NATIONAL PLAN
of actions for implementation of Stockholm Convention on Persistent Organic Pollutants
(updated)

Introduction

Supporting the efforts of the global community in protection of population health and environment against impact of hazardous chemicals, the Kyrgyz Republic has ratified a number of environmental conventions aimed at reduction of reverse impact of hazardous chemicals: Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal (1996), Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (2000), Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer (2000), Framework Convention on Climate Change (2000) and Stockholm Convention on Persistent Organic Pollutants (2006).

All these conventions are aimed at regulating the use of potentially hazardous chemicals and complete discontinuance of their consumption in the future.

For Kyrgyzstan - the country that has no its own chemical industry and fully dependent on exporters-producers, it is overwhelmingly important to fully and effectively participate in all these international treaties in order to resolve regional, national and international environmental issues with account to long-term interests of the Kyrgyz Republic and ensuring environmental safety.

Among conventions on chemicals, the Stockholm Convention on Persistent Organic Pollutants (POPs) is considered to be the main one. It was adopted in 2001, came into force in 2004. It is called the crowning achievement in the activity of the global community in the area of chemical safety.

The Convention is aimed at restricting the usage and then – full discontinuation of the production and liquidation of sources of POPs emission. Precautionary measures underlay and are attached to all actions of the Convention.

POPs have toxic properties, show resistance to degradation, biologically accumulate and are the objects for transboundary transport by air, water and migrant species of fish, animals and birds. Accumulating in ecosystems and animals and human fatty tissues POPs cause significant adverse effects for human health and state of environment.

The following should be noted as predictable achievements of socio-economic nature of Stockholm Convention measures taken:

- reduction in usage of POPs and, where possible, discontinuation of their emission into environment;
- raising level of awareness of government authorities, responsible persons in the industry as well as of public about the danger of POPs for environment and health of population;
- raising level of awareness of population about potential risk for health related to specific activity of industrial enterprises;
- development of studies of the impact upon human health conditioned by the usage or emissions of POPs, development of ways and methods for reducing the danger and risk for the health;
- conducting researches on replacement of POPs with alternative substances, change or improvement of technologies.

At the given stage, the regulatory list of the Convention includes 16 pesticides and 10 industrial chemicals.

For effective and successful performance of obligations, the Convention stipulates for the provision of financial and technical assistance to developing countries.

One of the main actions for performing obligations under the Stockholm Convention is the development, updating and implementation of the National Action Plan (NAP) for POPs.

Main objective of NAP is the protection of human health and environment from the impact of persistent organic pollutants.

Main objective of NAP at the given stage are the following: discontinuation of usage and liquidation of outdated pesticides stock, discontinuation by 2025 the operation of equipment containing PCBs, and by 2028 – ensuring their environmentally safe removal. As for the other POPs, a mission of minimization is set, and where possible – complete elimination the sources of their emission.

NAP for implementation of the Stockholm Convention on POPs is not a separate environmental program since persistent organic pollutants – are only the part of hazardous chemicals requiring environmentally sound management. NAP is accountable only in the part of performing specific obligations under the Stockholm Convention.

For complete development of NAP, it is necessary to carry out preliminary quantitative and qualitative assessment of POPs sources in the country (inventory taking).
In 2016, Kyrgyzstan completed the second stage of POPs inventory taking and developed the updated NAP with account to new chemicals included into the list of Stockholm Convention with support of UNEP/GEF.

1. Information about Kyrgyzstan

1.1. General information

The Kyrgyz Republic is located within the borders of systems of Tien Shan and Pamir-Altai systems of mountain ranges. The lowest altitude (488 m above sea level) is the point of Naryn river crossing the border with the Republic of Uzbekistan, and the highest – Pobeda Peak (7,439 m). Average altitude of the territory above sea level – 2,630 m.
All diversity of landscapes and climatic and natural conditions in Kyrgyzstan can be grouped into four natural-climatic zones: valley- submontane – up to the altitude of 1,200 m, mid-mountain – from 1,200 up to 2,200 m, high-mountain – from 2,200 to 3,500 m and nival – above 3,500 m. Less than 20% of the Republic territory belongs to the areas of comfortable conditions for living.
Large systems of mountain ranges positioned in various directions conditioned the establishment of several regions, climate in which is quite uniform and notably differ from each other.
Climate of the Kyrgyz Republic is distinctly continental, mainly droughty, somehow leveled because of increase of cloudiness and precipitation at account of alpine relief. Peculiarities of climate are determined by the location of the Republic in the Northern hemisphere – in the center of Eurasian continent, and also remoteness from large water bodies and close proximity to deserts.
Kyrgyzstan is a sovereign, democratic, rule-of-law, secular, unitary and social state.
National administration in Kyrgyzstan has three levels of administrative-territorial division. The system of administrative-territorial arrangement of Kyrgyzstan includes 7 oblasts, Bishkek and Osh cities that have the status of republican subordination, 40 districts, 31 towns, 9 settlements of urban type, 3 settlements, 453 aiyl aimaks (rural district).
Size of resident population in the Kyrgyz Republic as of January 1, 2016 was 6,019.5 thousand people. Due to mountainous relief, the population of Kyrgyzstan is distributed throughout the territory of the Republic extremely irregularly. The population mainly resides and performs the major part of economic activities within borders of low-mountain relief, intermountain basins (Issyk-Kul lake) and relatively small mountain valleys (Suusamyr). The highest activity of the population is concentrated within limits of the populated areas themselves and within relatively small buffer zone of 5 km around population centers. Share of urban population is 33.6%, among them 62.8% of active working age. Share of rural population is 66.4%, among them 59.2% of active working age.
Distribution of population by administrative divisions of the Republic is not even.
The level of supply of housing and utilities services for the population in Kyrgyzstan remains insufficient. The level of improvements in urban and rural residential properties considerably differs.
Share of water use from open water bodies for utility and domestic needs still remains great and represents considerable risks for population health.

1.2. Natural resources

1.2.1. Land resources

Distribution of land resources

2015	Thousand hectares
Total	**19,994.9**
Farmlands	6,542.6
Residential lands	276.2
Industrial, transport, defense, communications and other lands	228.9
Lands of specially protected natural areas	823.8
Forest fund lands	2,600.0
Water fund lands	767.3
Reserve lands	8,756.0

55 types of soil and non-soil formations united into 6 groups are represented in the territory of the Republic. In general, for the period starting from 1990 until present, there is a steady trend towards diminishing of soil fertility.

1.2.2. Water resources

Water resources are used for the generation of power, irrigative, industrial and household water supply. Water resources of the Republic are concentrated in glaciers, lakes, rivers and in underground water.

Volumes of glaciers are estimated as 390 km³. There are 1,923 lakes in the Kyrgyz Republic. The largest lakes are: Issyk-Kul, Son-Kul, Chatyr-Kul. Water reserves in the lakes of the Republic are estimated as 1,745 km³. Out of these, 1,731 km³ (or 99.2%) are concentrated in Issyk-Kul lake, whose water is subsaline and is not suitable for water supply. There are about 5 thousand rivers belonging to 10 hydrologic basins in the territory of the Republic: 8 large rivers: Syr-Darya, Amu-Darya, Chu, Talas, Ili (Kar-Kyra), Tarim and 2 basinal lakes – Issyk-Kul and and Chatyr-Kul. The latter two are inland basins, volume of their river flow is about 3.5 % of the river flow in the territory of the Republic, all other basins are transboundary.

Potential reserves of fresh underground water of the Kyrgyz Republic are estimated as 13 km³. These are mainly concentrated in intermountain basins, whose territories are the most developed from the economic point of view. Usable ground water resources by industrial categories amount to more than 16 mln m³/day or more than 5 km³ a year.

1.2.3. Forest resources

30 species of tree vegetation of all groups of wood species typical for midlatitudes can be found in the wild in the Kyrgyz Republic: coniferous, hard-leaved, soft-wooded nuciferous, fruit, pomaceous, fruit and drupaceous and more than 17 species of bushes. Combination of various species predetermines the wide range of forest ecosystems: from juniper and fir in high-mountain, nuciferous in midmountains and to riparian (flood-plain) in low mountains.

The most common are juniper and spruce forests (about half of the area of land covered with forests).

Vertical zonality and diversity of climatic zones on the one part conditioned high diversity of forest-forming species in forest basins and on the other part – low amount of woodland in the territory of the country.

Based on data of the first national forest inventory (2008-2010), the area of the Republic covered with forests was 1,398.1 thousand hectares.

1.2.4. Water power resources

The total hydroelectric potential of the Republic by straight line - 268 rivers, 97 larger channels and 19 water-storage reservoirs, for a year with medium dryness, estimated as 28.83 mln kW by power and 245.52 bln kW/h by gross generation, including industrial potential up to 60 bln kW/h of electric power.

16 large and medium-size hydroelectric power stations with total installed capability of 2,949 mW and annual output – 10.406 bln kW/h are operated in Kyrgyzstan. At present, hydroelectric potential of the Republic is being used by 18%.

Two hydroelectric power stations are under construction in the Republic. After commissioning of these stations, the total sum of generating capacities will be added by 2,260 mW, which will allow increasing annual generation to 6.312 bln kW/h.

1.2.5. Fuel and energy resources

In the Kyrgyz Republic, prospective reserves of 70 key coal fields are estimated as more than 2.2 bln tons with balance reserves of 1,316.9 mln tons.

Until now, constant deficit of coal in the national economy can be seen in Kyrgyzstan. Insufficiently developed network of railways and increased transportation costs for the delivery of coal to end consumers considerably limit markets.

Forecasts of undiscovered reserves of oil and gas in Kyrgyzstan amount to about 289 mln tons. At present, oil and natural gas production is quite low. So, 15 oil and gas fields with mineable industrial reserves of oil – 11.6 mln tons and natural gas – 4.9 bln m^3 are being mined in the territory of the Republic. Availability of own oil products is 4.5%, natural gas – about 6.5%.

In general, availability of fuel and energy resources of the Kyrgyz Republic is 69.12 % (without account to fuelwood).

1.3. State of economy

Analysis of contributions of various industries of the national economy into GDP of the Republic shows that in the recent years, share of agriculture is steadily reducing in the structure of GDP of the Republic. At the same time, the share of service sector has considerably increased.

1.3.1. Agriculture

Within period starting from 1990 and until now, share of agriculture in GDP of the country varied within limits of 46.2% to 17.5%. In general, starting from 1996, steady decreasing of the share of agriculture in GDP of the country has been observed. Main contribution is made by products of crop growing and cattle breeding, which demonstrate stable growth trend.

Agriculture is the industry that depends on climate the most, and its output, especially in the area of crop growing directly depends on changes in climatic indicators of the year – amount of annual precipitation, their distribution by seasons and humidity in vegetation period. Considerable impact on effectiveness of agriculture is rendered by frosts, droughts, hail, dust storms and other weather conditions.

In the structure of the total volume of agricultural products output, predominant contribution is made by private producers: farms – 61.5% and personal auxiliary facilities of population – 36%. Contribution of farms prevails in crop growing and in cattle breeding – contribution of personal auxiliary facilities of population.

1.3.2. Industry

Starting from 2005, the total industrial output has been growing. Share of the industry in GDP of the country increased from 17.3% to 20.7%. Some distribution of production output among separate branches can be observed.

Share of metallurgy, first of all at account of output of Cumtor Operating Company gold ore mining-and-processing integrated works, has increased from 38.4% to 51.1%. Share of energy sector and food industry has insignificantly decreased. Share of hi-tech works: machines, electrical and electronic equipment has considerably decreased from 4.8% down to 1.9% and is less than 5% of the gross industrial output.

1.3.3. Transport

Physiographic (mountainous relief, absence of navigable rivers) and economic conditions of the Kyrgyz Republic determine predominant role of automobile transport in domestic transportation. The structure of abroad transportation: key volumes of transportation northward (Eurasian Economic Union, Europe) are carried out by railway transport, south-eastward (China) – by automobile transport. Air transport plays a remarkable part in passenger transportation only.

Length of railways is 423.9 km.

Pipeline transport consists in gas-main pipelines Bukhara – Tashkent – Bishkek – Almaty and Mailuu-Suu – Jalalabad - Kara-Suu – Osh and local gas distribution network.

1.4. Environmental safety

1.4.1. Legislation

For the period of existence of environmental service, Kyrgyzstan has made important steps in reforming environmental policy, legislation and institutes. Within frameworks of regulation reform, framework environmental laws and respective regulatory documents have been developed and updated, the Concept of environmental safety was adopted. All of these formed the general principles and systemic foundations for the activity in the area of environmental protection.

However, many important sections of environmental legislation need revision and harmonization with international obligations within environmental conventions, party to which Kyrgyzstan is.

In the system of legal relationships in the area of use of natural resources, there are no objective specifics, which results in formation of conflicts between users of natural resources and local communities, prevents attraction of foreign investments into real sectors, often prevents performing full-fledged environmental activity.

Organizational and legal basis for prevention and elimination of harmful factors adverse impacts on environment, including chemicals, upon human health and habitat, principles of chemicals circulation management, increase of level of awareness and attitude, use, and knowledge, increase of safety of chemical usage and prevention of emergencies etc. are determined by more than 40 Laws and regulatory documents.

However, legislative acts of the Kyrgyz Republic in the area of protection of the environment and health are mainly of framework nature and reflect general requirements to prevention of harmful factors impact upon state of environment. Requirements related to circulation of chemicals, their individual groups (pesticides, industrial chemicals, household chemicals, persistent organic pollutants, substances of very high concern, cosmetic preparations), criteria of assessing risks of chemicals for health and environment, criteria of prohibiting the use of individual chemicals in the territory of the country, requirements to classification and marking are not stipulated in the existing laws. Effect of only one legislative act regulates circulation of an individual group of chemicals (Law “On protection of ozone layer”).

Development of a framework law on chemicals with adoption and improvement of the whole number subordinate legislative acts for individual groups of chemicals is required, which will facilitate regulation of chemicals circulation and increase of population and environment safety level.

In many instances, functions, obligations and competences of various ministries and departments are duplicated, insufficient coordination of their actions can be observed, presence of various obligations in respect of individual groups of chemicals leads to disunity of their actions, as each department cares only about those groups of chemicals that are in its competence.

On the other hand, obligations of ministries and departments are bound by the nature of their activity. Their functions and authorities are aimed at specific areas (environment, healthcare). Within the framework of Law on chemicals, it is necessary to differentiate functions in the area of chemicals management among these ministries and departments.

Key areas for legislation improvement:

• harmonization with international requirements and their representation in codes, laws and subordinate legislation;

• transition to international environment quality standards;

• introduction of up-to-date, used in the international practice methodologies of calculation of environmental pollution by production activities.

While conducting the assessment of legislation, it is necessary to take into account the regulatory and legal framework adopted within membership in EAEU and the Customs Union.

1.4.2. Integration of chemical safety issues into sustainable development programs

The Kyrgyz Republic signed and ratified 13 international environmental conventions. The country is the a member of UN Commission on Sustainable Development and its regional agencies. Activity on safety of chemicals and performance of obligations of environmental conventions in the sphere of chemistry are considered to be an integral part of observing the key UN strategies, first of all -

Millennium Development Goals (MDG). It is associated with goals and objectives of this strategy by contributing into eradication of poverty, ensuring environmental sustainability and facilitation to global partnership in the development goals.
Activity aimed at reducing emissions, introduction of energy-saving technologies, saving of fuel and energy resources, use of environmentally sound energy sources shall be conducted in the course of implementation of national, regional and sectoral strategies, programs of socio-economic development (2013-2017 National Strategy of Sustainable Development of the Kyrgyz Republic).
The adopted by resolution of KR Government on March 2, 2015, No 91, the Program of the Government of the Kyrgyz Republic for proper management of chemicals in the Kyrgyz Republic for 2015-2017, due to shortness of the resolved activities does not fully cover all issues of chemicals management. In this connection, it is necessary to pass a single law on chemicals with clear regulation on differentiation of regulatory and economic functions of chemicals management.
Strategic decisions taken by the Government cover almost all areas of activities. However, it is necessary to note that the effectiveness of adopted documents does not always have positive dynamics of development and sustainability. In particular, there is no clearly identified scheme of organizational-and-financial and regulatory-and-legal provision for this activity, no vertically integrated system of evaluation of outcomes of efforts taken. Subordinate legislation identifying mechanisms of actions implementation has not been developed fully. There no sufficient financial and other resources allotted.
The Kyrgyz Republic has personnel, technical, information and financial resources that potentially allow performing chemicals circulation management.
Public authorities implementing policy in this area have a branched network of territorial institutions, which provides an opportunity to perform management at local level. There is a laboratory control service of various ministries and departments controlling the content of various chemicals in produce, environmental objects.
However, the Republic lacks clearly identified procedure of handling chemicals at every stage of their life cycle – from import, transportation, production, in-use control to disposal.

1.4.3. Industrial sector and NGOs

Industrial enterprises in the process of which chemical are used shall ensure safety at account of working instruction and orders developed on a voluntary basis. Requirements of international organizations oblige the conduct of voluntary environmental certification at individual mining enterprises.
At present, more than 200 non-governmental environmental organizations work in the Kyrgyz Republic.
Starting from 2000, the Kyrgyz Republic is the party to Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental issues.
State policy in respect of capacities of non-governmental organizations to provide the Government with information related to chemicals management is identified by effective legislation, which provides for recommendatory nature of NGOs' participation in managing the environmental issues. In case of lack of information from NGOs, government bodies are not obliged to request information and decisions are made by government bodies without participation of NGOs.
Role of NGOs in informing the public about chemical risks and actions of the Government in this area is the key for the Republic due to absence of other sources of information. In general, the level of cooperation of the Government and NGOs is obviously insufficient, which can be explained by the lack of respective legal groundwork first of all.

2. Review of implementation of NIP as of July 3, 2006

Legislative and institutionalization activity

For the period passed, the following Laws and regulatory documents on chemicals management have been adopted:
KR Law dated 16.07.2012, No166 On introduction of amendments and addenda to KR Law On chemicalization and crop protection;

KR Law dated 12.01.2015, No 2 On phytosanitary control;
By order of KR Government dated October 2, 2007 No 372-p, the **Coordination Committee** for facilitation of implementation of the National Plan for Stockholm Convention on Persistent Organic Pollutants was established;
By order of KR Government dated July 5, 2011, No 361, The Instruction on safe use, storage and warehousing of pesticides in agriculture was approved;
By order of KR Government dated November 4, 2011, No 704, the List of pesticides and agrochemicals permitted to be used in KR for 2011-2019 was approved;
By resolution of KR Government dated 12.07.2012, No 335-p, the **Coordination Commission** for facilitation of safe management of chemicals, including those containing polychlorinated biphenyls (PCBS) was established.
By order of KR Government dated July 1, 2013, No 390, Regulations on registration testing and state registration of pesticides and agrochemicals in the Kyrgyz Republic was approved;
By order of KR Government dated March 2, 2015, No 91, 2015-2017 Program of the Government of the Kyrgyz Republic for proper management of chemicals in the Kyrgyz Republic was approved;
By resolution of KR Government dated April 22, 2015, No 235, Program of the Government of the Kyrgyz Republic for introducing the international system of hazard classification and marking of chemicals in the Kyrgyz Republic and Plan of activities for its implementation for 2015-2017 was approved.

Inventory taking of outdated pesticides, rehabilitation of contaminated sites

Studies and inventory taking of outdated pesticides was performed within frameworks of the following projects:
- Assistance to KR in preparation of the National Action Plan for implementation of the Stockholm Convention on POPs (2003-2006);
- Destruction of pesticides prohibited and unsuitable for the use in agriculture in Kyrgyzstan (2004-2009);
- Inventory taking of outdated pesticides and wastes associated with them in the countries of Central Asia, Caucasus and Turkey (2012) – a detailed inventory was taken in 113 warehouses/facilities of outdated pesticides in Chui, Issyk-Kul, Naryn and Batken oblasts;
- Elimination of high risks of outdated pesticides in Moldova, Georgia and Kyrgyzstan (2006-2008) – inventory was taken in Osh oblast;
- Technical study of outdated pesticides in Kyrgyzstan (2009) - inventory was taken in Jalalabad oblast;
- Presentation and increase of sustainable alternatives to DDT for control of transmissible diseases in the countries of Southern Caucasus and Central Asia (2012-2015) - inventory was taken in Chui oblast.

Within frameworks of this project, 14 specifically trained and skilled specialists carried out repacking of DDT in the warehouse of antiplague station of At-Bashy village, as well as outdated pesticides in the warehouse of former Selkhozkhimiya (Agricultural chemistry) in Balykchy.
All participants underwent preliminary medical examination, briefing, were provided with personal protective equipment and overalls.
After the work completion, Certificates of executed works of repacking and warehousing of outdated pesticides were prepared.
The international non-governmental organization Miliecontact, Netherlands, together with concerned KR ministries and departments implemented project “Elimination of high risks of outdated pesticides in Kyrgyzstan”. Trained military men from the Ministry of Emergencies repacked 98 tons of pesticides and contaminated soil. The repacked pesticides were transported to the central warehouse of village council of Karasuiskiy district on specially provided machinery. 518.5 tons of contaminated soil were covered with high-density polyethylene film and buried with clean soil on top.

Inventory taking of all 25 warehouses and airfields belonging to Selkhozkhimiya in Osh oblast was carried out in the course of the project. Inventory revealed 450 tons of outdated pesticides, four tons of contaminated soil/dust inside warehouses and 160 tons of heavily contaminated soil mixed with pesticides close to these warehouses. 10 representing highest risk for both local population and for the environment, former places of pesticides storage were cleaned as the result of the project implementation.

As the result, in 42 warehouses throughout the Republic, inventory of **574.5** tons of outdated pesticides was taken. For today, according to data of the Department of Chemicalization and Plant Protection, quantity of outdated pesticides in burial grounds and warehouses is **5,447.8** tons (4,873.3 tons in burial grounds for poisons – Suzak A – 3,000 tons, Suzak B – 1,023.3 tons, Kochkor – 850 tons). The quantity of contaminated equipment (pallets, racks, empty containers) – **114.6** tons.

Web database of outdated pesticides warehouses was created at DCPP.

Strengthening of national capacity

Central and Osh specialized control- toxicological laboratories (hereafter - SCTLs) of DCPP of KR Ministry of Agriculture and Melioration carry out laboratory quality control of pesticides used in the Republic – identification of percentage composition of pesticides rates of application, their residual quantity in the crop production, water and soil; analysis of quality of mineral fertilizers and their residual in the crop production, water and soil (nitrates identification); identification of agrochemical evaluation of soil fertility. Laboratories have been accredited in accordance with requirements of international standard ISO IEC-17025.

In 2014, laboratories mastered a new statistic technique of quality management “Shewhart control charts”, GOST R 50779-99 (ISO 8258-91).

Within the frameworks of the project TCP/KYR/3103 “Modernization and strengthening of Bishkek laboratory for analysis of agrochemicals quality and safety, the following was carried out:

- improvement of material and technical base of the laboratory;
- training of 2 laboratory employees at the Research Institute of Toxicology and Hygiene named after Medved (Kiev, Ukraine);
- training of 4 staff members in the laboratory of 4 staff members in DCPP CSCTL laboratory on the available equipment by employees of Shimadzu company.

In November 2013, in Minsk, Belarus, in the frameworks of the project GCP/RER/040/EC Strengthening of capacity for elimination and prevention of reutilization of outdated pesticides as a model for resolving the problem of unused hazardous chemicals in the territory of former USSR, a training on Pesticides Stock Management System (PSMS) was conducted. Within this training, the countries entered data of their inventory taking of outdated pesticides into the PSMS. Administrator of the system in Kyrgyzstan is DCPP.

Within the project UNEP and GEF “Demonstration and increase of sustainable alternatives to DDT for control of transmissible diseases”, Veolia Company trained a team in repacking and monitoring of outdated pesticides.

50 territorial Disease Prevention and State Sanitary and Epidemiological Supervision Centers having sanitary-chemical laboratories function in the Republic. 11 laboratories of the Centers carry out tests for residual quantities of pesticides in foodstuffs, 8 sanitary-chemical laboratories are accredited in accordance with international standard ISO/IEC 17025:2005 (GOST ISO/IEC 17025 -2009). Laboratories are accredited in: Jalalabad, Kadamjai urban settlement, Kara-Suu urban settlement, Karakol, Naryn, Talas, Karabalta. At present, 3 laboratories of Centers are getting prepared for accreditation.

According to statistical report form (Ф.18), for the period from 2012 to 2014, specialist of public health service of the country had taken 15,777 samples of food raw material and foodstuffs for testing for residual quantities of pesticides. 55,823 tests were performed for this period, 47 do not comply with the requirements to content of residual quantities of pesticides, which is 0.3%.

In 2013, within the frameworks of UNDP / GEF Project “Management and disposal of PCBs in Kyrgyzstan”, central laboratories of the Department of State Sanitary and Epidemiological Supervision and the State Agency of Environment and Forestry were equipped with Shimadzu gas

chromatographs for identification of polychlorinated biphenyls (PCBs) in transformer oils. Thanks to the project, specialists of these laboratories mastered and introduced the method of PCBs identification in foodstuffs, in drinking water and transformer oils.
During the period of this methodology introducing, 52 samples of transformer oils were tested taken from distributing mains of the National Power Networks of Kyrgyzstan CJSC for PCBs content.

Increasing awareness, study

Within the frameworks of EU and FAO Project "Strengthening capacity for elimination and prevention of reutilization of outdated pesticides as a model for resolving the problem of unused hazardous chemicals in the territory of former USSR", in April – May 2015, specialists of DCPP held an information campaign for population of villages located in close proximity to warehouses of outdated pesticides (42 facilities), and also users and sellers of chemicals. At the meetings, participants and village administrations were presented with information materials (brochures, booklets, information sheets) about reducing risks and harm for health when using chemicals in agriculture.
In 2013, international experts of the project prepared the Environmental assessment of the complete complex of measures for ensuring safety (repacking, transportation and storage) in respect of outdated pesticides and their destruction.
In 2014, a study by method REA (Initial environmental assessment of sites contaminated with outdated pesticides) was conducted together with representative of Blacksmith Institute - 22 sites.
Biom Public Association, together with specialists of the State Sanitary and Epidemiological Supervision published a booklet "Caution, poisons!" for holding information meetings with population of the Republic.
From November 2014 to February 2015, Biom studied current risks of pesticides impacts with emphasis to social aspects of pesticides use and the most-at-risk populations were identified.
Within the frameworks of this project, international experts prepared and issued FAO Guidelines in Russian:
- Toolbox for sustainable nature management in respect of outdated pesticides, vol. 1, 2, 3, 4;
- Options for pesticides empty containers management;
- Preparation for inventory taking of pesticides and associated contaminated materials;
- Agricultural pests and pesticides management: strategy development;
- Requirements to data for pesticides registration;
- Best practices for pesticides marking;
- Guidelines for the development of national pesticides legislation.

Website of the project was designed and is functioning http://www.fao.org/in-action/pesticides-fsu/project-overview/en/
Information about activities within the frameworks of this project was submitted and is used by national mass media in the countries.
Starting from August 2013, UN FAO project "Development of farmers' field schools to support state-of-the-art technologies of management of cultivated crops and pests control" is being implemented. One of the objectives of the project is strengthening of capacities of farmers in the area of integrated crop protection.
Kyrgyzagrobiotsentr and its branches
- produces and applies: 2 microbiologic specimen (Biolignin and Trichodermin); 5 parasites (Amblyseius, Aphelinus, Habrobracon, Trichogramma, golden-eye); 1 herbiphage – Phytomyza;
- imports pheromone traps from Uzbekistan;
- exports: Trichodermin to Tajikistan; Amblyseius to Kazakhstan.

In 2014, biological crop protecting agents in the Republic were applied in the area of about 80.0 thousand hectares.
In 2012-2014, DCPP registered more than 30 microbiologic specimen and pheromone traps.

3. Assessment of environmental situation related to the problem of POPs

3.1. Outdated pesticides (Annex A, Part I)

Natural-climatic and soil conditions of the Kyrgyz Republic determine cultivation of various agricultural crops. Huge losses incurred by agriculture of the Republic because of hazardous organisms force the agricultural producers conduct large-scale crop protection activities using various pesticides in the process, which creates a certain threat to environment and population health.

In the territory of the Kyrgyz Republic, pesticides had not been produced and are not produced at present. Pesticides were imported centrally, through the line of the Republican association "Khirgizselkhozkhimiya" – former division of USSR "Soyuzselkhozkhimiya". At present, pesticides are imported to the Republic by local private supplying companies. Ban for the use of organochloride group pesticides in agriculture was introduced more than 35-40 years ago by orders of USSR Ministry of Health. Outdated pesticides included into the Part I Annex A of Stockholm Convention have not been imported to or re-exported from the Republic.

Planned import of chemicalization agents into the Republic, revision of the range of permitted pesticides, their prolonged storage and other circumstances resulted in accumulation of significant quantities of outdated and banned pesticides in warehouses, bases and other storage facilities.

There were attempts to resolve the problem of destruction of banned and outdated pesticides by burial in so-called burial grounds, but these burial grounds only partially resolved the problem of adverse impact of outdated pesticides upon the environment.

Peak of pesticides usage fell to the period of 1970-1980. In those years, about 5,000 tons of pesticides were consumed in the Republic every year to control pests, weed plants and anticrop agents, application rates were up to 10 kg/hectare, including pesticides of organochloride group which amounts up to 30% of the total quantity. In the 80's of the past century, chemical weed and pest killers were used in the area of about 1 mln hectares – in cotton-plants, sugar beet, vegetable crops, tobacco, cereal crops, gardens vineyards, pastures. In general, pesticides load per 1 hectare of arable land was more than 5 kg/hectare.

In the early 90's of the past century, volumes of supply and application of pesticides reduced (from 8,418 tons in 1980 down to 414 tons in 2010). In many instances it is associated not only with the collapse of USSR, disruption of existed economic ties as well as with low financial possibilities of farms, but also with appearance of new generation of more effective specimens with considerably lower application rates.

Accordingly, the load on area under crops reduced: if in 1990 the load per 1 hectare throughout the Republic was about 3.7 kg, in 2003 – about 1 kg (with no account to sulphur). This can be explained by quite low application rates of up-to-date pesticides per 1 hectare (starting from 0.01 kg/hectare).

At present, old specimens (chlorine and organic phosphorus compounds) were replaced by insecticides of pyrethroid group, these nonnatural substances have wide range of effects, effective with very low application rates – usually 15 - 300 g/hectare. Pyrethroids are considered to be less toxic than insecticides of other groups. This is predetermined by the fact that they are either eliminated at once, or metabolized (thanks to lability of ether bond), after which, eliminated from organism.

However, low living standard of rural population, insufficient level of control create prerequisites for contraband import of outdated and banned pesticides, their plunder from opened burial grounds, and also at account of stocks privately owned by farms. In the recent years, non-registered banned cheap specimens from China were noted in the markets of the Republic.

On April 16, 2014, the Order of the Director of the Department for Chemicalization and Plants Protection of the Ministry of Agriculture and Melioration approved the National Inventory Taking of Outdated Pesticides.

In general, in the Republic, the quantity of outdated pesticides stored in warehouses is – **574.5** tons:

- in Chui oblast – 119.7 tons;
- in Talas oblast – 19.2 tons;
- in Issyk-Kul oblast – 259.8 tons;
- in Naryn oblast – 30.7 tons;

- in Batken oblast – 5.5 tons;
- in Jalalabad oblast – 50.2 tons;
- in Osh oblast – 89.4 tons (warehoused in Karasuiskiy district in 2008).

Number of contaminated containers and equipment is 114.6 tons.

Among 574.5 tons of outdated pesticides in warehouses of Kyrgyzstan at present, 476.2 toms are unknown, that is at this stage 83 % pesticides have not been identified.

Majority of storage facilities are located in outskirts of population centers in obsolete, semi knocked-down buildings and have no reliable protection against entry into the environment and access of population and animals.

According to the most recent data of the Department of Chemicalization and Plant Protection, quantity of outdated pesticides in burial grounds and warehouses is **5,447.8** tons (**4,873.3** tons in burial grounds for poisons - Suzak A – 3,000 tons, Suzak B – 1,023.3 tons, Kochkor – 850 tons), **574.5** tons – in warehouses.

Quantity of POPs pesticides among them is 2,073.7 toms (in burial grounds for poisons – 2,052.5 tons - Suzak A – 1,033.4 tons, Suzak B – 724.7 tons, Kochkor – 294.4 tons, 21.2 tons - in warehouses.

The revealed problems with outdated and POPs-pesticides indicate the necessity of making further actions for their localization and subsequent disposal in accordance with provisions of the Stockholm Convention.

Use of chemicals, including pesticides, is regulated by a number of legislative and regulatory documents. Key Laws of this category: On public health, On chemicalization and plant protection, On environmental protection, On atmospheric air protection and a number of other regulatory documents, in particular:

- Regulations on registration testing and state registration of pesticides and agrochemicals in the Kyrgyz Republic;
- List of pesticides and agrochemicals permitted to be used in KR for 2011-2019;
- Instruction on safe use, storage and warehousing of pesticides in agriculture.

Control over compliance with the established hygienic standards of pesticides content in the produced agricultural products and their residual content in environment media (water, soil, air) shall be carried out by specialists of Sanitary and Epidemiological Supervision.

Individuals and bodies corporate performing circulation of pesticides at every stage of their production, storage, transportation, sale, application, disposal or destruction, shall be liable for compliance with hygienic standards of pesticides and their hazardous metabolites content in the environment media.

There are no specific standards related to control and recording of POPs movement save for Resolution of the Government of the Kyrgyz Republic dated July 27, 2001, No376 On measures of protection of environment and population health from adverse impact of individual hazardous chemicals and pesticides, which complies with requirements of Rotterdam Convention.

Foodstuffs imported and exported to(from) the Customs Union countries are subjects to Standard sanitary-and-epidemiological and hygienic requirements to products (goods) subjects to Sanitary and Epidemiological Surveillance (control), and also Sanitary, veterinary-and-sanitary and quarantine phytosanitary measures under the Treaty of EAEU.

Obligations of ministries and departments to control the circulation of chemicals are predetermined by specific character of their activities (healthcare, environmental protection, plant protection etc.) and, thus depend not on type of a substance, but rather on the area of its application.

3.2. Polychlorinated biphenyls (Appendix A, Part II)

Polychlorinated biphenyls (PCBs) are a class of synthetic organic chemicals. Since the 1930s, PCBs have been used widely for a variety of industrial purposes (mainly as a dielectric fluid in capacitors and transformers but also as fire retardants, paint solvents, plasticizers, etc.) due to its chemical resistance.

In the 1970s, people began to realize that the chemical resistance of PCBs also poses a serious threat to health and the environment if they are emitted. PCBs are considered to be toxic to the immune system and affect the reproductive function, while there are specific adverse effects associated with chronic exposure to the human organism (receptors), causing disorders of the immune system, liver, skin, reproductive system, gastrointestinal tract and thyroid gland.
With thermal and chemical stability, PCBs were extremely resistant to biotic and abiotic factors. Being admitted to the environment, PCBs are distributed in all its components - air, water, soil, etc. They can be included in the global cycle and move with water and air flows over long distances.
In the Kyrgyz Republic, PCBs were never produced, but always imported, primarily as a dielectric fluid for large electrical equipment. Mainly, for such equipment as power transformers and capacitors, as well as for small-size electrical equipment, such as ballasts in fluorescent lamps and switches.
PCB production was ceased in 1993. Regulatory and legislative restrictions are applied in many countries. However, there were still significant global stocks of chemicals remaining in the working electrical equipment, waste / old equipment stored in warehouses, and PCB contaminated equipment and waste, as well as localized areas where earlier repair works and frequent discharge of oil were carried out.
In 2015 inventory was taken with the assistance of the UNDP / GEF Project "Management and Disposal of PCBs in Kyrgyzstan", where the role of the Executive Partner of the project was entrusted to the Ministry of Energy and Industry of the Kyrgyz Republic.
The largest owner of the PCB waste in Kyrgyzstan is National Power Networks of Kyrgyzstan OJSC (NPNK). PCBs are in capacitors which are connected to the network; they are marked and their status report is submitted once every six months to the authorized state body in the sphere of energy. Decommissioned capacitors are not dismantled and removed from the circuit by the owner, but remain on the portals (racks) at the places of their installation. The number of PCB contaminated capacitors is 597 units. Capacitors KC-2-1,05-60-1У1 (348 units. 60 kg) and KC-2A-0.66-40-1У1 (231 pcs. weighing 57 kg). The total weight of PCB contaminated capacitors is 34,047 kg. The average level of PCBs in capacitors of these models is 23 kg, i.e. the total amount of PCBs equals to 13,731 kg.
The inventory also revealed the presence of 52 transformers TMN, TDTN, TMG, TH3, GB, containing PCBs. Specialists selected 52 samples of transformer oils for that equipment. Interlaboratory comparison studies of samples to determine the accuracy of the test results were carried out in an accredited laboratory in Kazakhstan (Almaty).
The test results showed that the level of PCBs in the samples was below 50 ppm (mg / kg), which allows to label this equipment as conditionally clean from PCB.

The inventory showed
- lack of inventories of stockpiled PCB-contaminated equipment;
- of 250 companies, 23 companies have the appropriate technical documentation for their electrical equipment. Eleven companies have reported that they have the relevant brands of equipment and materials potentially contaminated with PCBs;
- fifty-four (54) areas were identified where repair and maintenance activities were carried out for electrical equipment that could potentially service the equipment containing PCBs, three (3) of them during the past period of time carried out most of the requests of the energy and industrial sectors.
Under the project 10 professionals were trained in using test kits, 250 sets of screening tests (reagents) and 10 rapid analyzers (designed for 2 inspections, customs services, sanitation departments and NPNK OJSC) were purchased.
Draft technical regulations of the Eurasian Economic Union, "On Restriction of use of hazardous substances in electrical and electronics products"; "On the requirements for energy efficiency of electrical power consuming devices"; "On safety of high-voltage equipment" are at the stage of approval.

"The rules of management, treatment and disposal of PCB-containing materials, equipment and devices to control identification, collection and processing of PCBs" were approved at the departmental level, in connection with the abolition of the Ministry of Energy and Industry, an urgent need arises for their adoption at the government level.
In general, inventory covered 250 owners of equipment potentially containing PCBs.
Data on PCB inventory are available on the website http://tailing.in.kg/.
It should be noted that some of private enterprises which are the owners of the equipment failed to be covered with the inventory for objective reasons. Access to private facilities and to their records is limited. That is, in fact, the number of PCB contaminated equipment is much higher than the shown one. In future it is necessary to consider a solution for this problem.
Currently, the project "Development of the energy sector of Kyrgyzstan" is under implementation with support rendered by the ADB. Under the project modernization of substations with the replacement of obsolete transformers and circuit breakers is carried out. Before replacement, the content of PCBs in oils of old transformers is determined applying the rapid testing.

3.3. Unintentional POPs emissions (Appendix C, Part I, Article 5 of the SC)

Strongly toxic dioxins and furans are formed as byproducts unintentionally, i.e. involuntarily at different thermal manufacturing processes and incineration or combustion of various organic compounds with the presence of chlorine (refuse, coal, wood, plastic).
The term "dioxins" refers to 75 related compounds of polychlorinated dibenzodioxins (PCDD) and 135 related compounds of polychlorinated dibenzofurans (PCDF).
These substances have been marked out as a separate group, as they have high toxicity and effect on the immune and endocrine system of humans. Their tolerable daily intake (TDI), i.e., the dose that without visible consequences can be absorbed per day, is calculated in picograms - the value which is a million millions times smaller than a gram. Recently, dioxins are widely spread around the world and are found in the tissues of humans and animals in any part of the world.
They have never had useful properties and are formed as byproducts in many industrial processes and during combustion. Therefore, it is impossible to eliminate dioxins and furans by banning their production and use.
Identification of dioxins / furans contents in the environment, the human body, as well as control of the sources of their generation, in the Kyrgyz Republic has never been conducted due to lack of appropriate instrumentation base;
The regulatory framework of the Kyrgyz Republic lacks MPC of dioxins / furans in water, soil, food products, except for air in residential areas.
Inventory (identification of sources and assessment of emissions on them) of unintentionally formed POPs (PCDD / PCDF) shows the total amount of emissions in the Republic - 49.172 gr. of heavy elements / year, of which:
- in air – 47.076 (88%) gr. of heavy elements / year;
- in water – 0.0495 (0.1%) gr. of heavy elements / year;
- in soil – 0.623 (1.2%) gr. of heavy elements / year;
- in decomposition products – 2.0981 (3.9%) gr. of heavy elements / year;
- in residues – 3.654 (6.8%) gr. of heavy elements / year.

In the calculations, there is a large degree of uncertainty due to the lack of accurate quantitative data.
Volumes of dioxin / furan emissions are directly dependent on the development and intensification of industrial processes.

3.4. New POPs included in the Stockholm Convention (Appendix A, Part V, Appendix C, Part III)

Of the new POPs listed in the Stockholm Convention, quantitative estimates of polybrominated diphenyl ethers (PBDE) and perfluorooctane sulfonic acid (PFOS) were carried out, since they are related to other substances, or they are in very small quantities, or non-existent in our market.
PBDEs are a mixture of compounds from the group of brominated diphenyl ethers (tetra, penta, hexa, hepta octa and others.).

PFOS and its salts (potassium, lithium, ammonium sulfonates, etc.).
These chemicals are widely used throughout the world for the manufacture of a variety of products and articles. All these substances have never been produced in Kyrgyzstan and get into the country as consumer goods.
Because of the many listed products that contain these chemicals, the volume of their reserves, long-term use, their identification and carrying out a comprehensive inventory are a serious problem.
These substances were identified to have reproductive and neurogenetic toxicity and effects on thyroid hormones in mammals, the high potential for bioaccumulation and biomagnification in the food webs.
Potential impact on humans is through food, as well as in the process of use of certain products, contacts with air and dust indoors. Penta-BDE is transferred from mothers to embryos and lactating infants.
Previously, the Kyrgyz Republic did not conduct an estimate of PBDEs and PFOS. These results are based on a review of quantitative data of customs services for import and use of articles containing BDE-POPs and PFOS-POPs.
The content of hexa-BDE, hepta-BDE, octa-BDE in the electronic, electrical equipment (EEE) and cathode ray tubes (CRT), kg

Homologs included in the composition of the mixture	**Distribution of homologues n-Octa-BDE, %**	**PBDE-POPs in VDT TV and PC monitors, 2015**	**PBDE-POPs in EEE located at consumers' places, 2013**	**Amount of PBDEs, kg**
Inventoried mixture of n-octa-PBDE		12,777.6	16,639.4	**2,9417**
Hexa-BDE	11	1,405.5	1,830.3	**3,235.8**
Hepta-BDE	43	5,494.4	7,154.9	**12,649.3**
Octa-BDE*	35	4,472.2	5,823.8	**10,296**

The content of BDE homologues in motor vehicles

Homologs included in the composition of the mixture	**Distribution of homologues in a mixture of n-Penta-BDE, %**	**The amount of PBDE-POPs in vehicles in use at the time of the inventory, including**			**Amount of PBDEs, kg**
		Cars	**Buses**	**Trucks**	
POP-PBDEs		6,080	2,000	960	**9,040**
Hexa-BDE	8	486.4	160	76.8	**723.2**
Hepta-BDE	0,5	30.4	10	4.8	**45.2**
Penta-BDE	58	3,526.4	1,160	556.8	**5,243.2**
Tetra-BDE	33	2,006.4	660	316.8	**2,983.2**

Summary data on the amount of PFOS in the Kyrgyz Republic.

Category	**Product weight (kg)**	**PFOS content Approximate values (mg PFOS/ kg product or substance)***	**PFOS amount, kg****
Electronic industry - Cell phones - VDT TV and PC	 2,511,825 1,002,167	200 – 1000	 **50 – 251** **4,209 – 21,046**
Photographic industry	998,150	100	**100**
Leather products	25,394,500	500 – 5,000	**1,2697 – 12,6973**
Synthetic carpet coverings	35,569,270	500 – 5,000	**17,785 – 177,846**
Synthetic padding and fabric	180,242,710	500 – 5,000	**90,121 – 901,214**
Industrial and household surfactants	127,580,810	200 – 1,000	**25,516 – 127,581**
Hydraulic fluids	1,686,660	500 – 1,000	**843 - 1687**

Fire-retardant foam	1,600,340	5000 – 15,000	**8,002 – 24,005**
The coating and impregnation of paper, cardboard and others.	44,2467,400	500 – 5,000	**221,234 – 2,212,337**
Total:			**380,557 – 3,592,939**

* 1 mg / kg = 0.0001%
** Low consumption - high consumption

At this stage of development, Kyrgyzstan does not have the scientific, material and financial resources to monitor and take effective measures to reduce the impact of BDE and PFOS on human health and reducing their release into the environment.

In order to protect public health and the environment from the harmful effects of certain hazardous industrial chemicals and pesticides, to prevent their illegal trade, and taking into account the provisions of the Stockholm Convention on Persistent Organic Pollutants, the Government of the Kyrgyz Republic took measures at the legislative level in accordance with the decree No. 376 dated July 27, 2001 "On measures to protect the environment and public health from the adverse effects of certain hazardous chemical of their substances and pesticides "and its supplements Decree №289 from 06/06/2011 and Decree No. 328 from 06/28/2019.
In accordance with the decree, a list of POP chemicals has been approved, the use of which is prohibited or strictly limited.

No.	Chemical substance	Reason for decision
1.	Toksafen Persistent Organic Pollutant	(POP), Active Carcinogen
2.	Endrin	POPs, highly toxic
3.	Mirex	POPs, active carcinogen
4.	Alpha-hexachlorocyclohexane	POPs, highly active carcinogen
5.	Beta-hexachlorocyclohexane	POPs, highly active carcinogen
6.	Chlordecone	POPs, highly active carcinogen, toxic
7.	Hexabromobiphenyl	POPs, highly active carcinogen
8.	Hexa- and heptachlorobiphenyl	ether POPs, bioaccumulation and biomagnification
9.	Pentachlorobenzene	POPs, Racks, Bioaccumulation
10.	Perfluorooctane sulfonate and its salts, perfluorooctane sulfonyl fluoride	(*) POPs, toxic, bioaccumulation
11.	Tetrabromodiphenyl ether and pentabromodiphenyl	ether POPs, toxic, bioaccumulation
12.	Endosulfan and its isomers	POPs, active carcinogen
13.	Octabromodiphenyl ether (including hexa- and heptabromodiphenyl ether), decabromodiphenyl ether	POP, bioaccumulation and biomagnification
14.	Lindane	POPs, Highly Toxic

15.	Aldrin	pesticide insecticide
16.	Heptachlor	insecticide; potential carcinogen
17.	Hexachlorobenzene	pesticide-fungicide
18.	Dieldrin	pesticide
19.	Dichlorodiphenyl trichloroethane (DDT);	DDT; insecticide
20.	Polychlorinated Biphenyls (PCBs)	PCBs
21.	Polychlorodibenzodioxins	PCDD
22.	Polychlorinated dibenzofurans	PCDF

In this NIP, the above POPs were considered and inventoried, and action plans for their disposal and reduction were developed.

3.5. Assessment of Monitoring System (Appendix F)

Article 11 of the Stockholm Convention requires that the Parties should carry out appropriate research, development, monitoring and cooperation on POPs.

The status of POPs identifying technical infrastructure in the country is estimated as unsatisfactory. In general, the technical equipment of analytical laboratories, in view of the lack of funds to upgrade it has become obsolete and out of date and does not provide the required level of analytical studies. The technical laboratory infrastructure base requires updating and re-equipping, otherwise the possibility of regular analyzes will be lost forever.

There is a constant drain of qualified professionals with knowledge and skills in this area. There is no system of professional development for specialists. Education and skills development of specialists in the field of analytical chemistry and, in particular, possessing modern methods of physical and chemical analysis, is the most acute problem of ensuring chemical safety of the Republic. Particularly, this problem is urgent in the light of monitoring of pollution, control and management of POPs.

3.6. Effects of POPs on human health and the environment (Appendix F)

In world literature there are many studies of POPs effects on human health and the environment.

Even low concentrations of POPs show genotoxic, immunotoxic and carcinogenic effects, creating a real threat to the health of present and future generations. At the same time, the main difference between POPs from most other pollutants, is their ability to persist in the environment for decades, and pass up the food chain (water - algae - plankton - fish - man, soil - plant - herbivores - people). Thus, POPs accumulate in the tissues of mammals, including humans, where their final concentration does not decrease, but increases only.

Mainly, POPs get into the body with food, particularly meat, fish, chicken eggs and dairy products. People who live or work near the sources of POPs, may receive a substantial dose of persistent organic pollutants when they are inhaled. However, even a negligible amount of the toxicant can cause disease.

The other most significant negative effects of POPs on human health include the following:

- neurobehavioral changes and changes in thyroid function (impaired synthesis of thyroid hormones) in infants who were fed with their mother's milk contaminated with POPs;
- secondary immune deficiency, which can be caused by the intake of POPs, even in very small doses in the human body;
- Gonadotoxic, embryotoxic and mutagenic effects;

- Stunted physical and mental development;
- Reduction in life expectancy, and others.

Measures that can be taken for the prevention and reduction of POPs health impact can be divided into measures taken at the national level and measures that could be taken by each one of us, having some knowledge of the potential sources and properties of persistent organic pollutants.

In Kyrgyzstan, few studies were conducted of POPs impact on human health. These studies are presented in the works:

- "Effects of organochlorine compounds and their metabolites on the state of the reproductive system of men" - Mirzakulov, D.S., Eshbayev, A.A., Mirzokulov, Sh.S., Kalmatov, R.K., Osh State University, 2015;
- "Content of POPs in the environment and the human body" – Toichuev, R.M., Hametova, M. Sh., Rahmatillayev, A., Madykova, J.A., Payzildayev, T.R., Institute of Medical Problems of the Southern Branch of the National Academy of Sciences of the Kyrgyz Republic, 2015.

3.7. Awareness about POPs, cooperation with NGOs (Appendix F)

Successful implementation of the Stockholm Convention in Kyrgyzstan will be achieved only when people will be aware of the dangers of POPs and their effects on human health and the environment. Therefore, it is important that actions aimed at informing the public about POPs, covering the education system and training personnel to be carried out on an ongoing basis.

In accordance with Article 10 of the Stockholm Convention, the countries should to the best of their abilities, make every effort to raise public awareness, inclusion in education programs and access to information on POPs for all people.

The data of sociological studies conducted by non-governmental organizations have revealed an inert attitude of the population to this problem, and the low level of public awareness on POPs and its main sources.

The reasons for the lack of public awareness about POPs lie in the lack of information about them in the media (television, radio, newspapers), complete lack of information in the educational curricula.

The primary responsibility for the implementation of the Convention rests on the government and the industrial sector, at the same time it must be carried out under conditions of high transparency.

To raise public awareness it is necessary to involve NGOs, as they act in the interests of all participants on an equal footing and the public trusts them. We need to use their knowledge, experience, contacts with international organizations, contacts with the local population in communicating relevant information.

6. National Action Plan on POPs

6.1. Principles of the National Action Plan

The basic principles of the National Action Plan on POPs:

- Priority of people and future generations' health protection from the negative impact of the factors that pollute the environment;
- Priority of environment protection issues when making political and economic decisions;
- Priority of environmental legislation, environmental standards and regulations in its business activities, to prevent and / or reduce the negative environmental impacts;
- Interagency cooperation and responsibility of the executive branch bodies for the state of environment and natural resources and the implementation of joint measures to protect the environment from man-made pollution.

In the development of the NAP the following requirements were taken into account:

- Readiness to fulfill the Kyrgyz Republic obligations under the Stockholm Convention on POPs;
- NAP actions must conform to and be part of the national government programs;

- NAP should be complementary, be integrated into the general national system of secure management of chemicals, provide for mandatory compliance with the precautions, prevention and integrated pollution control;
- POPs monitoring should be a harmonious part of the environmental monitoring system and be a separate unit in a common procedure for accountability of public bodies on chemicals in the information systems;
- Involvement of a wide range of stakeholders and division of their responsibilities;
- Search and implementation of effective and low-cost methods of solving problems. Kyrgyzstan is in a very difficult economic situation, and if we consider that the elimination of the effects of POPs is an expensive procedure, the emphasis should be put on implementation of preventive measures allowing to save the financial and material resources;
- access to information, raising awareness among NGOs and the public. These principles will allow to ensure public access to information on POPs, the consequences of their impact, activities carried out by government agencies to minimize and eliminate POPs. At the same time, the relevant state bodies based on the feedback principle can adjust their work, involve the public in the solution of various problems, up to the transfer of certain functions to public organizations;
- the reality of the proposed actions, which allows not only to define the goals, objectives, priorities of the national strategy for the elimination and limitation of POPs, but also to make policy actions in different sectors more specific.

6.2. Goals of the National Action Plan

The main strategic goals of the NAP on providing safety from POPs are in:
- Improving the environmental situation in the Kyrgyz Republic;
- Reducing their adverse impact on public health.

The National Action Plan is a system of integrated measures aimed at protecting human health, environmental protection and fulfillment of the obligations under the Stockholm Convention. The National Plan presents the main activities on reducing emissions and eliminating POPs.

Implementation of actions set forth in the first Plan of Implementation approved by the Decree of the Government of the Kyrgyz Republic dated July 3, 2006 No. 371-p are not implemented fully because of some objective reasons (events in 2010), the lack of adequate funding from both the Government as well and from external sources.

6.3. Financial resources and mechanisms of funding of the Action Plan

The financial resources provided for the implementation of the Action Plan, consist of budgetary funds budgeted annually for the relevant public body and sources of external aid.
To achieve the objectives of the Convention, capacity building and implementation of the NAP, Kyrgyzstan needs support from international financial institutions and developed countries.
Adjustments to the NAP are possible in the implementation process.

National Action Plan of the Kyrgyz Republic to fulfill the obligations under the Stockholm Convention on Persistent Organic Pollutants

№ п/п	Activities	Goal	Expected Result	Responsible body	Terms	Budget *	External Resources *	Budget	External Resources	Budget	External Resources
						2019		2020		2021	
1	2	3	4	5	6	7	8	9	10	11	12
Improvement of the legislation											
1.1	Preparation and adoption of a government decision on determining legal succession of repositories, warehouses for storage of obsolete pesticides, PCB-containing equipment.	Ecologically safety storage and subsequent disposal of obsolete pesticides and PCB containing equipment	The government's decision is made. Successors are identified.	State Agency of Environment and Forestry, Ministry of Agriculture, Food Industry and Land Reclamation, State Committee for Industry, Energy and Mining, Ministry of Health, Ministry of Emergency Situations, State Inspection on Environmental and Technical Safety.	Dec. 2019	66.0	150.0				
1.2	Development and adoption of the Law "On chemical substances" and by-laws for the specific groups of chemicals.	Ecologically safety storage and subsequent disposal of obsolete pesticides and PCB containing equipment.	Decision of the Government of Kyrgyz Republic by definition on responsible authority for PCB containing equipment	State Agency of Environment and Forestry, Ministry of Agriculture, Food Industry and Land Reclamation, State Committee for Industry, Energy and Mining, Ministry of Health, Ministry of Emergency Situations, State Inspection on Environmental and Technical	Dec. 2019	66.0	150.0				

				Safety.							
1.3	Analysis and improvement of the existing legislative and regulatory framework, departmental instructions for the chemicals management.	The improvement of national legislation for the management of chemical substances in order to bring it into line with the requirements of the Stockholm Conventions and other international treaties	The analysis of the existing legislative framework, departmental instructions for the chemicals management is made. All legislation is brought into line with the requirements of international treaties.	State Agency of Environment and Forestry, Ministry of Agriculture, Food Industry and Land Reclamation, State Committee for Industry, Energy and Mining, Ministry of Health, Ministry of Emergency Situations, State Inspection on Environmental and Technical Safety.	Dec. 2020-Dec. 2121			165.0	400.0		
1.4	Institutional analysis in the field of chemicals management. Separation of regulatory functions. Adoption of the interdepartmental memorandum on cooperation.	Improving the efficiency of administration and control over the management of chemicals.	Interdepartmental memorandum on the division of regulatory functions is adopted.	State Agency of Environment and Forestry, Ministry of Agriculture, Food Industry and Land Reclamation, State Committee for Industry, Energy and Mining, Ministry of Health, Ministry of Emergency Situations,	2018			198.0	600.0		
1.5	Finalization and adoption of normative legal acts: - "On the requirements for energy efficiency of electrical power consuming devices"; - "On safety of high-voltage	Organization of PCB safe control system	Normative legal acts for the management of energy equipment, including PCB are finalized and adopted by the Government.	State Committee for Industry, Energy and Mining, State Inspection on Environmental and Technical Safety.	Dec. 2019	306.0	600.0				

	equipment"; - "The rules of management, treatment and disposal of PCB-containing materials, equipment and devices to control identification, collection and processing of PCBs"										
	Safe storage of obsolete pesticides										
2.1	Improvement of the territories of obsolete pesticides burial places (repositories). Improved monitoring and maintenance to prevent leaks and accidents.	Ensuring appropriate treatment and conditions of environmentally sound storage.	The area of obsolete pesticides burial places is improved, and technical supervision is established.	Ministry of Agriculture, Food Industry and Land Reclamation, Ministry of Emergency Situations, State Inspectorate for veterinary and phytosanitary safety, State Agency of Environment and Forestry, bodies of local self-government	Dec. 2019-Dec. 2020		8,899.0				
2.2	Construction of centralized basis warehouses of obsolete pesticides for temporary storage (south, north). Packing of obsolete pesticides in an environmentally acceptable packaging and transporting them from the warehouses to the basis warehouses.	Ensuring appropriate treatment and conditions of environmentally sound storage.	The basis warehouses for temporary storage of obsolete pesticides are built. Obsolete pesticides are transported and placed on the base stock.	Legal successor (according to para. 1.1), Ministry of Agriculture, Food Industry and Land Reclamation, Ministry of Emergency Situations	Dec. 2019-Dec. 2020		40,951.1				
2.3	Inventory and identification of obsolete pesticides in the burials (repositories).	Quantitative and qualitative assessment of stocks of obsolete	The inventory and identification of obsolete pesticides in the burials are	Ministry of Agriculture, Food Industry and Land Reclamatio	Dec. 2019-Dec. 2020	264.0	2,751.5				

		pesticides.	conducted.	n, State Agency of Environment and Forestry							
2.4	Identification and remediation of areas contaminated with obsolete pesticides.	Ensuring the safety of future use.	Areas contaminated with obsolete pesticides are identified . Works on their remediation are carried out.	Legal successor (according to para. 1.1), Ministry of Agriculture, Food Industry and Land Reclamation, Ministry of Emergency Situations, State Agency of Environment and Forestry	Dec. 2019-Dec. 2021			220.0	2,320.9		
Safe operation and storage of PCB-containing equipment											
3.1	Full identification of subjects of PCB-containing equipment, materials and contaminated sites not covered by the inventory. Conclusion of contracts with all owners of PCB-containing equipment.	Ensuring adequate supervision for safety PCB equipment	Reduction of risks to the environment and public health from PCB exposure	Legal successor (according to para. 1.1), State Committee for Industry, Energy and Mining	Dec. 2019-Dec. 2022	102.0					
Reduction of unintentionally produced POPs											
4.1	Maintenance and constant updating of the Register of sources of unintentionally produced POPs and contaminated areas. Research and mapping of contaminated areas with the analysis of environmental risk assessment and the need for their decontamination.	Implementation of environmental control. Ensuring the safety of future use.	All significant sources of unintentionally produced POPs are included in the Register. Contaminated areas are identified and works on reclamation are carried out.	State Agency of Environment and Forestry, Ministry of Health, Ministry of Agriculture, Food Industry and Land Reclamation, State Committee for Industry, Energy and Mining.	On an ongoing basis	66.0		66.0 2,060.4		66.0	
4.2	Development of additional	Reducing, minimizing	In large sources of	State Agency of	On an ongoi	132.0					

	strategies on the largest generating sources of unintentionally produced POPs (BAT / BEP measures **).	emissions of unintentionally produced POPs.	formation of unintentional POPs, BAT / BEP measures are taken to reduce emissions.	Environment and Forestry, MoE	ng basis						
4.3	Adoption of measures on environmental safe management of medical wastes.	Reduction of unintentional emissionsof POPs	Unintentional POP s emissions were reduced from medical waste	Ministry of Health, SAEPF, State inspectorate of environment protection	On an ongoing basis	56.0					
4.4	Re-equipping of medical institutions with autoclaves.	Reducing adverse impacts on human health and environment.	All medical facilities are equipped with autoclaves.	Ministry of Health, State Agency of Environment and Forestry	On an ongoing basis		6,120.0				
4.5	Inventory and testing of sewage sludge in Bishkek and Osh. Adoption of measures to reduce the content of POPs. Promoting new technologies and treatment systems.	Reducing adverse impacts on human health and environment.	Sewage sludge test is made. New technologies and POPs reduction systems are introduced.	Ministry of Health, State Agency of Environment and Forestry	2017-2018		944.4				
Other sources of POPs											
5.1	Assessment of import, use, stockpiles of PBDEs and PFOS-containing products and materials. Market research of alternative products.	Taking regulatory decisions.	The evaluation of the use of goods, materials and articles containing PBDEs and PFOS is conducted. Government decision on their regulation is made.	State Agency of Environmental protection	Dec. 2019-Dec. 2020			88.00	600.00		
Monitoring of POPs, research, education, public awareness											
6.1	Technical re-equipping of existing specialized laboratories with modern analytical control devices. Professional development of specialists of laboratories	Improving the efficiency of analytical studies.	Specialized laboratories are equipped with instruments and equipment for the analytical control of POPs. The activities to improve the professional	Ministry of Health, State Agency of Environment and Forestry, Ministry of Agriculture, Food Industry and Land Reclamatio	On an ongoing basis		31,025.0 3,584.6				

	and bodies concerned.		skills of laboratory specialists are conducted on a regular basis.	n							
6.2	Preparation and publication of materials, demonstration of videos, media coverage of the information about the potential risks to human health and the environment of hazardous chemicals.	Raising awareness of the population	Informing the public about the potential risks of hazardous chemicals is carried out on an ongoing basis.	State Agency of Environment and Forestry, Ministry of Health, NGOs	Dec. 2019-Dec. 2020		1,555.1		902.6		902.6

* Budgetary and external funds are presented in thousands of Kyrgyz soms (KGS).
** BAT - the Best Available Techniques; BEP – the Best Environmental Practices