stockholm Convention
- Participation of NGOs and civil society in policy on POPs and other toxic chemicals

In order to address the above problems successfully, is necessary to develop an integrated national action program for reduction/elimination of POPs releases. The action program should be based on health and environment considerations. Implementation of the program should be primarily focused on strengthening of relevant laws and regulations. The program implementation works should rely on participation of representatives of relevant governmental ministries and agencies, as well as NGOs.