REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title: NIP update, integration of POPs into national planning and promoting sound healthcare waste management in Kazakhstan			
Country(ies):	Kazakhstan	GEF Project ID:[1]	4442
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4612
Other Executing Partner(s):	Ministry of Environment Protection of the Republic of Kazakhstan	Submission Date:	2013-07-31
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration(Months)	48
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐		Agency Fee ($):	340,000

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Cofinancing ($)
(select) CHEM-1	1.3. POPs releases to the environment reduced.	Indicator 1.3 Amount of un-intentionally produced POPs releases avoided or reduced from industrial and non-industrial sectors; measured in grams TEQ against baseline as recorded through the POPs tracking tool.	GEF TF	2,095,000	24,920,057
(select) CHEM-1	1.5 Country capacity built to effectively phase out and reduce releases of POPs.	Indicator 1.5.2: Progress in developing and implementing a legislative and regulatory framework for the environmentally sound management of POPs, and for the sound management of chemicals in general, as recorded through the POPs tracking tool.	GEF TF	710,000	7,701,855
(select) CHEM-3	3.1. Country capacity built to effectively manage mercury in priority sectors.	Indicator 3.1.1 Countries implement pilot mercury management and reduction activities.	GEF TF	200,000	537,750
(select) CHEM-4	4.1. NIPs prepared or updated or national implications of new POPs assessed.	Indicator 4.1.1 Progress in development or update of NIPs as recorded through the POPs tracking tool.	GEF TF	225,000	915,000
		Subtotal		3,230,000	34,074,662
		Project management cost[3]	GEF TF	170,000	938,096
		Total project costs		3,400,000	35,012,758

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.
[3] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

B. PROJECT FRAMEWORK

Project Objective: To reduce the releases of unintentionally produced POPs and other globally harmful pollutants into the environment by promoting sound healthcare waste management in Kazakhstan, and to assist the country in implementing its relevant obligations under the Stockholm convention.						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Grant Amount ($)**	**Confirmed Cofinancing ($)**
Component 1: Stockholm Convention NIP update and improved institutional coordination on chemical MEAs	TA	Outcome 1.1: POPs inventories improved for informed decision making and priority setting	1.1.1: Capacity building programme (trainings) for involved stakeholders developed and implemented on POPs risks, inventories, POPs tracking, monitoring of data reported by responsible parties. 1.1.2: National information system (inventory) on POPs expanded (updated information on uPOPs and new POPs).	GEF TF	375,000	6,528,275
		Outcome 1.2: National capacities on POPs monitoring, analytical capabilities are assessed	1.2.1: Studies on existing POPs analytical and monitoring capabilities for the whole range of POPs (with focus on new POPs) will be carried out; 1.2.2: A set of recommendations for the improvement of such capabilities formulated and submitted to the Government.			
		Outcome 1.3: Policy, institutional frameworks and enabling regulatory environment are in place to ensure better control on POPs accumulation and emissions	1.3.1: Institutional coordination and compliance with international agreements improved; 1.3.2: National legal framework reviewed and improved to include the issue of insofar unaddressed POPs, uPOPs and new POPs; 1.3.3: Sectoral technical guidelines updated to include the issue of priority POPs, including sampling and analysis methods; 1.3.4: Capacity building programme (trainings) and consultations for involved stakeholders developed and			

			implemented on POPs related risks, POPs monitoring, institutional roles and responsibilities, POPs control legislation benchmarks and enforcement; and 1.3.5: National Implementation Plan (NIP) on Stockholm Convention obligations with inclusion of new POPs reviewed and updated, with elaboration of specific action plans on new POPs.			
		Outcome 1.4: Improved institutional coordination on chemical MEAs	1.4.1: Review and better alignment of ministerial functions on implementation of Conventions' obligations 1.4.2: Coordination mechanisms to support synergistic implementation chemical MEAs and monitoring and reporting framework established 1.4.3: Capacity of government authorities on implementation of chemical conventions improved 1.4.5: Improved data collection and chemical review processes for decision making and control improvements on the import and use of new dangerous chemical substances			
Component 2: Overall mercury situation assessed and initial mercury reduction and containment plan formulated	TA	Outcome 2.1: Mercury assessment implemented, national consultations held to identify priorities for actions and capacity building on mercury risks carried out	2.1.1: Capacity building programme (trainings) for involved stakeholders developed and implemented on mercury risks, inventories, sources, data tracking; 2.1.2: Mercury situation in Kazakhstan assessed in coordinated manner jointly with a planned regional GEF/UNEP programme; 2.1.3: Stakeholder consultations to identify priority mercury associated problems held;	GEF TF	200,000	537,750

			2.1.4: Outline of National mercury reduction plan developed 2.1.5: Public awareness raising campaigns on mercury risks conducted			
Component 3: Minimization of unintentional POPs and mercury releases in selected hospitals through demonstration of sound Health-care Waste Management approaches	TA	Outcome 3.1: Sound health-care waste management through uPOPs and mercury reduction approaches are demonstrated in 2-3 regions of the country Outcome 3.2. Linkages between sound HCWM practices and minimization of uPOPs and mercury demonstrated through training and awareness raising programmes	3.1.1.: Review of national policies and update of HCWM regulatory framework and road map 3.1.2.: Development of Regional HCWM Management Plan in selected provinces 3.1.3.: Pilot HCWM projects in selected hospitals, including phase-out of mercury containing thermometers 3.1.4.: Establishment of HCW treatment centres in selected sites 3.2.1.: Development and dissemination of BAT/BEP technical guidelines and general awareness raising programmes; 3.2.2.: Development of national training programs on uPOPs and mercury risks and sound HCWM; 3.2.3.: Establishing partnerships for information exchange between local authorities, private companies and medical facilities with the aim of minimizing uPOPs and mercury releases through new technologies and waste reduction techniques; 3.2.4.: Implement activities aimed at fostering national replication of pilot facilities; disseminating experience gained and lessons learned through communication and demonstration programme.	GEF TF	2,500,000	26,808,637
4. Monitoring, learning, adaptive feedback, outreach, and evaluation.	TA	4.1. Project's results sustained and replicated.	4.1.1. M&E and adaptive management applied to project in response to needs, mid-term	GEF TF	155,000	200,000

			evaluation findings with lessons learned extracted; 4.1.2. Lessons learned and best practices are disseminated at national level.			
				Subtotal	3,230,000	34,074,662
				Project management Cost[4]	GEF TF	170,000	938,096
				Total project costs		3,400,000	35,012,758

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount ($)
National Government	MPH, MEP	Grant	34,315,820
GEF Agency	UNDP	Grant	75,000
GEF Agency	UNDP	In-Kind	100,000
Private Sector	Waste management companies	In-Kind	230,565
Others	Non Governmental Organisations	In-Kind	291,373
Total Co-financing			35,012,758

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in $)		
				Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
Total Grant Resources						

[1] In case of a single focal area, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table

[2] Indicate fees related to this project

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Estimated Person Weeks	Grant Amount ($)	Cofinancing ($)	Project Total ($)
Local consultants	717	466,080	1,100,000	1,566,080
International consultants	75	263,500	-	263,500
Total	792	729,580	1,100,000	1,829,580

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

[4] Same as footnote #3 above.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF:

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

The foundation for Kazakhstan's environmental policy is the President N. Nazarbayev's Strategy entitled "Kazakhstan - 2030" that was released and adopted in 1997. One of its priority objectives calls for launch of activities and information campaigns aiming at solving environmental problems to consistently improve living and health standards. The Strategy has further evolved into various country development and environmental programs and generally influenced national agenda on green development.

Currently, the main policy document setting directions of work in this area is the Strategic Development Plan of the Republic of Kazakhstan that was approved in 2010 and will be in effect throughout to 2020. Among its key priorities are the following important considerations:

- Introduction of innovative and environmentally safe technologies;
- Improvement of biochemical safety;
- Increase of waste recycling and utilization rates; and
- Improvement of related legislative framework.

The implementation of the Strategic Plan's objectives is supported by a dedicated sectoral programme "Zhasyl Damu (Green Growth) for 2010-2014" as adopted by the Government's resolution dated September 10, 2010 # 924. It is interdisciplinary program focused on the application of the principle of a progressive 'green economy' that minimizes environmental impact of the economic growth. It addresses many complex issues, including greenhouse gas emissions, air pollution, waste generation, water consumption, and protection of natural ecosystems.

Further, as a result such strategic decisions, in the last two of years, the idea of green development has received much stronger strong attention from the Government and been promoted by Kazakhstan at national and global levels. The country submitted to the World Summit 'Rio+20' its regional "Green Bridge' and 'Global Energy and Ecological Strategy" initiatives which yielded wider support of the global community, and eventually were included into the conference's outcome document "The future we want".

The purpose of the "Green Bridge" initiative is to develop a practical, interregional mechanism to support green business development with promotion of environmentally sound technologies and investments. Its forward outlook is a voluntary mechanism to facilitate such transition by providing legislative, institutional, financial and other support for environmentally oriented businesses based on best practices. It further seeks to strengthen the integration between Europe, Asia, and Pacific regions, and emphasizes the importance of mitigation and adaptation to environmental changes, together with the need to eliminate (where possible) environmental damage where it has already occurred.

This initiative at the country level is now under preparation as the "Strategy on Green Economy", and with a planned official release timeframe in 2013. Of direct relevance to the project area are the several declared priorities such as listed below:

- Improvement in national waste management approaches; and

- Reduction of environmental hazards and releases of harmful substances into environment.

These two (2) elements have been indentified preliminary out of 8 key priorities of the Strategy[5]. It is expected that in result of further national consultations a new environmental protection programme will emerge from such Green Economy Strategy and will eventually replace the current program "Zhasyl Damu (Green Growth)" with the latter nearing its completion time.

With regard to Kazakhstan's participation in multilateral environmental agreements (MEAs) associated with sound handling of dangerous chemicals and wastes, the following table provides information on ratification status by the Government of Kazakhstan.

Table 1. International conventions and multilateral agreements ratified by Kazakhstan.

Convention title	Date of ratification
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)	26/07/2001
Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal	03/06/2003
Development of a National Profile on chemicals management, (SAICM implementation)	First Edition: Jun 2006; Second Edition: Nov 2009
Rotterdam Convention on the Prior Informed Consent (PIC) Procedure on Certain Hazardous Chemicals and Pesticides in International Trade	01/11/2007
Stockholm Convention on Persistent Organic Pollutants (POPs)	09/11/2007

In connection with a UNITAR project for SAICM implementation, the country also developed a National Profile on chemicals management, which was approved in 2006. Additionally, the country is a party of European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) since 2001.

As a party to the Stockholm Convention and in order to meet its obligations, Kazakhstan initiated and completed development of the National Implementation Plan (NIP) on POPs which was transmitted to the Secretariat of the Stockholm Convention in 2010. The National Implementation Plan (NIP) places clear emphasis on strengthening the current framework for POPs management, and underlines the need to monitor and control unintentionally released POPs. The NIP states the possibility of GEF-backed projects to support the implementation of the Stockholm convention and gives the following priority spheres where strengthening of the current potential and capabilities is essential and necessary:

- Development of the normative and legal basis for realization of the country's obligations under the Stockholm Convention, based on a new "Law on Persistent Organic Pollutants" (Law on Chemical Safety);
- Inclusion of the POPs inventory into the national statistic accountability system and state system of environmental monitoring;
- Development of a targeted long-term program on POPs elimination and reduction of the releases of unintentional POPs sources;
- Feasibility study and realization of projects on POPs elimination; rehabilitation of territories polluted by POPs and reduction of unintentional releases of POPs (uPOPs);
- POPs monitoring;

[5] McKinsey, Kazakhstan - The case for a greener, more competitive and more equitable economy. Astana, Kazakhstan, December, 2012.

- Establishment of a chemical and analytical laboratory, oriented to achieving the tasks under the Stockholm Convention;
- Establishment of a dioxin laboratory;
- Establishment of a National Center on Persistent Organic Pollutants.

Being one of the priorities in the NIP, the Ministry of Environment Protection (MEP) considers uPOPs as an important area of work which requires international assistance. The proposed project's objectives, outcomes and planned impacts are consistent with national policies, strategies and programmes of the Government and the country. Furthermore, the NIP recognizes that additional capacity building and enhanced institutional coordination are urgently required in order to meet country's international obligations[6].

The implementation of the Strategic Plan's objectives is supported by a dedicated sectoral programme "Zhasyl Damu (Green Growth) for 2010-2014" as adopted by the Government's resolution dated September 10, 2010 # 924. It is interdisciplinary program focused on the application of the principle of a progressive 'green economy' that minimises environmental impact of the economic growth. It addresses many complex issues, including greenhouse gas emissions, air pollution, waste generation, water consumption, and protection of natural ecosystems.

Further, as a result such strategic decisions, in the last two of years, the idea of green development has received much stronger attention from the Government and been promoted by Kazakhstan at national and global levels. The country submitted to the World Summit 'Rio+20' its regional "Green Bridge' and 'Global Energy and Ecological Strategy" initiatives which yielded wider support of the global community, and eventually were included into the conference's outcome document "The future we want".

A.2 GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

The project is fully consistent with the GEF-5 Chemicals focal area strategy and its Objective 1 - Phase out POPs and reduce POPs releases, and its corresponding outcomes 1.3 (POPs releases to the environment reduced and outcome 1.5 (country capacity built to effectively phase out and reduce releases of POPs) as well as the Objective 3 - Pilot sound chemicals management and mercury reduction, and its corresponding outcomes 3.1 (Country capacity built to effectively manage mercury in priority sectors). The project will contribute to the achievement of GEF's main indicators under this strategic programming area as follows.

Relevant GEF-5 Strategy Indicator	**Project's contribution**
1.3 Amount of un-intentionally produced POPs releases avoided or reduced from industrial and non-industrial sectors; measured in grams TEQ against baseline as recorded through the POPs tracking tool	The project will support the establishment of an inventory for country unintentional POPs releases, as well as the monitoring of emissions. The project will establish guidelines to be used in HCW incinerators (adhering to international best practices, BAT-guidelines, or similar), along with the necessary rules for enforcement. The project will lead in direct reduction of 5 g I-TEQ/year or more.
1.5.1 Progress in development or update of NIPs as recorded through the POPs tracking tool	The project will result in the update and review of the NIP, paying particular attention to the new substances as well as the preparation of an action plan for the control of unintentionally produced POPs.
1.5.2 Progress in developing and implementing a legislative and regulatory framework for	The project will address the issue of how to incorporate unintentional POPs (u-POPs) releases into existing

[6] National Implementation Plan of the Republic of Kazakhstan on the obligations under the Stockholm Convention on Persistent Organic Pollutants, transmitted to the Secretariat in 2010; National Profile: Assessment of the National Infrastructure on Chemicals Management in the Republic Of Kazakhstan

Relevant GEF-5 Strategy Indicator	Project's contribution
environmentally sound management of POPs, and for the sound management of chemicals in general, as recorded through the POPs tracking tool	environmental protection rules and regulations and will support the establishment of a national information exchange and monitoring system on u-POPs. The project will provide capacity building and promote cross-sectoral collaboration in chemicals management.
3.1 Countries implement pilot mercury management and reduction activities	The project will conduct an assessment of situation with mercury sources and releases and support the establishment of priorities for mercury management in general. And specifically, the national guidance documents on HCWM will elaborate and set benchmarks for safe management mercury waste contained in failed and misused medical instruments and promote mercury-free alternatives. Informed and controlled mercury management and containment will be introduced and piloted in model medical facilities (project sites).

A.3. The GEF Agency's comparative advantage:

As confirmed in the GEF document "Comparative advantages of the GEF agencies", UNDP has a comparative advantage in the area of Persistent Organic Pollutants, in specific with respect to Capacity Building and provision of Technical Assistance. The proposed project will benefit from UNDP's experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation.

In its capacity as GEF implementing agency for the global UNDP/WHO/HCWH project "Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury" UNDP is particularly well placed to demonstrate BAT and BEP which have been applied, tested and improved under this global project in eight countries, some of which are facing very similar challenges as Kazakhstan. This indicates a strong comparative advantage of UNDP to work on future HCWM projects, replicating, and building upon, the best techniques and practices that have been developed. This project will liaise with the WHO as well as the global healthcare waste project team and draw on experiences and lessons learnt in other countries.

On the country level, UNDP plays an important role in rendering assistance to Kazakhstan with regard to managing liabilities subsumed within international environmental conventions and agreements and has assisted the country in the ratification processes of a number of international agreements. UNDP has assisted Kazakhstan in international treaty ratification and reporting, including the Stockholm Convention on POPs. An ongoing project on the establishment of a PCB management plan for the country has strong linkages with the implementation of the convention. Given that as of yet there has been no systemized interventions in the area of HCWM in Kazakhstan, and given the substantive experience of UNDP in building capacity to safely manage POPs and chemicals, UNDP is well placed to formulate and implement such a project.

A.4 The baseline project and the problem that it seeks to address:

National legislative framework on hazardous chemicals and wastes

The legislative control over chemicals and waste management in Kazakhstan is rooted in the Environmental Code that provides an overarching framework for establishing regulatory controls for further enforcement measures. The Code was adopted by a decree of the Presidential # 212-III dated January 9, 2007.

The document establishes general provisions and principles for building a national environmental management system, including those aspects directly related to sound handling of chemicals and wastes. It further plans for harmonization of national legislation with existing international norms and standards, and particularly with EU environmental directives. In total, eighteen (18) international environment-related conventions and thirty (30) EU directives and their requirements have to-date been considered in the Environmental Code.

In specific reference to the waste management, the following sections of the Code are considered as directly relevant:

- Chapter 40 of the Environmental Code establishes environmental requirements for the production and application of potentially hazardous substances of chemical and biological origin, inclusive of genetically modified food and organisms;
- Article 280 on "Environmental requirements for the production and use of potentially hazardous chemicals" bans production and import of POPs chemicals and POPs containing products[7];
- Article 288 further establishes prohibition of production and import of products which may generate waste containing POPs;
- Article 298 regulates the ban on dumping of waste containing POPs, in accordance with international MEA treaties Kazakhstan has ratified.
- Article 301 established that a landfill cannot receive a waste containing pesticides and POPs.
- Article 293-1[8] on "Environmental requirements for storage of waste containing POPs" regulates POPs storage requirements to ensure safety operation and limitation of risks to environment and human health. The article requires establishment of specific waste register system that includes production, transport and disposal, and demands producer (holders) to carry the responsibility of the waste until its safe disposal is certified.

At the national law level, the fundamental regulatory document is the law of the Republic of Kazakhstan "On Chemical Product Safety" (hereinafter referred to as the Product Safety Law) # 302-3 dated 21 July 2007. It stipulates a set of requirements regulating safety aspects of chemicals and their life-cycle processes. These mainly apply to hazardous chemicals and not to finished pharmaceuticals, radioactive substances and materials, or food.

In this law, classification of chemicals partially corresponds to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[9]. In respect to integration of GHS into the legislation system, there is no special regulatory document adopted in Kazakhstan that would include or require it. Nonetheless, the Product Safety Law contains key GHS elements such as obligatory classification of products and availability of safety data sheets and labels indicating hazardous properties and safe handling methods. The hazard classification under all product categories generally corresponds to GHS and the chemical product safety data sheet required by article 14 of the law fully corresponds to the layout of safety data-sheet in accordance with GHS.

When it comes to the practical implementation, chemical product classification is indicated by a producing company (or supplier/importer) when preparing documentation required for future product marketing and sales. Such information (classification results) is required in associated Safety Data Sheets and product labels.

[7] During the production and use of potentially hazardous chemicals, the following should be ensured: 1) compliance with the established standards for maximum allowed impact on the environment during production, storage, transport and use; 2) implementation of measures to prevent harmful effects of their application to public health and the environment.
[8] Introduced in the updated Environmental Code in 2011.
[9] All chemical products are divided into categories associated with their hazardous properties: physical-chemical, toxicological, environmentally unsafe (Article 5).

A chemical product certification procedure involves submission of safety data sheet, Safety Data Sheets expert review, and product listing in national registers.

At the national level, there are three (3) chemical registers that are operated in Kazakhstan: the register of industrial chemicals (controlled by the Industry Committee under the Ministry of Industry and New Technologies), the register of agricultural chemicals, mainly listing pesticides (controlled by the Ministry of Agriculture), and the register of chemicals classified as harmful to human health (controlled by the Committee of Sanitary and Epidemiological Supervision under the Ministry of Public Health). Currently, these registers are not publicly accessible for entrepreneurs or civilians.

The chemical product testing criteria and methods used to determine physical, chemical, and toxicological properties are defined in the technical regulations of specific products. These requirements are further detailed in a number of regulatory rules of the Customs Union: technical regulations "On Chemical Product Safety", chemicals classification standards (GOST[10]), safety data sheet and labels.

Further, chemicals management policies are influenced by technical regulations developed for the EurAsian Economic Community (EurAsEC) and the Customs Union between Kazakhstan, Belarus and the Russian Federation. Development of priority regulations is currently carried out according to established coordinated work plans and includes formulation, approval and implementation of eight (8) technical regulations in the chemical industry. Of these, two (2) technical regulations (covering paints, detergents and household chemicals) have been developed by technical teams from the government of Kazakhstan.

Notwithstanding previously referenced regulatory framework, and in specific relation to control over POPs substances contained in products, no such provisions are established in the current Product Safety Law. However, based on Government resolution # 367 dated April 20, 2005 "On obligatory product conformance confirmation in the Republic of Kazakhstan", chemical products with the following characteristics shall not be permitted for use:

- Products with clear signs of harm to human health (for example, in case of available information about actual harm to human health and the environment);
- Products without certification;
- Products without documentary proof of safety and origin;
- Products with no warning labels,
- Products that do not match the provided information.

In case of discovery of such products or based on citation by the authorities, the producer (or supplier/importer) should stop one or several of the chemical life-cycle processes, i.e. withdraw the product from circulation.

Situation with POPs management in Kazakhstan

The Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted in May 2001 with the objective of protecting human health and the environment from toxic and hazardous POPs listed chemicals and wastes. It entered into force in May 2004.

The convention initially covered twelve (12) POPs chemicals – so called "dirty dozen". At its fourth meeting of the Conference of Parties (COP) in May 2009, the Stockholm Convention was amended to include the

[10] State Standard's definition as applied in past in the former Soviet Union – GOST.

following nine (9) new POPs in Annex A[11] and Annex B[12]. The amendments entered into force for most of the Stockholm Convention Parties on 26 August 2010. Further, one additional amendment (endosulfan chemical listed in Annex A) was introduced in May 2011 at the fifth (5th) COP.

According to Article 7 of the Convention, Parties are required to develop National Implementation Plans (NIP) to demonstrate how they intend to implement obligations assumed under the Stockholm Convention. According to existing rules, each Party should develop and submit the NIP within two (2) years from ratification. In compliance to the above, Kazakhstan ratified the Stockholm Convention on November 9, 2007.

The first NIP, prepared with GEF assistance[13], addressing the inventories and strategic action plan for the initial twelve (12) POPs, was developed by the Ministry of Environmental Protection. After formulation works were completed in 2009, the NIP was officially transmitted to the Stockholm Convention's Secretariat on December 8, 2009, which allowed for additional preparation of follow-up capacity building and investment programmes for safe POPs management in Kazakhstan.

Currently, Kazakhstan, in order to respond to the recent amendments in the Stockholm Convention's chemical lists, is required to review and update its NIP plan. Accordingly, such updated strategic document is expected within two years of the date when amendments entered into force, and this represents an urgent priority for the country as with regard to the NIP update on the new nine (9) POPs overdue for August 2012, and so for the recently added to the list of POPs the endosulfan substance.

In course of formulation of the project document, during a series of meetings with relevant ministries it was discussed the Government would plan activities such as:

- extending the inventory of POPs stockpile and POP contaminated sites;
- Inventory update of uPOPs and new POPs of industrial use.

The NIP update process will enable Kazakhstan to establish inventories of products and articles containing new POPs and to identify industrial processes where new POPs are employed or unintentionally produced. The NIP update will build on existing national coordination mechanism and capacities established during the development of the original NIP.

The Initial National Implementation Plan, submitted in December 2009, was based on the results of inventories of chemicals with POPs characteristics, which were carried out during 2003-2005 period, and those covered storages of obsolete and unwanted pesticides, PCB-containing equipment, releases of dioxins and furans (calculated on the basis of production figures and the UNEP toolkit methodology) as well as POPs-polluted territories.

As a direct result of NIP formulation, the following priorities were identified by the group of POPs:

- For PCBs oils/equipment/wastes: updated PCB inventory, development of a detailed plan for decommissioning of PCB-containing equipment, identification of the technology for disposal of PCB-containing equipment, wastes and contaminated soil, storage and disposal of PCB waste;
- For POPs pesticides stockpiles: updated inventory of POP pesticides stockpiles and wastes; ensure environmentally safe and sound management of POPs stockpiles;

[11] Listed chemicals in Annex A: Alpha hexachlorocyclohexane, Beta hexachlorocyclohexane, Chloredecone, Hexabromobiphenyl, Hexabromodiphenyl ether and Heptabromodiphenyl ether, Lindane, Pentachlorobenzene (also listed in Annex C), Tetrabromodiphenyl ether and Pentabromodiphenyl ether.
[12] Perfluorooctane sulfonic acid (PFOS), its salts and Perfluorooctane sulfonyl fluoride.
[13] http://www.thegef.org/gef/project_detail?projID=1586

- For uPOPs releases: increase the adoption of BAT / BEP in processes that may generate uPOPs, with special reference to incineration and health care waste handling.

In order to address some of the priorities listed above and parallel to NIP submission, in addition to the currently presented programme, several POPs related management projects at conceptual or full-size stages were approved by the GEF or already formulated and put into implementation. These are:

- GEF/UNDP FSP: "Design and Execution of a Comprehensive PCB Management Plan for Kazakhstan" – currently under implementation;
- GEF/WB FSP "Elimination of POPs Wastes" – under formulation;
- Regional GEF/FAO FSP "Lifecycle Management of Pesticides and Disposal of POPs Pesticides in Central Asian Countries and Turkey" – with PIF cleared by the GEF for further formulation.

Discussing more specifically the results of the NIP, the inventory results on availability POPs pesticides, carried out in the course of NIP preparation, and revealed that more than 1,500 tons of pesticides and pesticide mixtures are stored at warehouses and storages, often in the absence of protective measures for preventing their release into environment. On the basis of information reported in NIP, approximately 10% of them are pesticides with POPs properties. However, the inventory of pesticides with POPs properties covered only 20% of the country due geographical, information availability and financial limitations. Soils were commonly found to be polluted with POPs-pesticide wastes. The issue of empty pesticide containers (more than 330 thousand units), was too emphasized in the NIP strategy[14].

The Ministry of Agriculture (MoA) currently carries out further detailed inventories in parts of the country, and primarily in the north. According to recent inventory data provided by the Ministry in 2012[15], the overall estimated amount of obsolete pesticides stored in various sites in Kazakhstan is reaching 6,931 tons. Of these, around 5,000 tons are soils mixed with pesticides located in the city of Atbasar in Akmola oblast (northern Kazakhstan).

Table 2 below provides a summary of the data provided by MoA in 2012 in this respect.

Table 2. Quantity of obsolete pesticides stored in the regions (oblasts).

Oblast (region)	Tons
East Kazakhstan	60
Akmola	6,003
Karaganda	0
Kyzylorda	0
South Kazakhstan	0
Atyrau	0
Mangistau	0
Pavlodar	144
Zhambyl	0
Aktobe	21
North Kazakhstan	0
Almaty	0
West Kazakhstan	0
Kostanay	703

[14] Containers are reported as used even for storing food and water by population who were not aware of the risks associated with pesticides and POPs.
[15] Letter No 1803-35/15493 from Ministry of Agriculture to the United Nations Development Programme in Kazakhstan, No 02 August 2012.

Oblast (region)	Tons
Total amount	**6,931**

Old storage sites are reported by population to exist in almost all regions of the country; however, frequently local municipalities are not aware of such sites, and it can be reasonably expected that such storages exist commonly with unreported stocks of pesticides contained in there.

In respect to the storage capacity for pesticides, two (2) such storage facilities are operational in Kazakhstan: one storage house, run by Ecogarant company, is located in Akmola region (north), and the other run by Sharua company, is located in Kostanay region (west from Akmola region). One of the storage sites listed under the MoA inventory was reported to contain pentachlorophenols (6.1 tons stored in Zerendy rayon, Akkol county, Akmola region).

With regard to other category of POPs containing materials and wastes - PCBs, the original NIP reported an estimated amount of 980 tons of PCB oils contained in capacitors and transformers. The estimated amount of other waste containing PCB, including soils, was estimated at 250 thousand tons. Based on the preliminary inventory result achieved in the course of implementation of the GEF/UNDP PCB project, around 2,500 tons of PCB contaminated equipment has been identified, which confirms importance of the underlying principle for the need of continued inventory of PCB – the longer and wider in scope the search is, the higher chances of expanded PCB equipment inventory.

Final category of POPs addressed in inventories by the NIP is uPOPs. The estimated annual release of uPOPs, reported in the NIP, estimated using the UNEP toolkit[16] (2001) from industrial production figures for the period 2003-2005 is reported in the table below.

Table 3. Estimated annual release of uPOPs reported in NIP (2009).

Sector	**Annual releases** *(g-TEQ/year)*				
	Air	**Water**	**Soil**	**Fly ash**	**Slag**
Production of power and heat energy	315,981	0,000	0,000	0,000	0,0
Production of ferrous and nonferrous metals	3,324	0,000	0,000	0,000	9,1
Production of goods of mineral raw materials	17,819	0,000	0,000	0,000	2,1
Uncontrolled processes of incineration	2,829	0,000	0,051	0,000	2,7
Production/use of chemicals and consumer goods	0,000	0,000	0,000	2,845	0,0
Other	0,002	0,000	0,000	0,000	0,0
Total	**340,0**	**0,0**	**0,1**	**2,8**	**13,9**

As the Table 3 demonstrates, the uPOPs inventory reported in the NIP did not include important sources of dioxin releases such as incineration of industrial and medical waste, open burning, and the use of coal/wood for cooking, which, in many countries, is reported a substantial source of uPOPs emissions[17].

[16] Standardized Toolkit for Identification and Quantification of Dioxin and Furan Release; UNEP toolkit: http://www.chem.unep.ch/pops/pcdd_activities/toolkit/default.htm

[17] Concerning PCDD/F from medical waste: basically all the NIP submitted consider this as a primary source of PCDD/F. (http://chm.pops.int/Implementation/NIPs/NIPSubmissions/tabid/253/Default.aspx) As far as emission from coal/wood for domestic heating and cooking;

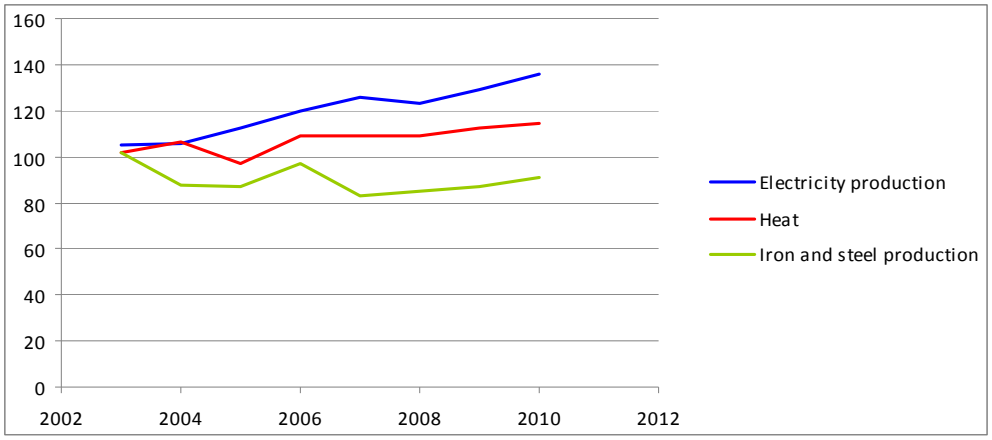
- Heidelore Fiedler; Sources and Environmental Impact of PCDD/PCDF; (http://www.chem.unep.ch/pops/POPs_Inc/proceedings/slovenia/FIEDLER1.html)
- Regional Wood Energy Development Programme in Asia, (http://www.rwedp.org/c_cpr.html), 2005;
- Lavric E. D., Konnov A. A., De Ruyck J., (2004): Dioxin levels in wood combustion—a review. Biomass and Bioenergy 26 115 –

Information on the monitoring of uPOPs in the environmental media is also missing; therefore it would be important to transfer, with the support of the project, know-how knowledge accumulated in developed countries related to the monitoring of PCDD/F in soil, water, atmosphere, and biota.

Besides this, since the time of the initial uPOPs inventory, the industrial sector has seen progressive development; and, therefore, the estimates made in NIP before may not be particularly relevant to the current situation and reliable in future decision-making processes. Figure 1 below demonstrates overall production trends, expressed in percentage points, of the key industrial sectors relevant to emissions of uPOPs in the atmosphere[18].

Based on the information, it can be assumed that with further steady increases in national heat and electricity production, and slow pace of technological improvements in air pollution treatment technologies, the situation may result in increased releases in uPOPs in these sectors at a similar rate.

Figure 1. Production trends in key industrial sectors (year 2003 being the baseline year for comparison purposes) relevant to uPOPs emissions (in %)



Complementary to this analysis, in the Figure 2 below, a rate of change in the number of stationary sources and pollutant releases is indicated[19]. The figure shows a significant increase of the number of emission sources and a decrease in the overall amount of pollutants emitted into the atmosphere. Both indicate changes in the industry sector and emission control efforts, and may well prompt to the need to reconsider the original uPOPs estimates provided in the original NIP.

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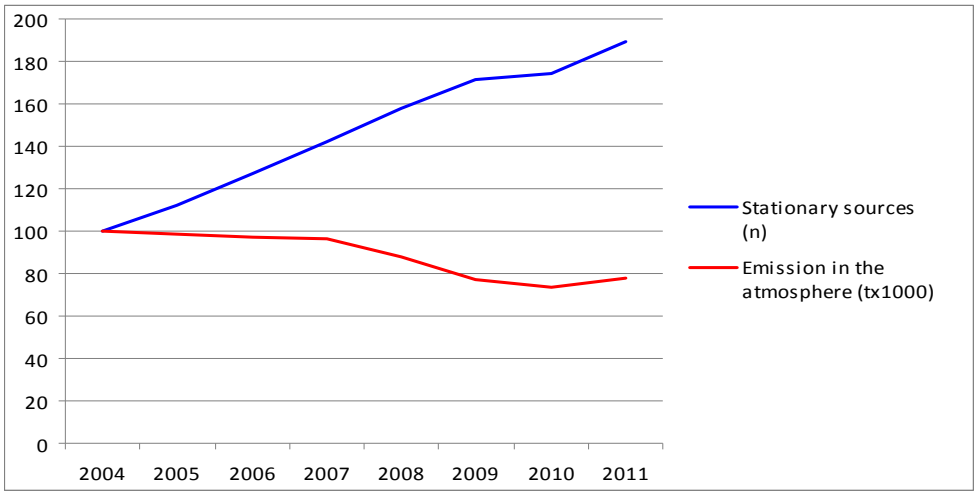
- Pfeiffer F., Struschkab M., Baumbacha G., Hagenmaierc H., Heina K.R.G.., (2000): PCDD/PCDF emissions from small firing systems in households. Chemosphere 40 225-232
- Hübner C., Boos R., Prey T., (2005): In-field measurements of PCDD/F emissions from domestic heating appliances for solid fuels. Chemosphere 40 225-232
- Carroll W. F., Junior (2001) The relative contribution of wood and poly(vinyl chloride) to emissions of PCDD and PCDF from house fires, Chemosphere 45, 1173-1180
- Launhardt T., Thoma H., (2000): Investigation on organic pollutants from a domestic heatingsystem using various solid biofuels. Chemosphere 40 1149-1157
- Thuß, U., Herzschuh R., Popp p., Ehrlich, Chr., Kalkoff, W. D., (1997): PCDD in flue gas and in bottom ash of lignite domestic combustion and the role of the salt content of the burned briquettes. Chemosphere 34 1091-1103

[18] Data from the Agency of Statistics of the Republic of Kazakhstan, 2012.

[19] The Agency of Statistics of the Republic of Kazakhstan, 2012 (http://www.eng.stat.kz/digital/Industry/Pages/default.aspx), accessed on October 2012.

Figure 2. Rate of change of the number of stationary sources and of the overall amount of pollutants emitted in the atmosphere in Kazakhstan (Agency of Statistics of the Republic of Kazakhstan, 2012)



Concerning the new POPs listed in the Stockholm Convention, there is very limited data concerning their use and production in Kazakhstan, with the exception for limited information on the presence of pesticide stocks. Currently, there is no indication concerning the use of new POPs of industrial relevance in the country's industry due to lack of requirements for data collection and reporting.

Also, there is little information available concerning the production and use of chemical products or electric and electronic equipment which may contain Penta BDE, Octa BDE and PFOs in Kazakhstan. However, some trend analysis on these chemicals can be made using an indirect indicator of the chemical industry's development patterns reported in Kazakhstan. Table 4 summarizes statistics provided by the Ministry of Industry and New Technologies (MINT) of Kazakhstan on industries which may be considered potential users of such substances in the country. This has been compiled on the basis of principal application types of newly listed POPs reported as per the guidance documents and risk management evaluation document prepared by UNEP, US-EPA, European Commission[20].

Table 5. Industry statistics for analysis of potential new POPs users.

Industrial sector	**No of industrial companies**	**Amount of production**					**Number of workers (average annually)**
		2007	2008	2009	2010	2011	
Production (formulation) of pesticides [tons]	20 (small companies, as of	N/A	N/A	N/A	2,735 approx. tonnes	7,544 approx tonnes (for	250-280

[20] The 9 New POPs - An introduction to the nine chemicals added to the Stockholm Convention by the Conference of the Parties at its fourth meeting (UNEP, august 2010). STARTUP GUIDANCE for the 9 new POPs (general information, implications of listing, information sources and alternatives) UNEP, December 2010; Guidance on feasible flame-retardant alternatives to commercial pentabromodiphenyl ether 2009 (UNEP/POPS/COP.4/INF24). The 9 New POPs Risk Management Evaluations 2005-2008 (POPRC1-POPRC4) UNEP 2009. Analysis of the risks arising from the industrial use of Perfuorooctanoic acid (PFOA) and Ammonium Perfluorooctanoate (APFO) and from their use in consumer articles. Evaluation of the risk reduction measures for potential restrictions on the manufacture, placing on the market and use of PFOA and APFO. (RPS Advies B.V, 2009). Furniture Flame Retardancy Partnership: Environmental Profiles of Chemical Flame-Retardant Alternatives for Low-Density Polyurethane Foam Furniture. US EPA, Sept. 2005.
http://chm.pops.int/Convention/ThePOPs/TheNewPOPs/tabid/2511/Default.aspx

Industrial sector	No of industrial companies	Amount of production					Number of workers (average annually)
		2007	2008	2009	2010	2011	
	01.07.2012)					6 months of 2012)	
Wool; washed, non-carbonated, carded or combed [tonnes]		2,880	803	894	2,371	4,545	
Cotton; carded or combed [thousand square metres]		110,471	133,348	97,062	91,404	75,544	
Cloth; carded and combed [thousand square metres]		43,325	286,731	244,976	99,319	64,147	
Leather of cows or horse family hairless [thousand square decimetres]		202,728	286,731	244,976	99,319	64,147	
Leather of sheeps, goats, pigs hairless [thousand square decimetres]		295	754	249	423	114	
Protective and orthopaedic footwear, except sports shoes [thousand of pairs]		1,107	1,213	719	1,153	1,388	
Shoes with upper layer made of leather with specially protected soles and specialized shoes (except sports shoes) [thousand of pairs]		508	531	622	630	786	
Production of diagnostic medical devices	1	253	355	105	142	168	210
Production of paper [tonnes]	115		49,059	79,854	77,049	22,480	1,800
Production of packaging [million tonnes]			60	57	63	62	

Due to varying measurements applied by the Statistics Agency to the production output for industrial sub-sectors, the above can be used to consider relative importance of those areas where potential use of new POPs can be detected during future surveys. Pesticide production is present, though it has quite a limited share with only 20 small industries operational, most of which are likely formulators rather than producers of pesticides. Other sub-sectors (fabric, leather, paper, packaging, wool processing and manufacturing) are considered as potential users of new POPs (for instance, PFO-S) and their respective production outputs may be considered as a rough indicator of the potential use of POPs chemicals by these industries.

With regard to the chemical industry in Kazakhstan, its share in the total industrial output during 2004-2009 constituted 1.1%, while the total manufacturing output was in the order of 3.8% on average. A number of

industrial enterprises, which by type of their operations can be classified as a part of the chemical industry, has remained stable over same period, with some decrease after 2008 (from 223 to 206). In monetary terms, the value of the chemical industry for the first half of 2012 amounted to 89,658 million tenge (approx. US$ 597,000), with an increase in production of 3.1 % compared to the same period of 2011.

Of particular relevance to the NIP update objectives is the existence of the State Program for Industrial and Innovative development approved by a presidential decree # 958 dated March 19, 2010, which established an initiative for development of the chemical industry for the period 2010–2014 with the central objective of promoting sustainable and balanced economic growth in several industrial sectors, including oil refining and oil and gas infrastructure; chemical and pharmaceutical industry; and agro-industrial complex. The project will look into the recent developments in this area and properly document them in the NIP strategic programme.

Mercury releases

A series of mercury treaty negotiations, initiated by the UNEP Governing Council, included several important positions[21] on reduction of mercury supply in the world; enhancing capacities for its environmentally sound storage; addressing mercury containing wastes and remediation of contaminated sites; as well as specifying arrangements for capacity building and technical assistance. These recently resulted, at the 5th and final round of negotiations in January 2013 in Geneva, in the Minamata Convention on Mercury that will be open for signature by countries at a diplomatic conference in October 2013 in Japan[22].

The convention calls for a global action to protect human health and the environment from anthropogenic releases of mercury and mercury compounds. Among its main objectives are[23]:

- Development of national inventories, and strategies to reduce mercury uses and releases (mining and trade restrictions, with associated exemptions);
- Development of environmentally sound waste management, disposal and remediation practices and transfer of technologies and know-how;
- Raising public awareness and promotion of mercury-free products, technologies and processes, using and/or with environmentally friendly alternatives.

Official delegation from Kazakhstan participated in proceedings of the 2nd meeting of the Intergovernmental Negotiation Committee (INC) in January 2011, and continues to have interest in sound management of mercury and its compounds as in the form of mercury decontamination programmes[24] already under implementation in the country so in the form of the current new GEF/UNDP project addressing mercury aspects in healthcare sector.

One example of such work at the national level is a World Bank (WB) supported programme on mercury remediation in Irtysh River in Ust-Kamenogorsk (north of Kazakhstan neighbouring Russian Federation) with the following development objectives:

- Prevention of the groundwater contamination plume's further migration towards the residential areas, the city's sources of drinking water supply and eventually into the Irtysh River; and
- Strengthening of institutional mechanisms for groundwater quality monitoring to enable control of ongoing groundwater pollution from local municipal and industrial sources.

[21] Such as discussed at the 25th UNEP Governing Council (http://www.unep.org/gc/gc25/working-docs.asp)
[22] http://unep.org/hazardoussubstances/Mercury/Negotiations/INC5/tabid/3471/Default.aspx
[23] Intergovernmental Negotiation Committee (INC-5) documents; draft text of a legally binding agreement: http://unep.org/hazardoussubstances/Portals/9/Mercury/Documents/INC5/5_3_e_text.pdf
[24] World Bank: http://www.worldbank.org/projects/P078342/ust-kamenogorsk-environmental-remediation-project?lang=en

According to the latest WB's implementation report[25], several important components of the programme, such as site investigation, design of remediation plan, and supply of laboratory equipment, have been completed with the site remediation work at slurry ponds to start in spring 2013.

With regard to overall situation with country-wide assessment or estimates done on mercury releases, there has been no such dedicated activity recorded to-date. One of reasons for this is that the current national legislation does not establish mercury release standards, though it does regulate mercury in form of waste and reprocessing.

On general statistics, in 2011, according to the Ministry of Environmental Protection (MEP)[26], 198.6 tons of mercury waste was generated, of which 22.7 tons were neutralized, 37.9 were stored at burial sites, 50.1 tons remain at generation sites, and the rest of waste has been sent for further treatment. With respect to the products containing mercury, both ministries, MEP nor Ministry of Public Health, have currently no associated legal instructions on registration of mercury users, and, therefore, do not monitor and track volumes of production, sales, installation, and removal from service of such medical equipment and instruments. This situation results in lack of precise data on mercury devices generated as waste by the healthcare sector. Although healthcare establishments report on mercury containing waste, the information is of little use as it is provided in aggregated format under an overall class G waste[27] (non-infectious hazardous waste) and in various, non-unified measurement units: mass, volume, number of items, and non-quantificational digits.

As commonly reported elsewhere worldwide, it has been confirmed that the main sources of mercury in Kazakhstan's healthcare system are thermometers, straight and compact fluorescent lamps. Preliminary investigation indicated that sphygmomanometers used by the sector are mainly mercury-free – aneroid (bellows).

Based on the methodology developed by the global GEF/UNDP/WHO/UNOPS healthcare waste and mercury management project (www.gefmedwaste.org)[28] as applied to existing hospital/bed statistics and the quantity of mercury waste originating from broken thermometers in Kazakhstan' hospitals is estimated at 236.81 kg/year. A similar quantity of mercury is in medical devices which remain in use in the healthcare sector. No estimation was possible at this stage for lamps and other products containing mercury, being directly used by households.

Due to lack of a national quality standard, formal reviews of available devices, and the lowest price criterion commonly used in public procurement tenders which typically result in the lowest quality and durability, mercury-free electronic thermometers are not yet popular and enter the market at a very slow pace to allow wider usage.

On the other end of mercury-based equipment use, at present, collection of mercury-containing wastes and its subsequent recovery occurs only among corporate and state entities, which also includes some healthcare facilities. Throughout Kazakhstan, it was reported that at least sixteen (16) enterprises handle and/or recycle mercury-containing wastes, of which at least eight (8) practice de-mercurization. The work of these companies

[25] World Bank: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/ECA/2013/03/23/090224b081a12594/1_0/Rendered/PDF/Kazakhstan000U0Report000Sequence010.pdf

[26] Report on Hazardous Waste in 2011, MEP 2012, available at http://www.eco.gov.kz/new2012/wp-content/uploads/pril2.doc

[27] G-waste category was introduced by the Sanitary-epidemiological requirements for healthcare facilities, Resolution of the Government of the Republic of Kazakhstan No 87, January 17, 2012, and is defined as: toxicologically hazardous wastes - wastes (pharmaceuticals, including cytostatic, diagnostics materials, disinfectants) which will no longer be used, mercury-containing items, devices and equipment, wastes from raw materials and products from pharmaceuticals production, wastes from equipment operations, transport, signalling systems).

[28] Guidance on Measurements and Documentation, Revision 2, Draft, GEF/UNDP/WHO/UNOPS Project: 0.002 kg of mercury released per bed per year.

is regulated by a state standard, ST RK 1155-2002 “Mercury-containing devices and products: vacuum recovery”, which stipulates requirements for the process of vacuum de-mercurization; safety, environmental protection, technical quality control, and storage.

Additionally, the following standards regulate mercury and mercury containing waste:

- Occupational safety standards system. Work with mercury. Safety requirements GOST 12.3.031-83 (State Standards). This regulation links to other occupational safety standards and sets general requirements concerning work associated with mercury extraction from its ore, and mercury handling in industrial processes, except mercury compounds. It covers design and maintenance of production equipment (GOST 12.2.003-91); storage transportation and recycling of mercury during industrial process (GOST 12.3.002-75); permissible concentration of harmful substances in the air of the working area (GOST 12.1.005-88).
- State Standard ST RK 1513-2006 Waste management. The standard regulates methods of processing of mercury containing wastes.

Waste management

The legal framework for waste management is provided in the Ecological Code. The Code includes six chapters (19-20 and 41-44), addressing specifically the waste handling issues. These cover almost all aspects of waste management, and set driving principles such as duty of care, polluter pay and proximity principles. However, most of the Code’s provisions are in very general and declarative form and supporting enforcement legislation that intends to establish and introduce regulatory mechanisms is missing or insufficient. This particularly concerns planning and administrative responsibility for the development of an integrated waste management system, technical and emission standards for waste treatment and disposal operations, economic incentives for waste avoidance at source, recycling and processing of waste.

The legislation has been supported by several national programs and strategic plans that can cover one particular or several of waste management aspects in Kazakhstan. These include:

- Concept for Environmental Safety for 2004-2015,
- National Program on Environmental Protection for 2008-2010,
- Strategic Plan of the Ministry of Environmental Protection for 2009-2011, and
- Sectoral Programme of the Ministry of Environmental Protection for 2010-2014 “Zhasyl Damu” (Green Growth).

Despite the established framework legislation and state programs oriented towards the waste management issues, this area is considered as one with persistent and pressing environmental problems in Kazakhstan. The country has accumulated over 10.1 billion tons of waste, of which 5.6% belongs to hazardous waste category. In 2011 alone, Kazakhstan generated over 420 million tons of all type of waste, of which only 0.13% was completely neutralized, and 10.7% was re-used, representing mostly mining waste. Due to increase in industrial production and increased consumption, there is a tendency in growth of both industrial and municipal waste generation.

Almost all municipal waste ends up at landfills without prior separation. Municipal waste is often mixed with hazardous industrial wastes as facilities for safe treatment and dedicated landfills for hazardous wastes are lacking. Around 97% of municipal landfills are in rudimentary state and do not meet national environmental and sanitary requirements. Most of the urban landfills are in critical condition as they reach or even exceed their projected capacities. Recycling initiatives in larger scale appear as yet in Almaty (former capital in the south) and Astana (current capital in the centre north) only.

One of the main reasons that resulted in this situation and what is considered the biggest shortcoming of the current waste management activities is the very limited proactive planning across all governance levels: local, regional, and national. There are serious information gaps, and lack of data quality analysis and verification. Waste generators are in practice left alone to organize disposal of waste they produce, and for many hazardous products they are not able to find safe replacement and treatment options. This all lead to very fragmented, often chaotic and environmentally unfavourable scheme, and not efficient use of limited financial resources.

This summarizes the general level of attention to waste management issues in Kazakhstan.

Healthcare system

The healthcare system in Kazakhstan is governed by the Ministry of Public Health. The main functions of the Ministry relate to formulating state policies in the sector, preparing regulatory framework, commissioning research, developing and supervising implementation of reform strategies, monitoring population health, and ensuring capacity building and training of medical staff. The Ministry draws up the country healthcare budget and controls its Republican portion, nominally supervises national research institutes and national hospitals, and has ultimate control over the mainstream healthcare system. It also monitors environmental health through a subordinate body of the Sanitary and Epidemiological Surveillance Committee.

In recent years, healthcare provision and financing have been largely devolved to the oblast (regional) administration offices and their health departments. The fourteen (14) oblast and Almaty and Astana city health departments are the key bodies administering health services in Kazakhstan and run most hospitals and polyclinics. Parallel health systems run by some ministries and government agencies have been inherited from the Soviet period and are still largely in place. The operation of the sector is backed by healthcare financial mechanism and country budgets regulated by the Ministry of Economic Affairs and Budget Planning and Ministry of Finance.

The healthcare system has been facing dynamic reconstruction and reorganization since the second half of the 1990s. Since then the country has reduced its hospital network significantly, particularly in rural areas where many village hospitals have been closed down. The number of hospitals in Kazakhstan declined from 1,796 in 1991 to 845 in 2001, increased to 1,041 in 2009, and dropped again to 1,009 in 2011. The average ratio of hospital beds per 100,000 population was 738 in 2011, with Aktobe oblast having the lowest ratio of hospital beds (526) and Kyzylorda oblast the highest (1013).

In 2011, there were 21,023 state enterprises, including state economic enterprises, and institutions, and 3,085 private healthcare organizations in Kazakhstan. Most state facilities are small rural physician ambulatories, feldsher-midwifery posts, and medical posts. Pharmacies and dentists have mostly become private profit-making organizations, while hospitals, sanatoriums and large polyclinics continue to be mainly state owned. However, it is worth noting that between 1999 and 2004 the number of private hospitals almost doubled, and the number of private facilities almost tripled, in general, the network of private health providers has significantly increased since 2000. Finally, in 1999, only 10% of all physicians were working in the private sector; and, by 2010 this share had increased to 16.4%.

Available data on state and private healthcare facilities is summarized in the table below.

Table 6. Health facilities in Kazakhstan in 2011[29]

[29] Compiled from data provided by the Statistics Agency of the Republic of Kazakhstan (http://www.eng.stat.kz/digital/Health%20care/Pages/default.aspx), and Annex 1. Sum of healthcare waste in Kazakhstan, according to different classes, for 2011, Ministry of Public Health, 2012.

Region	Population (2010)	State facilities	Non state facilities	Number of hospitals	Number of hospital beds
Republic of Kazakhstan	**16,036,100**	**21,023**	**3,085**	**1,009**	**118,404**
Akmola	738,000	797	377	44	6,702
Aktobe	718,900	797	154	52	3,783
Almaty (region)	1,693,000	465	109	88	11,009
Atyrau	513,400	281	119	41	3,553
East Kazakhstan	1, 418 800	807	197	97	12,486
Karaganda	1,352,000	1,223	834	97	10,844
Kostanai	886,300	722	202	59	7,911
Kyzylorda	689 ,00	489	197	53	6,992
Mangistau	446,300	73	83	33	3,110
North Kazakhstan	643,300	1,042	80	32	4,852
Pavlodar	750,900	397	181	60	6,155
South Kazakhstan	2,429,100	939	336	153	13,417
West Kazakhstan	624,300	514	85	42	5,372
Zhambyl	1,043,800	341	131	58	6,592
Astana (city)	684,000	275	-	31	4,920
Almaty (city)	1,404,300	11,861	no data	69	10,706

The Government further plans substantial changes and improvements in the sector through implementation of the most recent healthcare development plan of the Ministry of Public Health consisting of the World Bank (WB) funded's Health System Technology Transfer and Institutional Reform Project[30] and the State Health Care Development Programme "Salamatty Kazakhstan 2011-2015". Both programmes account for approximately US$ 1.3 bln in direct investments for the first implementation stage lasting from 2011 till 2013[31]. Among the key programmes' objectives are the following priorities:

- Development of the sanitary-epidemiological service as such with the aim of improving its management and effectiveness,
- Harmonization of sanitary-epidemiological standards (sanitary rules, hygiene standards, infection control and technical regulations) with international requirements,
- Upgrading outdated equipment and facilities, improving logistics and management, and bridging current clinical practice to best benchmarks available internationally

The state programme also encourages and supports the development of public–private partnerships for leveraging capital investments and the creation of incentives for the influx of foreign investment support into the healthcare sector.

[30] World Bank: http://www.worldbank.org/projects/P101928/health-sector-technology-transfer-institutional-reform?lang=en
[31] Presidential Decree No. 1113 of 29 November 2010.

Healthcare waste management

The existing Kazakhstan's legal system regulating healthcare waste was established by the introduction and improvements of sanitary requirements by the Ministry of Public Health in 2004, 2007, and 2012[32] respectively. These acts provided for prohibition of infectious waste disposal in sanitary landfills and contributed to the construction of waste incinerators in the provinces.

The changes which were introduced in the healthcare legislation were not, though, institutionally and legally coordinated with relevant environmental regulatory measures. One current example is that sanitary requirements do not fill regulatory gaps concerning imposition of hazardous healthcare waste's transportation rules according to the UN Recommendations on the Transport of Dangerous Goods, and ADR agreement of which Kazakhstan is a party, and control of waste treatment operations, including emission standard for waste incineration.

Currently applied sanitary requirements oblige healthcare facilities to segregate healthcare waste into four categories according to properties and risks posed by the waste:

- municipal waste (Class A),
- infectious waste (Class B),
- extremely infectious waste (Class V),
- industrial/hazardous waste (Class G), and
- radioactive waste (Class D).

Healthcare facilities have to report at least once per quarter on wastes generated to a local Sanitary and Epidemiological Surveillance Committee (SESC). The report covers all classes of waste, and means of their disposal and treatment. Summary of such information, limited to three first categories and collected from the regional SESCs by the Ministry of Public Health for 2011 and first half of 2012, is provided in **Error! Reference source not found.**.

Table 7. Healthcare waste generation in Kazakhstan in 2011 and first half of 2012[33].

Region	Municipal waste (Class A) [kg]	Infectious waste (Class B) [kg]	Extremely infectious waste (Class V) [kg]	Total HCW/bed/day [kg]	Total infectious waste/bed/day [kg]
Republic of Kazakhstan	**15,723,282**	**7,661,400**	**895,257**	**0.37**	**0.13**
Akmola	4,284,400	521,700	159,334	1.35	0.19
Aktobe	1,114,356	1,057,951	228,459	1.16	0.62
Almaty (region)	162,022	233,100	13,390	**0.07**	**0.04**
Atyrau	23,146	4,335	7,409	**0.02**	**0.01**
East Kazakhstan	985,767	633,149	2,279	**0.24**	**0.09**

[32] Currently binding: The sanitary-epidemiological requirements for healthcare facilities, Resolution of the Government of the Republic of Kazakhstan No 87, January 17, 2012; Sanitary-epidemiological requirements for the collection, use, application, removal, transportation, storage and disposal of wastes from production and consumption, Resolution of the Government of the Republic of Kazakhstan No 291, March 6, 2012

[33] Sum of healthcare waste in Kazakhstan, according to different classes, for 2011, Ministry of Public Health, 2012.

Region	Municipal waste (Class A) [kg]	Infectious waste (Class B) [kg]	Extremely infectious waste (Class V) [kg]	Total HCW/bed/day [kg]	Total infectious waste/bed/day [kg]
Karaganda	814,061	749,891	5,278	**0.26**	**0.13**
Kostanai	132,720	99,937	19,571	**0.06**	**0.03**
Kyzylorda	170,126	189,644	30,782	**0.10**	**0.06**
Mangistau	1,812,000	1,327,000	11,000	1.85	0.79
North Kazakhstan	492,969	199,893	15,432	**0.27**	**0.08**
Pavlodar	1,999,600	989,600	325,000	0.98	0.39
South Kazakhstan	1,728,000	209,065	9,785	**0.27**	**0.03**
West Kazakhstan	401,200	314,000	2,100	**0.24**	**0.11**
Zhambyl	195,500	446,100	10,680	**0.18**	**0.13**
Astana (city)	11,122	416,003	29,412	**0.17**	**0.17**
Almaty (city)	1,396,293	270,032	25,346	**0.29**	**0.05**

The above table omits class G waste (non-infectious industrial/hazardous waste) as it is reported in various units: mass, volume, number of items, and non-quantificational digits, and, hence, it cannot serve for overall comparison and calculation. With regard to class D – radioactive waste, according to MPH, it was reported as generated in Karaganda (21 kg), and North Kazakhstan (120 kg) regions.

The table cells with parameters marked in bold script and yellow highlights indicate the data which significantly differs from waste generation rates calculated by WHO and UNDP for similar countries[34]. In these cases, the quantity of waste generated is underreported in the order 100 – 2000% for both categories of municipal and infectious waste.

In order to determine actual waste management practice and healthcare waste generation rates, the project formulation team carried out a 14-days long baseline assessment in one (1) rural hospital in Arshaly in Akmola Oblast (135 beds), and two (2) tertiary hospitals in Astana (360 beds) and Ust-Kamenogorsk (670 beds)[35]. The team's representatives also interviewed a surgery hospital in Astana (180 beds) and a tertiary hospital in Kyzylorda (780 beds). Information collected in these facilities shows that:

- Average infectious waste generation rate in hospitals that have well implemented waste classification and segregation system is 0.2 kg/occupied bed/day.
- In hospitals where waste mixing occurs and/or waste is disinfected or incinerated on-site, infectious waste generation rate reaches 0.49 kg/occupied bed/day.
- Infectious waste generation rate in isolation wards reaches 1.17 kg/occupied bed/day.

[34] Safe Management of Wastes from Health-care Activities, World Health Organization, 1999. Survey of Health-Care Waste Characteristics and Generation Data From Different Countries, UNDP GEF Global Demonstration Project on Healthcare Waste, New York, NY, November 2007.

[35] Carried in September 2012. Based on Guidance on Conducting a Baseline Assessment of the Model Healthcare Facility, April 2010, developed by the GEF/WHO/UNDP Global Healthcare Waste Project: http://www.gefmedwaste.org

- All assessed hospitals do not conduct real weighing of municipal waste (MSW), and they report on MSW based on an estimates only, using an incorrect formula. Measured municipal solid waste generation rate varies from 0.4 to 2.35 kg/occupied bed/day.
- Chlorine-based disinfection of infectious healthcare waste is commonly practiced, and it is often applied to waste scheduled for incineration. This practice leads to increased emissions of uPOPs during incineration process.
- Hospitals, which disinfect waste on-site, underreport infectious waste generation rates as this decontaminated stream is often reported as municipal waste only.

Taking the above issues into consideration, it is expected that the total quantity of infectious waste generated in Kazakhstan's healthcare facilities well exceeds 10,000 tons per year. Correspondingly, the amount of generated municipal waste in country healthcare facilities is expected to be more than 20,000 tons annually.

For incineration of hazardous healthcare waste, there is a similar problem concerning data reporting, its correctness and verification as related to waste generation rates. Information on quantities of incinerated waste is not maintained by Ministry of Environmental Protection (MEP), despite the fact that it is obligatory for waste management service providers to report on these figures. Official data is available indirectly in a MEP report on national emissions of greenhouse gases (GHG)[36]. According to that report, the quantity of healthcare waste incinerated in Kazakhstan had risen from 681 tons in 2007 to 9,652 tons in 2011. It should, however, be noted that this latest number does not correspond to the quantity of infectious waste reported by the Ministry of Public Health.

Incineration is the dominant method of infectious waste treatment in Kazakhstan. There are at least 1,176 operating incineration facilities of which only 91 are specialized installations. The largest number of country facilities is represented by ordinary boilers; batch type and muffle furnaces. Co-incineration of healthcare waste in heating furnaces is commonly practiced by rural health institutions which have no access to, and/or have limited budget for external services. From the legal point of view such practices are illegal as Ministry of Public Health's sanitary rules impose a ban on on-site waste burning in healthcare facilities. A desk review of all available information and site visits to a few dedicated incineration facilities showed that the majority of them can be classified as Small Scale Incinerators (SSIs) – in other words, the category of furnaces which are not equipped with pollution cleaning system. At best, they have a secondary chamber to complete gas phase combustion.

[36] National inventory report. Anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for the 1990-2010 period. Ministry of Environment Protection, Astana 2012.

Table 8. Healthcare waste treatment and disposal facilities in Kazakhstan in 2011[37]

Region	Number of dedicated incinerators	Batch type installations	Reported capacities	Number of landfills or tombs for hazardous waste
Republic of Kazakhstan	**91**	**1, 085**		**11**
Akmola	7	0	30-1,200 kg/h	0
Aktobe	16	0	40-60 kg/h	6
Almaty (region)	3	0	360-3,000 kg/day	1
Atyrau	8	26	No data	1
East Kazakhstan	4	307	20-200 kg/h	0
Karaganda	5	0	No data	0
Kostanai	4	1	10-100 kg/h	1
Kyzylorda	10	348	50-150 kg/h	0
Mangistau	4	34	100-150 kg/h	1
North Kazakhstan	4	0	40 kg/h, 3 tonnes in one cycle	0
Pavlodar	9	0	10-100 kg/h	0
South Kazakhstan	2	0	180-1,000 kg/h	0
West Kazakhstan	5	5	12-100 kg/h	1
Zhambyl	4	362	10-50 kg/h	0
Astana (city)	3	1	50-700 kg/h	0
Almaty (city)	3	1	50 kg/h, 3 tonnes/day	0

The legal framework in Kazakhstan does not establish a national emission standard for waste incineration nor sets any other specific technical conditions for the incineration process. However, like any other kind of waste treatment installation, an incinerator is a subject of environmental impact assessment and has to obtain a permit for waste disposal before equipment commissioning. The permit sets down emission requirements for certain pollutants for which environmental fee is obligatory, but those requirements do not include uPOPs and heavy metals. Test burns are not completed, but instead their releases are calculated theoretically during facility permitting process, which then should be self-monitored and self-reported by installation owners. Hence, in practical terms, the emission control and monitoring during waste incineration is not carried out at all. The environmental situation is significantly worsened due to the commonly practiced chlorination (disinfection) of infectious healthcare waste before incineration which leads to even more elevated PCDD/Fs emissions during waste burning and/or chlorine substances released at landfills as well[38]. Additional environmental problem is caused by resulting formal classification of the incineration residues as municipal waste and their subsequent disposal in landfills not specifically engineered for that purpose.

[37] Sum of healthcare waste in Kazakhstan, according to different classes, for 2011, Ministry of Public Health, 2012; data provided by Ministry of Environment, 2012.

[38] See for example: Wey et al. Influences of chlorine content on emission of HCl and organic compounds in waste incineration using fluidized beds. Waste Management 2007.

Because the exact information on quantity of waste burnt by each installation is not available, an estimation presented in Table 9 was prepared to determine potential releases of PCDD/Fs from healthcare waste incineration in Kazakhstan. For both types of incinerators, the regionally available quantity of waste was taken into account, and minimal quantities of waste and operation time were used in assumptions.

As can be seen, the largest source of PCDD/Fs emissions are found in the batch type furnaces, even assuming that their combined throughput is smaller than dedicated healthcare waste incinerators.

Table 10. Potential PCDD/Fs releases from healthcare waste incineration in Kazakhstan in 2011[39]

Type of installation	Number of installations	Assumed quantity of HCW burnt [kg/h]	Daily operation [h/day]	Treatment days per year	Total quantity of waste burnt [t/a]	Potential PCDD/Fs release to air (µg TEQ/t)	Potential PCDD/Fs release to bottom ash (µg TEQ/t)	Total potential PCDD/Fs release to air [g TEQ/a]	Total potential PCDD/Fs release to bottom ash [g TEQ/a]
"Adopted": batch type, boiler, muffle furnace	1085	10	1	250	2 713	40 000	200	108.50	0.54
Dedicated incinerator	91	30	8	250	5 460	3 000	20	16.38	0.11
Total	***1176***				***8 173***			***124.88***	***0.65***

In order to reduce emissions from these installations, it will be extremely important to start implementation and enforcement of the emission standard as recommended in the Stockholm Convention's guidelines[40] on best available techniques and provisional guidance on best environmental practices. Further reduction of uPOPs resulting from healthcare waste disposal would be possible by proper waste segregation, and introduction of non-combustion treatment methods.

Costs of healthcare waste management

At hospital level, the costs of waste handling are highly influenced by current sanitary legislation which imposes unnecessary obligations, which are not commonly recommended in international BAT/BEP guidelines. The legislation requires healthcare facilities to:

- Collect separately, freeze, and, within 24 hours, dispose of not-contaminated food waste, although it is further mixed with municipal waste, when landfilled;
- Replace sharps boxes every 24 hours regardless of their filling level (3/4 rule is not applied);
- Decontaminate on-site all liquid healthcare wastes, prior to disposal to the drain. This causes also uncontaminated liquids to often be autoclaved, and, at the same time, means that toxic chemicals like cytotoxic waste go directly to the sewage system as healthcare facilities are not supported by other disposal options.

Currently estimated resulting costs of hazardous waste management at the hospital level are, on average, 150,000 tenge/ton (US$1,000/ton). With improvements of legal provisions, and logistics of waste management at healthcare facilities, the costs reduction of 30% can be achieved in Kazakhstan which is an important economic factor in daily operations.

[39] Based on the Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases, Edition 2.1, UNEP, December 2005.
[40] Stockholm Convention Secretariat: http://chm.pops.int/Implementation/BATBEP/Guidelines/tabid/187/Default.aspx

The current market price for treatment of infectious healthcare waste is very high, and is disproportional to the quality of the services provided. It ranges between 230,000 to over 300,000 tenge per ton of waste (U$1,540–2,000/ton). The main reason for it is the small scale capacity of incineration installations, re-enforced by lack of alternative methods and equipment, and not organised but a price ring.

Barriers

The main barriers which presently prevent sound uPOPs, mercury and HCW management are considered the following:

- Limited regulatory framework: no established inventory and monitoring system for uPOPs and new POPs, lack of emissions and release standards for uPOPs and heavy metals respectively; limited linkages between various sector legislation, such as healthcare and environment, and no guidelines on, and enforcement of control measures over, uncontrolled uPOPs releases and incineration;
- Insufficient systemic and institutional capacity: lack of coordinated, cross-cutting and comprehensive system for sound waste and chemicals management, limited collaboration between government authorities, private service providers, and stakeholders such as waste producers;
- Inadequate economic incentives and technical tools: current expensive handling of medical waste, inadequate and poorly functioning systems for collection, transportation and disposal of waste;
- Information and awareness barriers: scarce knowledge on uPOPs impacts, no register and monitoring of uPOPs, HCW and mercury releases to understand the scope of the problem, poor understanding of the linkages between problematic chemical management areas and human health/environmental quality, inadequate knowledge of socio-economic benefits associated with sound waste and chemicals management.

These barriers listed out above are discussed below in detail. Many of the barriers and issues are closely linked with the general state of chemicals and waste management in the country.

Regulatory barriers: It has been recognized in the NIP that, since the current inventory of unintentionally released POPs is lacking, one should conduct an updated inventory, followed by a monitoring program[41]. Another issue of concern is that obligations of relevant ministries, governmental agencies and bodies are based on special legal acts that limit mandates to certain streams of chemicals, such as pesticides or hazardous goods, medical drugs, etc. This effectively means that the overall management of chemical safety is poorly coordinated with significant capacity and knowledge gaps existing. Thus, the consultations and coordination during formulation of development plans (and legal acts) that indirectly affect health and environmental safety are not fully informed about the real needs. An example of this is a recently developed legislation on medical waste which was established by the Ministry of Public Health without setting required healthcare waste incineration specifications with assistance of the Ministry of Environment Protection. Another example of gaps in such planning is that, even though hospitals produce waste, they are not required to have a waste handling permit as compared to other facilities or organizations and as regulated by the environmental legislation.

Institutional barriers: In many cases, the functions, responsibilities and competence of various ministries and departments are found to be in duplication, and there is little coordination of activities in different mandates. This is particularly obvious in the case of chemicals management, where the three (3) line ministries (MPH, MEP, MINT) are involved, all in their own respective sectors separately, and with little or no collaboration, added by lack of common understanding of what activities should represent the country's priority actions. There is also lack of a cross-cutting and comprehensive system for sound waste and chemicals management in

[41] National Implementation Plan of the Republic of Kazakhstan on the obligations under the Stockholm Convention on Persistent Organic Pollutants, transmitted to the Secretariat in 2009.

the country due to limited collaboration between government authorities, private service providers, and stakeholders such as users. The life-cycle of waste and the roles of individual actors in ensuring proper waste management and waste reduction are poorly understood. There is no due level collaboration between public and private stakeholders for setting up a system of sound healthcare waste management. Thus, private medical waste companies operate in vacuum, where they simply provide services without proper oversight provided by authorities and without extending support to their customers, the medical facilities. A clearer designation of roles, in connection with enforcement of obligations, is needed together with awareness raising measures to get various actors to work more effectively in a joint effort.

Financial and technical barriers: The costs for handling medical waste in Kazakhstan are high – often up to US$ 2,000/ton - which is primarily due to lack of competition and small scale capacity of treatment facilities with disorganized networking structure. Faced with such costs, medical facilities tend to minimize the amount of waste sent for processing, resulting in potentially infectious waste being burnt in mostly technically unsuitable hospitals' furnaces, or disposed of as municipal waste. Economic incentives for sound waste management do not work effectively in Kazakhstan, and the indirect costs related to decrease in quality of human health and increase in the level of environmental contamination are not regularly assessed. The waste placed at local landfills is frequently burned in open air which results in serious atmospheric pollution. The costs of proper healthcare waste packaging are very high, leading to waste not being properly sorted and collected at facilities. To address the situation, a system of rigorous segregation as well as pollution prevention and waste minimization could greatly reduce the amount of waste that requires special treatment. Furthermore, there is insufficient in-country funding generated to promote the use of more effective technologies and approaches. In addition, the benefits associated with establishing such financial mechanisms require more in terms of capacity building within government agencies. Currently, social and economic benefits are prioritized on the national level, while, more specifically, human health and chemical linkages are poorly understood, and environmental quality degradation and related costs are commonly underestimated.

Information and awareness barriers: The country's capacity in sound waste and chemicals waste management is being gradually built through various associated programmes; however, there is still strong deficiency in knowledge on internationally acceptable principles and approaches for sound chemicals management in the country, and especially with regard to cross-cutting issues presented by chemicals and waste in other sectors. The economic and social benefits of waste prevention strategies are not yet well understood and applied in practice. The cradle-to-grave impact assessment of products and resulting waste materials (full life-cycle of materials) has yet to be established in the decision-making processes. Healthcare facilities generally have no well functioning waste stream monitoring and reporting systems. The knowledge on POPs associated risks and issues have been slowly increasing in the country, but the area of unintentionally produced POPs (uPOPs) has lacked sufficient attention in recent times, and a comprehensive inventory of these emissions has never been carried out. It is confirmed by the current NIP that the national releases of uPOPs had been underestimated. When it comes to medical waste, the unwillingness to recycle of the non-hazardous stream, and low awareness of pollution caused by poor management of hazardous waste are still an issue hindering efficient medical waste management.

Strategy for overcoming the barriers

This project aims to assist the country in implementing its relevant obligations under the Stockholm Convention, in particular to reduce the releases of uPOPs, as well as to build country's capacity, in line with the GEF-6 objectives, to manage mercury releases from medical devices by demonstrating sound approaches to the healthcare waste management. This will be accomplished through four (4) principal project's components. Across all components, the project will plan for information dissemination and awareness raising on key aspects of the project's work.

The project will collaborate with central authorities as well as waste treatment facilities, hospitals and smaller rural clinics within demonstration territories. The project will provide support for strengthening the implementation of international convention obligations and guidelines, and is expected to improved cross-sectoral governance for sound chemicals management at the national and local levels.

Component 1: Stockholm Convention NIP update and improved institutional coordination on chemical MEAs (GEF finance - $ 375,000; co-finance - $ 6,528,275)

The initial NIP and associated POPs inventory process had limitations in the scope of activities related to data availability and fund constraints for the geographical size of the country featured by large distances between provinces.

For instance, the stockpile inventory of obsolete POPs pesticides had only limited geographical coverage and historical data gaps, and the PCB equipment inventory, as commonly experienced elsewhere, is as a continuous process that lapses over longer time spans provided established legislative and financial requirements in support. While no systematic inventory of POP stockpiles and POP contaminated sites were carried out after the initial NIP was completed, the initial inventory measures launched in the NIP had somewhat influenced national decision-making process and allowed for survey planning of pesticides data into Ministry of Agriculture's work programmes. The PCB register is updated and maintained with assistance of the current GEF/UNDP programme on PCB management and is expected to provide substantial information input to the NIP update process.

With regard, to the uPOPs, the initial uPOPs inventory carried out for the preliminary NIP did not include important in the data collection process the sources of dioxin emissions such as produced from the incineration of industrial and medical waste, and during open burning and use of coal/wood for cooking, which are considered as a substantial source of uPOPs emissions globally. The estimates were based only on the emission factors based on the UNEP toolkit[42]; however, even the "proxy" parameters values used for those estimates have changed, as since the time of the first uPOPs inventory, the industrial situation in Kazakhstan has undergone significant changes, from both the number of industries and the technological standpoints. Therefore, the original uPOPs inventory cannot be considered reliable anymore and used in decision-making.

Furthermore, with the inclusion of a list of new POPs into the Stockholm Convention's lists and resulting changes in the country's obligations (decision SC-1/12), the original NIP should be updated with such inventories and an action plan for these categories of POPs is to be formulated. The process of NIP update will follow the structure recommended by the Conference of Parties (COP) in its decision SC-2/7 on updating National Implementation Plans[43] and using related guidance documentation prepared by the Stockholm Convention's Secretariat[44]. Previous experience on NIP formulation will be utilized in the process of NIP update based on national lessons learned as well as in reference to international acquired expertise[45].

In terms of coordination prospects for sound chemicals management, in the past, separate establishment and follow-on evolution of the main chemicals MEAs (Basel, Rotterdam and Stockholm conventions) have resulted in fragmented efforts on chemical safety controls on international so on national levels, with the latter autonomously replicating the developments on the global scale. Currently, in consequence, national authorities responsible for the on-the-ground implementation of the MEAs tend to operate in great isolation with limitations in exchange of information and planning activities leading to gaps in legislative controls as well as weak coordination in joint capacity building for more effective MEAs implementation.

Nonetheless, at the fundamental policy level, the Stockholm, Basel and Rotterdam conventions, IFCS, SAICM and other international initiatives on chemical safety such as FAO code on pesticides and others, have created

[42] Standardized Toolkit for Identification and Quantification of Dioxin and Furan Release; UNEP toolkit: http://www.chem.unep.ch/pops/pcdd_activities/toolkit/default.htm
[43] Decision COP - SC-2/7 Implementation Plans: http://chm.pops.int/Convention/ConferenceoftheParties(COP)/Decisions/tabid/208/Default.aspx
[44] Stockholm Convention: NIP Guidance http://chm.pops.int/Implementation/NIPs/Guidance/tabid/2882/Default.aspx
[45] Lessons learned and good practices in the development of national implementation plans for the Stockholm Convention on Persistent Organic Pollutants, 2006: http://chm.pops.int/Implementation/NIPs/Guidance/tabid/2882/Default.aspx

essential frameworks and opportunities for participating governmental and non-governmental sectors in implementing the important objectives for better chemical safety.

Notwithstanding existing gaps in coordination and scope, as the global processes[46] on joint planning and implementation of the main MEAs lead to more integrated approaches in addressing chemicals related challenges, the improvement of inter-departmental and sectoral cooperation on the national level will facilitate uniting the global efforts on minimization of impact of chemicals and hazardous wastes on health and environment and ensure better synergism in implementing international obligations of the Government.

Sound integrated chemicals and waste planning and management is a distinct area which requires urgent attention from the Government and this has been proposed, during one of the consultation processes as part of the current project formulation, as one of priorities in the strategic Government development planning document "Green economy". In order to further support these plans, it is essential to support development of a mechanism for cross-ministerial coordination in implementation of chemicals MEA conventions.

A national SMC coordinating mechanism should include representatives from:

- Ministry of Health
- Ministry of Environment Protection
- Ministry of Agriculture
- Ministry of Emergency Situations
- Ministry of Industry and New Technologies
- Ministry of Economic and Trade
- Ministry of Transport and Communications
- Ministry of Labor and Social Protection
- Ministry of Education and Science
- Ministry of Justice
- Industry and non-governmental organizations

The component, therefore, concentrates on inter-institutional coordination on POPs issues (both at international and national level), updating the NIP, with associated inventories for new POPs and uPOPs, and capacity building in the area of POPs inventories, control legislation, tracking and reporting. This work will support the current institutional restructuring process, and will benefit of the effort mentioned above concerning institutional coordination, establishing of emission inventories, raising public awareness.

One of the most important aspects of this component is the improvement in coordination between line ministries to ensure better synergism in complying with international obligations. Effective coordination between the Stockholm, Rotterdam and Basel convention requirements and their implementation in the country will be supported (in line with the merger of the three chemical MEA Secretariats in a mutually supportive manner), which will also cover ongoing international framework discussions on mercury convention.

GEF co-finance will be used for facilitating the national (inter-ministerial) and international (government coordination with the MEA Secretariats) institutional coordination for the implementation of the SC in the country; providing international expertise on all aspects related to the updating of the National Implementation Plan, with special reference to the technical and scientific aspects related to the inventory and monitoring of new POPs; supporting workshops and awareness raising events; supporting the recruitment of international

[46] Ordinary and extraordinary meetings of the conferences of the parties to the Basel, Rotterdam and Stockholm conventions http://synergies.pops.int/2013COPsExCOPs/Overview/tabid/2914/mctl/ViewDetails/EventModID/9163/EventID/297/xmid/9411/language/en-US/Default.aspx

experts and national experts; international travel; funding the training and demonstration of the methodologies for carrying out sampling and analysis of uPOPs both at the sources and in the environment, with the assistance of the RECETOX laboratory established in University of Masaryk; providing technical assistance for the implementation of a database on POPs inventory.

National finance will be used for establishing better integrated coordination among line ministries and other stakeholders, updating the environmental legislation to ensure that SC provisions are duly implemented, carrying out environmental and emission monitoring of POPs, establishing emission inventories, updating inventory of contaminated sites and POPs hotspots, awareness raising. The National finance will also cover the recruitment of national experts for data collection and surveys, local travel, offices and meeting facilities, communication costs and access to the information.

Outcome 1.1: POPs inventories improved for informed decision making and priority setting

The first activity envisaged under this output is the establishment of a coordination mechanism and working group/s in charge of the NIP update. It is expected that the same institutional arrangement adopted for drafting the initial NIP will be maintained.

Preparatory activities leading to the update of the NIP, with special references to uPOPs and new POPs, require a substantial effort in raising awareness and training involved stakeholders, both on private and public sectors. Of specific relevance also is the need to:

- Complete the gap analysis of the current legislation system to verify how the requirements put forward by the Stockholm Convention can be better integrated in the existing framework and enforced; and
- Determine appropriate policies, interventions and the need to increase monitoring and enforcement capacity.

Training on the institutional side is required for providing tools, specifically tailored to the Kazakhstan's situation, for identification and inventory of new POPs, including updating information on uPOPs. The updated inventory will require efforts to collect information on:

- Relevant source of data concerning the current and historical production, import, use of pesticides with a special reference to pesticidal POPs and new POPs;
- Data sources/lists of stockpiles and contaminated sites of pesticidal POPs, with special reference to new POPs (alpha and beta-HCH, lindane, chlordecone, endosulphan);
- Current management of a waste stream possibly contaminated by brominated flame retardants (Penta BDE and Octa BDE, HBB) by means of interviews, questionnaire surveys, site visits;
- Industrial uses of PFOs, distinguishing among restricted uses, acceptable purposes, and exempted uses;
- Historical and current pharmaceutical use of lindane and possible alternatives;
- U-POPs emission inventory (PCDD/F, HCB, PCBs, and Pentachlorobenzene) with identification of scientific source/information for the establishing of reliable emission factor, when needed;

With regard to the new list of POPs related to the category of uPOPs, the project will carry out release estimates adopting the new version of the standard UNEP toolkit[47], or other emission factors more specific for the country if available. The work will involve gathering information on the parameter values, derived by

[47] Standardized Toolkit for Identification and Quantification of Dioxin and Furan Release; UNEP toolkit: http://www.chem.unep.ch/pops/pcdd_activities/toolkit/default.htm

means of specific studies, consultation with updated statistics data, site visits and interviews, that can be used for estimating emission of uPOPs from the relevant sources (industrial and non-industrial).

The following activities will be carried out to deliver Outcome 1.1:

Activity 1.1.1: Capacity building programme (trainings) for involved stakeholders developed and implemented on POPs risks, inventories, POPs tracking, monitoring of data reported by responsible parties.
Activity 1.1.2: National information system (inventory) on POPs expanded (updated information on uPOPs and new POPs).

Outcome 1.2: National capacities on POPs monitoring, analytical capabilities are assessed

Nationally established POPs monitoring capacity is a key pre-requisite for implementing any POPs management plan and enforcing regulatory measures related to release POPs release control. In this respect, of particular relevance is the capacity of the country in terms of a number of laboratories accredited for carrying out analysis of:

- Flue gases emitted by industries such as like power plants, incinerators, cement kilns, iron and steel plants etc., and in particular their capacity to conduct a high volume sampling required for the measurement of relatively low concentration of uPOPs, adopting international standards methods;
- PCDD/F and PCBs, in waste, atmosphere, environmental media, biological materials;
- Chlorinated pesticides;
- Brominated compounds and PFOs in line with ongoing scientific research on the issue of testing and rapid analysis of brominated flame retardants in plastic and electronic products.

The outcome will assist in assessing the national POPs monitoring capacity and preparing required recommendations in the following manner:

Activity 1.2.1: Studies on existing POPs analytical and monitoring capabilities for the whole range of POPs (with focus on new POPs) will be carried out;
Activity 1.2.2: A set of recommendations for the improvement of such capabilities formulated and submitted to the Government.

Such activities will build upon and coordinate work with the currently Government's implemented GEF/UNDP PCB Management Project on establishing the country's laboratory capacity for PCB analysis.

It is planned that training and limited demonstration of the methodologies for carrying out sampling and analysis of uPOPs both at the sources and in the environment will be established with the assistance of the RECETOX laboratory established in University of Masaryk (Brno, the Czech Republic) which serves as the Stockholm Convention Regional centre for capacity building and transfer of technology in the area. The expertise of the center will be expected to help in training on risk assessment and epidemiological methods for evaluating risk related to uPOPs.

Outcome 1.3: Policy, institutional frameworks and enabling regulatory environment are in place to ensure better control on POPs accumulation and emissions

Although additional provisions on sound POPs waste management have been recently added to the Environmental Code, there are gaps that need to be addressed through a better integrated legislation, covering comprehensively all environmental and health aspects of POPs, with specific reference, for instance, to BAT/BEP technologies for reducing the emission of uPOPs from industrial sources, environmental quality

values, soil clean-up thresholds and plans, rules governing the use of flame retardants with POPs characteristics in the production, recycle or reuse of consumer articles, use and production of PFOs, taking into account the need to apply for specific exemptions allowed by the Stockholm Convention for the different substances.

In order to establish such integrated regulatory system it is necessary to coordinate legislative improvements and associated cross-departmental consultations with key Governmental institutions (line ministries), representatives of industrial and agricultural sectors, and ensure close coordination with non-governmental community. The work will be backed by standard socio-economic assessment of potential impacts of these new provisions regulating new POPs as recommended in the Stockholm Convention's guidance materials[48].

The following activities will be carried out to deliver Outcome 1.3:

Activity 1.3.1: Institutional coordination and compliance with international agreements improved through firmer institutionalization of POPs issues into national structures (to ensure synergistic approach across chemical groups and respective application sectors) – to be carried out as part of the institutionalization of the "Zhassyl Damu" strategic programme through deployment of a Green Development Centre;
Activity 1.3.2: National legal framework, by aligning institutional roles, reviewed and improved to include the issue of insofar unaddressed POPs, uPOPs and new POPs;
Activity 1.3.3: Sectoral technical guidelines updated to include the issue of priority POPs, including sampling and analysis methods;
Activity 1.3.4: Capacity building programme (trainings) and consultations for involved stakeholders developed and implemented on POPs related risks, POPs monitoring, institutional roles and responsibilities, POPs control legislation benchmarks and enforcement; and
Activity 1.3.5: National Implementation Plan (NIP) on Stockholm Convention obligations with inclusion of new POPs reviewed and updated, with elaboration of specific action plans on new POPs.

Outcome 1.4: Improved institutional coordination on chemical MEAs

The outcome will plan for a detailed review of the existing institutional structure and associated mandates in chemical MEAs, inclusive of data collection and reporting, in the prism of structure re-alignment processes planned by the Government and with due consideration to the ongoing global MEAs synergism processes. This will be supported by creation of coordinating mechanisms for cross-sectoral and ministerial cooperation during implementation of the Stockholm, Basel and Rotterdam conventions. Important involvement of industrial, commercial and non-governmental sectors will be ensured in the process of improving preparedness for safer chemicals and waste management.

Development and approval of amendments in existing national legislation and preparation of normative acts on implementation of chemicals MEAs will take prominent role during the project implementation. It will establish a clear legislative base and framework for synergies between the conventions at the national level and enable drafting of national technical guidelines according to their requirements.

This will be supported by appropriate in-country consultation processes on strategic positioning, action plan and capacity building (training) for the stakeholders, and help influence legislative developments on the regional level through formulation of proposals for streamlining the operation of the Customs Union (Belarus, the Russian Federation and Kazakhstan)[49], or allow to exchange accumulated experience on integrated

[48] Stockholm Convention: NIP Guidance: http://chm.pops.int/Implementation/NIPs/Guidance/tabid/2882/Default.aspx
[49] An example of potential intervention is the introduction of changes to the national legislative of the Russian Federation on removing transit ban for PCB oil to enable PCB export for final disposal to the EU.

implementation of the three main chemical MEAs in the Central Asia region which will be to the benefit of the other countries planning similar activities in future.

The following activities will be carried out to deliver Outcome 1.4:

Activity 1.4.1: Review and better alignment of ministerial functions on implementation of Conventions' obligations
Activity 1.4.2: Establishment of coordination mechanisms to support synergistic implementation of Stockholm, Rotterdam and Basel Conventions and established framework (system) for monitoring, accountancy and reporting on the implementation of the Stockholm, Basel and Rotterdam conventions in Kazakhstan
Activity 1.4.3: Capacity of government authorities on implementation of chemical conventions improved
Activity 1.4.5: Improved data collection and chemical review processes for decision making and control improvements on the import and use of new dangerous chemical substances

Component 2: Overall mercury situation assessed and initial mercury reduction and containment plan formulated (GEF finance - $200,000; co-finance - $ 537,750)

The component will work in parallel with the previously described Component 1. While the structure of work will be maintained in line with planned organizational activities under the POPs inventory, it will address the issue of national mercury situation assessment. This will be supported by associated capacity building and development of the outline of a national action plan on reduction of mercury releases. Stakeholder consultations and decision-making platform created for NIP update will be heavily utilized in the mercury situation assessment process to ensure better synergism.

This activity was proposed in response to the global mercury instrument negotiation process, and will help position the Government of Kazakhstan strategically towards further political and technical discussions under the Minamata Convention on Mercury through initial national capacity building.

The component is well coordinated with the overall project's scope on reducing mercury releases from the healthcare waste sector, and specifically with Component 3 described further in the text. It is further coordinated with a planned GEF/UNEP[50] regional programme for several countries in the Europe/CIS region, including Kazakhstan, where initial mercury inventories are planned with future GEF support and the two programmes will avoid overlaps in the scope of activities, and complement each others' expertise.

GEF co-finance will be used for recruitment of international and national experts who will be responsible for data collections and preparation of an assessment of current mercury presence and handling in Kazakhstan, and the development of the country's mercury reduction plan. The resource will also be used for organising trainings (capacity building) for trainers on mercury measurement in the environment and it safe handling. The GEF will also support public awareness raising campaign on health and environment risks related to mercury.

National finance will be used for establishing co-ordination between Ministries and responsible administration on development of required legislation, facilitation of establishment of mercury stock and release inventories, as well as inventory and monitoring of contaminated sites. The national resources shall also be used for upgrading capacity of existing and/or development new laboratories which are capable to address mercury monitoring system requirements.

Outcome 2.1: Mercury assessment implemented, national consultations held to identify priorities for actions and capacity building on mercury risks carried out

In September 2012, discussions between UNDP and UNEP were held in order to coordinate the two agencies' future activities in Kazakhstan related to mercury assessments and policy setting exercise.

UNEP currently formulates a regional project in the Europe/CIS region on mercury inventories, and the project includes Kazakhstan as a partner country. Considering UNEP's active role with mercury related negotiations, development of guidance materials, and in-house availability of specialized staff prepared for launching mercury inventories, the coordinated proposal for cooperation between UNDP and UNEP was welcomed by the Ministry of Environmental Protection in Kazakhstan. It was agreed that UNEP will lead the work on inventory process and assessment/building of national laboratory capacity, with UNDP leading activities related to formulation of the national mercury reduction plan. Such arrangement fits well with ongoing joint UNDP and Ministry' work on policy setting in the area of green economy development, and in particular related to sustainable chemicals management, and will help ensure that mercury associated priorities receive attention and are included in regular consultations.

[50] The project concept is currently in preparation for Belarus, Kazakhstan and the Russian Federation, and UNDP has been contacted by UNEP for the purpose of coordinating activities in the national and regional programmes.

At the same time, as the proposed GEF/UNEP regional project involves three (3) countries participating in one Customs Union, the Government of Kazakhstan will use the opportunity for policy coordination among all participating partner Governments, and this process will assist in investigating on type of impacts the Customs Union rules may have on product and technology trade provisions, associated transboundary issues, recycling/re-use/storage operations and standards.

The following division of tasks between the two agencies has been agreed upon:

Role and activities to be carried out by UNEP in Kazakhstan through its regional GEF/UNEP project:

- Formulation of methodology to be used for mercury assessment and inventory;
- Development and implementation of a capacity building program (trainings) for involved stakeholders on mercury risks, inventories, sources and data tracking for database purposes;
- Preparation of national inventory of mercury sources. In this task the organisation will have the leading role, and will work closely with the Green Development Center;
- Implementation of pilot measurements of emissions from industrial sector, power stations, cement plants, etc. with aim to support Mercury Toolkit inventory with updated emissions data;
- In collaboration with WHO, implementation of assessment of mercury presence in the environment and its effects on humans;
- Provision of support in building laboratory capacity for enhanced mercury monitoring;
- Co-ordination of regional collaboration, and specifically harmonisation of standards and guidelines within the Customs Union area.

Role and activities to be carried out by UNDP in Kazakhstan in the currently proposed GEF/UNDP national project on uPOPs and mercury management in the healthcare sector:

- Provision of support to the regional GEF/UNEP project with national level assessment of country's mercury sources, releases, contaminated sites and priority areas for mercury control;
- Development of the country's mercury reduction plan that considers critical opportunities for material substitution, training, spill response and recovery, personal protection, segregation, containment, long-term engineered storage and encapsulation or amalgamation;
- Organization of a public awareness raising campaign on health and environment risks related to mercury;
- Provision of support, under Component 3 described in sections below, on collection of mercury-containing equipment (in collaboration with the GEF/UNDP project on energy-efficient lighting), specifically from private consumers, healthcare and government facilities[51].

The following activities will be carried out to deliver Outcome 2.1:

Activity 2.1.1: Capacity building programme (trainings) for involved stakeholders developed and implemented on mercury risks, inventories, sources, and data tracking;
Activity 2.1.2: Mercury situation in Kazakhstan assessed in coordinated manner jointly with UNEP;
Activity 2.1.3: Stakeholder consultations to identify priority mercury associated problems held;
Activity 2.1.4: Outline of National mercury reduction plan developed
Activity 2.1.5: Public awareness raising campaigns on mercury risks conducted

[51] Efforts will be put in place to support the Ministry of Environment in data collection on private sector companies involved in collection and utilization of mercury-devices and in establishment of technical requirements and associated operator database.

Component 3: Minimization of unintentional POPs and mercury releases in selected hospitals through demonstration of sound Health-care Waste Management approaches (GEF finance - $2,500,000; co-finance - $26,808,637)

Component 3 represents the main capacity building and BAT/BEP demonstration element in the overall project design and will practically demonstrate uPOPs and mercury releases reduction by piloting modern waste management approaches at selected hospital facilities:

- Waste minimisation at the source,
- Waste segregation techniques and recommendations for waste handling and interim collection and storage,
- Demonstration of affordable non-incineration technologies for the resulting separately collected infectious healthcare waste stream, and
- Introduction of mercury-free devices.

These planned activities will be carried out along with the establishment of required partnerships and dissemination and replication of results in the country with the overall target of minimising POPs/mercury releases into the environment.

The largest portion of GEF co-finance will be used for capital investment in ten (10) pilot healthcare waste non-combustion treatment centres as described below in Outcome 3.4, and purchase of quality mercury-free thermometers for selected health facilities. The GEF co-finance will be used also for recruitment of international and national experts who will be responsible for preparation of healthcare waste management plans for selected health facilities and regions; development of a training program for health and waste management professionals, and conversion of chosen hospitals into model facilities.

National finance will be used for covering operational expenses of healthcare, and waste management facilities including waste disposal; costs of land acquisition, construction and civil works concerning establishment of pilot healthcare waste treatment centres. The National resources will be also used for inter-ministerial co-ordination of law amendments, and their implementation towards development of an integrated waste disposal system that includes investments in new waste treatment methods and technologies which meet international BAT/BEP standards. The Government will invest in improvement of waste statistics data collection and processing system; improvement of efficiency and effectiveness of the sanitary-epidemiological inspection system.

Outcome 3.1: Sound health-care waste management through uPOPs and mercury reduction approaches are demonstrated in 2-3 regions of the country

This outcome is the principal one and it consists of several supporting activities, all supported by stakeholder consultations and required workshops/conferences, such as listed below and described in more detail further in the project document:

- Activity 3.1.1: Review of national policies and update of HCWM regulatory framework
- Activity 3.1.2: Development of Regional HCWM Management Plan in selected provinces
- Activity 3.1.3: Pilot HCWM projects in selected hospitals, including phase-out of mercury containing thermometers
- Activity 3.1.4: Establishment of HCW treatment centres in selected sites

A combined effect of the proposed interventions in this Outcome 3.1 is the expected substantial improvement in HCWM management practices in selected pilot hospitals across a number of country provinces that will be backed by strengthened associated legislative framework.

Activity 3.1.1 Review of national policies and update of HCWM regulatory framework and road map

The support for law reform was specifically requested by the MEP and MPH as well as by surveyed waste management companies. The waste sector would welcome at least minimum quality standards for waste management operations and stable regulatory system as they help to plan and develop quality services with uniform rules for all market players, as compared to the current local situation.

This activity, therefore, will support the Government[52] in amending existing legal acts that pertain to waste management to ensure that they comply with international conventions and their guidelines. Particular emphasis will be placed on development of technical and emission standards for waste incineration, on enforcement[53], on control and validation of the process for treatment and disposal of hazardous healthcare waste.

Improvement of data collection and management system on healthcare waste generation and treatment (register) will also be supported. It is further planned that the Ministry of Environmental Protection will develop formal requirements for overall waste management planning at national and regional level.

Opportunities will be sought to enhance public procurement rules, which are currently based only on the lowest price criteria, for state healthcare services to include environmentally preferable purchasing in the existing criteria. This concerns those products that may contain mercury, chlorine compounds, bromine, cadmium, lead and carbon based substances that disrupt body functions, e.g. phthalates.

Further, as far as wider replication of intended BAT/BEP results is concerned, described in the activities 3.1.3 and 3.1.4 below, the policy review support will study opportunities for national budgetary revisions for dissemination of demonstrated technologies on a wider national scale, with promotion of private sector support during waste transportation. This will take a form of research of relevant MPH budget planning processes with issuance of appropriate recommendations for funds re-allocation in future in support of sound HCWM that will result in further decrease in uPOPs emissions and releases of mercury.

The national roadmap[54] will be formulated to define the strategy and timeline for implementing the national HCWM plan. It will set milestones for each phase and guide the development of a national budget for HCWM.

The following measures will be implemented:

- Review of the national legal framework in the context of insofar unaddressed issues, international convention's requirements, BEP/BAT guidelines pertaining to healthcare waste management, a road map and POPs monitoring and health impact nexus.

[52] Project Board and Technical Advisory Committee, planned to be established by the project, will ensure that proposed law amendments are consulted with regional authorities, waste management companies, healthcare professional organisations, and NGOs.

[53] Regulatory framework should include a system of monitoring and enforcement and penalties for non-compliance. This levels the playing field and becomes a market driver for the private sector to provide HCW collection, treatment and disposal services. If there are no penalties for dumping waste, the HCWM service providers cannot sustain their businesses.

[54] The typical roadmap prioritizes which groups of healthcare facilities to focus on first, which geographical areas to target during each phase, what combinations of treatment approaches (centralized, cluster, on-site, mobile) to adopt in different areas of the country, and the infrastructures that need to be developed to support HCWM in each region. It is often divided into multiple phases of one to five years each.

- Review of existing national procurement rules for healthcare system to include recommendations and provisions concerning environmentally preferable purchasing.
- Update of legislation and its submission for review by decision-making authorities.

Activity 3.1.2: Development of Regional HCWM Management Plan in selected provinces

Although three (3) regions (Akmola, East Kazakhstan and Kyzylorda), covered by baseline assessments during the project's preparatory phase, remain interested in the project's activities and committed, after consultations with key stakeholders it was decided not to select specific regions before the project starts. The rationale for this decision is the earlier mentioned ongoing changes in a number and structure of healthcare facilities, and dynamic expansion of waste disposal services of which information is often missing at the administrative level.

The project will issue a call for and solicit applications of interest from all regional governments for proposals on co-operation. Such applications will be reviewed by the project team, with inputs from a Technical Advisory Committee, against approved main selection criteria[55]. Additional important element of decision making process will be to ensure that the project avoids creating unjustified barriers for existing private waste management services in a form of highly competing infrastructure such as a project-equipped healthcare waste treatment centre.

Application of these criteria will ensure that the project achieves maximum possible results that can be monitored during the project period, in terms of BEP/BAT implementation, avoided emissions, and reduced waste.

The project team (represented by project manager) will make recommendations on final selection of the demonstration sites, subject to consensus approval secured from the project board. Based on proposed GEF funding to the project, it is estimated that the project's scope will directly target 13,000 hospital beds in total, and the pilot phase will be implemented in two regions, and in possible co-operation with healthcare facilities located outside target regions where circumstances necessitate such approach (location proximity, for instance).

With selection of the pilot areas completed, the project will develop a Regional Healthcare Waste Management Plan for the selected provinces that will back appropriate implementation of capacity building and demonstration activities as proposed in the next section. The main objectives of the Plan[56] are to:

- Overcome existing information gaps;
- Improve system management and monitoring;
- Set framework for implementation of BEP/BAT approaches for uPOPs/mercury release minimization;
- Improve access of the healthcare sector to waste management services and optimize costs of waste handling, and

[55] Draft criteria: **(1)** Demonstration of commitment to the project's mission, vision and values; **(2)** Lack or insufficient capacity of healthcare waste treatment installations in proposed demonstration areas; **(3)** Local stakeholder's ability and readiness to (a) contribute financially and logistically to set up healthcare waste treatment installations in the region, to maintain them and to cover their operational expenses during and after the project; (b) allocate human resources for co-operation with the project; (c) remove from use the batch type and poor quality incinerators which can be replaced by non-combustion healthcare waste treatment methods. This concern both types of partnership: public and private; **(4)** Viability of the regional business plan, including minimum annual waste generation of healthcare facilities, proposed organization and management of the waste treatment installation, projected operating costs, potential revenue sources, and other considerations that impact the sustainability of the HCW treatment centre serving healthcare facilities in the region; and **(5)** Consistency with the priorities of the national roadmap.

[56] An important complementary objective is to demonstrate, on the regional and national levels, the usefulness of this planning tool for resource allocation, capacity planning and the prioritisation of projects.

- Plan necessary investments and foster the development of quality waste management services in selected provinces.

The project's work will be based on methodologies developed by the European Union[57], the World Health Organization[58], and the current GEF/UNDP global HCWM project (I-RAT tool)[59]. These guidance materials are selected, being widely used for drafting of local and national waste management programmes, since the country has no practical planning of the waste management at administrative level.

The following specific measures are contemplated:

- Evaluation and selection of demonstration provinces.
- Analysis of existing documentation and information on healthcare waste management; identification of health and waste management facilities; site visits to major establishments, and waste disposal sites.
- Preparation of a regional Healthcare Waste Management Plan for the selected provinces, including adoption of a roadmap for its implementation

Activity 3.1.3.: Pilot uPOPs/mercury reduction projects implemented in selected hospitals

The activity will identify rural and tertiary hospitals with underdeveloped and poor quality waste management systems for their development into model facilities, whose improved performance with substantial reduction in uPOPs/mercury releases may be replicated in other similar establishments as well as at a wider scale, in other provinces. This process will be closely linked to the HCW treatment centres planned in the next activity 3.4.

The project will particularly seek for opportunities to improve chemical waste disposal, and implementation of a recycling program for non-hazardous healthcare waste through organised external services, if locally available.

A product replacement program for mercury containing thermometers will be developed for the model hospitals, and extended to include other health facilities in selected regions, specifically those that will use the services of the HCW treatment centres. Technical specification, developed recently by WHO[60], will be used for the selection and purchasing of durable non-mercury thermometers.

It is planned that the activity will closely coordinate with the currently ongoing GEF/UNDP FSP Project on efficient energy lighting in Kazakhstan (EE project). As the latter programme, in terms of its design, includes planned activities on lamp replacements to achieve improved energy-efficiency in public buildings (schools, hospitals), there is a strong link between the two initiatives. The process of formulation and implementation of energy-efficiency programmes in selected hospitals will be coordinated with the mercury device replacement and management to ensure a more comprehensive coverage of the mercury related issues. This will demonstrate synergies between sound chemical and climate change mitigation measures.

[57] Preparing a Waste Management Plan. A methodological guidance note, European Commission, 2012.
[58] Health-care waste management. Rapid assessment tool (RAT), Version 2011, WHO; National Health-Care Waste Management Plan. Draft Training Manual, UNEP and WHO, 2003.
[59] Individualized Rapid Assessment Tool (I-RAT) for Healthcare Waste Management, GEF UNDP Global Healthcare Waste Project, April 2009
[60] Replacement of mercury thermometers and sphygmomanometers in health care. Technical guidance, WHO, 2011.

The following measures will be implemented in support of this activity:

- Pilot hospital selection[61] and their baseline assessment;
- Development of individual healthcare waste management plans for hospitals, including waste generation tracking and reporting tools, waste management policies, BEP/BAT for uPOPs, and mercury reduction program;
- Designing and implementation of hospital staff's (managerial and technical) awareness and training program;
- Implementation of the individual waste management plans in conjunction with activities on installing and demonstration of HCW treatment technologies planned in Activity 3.4;
- Replacement of mercury thermometers and their safe disposal;
- Evaluation and documentation of results and lessons learned.

Activity 3.1.4. Establishment of HCW treatment centres in selected waste handling sites

Since poorly managed waste incineration processes result in direct emissions of uPOPs and further raise occupational safety and environmental impact issues, they are not considered in this project as the best available solution during handling of healthcare wastes. Instead, the project will consider alternative non-incineration approaches.

Waste treatment systems, utilizing autoclaving and microwaving processes, are in now common use in other developed and developing countries as an alternative solution as compared to incineration of healthcare waste. Such technologies are applied to avoid hazardous uPOPs emissions from incineration operations and follow internationally accepted recommendations on waste handling as formulated by the Basel and Stockholm Conventions.

These technologies are well established in practice and have been in operation for at least two decades, and, in case of standard autoclaves, for over a century. In Kazakhstan, especially in the private sector, these techniques are not yet well recognised and accepted as suitable, affordable and cost effective tools for healthcare waste treatment. This situation persists despite the fact that autoclaving is often used by hospitals for decontamination of laboratory and blood waste, in addition to standard steam sterilization of, for instance, surgery equipment.

The project will demonstrate the effectiveness of non-combustion healthcare waste treatment technologies through establishment of about eight (8) rural and two (2) municipal (tertiary) treatment centres in selected regions[62]. The selection of sites and participating hospitals will be decided upon delivery of results from Activity 3.1.2. Preliminary planned processing capacity of waste treatment installations is calculated at 950

[61] **Draft criteria for hospital selection**: **(1)** Demonstration by hospital management and staff of commitment to the project's mission, vision and values; **(2)** Underdeveloped status of healthcare waste management in the facility; **(3)** Hospital's ability and readiness to (a) contribute financially and logistically to set up a healthcare waste management system comprised of best HCWM practices and a non-combustion treatment technology; (b) allocate human resources for co-operation with the project; (c) remove from use any batch type and poor quality incinerators to be replaced by a non-combustion treatment method; (d) monitor and document HCWM practices and the treatment process in order to meet benchmarks set by the project; and (e) maintain the healthcare waste management system during and after the project; **(4)** Hospital's willingness to implement a mercury reduction program and to become a mercury-free healthcare facility; **(5)** Potential to implement a recycling program for non-hazardous waste; **(6)** Synergy with the ongoing GEF/UNDP project on efficient energy lighting; **(7)** Status of leadership of the hospital within the health sector and its ability to influence or effect change in other hospitals; and **(8)** Consistency with the priorities of the national roadmap. Note: The GEF/UNDP project reserves the right to transfer the equipment to another facility if the hospital does not meet the benchmarks set by the project or does not maintain the HCWM system (equipment utilization rates may serve as part of the decision making criteria). All equipment placement will be governed by LoAs with each specific recipient

[62] Subject to availability of funding and market cost of equipment

tons/year, and is considered as sufficient enough to satisfy the needs of 13,000 hospital beds in total, assuming the average generation rate of 0.2 kg/bed/day for infectious waste category.

It is currently planned that each of the two (2) municipal treatment centres will function with 150-200 km operational coverage radius, and will collect hazardous healthcare waste from up to 5,700 hospital beds which is equivalent of 1,140 kg of waste per day (at target average waste generation rate). The individual treatment capacity shall be no less than 100 kg/hour, and it is assumed that each centre will operate 16 hours daily, and 250 days yearly. Such operational arrangement results in an estimate that, at least, three (3) specialised trucks fulfilling UN-3291 requirements[63] will be needed by each treatment centre.

Each rural centre will serve approximately 200 hospital beds on average, small clinics and rural feldsher stations with cumulative generation of 40 kg of waste daily. The range of their operation shall not exceed 100 km, and the transportation of collected waste will need to fulfil requirements of UN-3291 (as applied for small quantities of waste).

When analyzing current situation with HCW transportation in regions selected for the PPG study, it was revealed that existing vehicles, operated by several surveyed private companies, are in bad conditions, almost obsolete and do not meet ADR requirements. When quotes were requested from these companies, no official responses were received and majority had refused to allow project team to premises to check operational standards on site. From information that was collected in these circumstances with help from a small number of cooperating transport companies, the costs currently charged substantially exceed 1 Euro/km (European quotes on average), while quality of service remained low with high sanitary risks.

Provided the situation and estimates on amount of waste, the project will finance the acquisition of the following essential equipment items to support the demonstration component:

- Ten (10) non-combustion healthcare waste treatment installations for municipal and rural centers:
  - Two (2) installations of capacity 100 kg/hour each; each serving 5,700 beds, operating at least 16 hours a day (municipal), and
  - Eight (2) installations of capacity 20 kg/h each (rural); each serving 200 beds;
- UN approved, transport packaging for on-site temporary storage and off-site transport of accumulated healthcare waste; and
- Personal protective equipment (PPE) for safety of operations.

With regard to transportation element, the project, with GEF funds, will further explore two options to be decided at the implementation stage on the most realistic way forward in current circumstances:

- Procurement six (6) light trucks for healthcare waste transportation, fulfilling ADR requirements, for two (2) larger processing capacity centers; or
- Reconstruction of trucks to fulfil ADR requirements at companies willing to cooperate with the project – the latter will provide wider coverage as compared to a limited pilot supply of transport vehicles, though, will depend on the extent of collaboration between target partners.

The demonstration element, disregarding which option is taken, will help promote awareness and install skills in appropriate management of HCWM, and is expected to result in budgetary allocations (over time and in line with existing Governmental financial planning processes) in support of further improvements in the area.

[63] http://www.unece.org/index.php?id=25058 and http://www.who.int/csr/resources/publications/biosafety/WHO_HSE_EPR_2008_10/en/index.html

The HCW treatment installations will be selected based on an international tender. The bidding process will follow standard UNDP procurement procedures. Only tested and licensed methods and installations will be considered in the bidding process. Among criteria set for selection, technologies under review will be expected to be capable of meeting international standards on microbial inactivation, be easy to operate and maintain, and be affordable enough in terms of capital and operating costs in order to gain acceptance by healthcare administration offices and facilities.

In order to support the sustainability part of the proposed intervention, the project will require that with the supply of new waste processing equipment, each waste treatment centre will be prepared to carry the following costs (to be covered by local or regional administration and/or private investor(s)) that will serve as complementary co-finance support to the proposed GEF activities:

- Land acquisition or preparation of existing platforms to accept the new installations;
- Required housing upgrade, construction materials and civil works (inclusive of safety measures, such as emergency equipment, ventilation, required safety tools); and
- Equipment operation, utilities and maintenance.

The following measures will be implemented in support of this activity:

- Development of tender specification documentation.
- Selection and purchase of equipment through international tender.
- Environmental Impact Assessment and installation permit process.
- Commissioning of waste treatment installations, including staff training.
- Monitoring of installation performance.
- Evaluation and documentation of results and lessons learned.

Outcome 3.2. Linkages between sound HCWM practices and minimization of uPOPs and mercury demonstrated through training and awareness raising programmes

The main objective of this Outcome is to support the demonstration and capacity building component (Outcome 3.1) through:

- Activity 3.2.1: Development and dissemination of BAT/BEP technical guidelines and general awareness raising programmes;
- Activity 3.2.2: Development of national training programs on uPOPs and mercury risks and sound HCWM;
- Activity 3.2.3: Establishing partnerships for information exchange between local authorities, private companies and medical facilities with the aim of minimizing uPOPs and mercury releases through new technologies and waste reduction techniques;
- Activity 3.2.4: Implement activities aimed at fostering national replication of pilot facilities; disseminating experience gained and lessons learned through communication and demonstration programme.

The actual activities, which are described below in detail, form an integral part of the capacity building effort and practically prepare for expansion of results of the pilot programme to other regions of the country.

Activity 3.2.1 Development and dissemination of BAT/BEP technical guidelines and general awareness raising

Kazakhstan currently lacks informative materials and detailed guidelines for all steps of healthcare waste management, including guidance materials on associated data gathering and processing. Therefore, it is

planned that the project plans to formulate missing guidance documentation on best practice and best techniques for healthcare waste management with overall objective to improve existing practices in alignment with new proposed legislation.

The guideline materials will provide recommendations for establishing a comprehensive and consistent approach to all stages of healthcare waste management in the country[64], and will offer practical solutions for problem troubleshooting, involving different aspects of waste management. As such, the guidelines will assist in the development and application of individual waste action plans at hospital level, the fulfilment and improvement in reporting obligations, and for the selection of appropriate waste treatment methods and technologies.

All documentation will go through official consultation and approval processes with the key line Ministries involved - Ministry of Public Health and the Ministry of Environmental Protection. This activity will be performed in accordance with established national practices and with input from all relevant stakeholders (agencies, institutes, non-governmental sector and affiliated associations).

The formulated materials will be published and distributed in hard copy to all major hospital facilities, regional environmental and health administration offices. An electronic version will be made accessible and downloadable from a future project's website.

The general awareness will be supported through various media sources, scientific medical conferences, public campaigns, and direct work with higher and professional medical institutions developing next generation of practitioners.

The following measures will be implemented to support this activity:

- Data and documents collection and processing with follow-on preparation of draft guideline materials, and stakeholders' consultations
- Formal approval of technical guidelines, and their distribution via electronic and print media
- Support to general awareness raising through education at medical schools and universities, media and NGO's involvement in public campaigns.

Activity 3.2.2. Development of national training programs on uPOPs/mercury risks and sound HCWM, partnership with stakeholders and national replication of BAT/BEP demonstration

With regard to national trainings, while the Ministry of Public Health had introduced sanitary requirements that mandate hospital facilities to implement staff training on safety in waste handling; however, no frequency of trainings was determined as well as no training curriculum and instruction materials were prepared based on these requirements. In practice, healthcare waste related issues are partly addressed by hospital facilities during generic orientation of staff in occupational safety matters, but training documentation (manual) to support this process is missing.

In order to address this capacity limitation gap, the project intends to develop and deliver three (3) types of trainings on healthcare waste management:

[64] They will further be aligned to the specific country's circumstances and based on international benchmarks set by WHO and the Basel and Stockholm Conventions, and will assist in reviewing and addressing existing legal framework, available waste management services, and currently used waste management equipment (waste collection – buns, bags, containers; transport means, storage etc). During the formulation process, the guidelines will also explore examples of BEP/BAT approaches developed in other GEF funded healthcare waste projects and apply such experience.

- Internal, at the pilot hospitals,
- At the regional level, and
- At the national level.

The first type of training is an integral part of the healthcare waste management program that will be developed for selected pilot hospitals. A one-day training will be organised for all employees divided into groups according to the type of duty performed, and it will address specific issues related to the understanding of the organisational structure and functional differences of various layers of responsibility within a hospital, type of medical services provided, logistics' specifics and waste handling principles.

The second type of training will be a three (3) days long capacity building course organised for regional and local administration offices, major regional hospitals, including pilot facilities, and waste management service providers from the demonstration regions. The main objective will be to facilitate the communication and start the process of implementation of the Regional Health-Care Waste Management Plan.

The third type of training of same duration (3 days) will implement a generic awareness and training program on healthcare waste management and will cover regional administration authorities and medical institutions in the remaining twelve (12) regions. The new training module will be suitable for incorporation into standard educational and training initiatives (curricula) for medical and environment enforcement professionals designed by Ministries of Public Health, and Environment (jointly with Ministry of Education), and hospital facilities. This will also secure sustainability of the capacity building to enable it to last post-project in a longer run.

The central objective of such layers of training and awareness raising is the capacity building effort to equip decision-makers, managerial and technical personnel with knowledge and skills on best practices related to policy setting, regulatory measures, monitoring, and hands-on responsible waste handling in the field.

The participants will learn how to monitor and control the waste management system according to domestic regulations and international BEP/BAT recommendations, the national HCWM guidelines and procedure documents developed within this project. As this training course includes capacity building in the fields of classification, segregation, storage, transportation and disposal of HCW, the participants' capacity will be prepared to address future challenges in this area, and this will substantially contribute to the continuous improvement of the national healthcare waste management system.

The following measures will be implemented to support this activity:

- Preparation of training materials
- Establishment of required partnership at each level and implementation of series of training courses for pilot hospitals, a selected target region, and a wider, in geographical scope, training in the twelve (12) remaining regions
- Printing, dissemination of training materials and amendments in regular curricula of medical schools and universities.

Component 4: Monitoring, learning, adaptive feedback, outreach, and evaluation (GEF finance - $155,000; co-finance - $200,000)

The component aims at monitoring and evaluation of results achieved to improve the implementation of the project and disseminate lessons learnt domestically and internationally. The outputs of the component are:

- M&E and adaptive management are applied to provide feedback to the project coordination process to capitalize on the project needs; and
- Lessons learned and best practices are accumulated, summarized and replicated at the country level.

Further details are provided in Part II chapter C: M & E Plan.

A.5 Incremental / Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

In terms of its design, the project is expected to lead to the following important results:

- In response to the international obligations, an updated National Implementation Plan for POPs is formulated with improved inter-agency cooperation, and is submitted for endorsement to the Government, and further to the Stockholm Convention's Secretariat;
- A national system on POP data collection and national priority decision making is improved to include previously unaddressed POPs;
- Through capacity building, the authorities responsible for international agreement compliance are better positioned to track inventories on POPs and report on progress;
- The country's legal and institutional framework is reviewed and updated to address unintentional POPs and mercury releases in the healthcare waste management sector;
- The country's mercury situation is assessed and the outline of mercury reduction plan is developed to help prepare the Government in participating in further discussions related to the Minamata convention on mercury;
- Unintentional POPs and mercury releases are reduced in the HCW sector in selected hospitals through technical assistance, dedicated investment support demonstrating non-combustion waste treatment technologies, improved regulatory framework, enforced technical guidelines, all supported by practical reduction of waste stream (and resulting emissions) at the source, on the hospital level;
- Medical facilities and waste management companies have the guidance, capacity and competence to provide appropriate and effective waste management services, minimizing environmental and health hazards, specifically addressing releases of uPOPs and mercury.

Overall, the project reduces barriers to the implementation of the Stockholm Convention on Persistent Organic Pollutants, and the World Health Organization's policies on safe healthcare waste management and on mercury. It further builds basic capacity of the country in mercury management in the light of the international level discussions on the Minamata convention on mercury.

An ancillary benefit of this work is the improvement of healthcare delivery systems, as a public good, through the fostering of socially and environmentally responsible healthcare waste management practices, thereby supporting the prerequisites for achieving the U.N. Millennium Development Goals on human health and environmental protection. Through the prioritization of unintentionally produced POPs and the subsequent establishment of institutional and legal frameworks for their management, this project is expected to significantly improve the opportunities for further reduction of POPs releases in the country through the replication of demonstrated HCW waste management approaches.

Finally, by increasing decision-makers' knowledge of the impact of POPs on human health and environmental quality, they would get a more accurate representation of the country's baseline situation and the importance of sound chemicals management. Thus, this project would promote a more holistic approach to the issue of chemicals and waste management, and through this, promote environmentally sound and sustainable development in the country.

Incremental cost reasoning and global environmental benefits: In the baseline scenario, the awareness of decision-makers of the economic and social benefits for promoting sound uPOPs (and mercury) management

will not be high enough to lead to substantial improvements in the overall chemicals management in the country. Even though there is a will to update POPs regulatory framework, there is a concern that, without a comprehensive understanding of chemical safety aspects, such regulatory changes made would yet again be too narrow in scope and not comprehensive enough associated enforcement gaps, and leave certain sectors, stakeholders or impacts unaccounted for.

The project is expected to formulate the NIP update and carry out a national mercury assessment. In this respect, an expected side-effect of the project is the improved dialogue, due level information exchange and facilitation of cooperation among decision-makers and chemicals users. As the project will result in the update of the NIP and the establishment of a framework for monitoring and controlling unintentional POPs releases, the project will support the implementation of the Stockholm convention, as the direct Government's obligation, and the proposed activities are clearly incremental. It will too build the basic capacity of the country in the light of the international negotiations on the Minamata mercury convention.

The project will support an integrated system's approach to healthcare waste management. In the absence of GEF-supported intervention, fragmented national efforts to control uPOPs are likely to slowly continue within specific sectors (or pillars, within line ministries) with insufficient collaboration and limited coordination over different spheres of activity. As such, and along with the demonstration of internationally accepted BAT/BEP, the GEF's support is also incremental in improving the country's institutional capacity to address the uPOPs and mercury release challenges.

Expected further project outcomes are presented below.

Reduced emissions of uPOPs
The treatment of healthcare waste by non-combustion installations, set up and demonstrated within Outcome 3.1, will lead to direct reduction of dioxins and furans emissions, which are or could be potentially emitted if the accumulated HCW (waste) is continuously disposed of through uncontrolled incineration. Avoided or reduced amount of PCDD/Fs depends on the type of incinerator currently deployed and replaced by the alternative treatment system. The table below shows two possible scenarios for the planned total throughput of non-combustion installations.

Table 11. Avoided or reduced emission of PCDD/Fs in reference to the incineration system replaced (Outcome 3.1)

Type of installation	**Total quantity of waste [t/a]**	**PCDD/Fs release to air (µg TEQ/t)**	**PCDD/Fs release to bottom ash (µg TEQ/t)**	**Total PCDD/Fs release to air avoided or reduced [g TEQ/a]**	**Total PCDD/Fs release to bottom ash avoided or reduced [g TEQ/a]**
"Adopted": batch type, boiler, muffle furnace	950	40,000	200	**38.00**	**0.19**
Dedicated	950	3,000	20	**2.85**	**0.02**

Further, the implementation and enforcement of the MEP regulation on emission and technical standards for waste incineration should lead to the removal from service the batch type of waste burners, which in

consequence will result in elimination of PCDD/Fs emissions from waste incineration processes by over 86%[65], or 108.5 I-TEQ a year to air and 0.54 I-TEQ a year to bottom ash of the baseline estimate.

The new standard should also cause substantial reduction of uPOPs emissions from existing dedicated HCW incinerators. However, majority if not all of these facilities may not be retrofitted due to their type of construction, wear, and economic reason, and, thus, they will need to be replaced by new equipment in a longer run. This, and a forward looking assumption of effective replication of the project's incremental input to improve uPOPs reduction under Outcome 3.1, both create an opportunity for non-burn technologies to be adopted on a wider scale in Kazakhstan and further decrease uPOPs emissions. The situation and market development, to track such progress, will be closely monitored and documented by the project.

Reduced quantity of mercury waste
The target number of hospital beds for the project is 13,000 in total. As the current health regulation concerning thermometer use requires that one thermometer is available per one hospital bed, regardless if it is a mercury or electronic device, it will be necessary to replace at least 13,000 mercury containing thermometers in the pilot areas. This accounts for 26 kg of actual net weigh of mercury to be reduced or 10.9% of total estimated annual mercury released by the health system through broken thermometers.

Reduced quantity of healthcare waste
Due to relatively low-level infectious waste generation rate in Kazakhstan, it is not expected that the project will significantly contribute to reduction of this category of waste. However, there is a lot of to do in order to minimise wastes which end up in the environment without any treatment. This is of particular concern for chemicals which are commonly disposed of in the sewage system as well as the municipal solid waste which is not recovered, but landfilled only. The current challenge for the country as a whole, but also for the project, is that chemicals' recovery and treatment services have gradually disappeared together with the disintegration of the former Soviet Union, and are very rarely available for the healthcare system, but only are somewhat present in the industry and in certain locations only. The same applies to municipal waste's recycling services – they are in the early development stages, and currently present, in a limited scale, only in Astana (current capital) and Almaty (former capital area).

Therefore, the healthcare waste minimization very much depends on which pilot regions will be chosen for the demonstration purposes, and what kind of waste disposal services will be available to support the planned project's activities.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The overall risk rating attached to project is considered medium-to-low recognizing previous and ongoing capacity building efforts associated with the country's obligations in front of the Stockholm Convention.

Minor climate change risks may be associated with the project, and project will contribute to demonstrate more affordable non-incineration technologies, thus, limiting climate risks. The project will further seek to cooperate with the GEF/UNDP project on improving energy efficient lighting in Kazakhstan by exploring joint cooperation in pilot hospitals on mercury light bulb replacement as well as devising common strategies for mercury containment. The transportation of health-care waste and resulting emissions are both unavoidable, however, the project will attempt to optimize the location of waste treatment centers to reduce the travel distances.

[65] In addition if the emission standard is implemented

The following provides an overall risk matrix that identifies and rates specific risks identified and mitigation strategy adopted

Risk	**Risk rating**	**Risk mitigation strategy**
Lack of cooperation between the Ministry of Public Health (MPH) and Ministry of Environmental Protection (MEP).	Low	A project addressing sound HCWM has been requested both from the RoK Ministry of Public Health and the RoK Ministry of Environment Protection, both of which have been involved in project concept preparation since the beginning. The Ministries have agreed that the MEP would take the lead in the POPs issues while the MPH would focus more on guidelines for sound HCWM and pilot projects within the hospital facilities. Project will ensure appropriate information exchange and frequent meetings between the ministries to ensure coordination.
Legislation is not amended by at least minimum standards for hazardous waste disposal operations, or delays occur in adopting such supportive measures	Moderate	MEP and MPH have already demonstrated in the project preparatory phase that they are willing to improve existing regulations by harmonizing these with the Basel, and Stockholm Conventions' recommendations and guidelines. The project will prioritize key regulations using current UNDP/WHO work on HCWM waste management. All activities on legislative measures will be linked to national development programme development processes to install regulations in the legislative system in a sustainable manner with appropriate budget allocations in medium to longer term
Low interest of hospital facilities to be involved in project, fear of additional burden by introduction of incineration emission standard and HCWM guidelines.	Moderate	The project will ensure close stakeholder and facility involvement from the very beginning. It will not only focus on the technicalities of POPs reduction, but also on the benefits of sound HCWM including economic savings. It will secure strong engagement from the MPH and WHO side to help facilitate the project's planned activities. The project will place specific focus on rural facilities, and develop plans and guidelines that take into account geographical and financial challenges which are faced by rural facilities in accessing regional waste treatment installations. In cases, where costs for waste disposal in incinerators are prohibitively high, the demonstration and supply of affordable non-incineration treatment method for healthcare waste will additionally contribute to the risk reduction.
Conflicting interests of private hazardous waste management companies and project's interventions in the public sector.	Moderate	The project will, first of all, look for regions with no or underdeveloped HCW treatment capacity, as well as where incinerators are in property of local authorities. In case a private market exists, the project will ensure that private companies are involved in related initiatives.
Risk of unsuccessful demonstration projects and limited replication in the country.	Low	The project will select demonstration areas specifically based on their expected cost-effectiveness, hygienic and environmental safety, and easiness of implementation and replication.
Unacceptably high environmental and/or health risks develop as a result of	Low	The risk will be mitigated by ensuring that any such activities are undertaken in accordance with international BAT/BEP standards and good practice. Verification of all critical activities

Risk	Risk rating	Risk mitigation strategy
project activities		and facility design and operating practice will be provided by an international expert.

The project will be monitored and evaluated on a regular basis according to applicable GEF and UNDP procedures for results-based management. An annual reporting exercise in the form of the project implementation review (PIR) will take place, where the project will be tracked for progress against the relevant performance indicators (included in the POPs tracking tool applicable to uPOPs and capacity building), evaluated for progress made towards development results, and assessed with regard to its degree of adaptive management and its flexibility to respond to changing circumstances.

A.7 Coordination with other relevant GEF financed initiatives

The commitment of the Government of Kazakhstan to the principles of sound chemicals and hazardous waste management has been confirmed with the country's ratification of the Stockholm (2007), Basel (2003) and Rotterdam (2007) Conventions. Kazakhstan also participates in the SAICM initiative and has a designated focal point for coordination of such activities.

Embedded in such forward looking country's positioning, the proposed initiative (current project) is also in line with current national environmental policies which focus on reducing pollution and eliminating related anthropogenic pressures and impacts to the natural and human environment. More specifically, it is consistent with:

- National Implementation Plan for Stockholm Convention;
- Concept for Environmental Safety for the years 2004-2015;
- Concept for the Transition of the Republic of Kazakhstan to Sustainable Development for the period 2007-2024;

The project will additionally seek coordination with the World Bank's implemented programme "Health System Technology Transfer and Institutional Reform (2011-2015)". The areas for co-operation will include support for development of sanitary-epidemiological standards pertaining to healthcare waste management, and improvement of efficiency and effectiveness of the inspection system.

The Ministry of Environmental Protection (MEP) has recognized the fact that the uncontrolled incineration of medical waste is a significant source of dioxin/furan releases, and it has initiated preliminary work on updating guidelines related to POPs releases, including those from incineration processes. To regulate emissions of uPOPs, MEP currently studies measures aimed at improving the operational control of industrial emissions, including the burning of fuels, and promoting the construction and modernization of flue gas cleaning facilities in the steel industry. In order to prevent uPOPs emissions from landfills, planned Government interventions target such practices as illegal burning of waste, biogas capturing, and construction of new landfills compliant with internationally referenced environmental regulations. The expected outcome of the MEP activities will be an amendment to the Environmental Code which shall ensure better consistency and systematization of provisions regulating wastes, POPs, and potentially dangerous chemicals.

Furthermore, MEP currently implements the project "Design and Execution of a Comprehensive PCB Management Plan for Kazakhstan" in collaboration with UNDP. The project includes activities on institutional capacity building, awareness programs on the issue of management of PCBs contaminated equipment, improvement of legal framework and establishment of binding guidelines and action plans, training, decontamination and disposal of equipment and residues. The project supports the development of country analytical capacity through the introduction of certified laboratory methods for POPs analysis, trainings and

the proposal for a POPs national monitoring programme, in collaboration with the Research Centre for Toxic Compounds in the Environment in the Czech Republic, which also serves as a regional centre for the Stockholm Convention. It is planned to ensure close coordination of the NIP update activities with the interim results of the programme.

It is important to note that the Ministry of Public Health currently works on issues related to strengthening the link between healthcare waste and the spread of HIV/AIDS, hepatitis and other pathogens, as well as on promoting safe waste disposal practices. The project will link to these activities to provide technical assistance on existing international safety and emission control norms.

Under the state sectoral program "Zhasyl Damu (Green Growth) for 2010-2014" a detailed inventory of all POPs and other obsolete pesticides is being planned. The inventory will be the basis for recovery and repackaging of obsolete pesticides stored in warehouses and repositories from various parts of the country for future disposal. Inventory data that can become available during the NIP update process will be coordinated for inclusion in the national POPs plan of action.

Additionally, Zhasyl Damu programme provides support for public and private initiatives aiming at improvement of non-hazardous waste recycling and disposal operations by technology transfer and establishment of materials recovery facilities in major cities.

On the mercury related aspects, the proposed project will closely collaborate with two separate initiatives:

- A UNEP's planned regional project on mercury inventory that would include Kazakhstan as a partner country[66], and
- Currently operational GEF/UNDP FSP project on efficient energy lighting in Kazakhstan (EE project)[67].

The regional GEF/UNEP project will aim to strengthen the country's capacity in monitoring and collecting data on mercury sources, and the GEF/UNDP EE project will allow to extend support of this project to healthcare facilities for the replacement of mercury lamps and their safe disposal, as well as to introduce more energy efficient lighting products. Complementary coordination of efforts is planned with the latter on assessing the local capacity for mercury handling and activity certification.

In its review of a recently formulated draft national law on energy efficiency, the Ministry of Environmental Protection proposed rules for sound management of mercury wastes from both manufacturing and consumer products. MEP also proposed to include in its Strategic Plan for Environmental Protection and Resource Management (2011-2015) additional measures for establishment of (1) collection and temporary storage stations of used lamps, (2) facilities for their processing and recycling, and (3) educational activities for the public about such emerged availability of waste collection points. Moreover, the Ministry plans drafting a new regulation on proper accounting and state controls over mercury wastes.

The project will further establish cooperation with SAICM's Quick Start Programme (QSP) supported UNDP/UNEP Partnership Initiative for the Integration of Sound Management of Chemicals in Development Planning and Processes approved in 2012. It aims at improving cross-sectoral governance for achieving more effective management of chemicals priorities in the country.

[66] Currently at PIF stage. Coordination on the scope of activities between the proposed GEF/UNEP project and the formulated GEF/UNDP FSP on healthcare waste programme has taken place in the second half of 2012.
[67] http://www.thegef.org/gef/project_detail?projID=4166

At the national strategic level, UNDP actively monitors and provides regular expert input for the development of the National Strategy on Green Economy, a cornerstone, national development policy setting document, planned to be finalized in the first half of 2013. It is currently planned to include in the Strategy several progress indicators, i.e. in respect to hazardous chemicals and waste which will re-enforce the current project's objectives as related to legislative and waste management perspectives.

UNDP maintains close working relationship with WHO which has been involved in several medical waste initiatives in Kazakhstan. This collaboration with the WHO office in Kazakhstan is seen in this project as essential in order to ensure replication of best practices in this area available internationally. The engagement of WHO is critically important in securing good cooperation from the Ministry of Public Health and healthcare institutions. Moreover, WHO is very instrumental in outreach activities on good practices at national and province level, and provides important technical support on healthcare waste management (HCWM), infection control, occupational health and safety, and other related issues.

The project will coordinate with the GEF/UNDP/WHO/UNOPS Global Health-Care Waste Project to utilise accumulated experiences, capacity and expertise in terms of the involvement of the global team's members into the programme implementation, developed methodologies, and BAT/BEP approached demonstrated[68]. It is also expected that the project will closely collaborate with a MSP programme development process recently approved for same HCWM area of work for Kyrgyzstan[69].

The project will closely co-operate with two non-governmental organisations in Kazakhstan: The Center for Introduction of New Environmentally Safe Technologies, and the Center "Cooperation for Sustainable Development". Both organisations have extensive expertise on POPs and chemical issues, and already plan relevant activities during time frame of this project. The NGOs will strengthen the project by sharing knowledge and resources, and particularly by conducting public awareness rising campaigns on chemical safety, civil society's right to access to information and involvement in decision making process.

[68] http://www.thegef.org/gef/project_detail?projID=1802
[69] http://www.thegef.org/gef/project_detail?projID=5068

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in the project implementation

Intensive consultations have taken place during the PPG phase with an extensive list of stakeholders. At this stage the project proposal considers the following key stakeholders to be involved in FSP implementation (list not exhaustive):

- Government Ministries: RK Ministry of Environmental Protection, RK Ministry of Public Health, including its Sanitary and Epidemiological Surveillance Committee, RK Ministry of Industry and New Technology, RK Ministry of Agriculture.
- National institutions: Kazakhstan Scientific-Research Institute on Ecology and Climate Change (KAZNIIEK).
- Regional authorities: Oblast Health Departments, and Epidemiological Surveillance Committees.
- Health care facilities: hospitals and clinics.
- Private sector: companies which provide healthcare waste collection, treatment, and disposal services.
- NGOs: public advocacy groups who have extensive experience in POPs, waste and chemical safety issues: EcoMuseum, Green Women, The Center for Introduction of New Environmentally Safe Technologies, and the Center "Cooperation for Sustainable Development"
- World Health Organization (HQ office in Geneva, and local office in Astana).

B.2. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF). As a background information, read Mainstreaming Gender at the GEF:

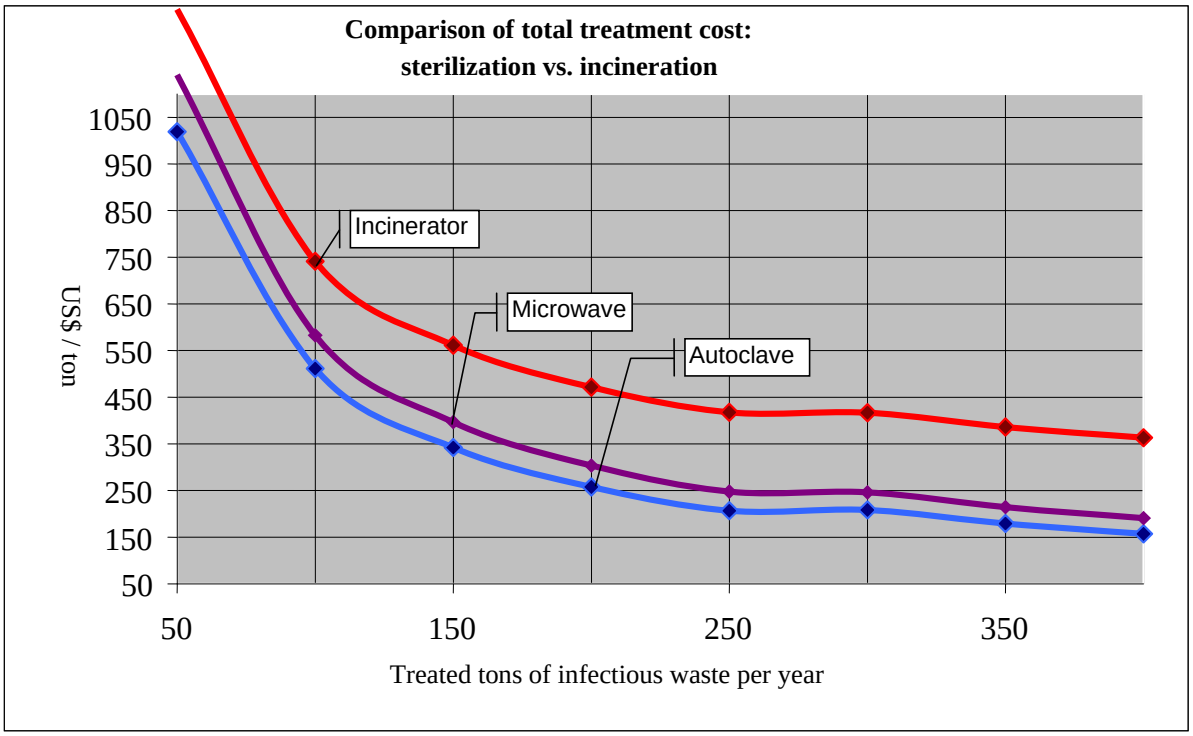
Economic benefits: The project will look for costs minimisation of healthcare waste management at two levels – in a hospital setting and during disposal operation.

At the hospital level, the costs can be substantially reduced mainly by amendment of sanitary legislation through introduction of standards recommended by WHO: like ¾ rule for collection of sharps waste; appropriate storage time for infectious and non-hazardous waste; withdrawal of requirements concerning freeze condition storage of not contaminated food, and on-site decontamination of all liquid healthcare wastes.

At the waste disposal level, the situation may only be changed by adoption of an uniform legal standard for healthcare waste treatment operations, improved control and monitoring as well as introduction of alternative equipment with lower capital and operational costs as compared to a commonly applied basic incinerators of the same processing capacity.

UNDP requested a price quote from several vendors on quality non-combustion and incineration installations which can serve as a reference for calculating expenses for the full scale project. The specific offers obtained for Kazakhstan indicated that investment and operational costs of non-combustion methods such as autoclave and microwave systems are much lower than of incinerators. For the target medium scale treatment centre, the costs of an alternative system are 2.3 times lower than those of the incinerator. It should be noted that the exemplary incinerator does not fulfil recommended 0.1 ng I-TEQ/m3 emission standard for PCDD/Fs, and none at this capacity range could be found to comply with it.

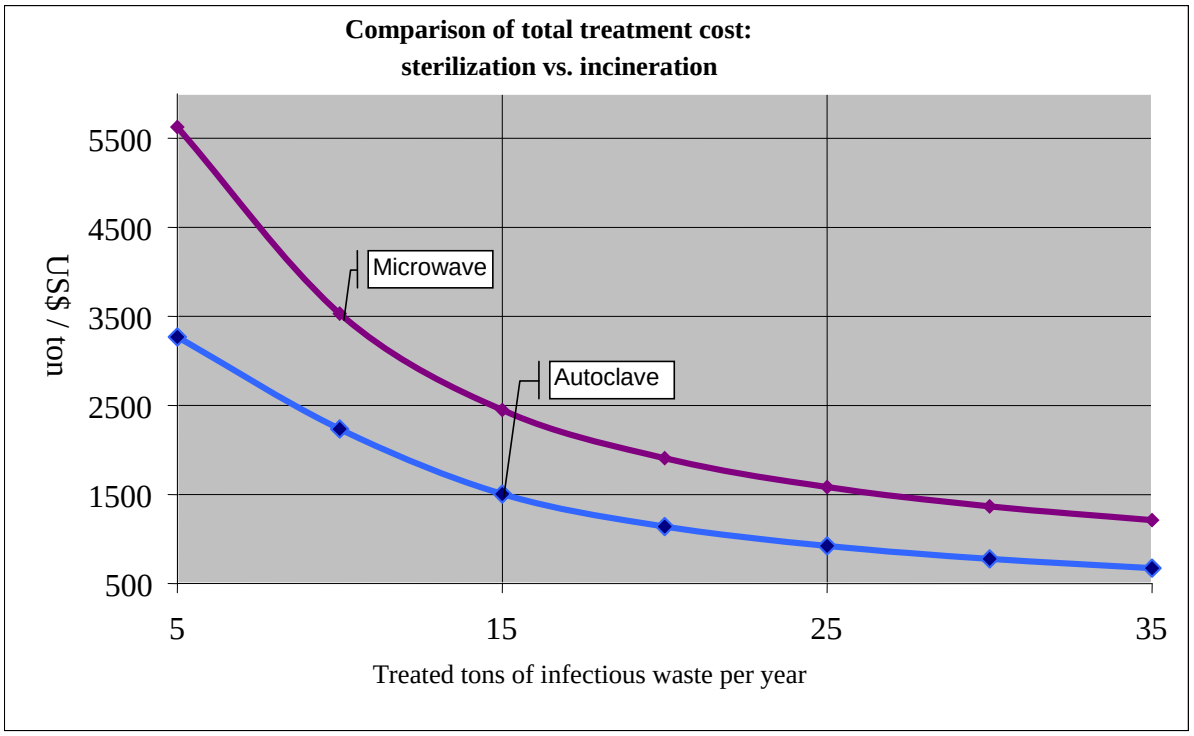
Figure 3. Comparison of total treatment costs between no-combustion and waste incineration methods of the same capacity.



For a larger waste treatment system one, if taken for purposes for additional comparison, with a throughput of 1,300 tons/year and compared to an incinerator capable to meet the recommended emission standard, the treatment costs difference is even higher (5-fold) in favour of non-combustion methods.

As the costs of waste treatment very much depends on the process's scale, for a small-scale rural treatment system the target should be no less than 15 tons/year to be able to, at least, maintain the current price of infectious waste disposal. At the current daily infectious waste generation rate of 0.2 kg/bed, each such installation will be suitable to cover by its treatment capacity 200 hospital beds – i.e. average two (2) to three (3) rural hospitals with a number of satellite clinics and feldsher posts.

Figure 4. Comparison of total treatment costs between microwave and autoclave system of equivalent processing capacity.



Social and gender Dimensions: Efforts to ensure the Sound Management of Chemicals, including Persistent Organic Pollutants (POPs), have important gender dimensions. In daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. Biological factors — notably size and physiological differences between women and men and between adults and children — influence susceptibility to health damage from exposure to toxic chemicals. Social factors, primarily gender-determined occupational roles, also have an impact on the level and frequency of exposure to toxic chemicals, the kinds of chemicals encountered, and the resulting impacts on human health. Control measures and demonstration of alternative technologies will reduce these acute risks.

As certain groups of workers are employed in the healthcare sector and deal with medical wastes they are exposed to health risks associated with the handling and disposal of infectious healthcare waste materials. Besides that, improper disposal of such waste through uncontrolled incineration generates hazardous emissions of uPOPs. The workers are also exposed to mercury during improper day-to-day handling, storage and disposal of failed mercury-containing medical measurement devices. Among such workers are nurses and staff responsible for waste handling with low status in the overall hospital hierarchy which limits their opportunities to protect their health.

With respect to the healthcare waste handling, the majority of workes who are at the highest risk of contracting nosocomial (hospital-borne) diseases and are exposed to spent chemicals are women (nurses and janitors). They are also the most important group with regards of pratical implementation of a proper separate waste collection and handling system at the health facility level. Women and children, who spent most time within their communities, might be at greatest risk from close proximity to healthcare waste incineration facilities.

In-hospital patients, where incineration of medical waste is practiced, may also be exposed to such risks. Households (families) which are located in the proximity to the sources of uPOPs emissions (sites with uncontrolled incineration of medical wastes: healthcare facilties, landfills in urban and rural areas) are also exposed to POPs impacts at regular intervals.

The end result of the project, the expected improvements in the regulatory framework to better control uPOPs emissions and mercury containment, will help in safeguarding human's health from harmful chemicals.

The gender dimension is fully embedded in the intervention logic of the project and will further be reflected at both site- and policy-level interventions for the sound management of chemical and the sound management of healthcare waste in particular.

B.3 Explain how cost-effectiveness is reflected in the project design

The current designed full-sized programme soundly combines several focal areas as covered below:

- Stockholm Convention's controlled unintentional POPs and BAT/BEP,
- Minamata convention's related sound mercury management, and
- Chemical MEAs cooperation, all practically demonstrated in a national context,

With substantial amount of national co-finance from the Government, it is expected that the project will contribute to obtaining significant global environmental benefits in terms of uPOPs reduction, control in mercury releases from hospital sector, practical implementation and further wider adoption of BAT/BEP techniques for a larger in scale positive impact in the country.

While difficult to quantify on a directly comparable basis, the overall project cost effectiveness is felt to be generally in line with GEF investment in other HCWM projects currently proposed or being implemented globally and in the region, specifically in the African region, Egypt, Kyrgyzstan.

The cost effectiveness of the capacity strengthening components will be further improved by taking full advantage of work conducted in various UNDP/WHO implemented HCWM projects which have already been completed or still under implementation. This will mean that available training modules and materials will be adapted for local use and translated into local languages.

C. DESCRIBE THE BUDGETED M & E PLAN:

The project will be monitored through the following M&E activities. The M&E budget is provided in the table below.

Project start:

A Project Inception Workshop will be held within the first two months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Managment Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Audit: The project will undergo annual audit by a certified auditor according to UNDP rules and regulations, policies and procedures.

Learning and knowledge sharing:
Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:
Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml , and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf.

Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

Monitoring Framework and Evaluation, and Budget

Type of M&E activity	***Responsible Parties***	***Budget*** *(US$) excluding project staff time; all figures are indicative*	***Time frame***
Inception Workshop (IW) & associated arrangements	▪ Project Manager (PM) ▪ UNDP CO	3,000	Within first two months of project start up
Inception Report	▪ Project Team ▪ UNDP CO ▪ National and international consultant support if needed	0 (included in routine project staff activity)	Immediately following IW
APR/PIR	▪ PM ▪ UNDP CO	0 (included in routine project staff activity)	Annually
Meetings of Technical Advisory Board and relevant meeting proceedings (minutes)	▪ PM ▪ UNDP CO ▪ Other stakeholders	900	Following Project IW and subsequently at least once a year
Meetings of Steering Committee and relevant meeting proceedings (minutes)	▪ PM ▪ UNDP CO ▪ National implementing agency	600	Once a year, ideally immediately following Technical Advisory Board meetings
Quarterly status reports	▪ Project team	0 (included in routine project staff activity)	To be determined by Project team and UNDP CO
Technical monitoring, evaluation, and reporting within project components, including final assessment of pilot hospitals, HCW treatment centres, avoided emissions, and reduced HCW and mercury releases	▪ Project team ▪ National and international consultants as needed	76,500	Continuous, starting from project inception
Midterm Evaluation (external)	▪ Project team ▪ UNDP CO ▪ UNDP/GEF RCU ▪ External Consultants (i.e. evaluation team)	25,000	At the midpoint of project implementation.
Final Evaluation (external)	▪ External Consultants (i.e. evaluation team) ▪ Project team ▪ UNDP CO ▪ UNDP/GEF RCU	25,000	At the end of project implementation
Final Report	▪ External Consultant ▪ Project team ▪ UNDP CO	(costs included in Terminal Evaluation, above)	At least one month before the end of the project
Compilation of lessons learned	▪ Project team ▪ UNDP CO ▪ UNDP/GEF RCU	0 (included in routine project staff activity)	Annually
Financial audit	▪ UNDP CO ▪ Project team	21,000	Annually

Type of M&E activity	*Responsible Parties*	***Budget** (US$) excluding project staff time; all figures are indicative*	*Time frame*
Visits to field sites	▪ PM ▪ UNDP CO ▪ UNDP/GEF RCU (as appropriate) ▪ National implementing agency	3,000	Annually or more frequently
TOTAL INDICATIVE COST (Excluding project team staff time and UNDP staff and travel expenses)		**155,000**	

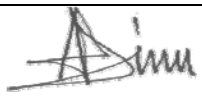
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Ms. Eldana Sadvakasova	Vice Minister of Environmental Protection GEF Operational Focal Point	MINISTRY OF ENVIRONMENT PROTECTION OF THE REPUBLIC OF KAZAKHSTAN	10/04/2010

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Adriana Dinu Officer-in-Charge and Deputy Executive Coordinator		07/31/2013	Dr. Suely Carvalho GEF Principal Technical Advisor for POPs/Ozone UNDP/MPU/Chemicals	+1-212-906-6687	suely.carvalho@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: National authorities and communities are better prepared and respond to natural and man-made disasters.
Country Programme Outcome Indicators: Involvement of civil society and communities in development, testing and implementing national disaster response and preparedness plans
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): By 2015, communities, national and local authorities use more effective mechanisms and partnerships that promote environmental sustainability and enable them to prepare, respond and recover from natural and man-made disasters.
Applicable GEF Strategic Objective and Program: GEF-5 Chemicals Strategy: Objective CHEM-1: Phase out POPs and Reduce POPs Releases. Objective CHEM-3: Pilot Sound Chemicals Management and Mercury Reduction Objective CHEM-4: POPs Enabling activity
Applicable GEF Expected Outcomes: Outcome 1.3: POPs releases to the environment reduced. Outcome 1.5: Country capacity built to effectively phase out and reduce releases of POPs. Outcome 3.1: Country capacity built to effectively manage mercury in priority sectors. Outcome 4.1: NIPs prepared or updated or national implications of new POPs assessed.
Applicable GEF Outcome Indicators: Indicator 1.3.1: Amount of un-intentionally produced POPs releases avoided or reduced from industrial and nonindustrial sectors; measured in grams TEQ against baseline as recorded through the POPs tracking tool. Indicator 1.3.1.1: Number of countries with Action plans addressing un-intentionally produced POPs under development and implementation. Indicator 1.5.1: Progress in developing and implementing a legislative and regulatory framework for environmentally sound management of POPs, and for the sound management of chemicals in general, as recorded in the POPs tracking tool. Indicator 1.5.1.1: Number of countries receiving GEF support to build capacity for the implementation of the Stockholm Convention. Indicator 3.1.1: Countries implement pilot mercury management and reduction activities. Indicator 3.1.1.1: Number of countries receiving GEF support for mercury management and reduction, on a pilot basis. Indicator 4.1.1: Progress in development or update of NIPs as recorded through the POPs tracking tool. Indicator 4.1.2.1: Number of countries receiving GEF support for NIP update.

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
Objective: To reduce the releases of unintentionally produced POPs and other globally harmful pollutants into the environment by promoting sound healthcare waste management in	Update of the National Implementation Plan (NIP) on Stockholm Convention is prepared and coordination on chemical MEAs is enhanced.	• No inventory on new POPs • Fragmented legislation controls • NIP not updated • Several POPs initiatives are implemented not in a coordinated way	• Sources of new POPs identified and assessment started. • Legislative gaps found and recommendations for improvement are prepared • Initial inter-agency cooperation	• Inventory completed and publicly available • NIP obligations with inclusion of new POPs reviewed and updated. • Updated draft NIP is presented to the Government for review process and endorsement	• Inventory collection reports • Legislative options reports and draft regulations • MTE and FTE reports • Published official documentation	• Lack of commitment, of one or more partners could result in a not properly coordinated effort and in a weak NIP update. • Difficulties in gathering

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
Kazakhstan, and to assist the country in implementing its relevant obligations under the Stockholm convention.					(law, state programs, etc.).	information due to the lack of commitment, actual data or resources. • Difficulties in reaching the agreement on NIP content and objectives.
	Mercury inventory and Reduction plan prepared.	• Stand-alone, site specific mercury contamination remediation programme is in place by the World Bank • No other inventories of mercury initiated and completed and human exposure estimated • No mercury use and release standard set • No national mercury management plan formulated and approved	• Data collection teams established and operational • Sources of mercury, storages and contaminated sites identified. • Legislative gaps analyzed and recommendations drafted • UNDP and UNEP separate initiatives progressively advance with their objectives •	• Mercury situation in Kazakhstan assessed • Inventory is documented • Inter-agency consultations held • National capacity to handle recovered mercury is assessed and recommendations for improvement are set forward Draft National Mercury Reduction Plan developed with identified priorities. • Mercury emission standard established.	• Inventory collection reports • Legislative options reports and draft regulations • MTE and FTE reports • Published official documentation (law, state programs, etc.).	• Data limitations constrain priority discussions • Draft Plan is delayed in review and acceptance that results in weak enforcement
	POPs emissions from healthcare waste incineration are reduced through a demonstration component, and wider replication of results.	• Waste segregation for waste source reduction is not a standard accepted approach in medical facilities • Routine waste incineration without emission controls and risk reduction measures is commonly practiced • Low level of practical knowledge and use of non-combustion techniques • Baseline emissions constitute 124.88 g TEQ/a	86.08 g TEQ/a to air, and 0.46 g TEQ/a to bottom ash.	16.38 g TEQ/a to air, and 0.11 g TEQ/a to bottom ash	• Number of incinerators replaced by alternative systems, and shut down. • Quantity of waste treated in non-combustion and incineration installations. • Statistical data from RoK MEP, and RoK MPH.	• The emission standard for waste incineration is not implemented or delayed in approval. • Installations that do not comply with the emission standard are not removed from operation. • All incinerators not compliant with technical and emission standards

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
		to air, and 0.65 g TEQ/a to bottom ash.				removed from services.
	Mercury waste generated by the health sector is managed soundly and future waste is minimized	• Broken thermometers: 236.81 kg/a.	• Broken thermometers: 210.81 kg/a.	• In broken thermometers: 200 kg/a.	• Number of mercury thermometers replaced and safely disposed of. • Data from RoK MEP, and RoK MPH, and target hospitals	• Procurement delays • Slow process of mercury devices replacement by hospitals. • Health facilities accept new technology and gradually phase out mercury devices.
Component 1: Stockholm Convention NIP update and improved institutional coordination on chemical MEAs						
Outcome 1.1: POPs inventories improved for informed decision making and priority setting	Capacity building programme (trainings) for involved stakeholders developed and implemented on POPs risks, inventories, POPs tracking, monitoring of data reported by responsible parties.	• Training on PCBs inventory and management is being carried out in the framework of the UNDP PCB project. • No training on new POPs is currently planned on POPs issue in Kazakhstan • Limited information on new POPs is available	• Conventional training material completed and disseminated; • One (1) workshop and one (1) training for trainers completed for relevant stakeholders in the public and industrial sectors; • Training effectiveness assessed (with both training feedback from the trainees and final tests) • Number of requests for data sent out and processed • Number of visits made to related stakeholders	• Web tool for on line training completed and published; • At least three (3) complementary trainings completed; • Training effectiveness assessed (with both training feedback from the trainees and final tests) • Number of requests for data sent out and processed • Number of visits made to related stakeholders	• Training materials developed and printed; • Training reports; • Feedback from training • Result of training tests. • Activity of trained teams in data collection • Web tool published	• Technical resource for conducting training is available; • There is enough motivation to participate in training. • Few participants in training sessions; training not effective • Lack of cooperation of data collection teams with information holders
	National information system (inventory) on POPs expanded (updated information on uPOPs and new POPs).	• Original 2003-2005 uPOPs inventory conducted with a limited set of industrial sources and outdated. • Inventory of POPs	• POPs Regular Inventory Mechanism established. • Industrial sources of uPOPs identified. • Statistical database	• uPOPs inventory completed using the most recent data available. • POPs inventories updated for uPOPs and POPs pesticides, covering	• Summary inventory reports for each specific POPs substance. • Information system built and	• Resources and technical capacities, including technical assistants, are qualitatively and

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
		pesticides stockpiles and burial sites limited to 20% of the country at the NIP stage. • Under the sectoral programs "Zhasyl Damu (Green Growth) for 2010-2014", adopted by the Government of the Republic of Kazakhstan dated September 10, 2010 # 924, a detailed inventory of all POPs and obsolete pesticides is envisaged but not started yet.	for the calculation of uPOP inventory built and validated. • Industries using new POPs or recycling waste containing new POPs identified. • Reports from responsible parties reviewed and data limitations revealed • Data quality and consistency evaluated with recommendations for improvement • At least 60% of the questionnaire survey completed and elaborated. • Inventory of pesticide stockpiles or burial sites extended to at least 40% of the country. • Inventory of PCBs updated by coordination with the UNDP PCB project.	all the territory of Kazakhstan. • Industrial use of new POPs identified and possible chemical and non-chemical alternatives assessed. • Inventory of stockpiles and burial sites of pesticides covering at least 70% of the country. • Plan for maintaining and completing the above inventories elaborated and institutional responsibilities assigned. • An information system on inventories of POPs substances established	regularly updated with new data. • Report on alternatives to industrial POPs drafted	quantitatively enough for conducting a thorough inventory. • Lack of coordination and motivation may lead to incomplete results / coverage of the inventory. • Insufficient funding and institutionalization are a risk to the establishment of a permanent inventory mechanism. • Data limitations and non-responsiveness from respondents
Outcome 1.2: National capacities on POPs monitoring, analytical capabilities are assessed	Studies on existing POPs analytical and monitoring capabilities for the whole range of POPs (with focus on new POPs) carried out	• A few laboratories identified in the course of NIP preparation and GEF/UNDP PCB management programme. • Laboratories are currently only nationally accredited for PCB analyses • Draft POPs national monitoring plan developed by RECETOX – a Stockholm Convention's Regional Centre in the Czech	• uPOPs analysis methods included in the national register; • Laboratories capacities for uPOPs analysis and POPs in goods and environment assessed. • Stakeholder-reviewed national POPs monitoring plan submitted to government for approval.	• National POPs monitoring plan approved as part of relevant national policies and documents. • Participation in regional monitoring networks.	• Laboratory assessment reports • National registers (analysis methods, laboratories, etc); • National environmental monitoring programs	• Weak analytical equipment at laboratories does not allow upgrades, only investment in new tools • A small number of interested and supporting laboratories identified limits project's activities. • National partners lack interest and

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
		Republic.				funding for POPs monitoring.
	A set of recommendations for the improvement of such capabilities formulated and submitted to the Government	• No full range of POPs and POPs in goods/environment is handled by existing laboratories • No national consultations held on priorities • No action plan is in place for improvements	• Qualified laboratories are identified for further accreditation • Cost of accreditation is estimated • Consultations held and roadmap prepared	• At least two (2) laboratories accredited to perform uPOPs analysis in goods/environment;	• Project reports • Laboratory accreditation information logs	• Interested laboratories are easily identified and agree to participate through co-finance. • Cost of accreditation too high • Sampling cost too high for wider acceptance
Outcome 1.3: Policy, institutional frameworks and enabling regulatory environment are in place to ensure better control on POPs accumulation and emissions	Institutional coordination and compliance with international agreements improved through firmer institutionalization of POPs issues into national structures	• No POPs coordination center in existence due to lengthy Government's approval procedures and unaligned MEP mandate, and mismatch of proposed workplans (to 2028) with 3 year long financial planning processes • POPs coordination happens in a fragmented manner with no alignment of roles • Nu funding sources to sustain POPs coordination function are available	• Roles and responsibilities of related stakeholders defined • Draft regulation defining TOR and potential Government's funding sources of the POPs coordinating mechanism established • POPs intersectoral working group (mechanism) established (for example, as part of the "Green Development" Center) • NGO's participation and input considered in the composition of the mechanism	• POPs group meets regularly to guide the NIP update process • Institutionalization of new POPs issues into relevant line ministries ensured according to defined roles. • Coordination mechanisms on POPs issues institutionalized and embedded into draft regulations sent for Government's review and approval. • Funding sources to ensure the mechanism's sustainability are defined, consulted on with MoF, and proposed for inclusion in national planning	• Project reports; • Approved TOR of the coordinating mechanism; • POPs group's meeting reports • Relevant draft regulations; • Reports and decisions on funding sources for the mechanism	• GoK is committed toward the implementation of a sound and integrated mechanism for the management of POPs. • Environmental and social impact review of proposed legislation is timely and successful • Public consultations are positive and supportive of proposed legislation • Time required for approval of new regulation through parliamentary bodies exceeds timeframe of the project.
	National legal framework, by aligning institutional roles, reviewed and improved to include the issue of insofar unaddressed POPs,	• Ecological Code contains only general information on POPs management (chapter 40 on dangerous chemicals), with amendments related to PCBs supported by	• Preliminary report on the improvement of current regulatory system drafted. • One (1) stakeholder consultation workshop conducted.	• Final report on the improvement of current regulatory system for including the issues of insofar unaddressed POPs, uPOPs and new POPs. • Amended regulation	• Project reports; • Draft legislation documents • Number of consultations held • Workshop	

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
	uPOPs and new POPs	GEF/UNDP programme on PCBs • The Government has plans to extend the provisions of chapter 40 to regulate emissions uPOPs • MEP plans measures to improve the operational control of industrial emissions, including burning of fuels, and promote the construction and modernization of facilities for cleaning exhaust gases in the steel industry.	• Review and update of EcoCode and other key regulations covering chemicals management (number of legislations reviewed and updated)[70]	drafted and submitted.	reports	
	Sectoral technical guidelines updated to include the issue of priority POPs, including sampling and analysis methods	• Guidelines and action plans are being drafted on the sectors related to POPs waste and PCBs, under the UNDP PCB project under Zhasyl Damu (Green Growth) initiative.	• Preliminary draft of the guidelines completed and disseminated to the relevant stakeholders (Government, Industry, NGOs) for amendment • Results of stakeholder consultations	• Technical guidelines and action plans on POPs are submitted for approval by relevant state bodies.	• Draft and final guidelines; • Review reports. • Workshop reports	• Sufficient technical and financial resources made available; • In consultation process, guidelines become too general or not sufficiently tailored to the country needs; • Guidelines are not approved for endorsement at the governmental level.
	Capacity building programme (trainings) and consultations for involved stakeholders developed and implemented on POPs related risks, POPs	• No national training held on new POPs, developments in the Stockholm Convention and NIP update guidelines; • Currently prevailing	• At least, three (3) trainings held on general POPs issues and NIP update process, in particular • One hundred (100) stakeholders participated	• At least, two (2) complementary workshops held • Sixty (60) stakeholders participated in workshops • Results of stakeholder consultations	• Project, workshop and media reports	• Stakeholder collaboration • Trained stakeholders are prepared and apply received knowledge in daily

[70] The "Environmental Code" and the laws regulating Chemical Product Safety and Pesticides ("On Plant Protection", technical regulation "Requirements to the Safety of Pesticides ") analyzed, gap analysis performed, amendments identified and submitted for approval (through relevant national legislative mechanisms).

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
	monitoring, institutional roles and responsibilities, POPs control legislation benchmarks and enforcement	insufficient knowledge on new POPs, their risks and control measures and approaches	in trainings • Results of stakeholder consultations	• NIP update formulated		functions
	National Implementation Plan (NIP) on Stockholm Convention obligations with inclusion of new POPs reviewed and updated, with elaboration of specific action plans on new POPs.	• The Government is carrying out several non-coordinated actions on POPs (update of inventories on pesticidal POPs in 5 regions, PCB management, inventory and partial disposal, planning better control of uPOPs, improving of existing regulations).	• Updated NIP structure and content agreed in consultations with relevant stakeholders. • A first draft of updated NIP prepared which contains preliminary draft of the inventory, guidelines, legislation and action plan and circulated.	• Final draft of the NIP completed and circulated for review within the main stakeholders. • Updated NIP submitted for approval to the Government, approved and submitted to the Secretariat.	• Project reports • Draft and final NIP update documents • Comments from the relevant stakeholders;	• Consultations are as wide as possible for priority setting • Difficulties in reach agreement on NIP content and objectives. • Lack of commitment, of one or more partners could result in a not properly coordinated effort and in a weak NIP update.
Outcome 1.4: Improved institutional coordination on chemical MEAs	Review and better alignment of ministerial functions on implementation of Conventions' obligations	• No or very fragmented institutional structure overseeing chemicals MEAs • Lack of common knowledge on synergies between chemical MEAs	• Functional review of stakeholders' functions is complete • Recommendations for improvement drafted • Stakeholder consultations held for priority selection	• Roadmap in place for joint coordination of MEAs • Draft regulation to enforce selected recommendations is in place	• Project and meeting reports • Draft regulations	• Mobilization and agreement of stakeholders to support the function alignment • NGOs participate in the review process • Delays in reviewing and approving legislation • No financial backing to the mechanism agreed with the Government • Roles and responsibilities are
	Establishment of coordination mechanisms to support synergistic implementation of Stockholm, Rotterdam and Basel Conventions and established framework (system) for monitoring, accountancy and	• No conceptual understanding (strategy) on the synergism and collaborative operation of responsible parties • No or very fragmented institutional structure overseeing chemicals MEAs • No formal coordination mechanism established	• Drafting and approval of a joint synergistic action plan (concept, strategy note) for the implementation of the Stockholm, Basel and Rotterdam conventions • Functional review of stakeholders' functions is complete • Draft TOR and	• Draft legislation supporting establishment of the coordinating mechanism submitted for review and approval • Temporary (with GEF/UNDP project's help) and fixed (Government) budgets for operation of the MEA mechanism defined and proposal for financing	• Functional review report • Draft legislation • Media reports • Stakeholder consultations	

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
	reporting on the implementation of the Stockholm, Basel and Rotterdam conventions in Kazakhstan	for synergistic implementation of MEAs • No TOR and mandate of the mechanism is in existence • No formal central monitoring on reporting obligations is maintained to assess quality of MEA implementation • Data collection challenges to ensure better reporting	mandates are defined in the context of existing Governmental mandates and financial planning processes supporting institutional structures • Stakeholder consultations held with agreements received form key authorities (Ministry of Justice and Ministry of Finance) • Principles of monitoring system drafted • Data collection and reporting processes are reviewed and proposals for improvement drafted	submitted to MoF • Monitoring system forms part of the prepared draft legislation on the MEA coordinating mechanism • Draft strategic concept and action plan are in place		not clear
	Capacity of government authorities on implementation of chemical conventions improved	• Lack of legal framework for cooperation among key stakeholders • No previous training on synergies and MEA implementation held • Data collection challenges to ensure better reporting • No conceptual understanding (strategy) on the synergism and collaborative operation of responsible parties • No action plan in place to support operation of the MEA coordinating mechanism	• At least, three (3) training workshops held for key stakeholders on key aspects of cooperation and data collection and analysis • One hundred (100) stakeholders participated in trainings Draft strategic concept and action plan formulated • Stakeholder consultations held	• Draft legislation supporting establishment of the coordinating mechanism submitted for review and approval • Received capacity is applied in decision-making forums	• Training workshop reports • Draft legislation • Media reports • Stakeholder consultations • Stakeholder feedback on trainings • Project and meeting reports • Draft documents	
	Improved data collection and chemical review processes for decision making and control improvements on the import and use of new dangerous chemical substances					

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
Component 2: Overall mercury situation assessed and initial mercury reduction and containment plan formulated						
Outcome 2.1: Mercury assessment implemented, national consultations held to identify priorities for actions and capacity building on mercury risks carried out	Capacity building programme (trainings) for involved stakeholders developed and implemented on mercury risks, inventories, sources, data tracking	• No previous larger scale efforts applied to build capacity of related stakeholders on mercury negotiations, mercury convention, mercury associated risks etc • Limitations in the scale of stakeholder activities on mercury, with exception to Ust-Kamenogorsk WB's programme on decontamination	• Capacity building program (trainings) for involved stakeholders prepared and initiated. • At least, three (3) training workshops held • One hundred (100) participants participated in training workshops • Key stakeholders are trained in inventory and data tracking	• Capacity building program (trainings) for involved stakeholders completed.	• Training workshop reports • Draft legislation • Media reports • Stakeholder consultations • Stakeholder feedback on trainings • Project and meeting reports • Draft documents	• Willingness of private sector to participate. • Government's support to the capacity building programme
	Mercury situation in Kazakhstan assessed in coordinated manner jointly with UNEP	• No national mercury assessment made, except in form of waste product • No database on sources and mercury releases is in existence • No full understanding of scale impact on human health	• Partnership with stakeholders established • Data sources accessed • Major sources are identified • National capacity to manage mercury products and waste assessed and recommendations for capacity improvement developed	• Assessment of country's mercury sources, releases, contaminated sites and priority areas for mercury control completed • The country's baseline data is established. • Information made available through database and open access web-site	• Survey reports • Source and on-site verifications • Draft assessment reports • Project reports	• Cooperation on data access is low • Lack of suitable legislative framework on data reporting • Data quality is low
	Outline of National mercury reduction plan developed	• No national mercury assessment made, except in form of waste product • No mercury action plan in place outlining priority action and setting budgetary allocations	• Consultations with stakeholders are held, inclusive coordination with GEF/UNEP's region programme • Future plan's outline and proposed legislative improvements (inclusive release standards) to control mercury management drafted • Data collection and assessment initiated	• Required data collected and analysed, and discussed in stakeholder forums • Priorities identified and agreed with stakeholders • Draft National Mercury Reduction plan is formally reviewed and cleared by relevant line Ministries and submitted for final approval.	• Survey reports • Respondent feedback reports	• Delayed consultation and clearance process with line ministries and important stakeholders

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
	Public awareness raising campaigns on mercury risks conducted	• Low awareness of sources of mercury in consumer goods and consequences of their improper disposal.	• Public awareness campaign developed • 50% of planned awareness activities carried out by MTE.	• Remaining 50% of activities designed in the awareness campaign accomplished	• Project reports • Media reports	• Publication materials are developed and available • Existing funding limitations
Component 3: Minimization of unintentional POPs and mercury releases in selected hospitals through demonstration of sound Health-care Waste Management approaches						
Outcome 3.1: Sound health-care waste management through uPOPs and mercury reduction approaches are demonstrated in 2-3 regions of the country	Review of national policies and update of HCWM regulatory framework and road map	• No comprehensive conceptual note on improving HCWM policies is in existence • No currently established emission standard for waste incineration (POPs, heavy metals). • No legal provisions exist, except minimum temperature standard for healthcare waste incineration. • No technical standards set for hazardous healthcare waste treatment, including non-combustion methods. • No current requirements defined for waste management plans and country budget does not consider non-incineration technologies for wider replication. • Public procurement rules do not include provisions on EPP (procured products can still contain heavy metals and other harmful	• Existing fragmented national policies fully reviewed with recommendations for improvement along with road map defining strategy and timeline for HCWM plan implementation developed; • Consultations with stakeholders, including regional authorities in target regions and service providers are held (at least, two workshops); • List of products and services to be included in the public procurement rules submitted to stakeholders for discussion. • Legislative amendments, inclusive emission standards and financial disincentives, are drafted, consulted with key stakeholders (government, civil society, NGOs etc).	• Legislative improvements (through amendments in the EcoCode) are submitted for final approval by the Government. • Technical standard for hazardous healthcare waste treatment, including non-combustion methods, is established in close consultations and forms a part of legislative improvements • Public procurement rules are amended and EPP criteria are set • Awareness raising workshops and media reports (at least, 3 complementary workshops for medical and private sectors, and 10 media reports) • National reporting to POPs convention improved	• Project reports • Legislative documents • Meeting and consultation reports	• Drafting and final approval of proposed legislative changes are delayed • Sufficient political support to pass and enforce the standard. • Initial resistance to comply with new regulations Installations that do not comply with the emission standard are gradually removed from operation. • Batch type burners are removed from consideration as final solution and gradually reduced from use. • Current pricing policy is easily adjustable to optimize the work of the HCWM system

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
		substances), and the lowest price criterion is the main foundation. • Reporting systems (on waste amounts, tracking and monitoring) are underdeveloped	• Awareness raising workshops and media reports (at least, 3 expanded workshops for medical and private sectors, and 5 media reports)			
	Development of Regional HCWM Management Plan in selected provinces	• Baseline situation indicates no concerted action with adherence to BAT/BEP in medical sector • Sector is fragmented with disorganized players with no systemic approach to resolving uPOPs, mercury issues and inappropriate HCWM practices • No specifically tailored action plan exists, and quality data is missing. • No previous capacity building and demonstration of BAT/BEP to reduce uPOPs and mercury releases implemented	• In selected provinces, all HCW generators and waste disposal installations and companies are identified and mapped. • The core data is collected and process of it verification is in progress. • BAT/BEP requirements defined, and end-of-use mercury management capacity is engaged for safe storage (identification, training) • Stakeholders' consultations are held with at least (6) workshops in selected regions (3) held. • Draft action plans in preparation with close consultations	• The Management Plan is adopted, and further actions and investments scheduled • Roadmap to support its implementation is approved by participating stakeholders	• Project reports • Management Plan documentation • Meeting and media reports • Published official documentation (law, state and state programs, etc.)	• Low political will, no interest and resistance from regional authorities. • Limited cooperation from public and private sector • Parallel improvements in legislation and control measures • The plan serves as a model for replication within the country.
	Pilot HCWM projects in selected hospitals, including phase-out of mercury containing thermometers	• No target hospitals for pilots defined before baseline assessment. • Waste minimization and segregation at source not practiced • No alternative (non-mercury) thermometers and alternative product substitution demonstrated • No model facilities	• The baseline situation is assessed. • At least four (4) pilot projects in health facilities identified. • HCWM Plans developed, inclusive of BAT/BEP, waste minimization and segregation, waste tracking and reporting,	• BAT/BEP (uPOPs and mercury reduction) policies are implemented and targets recorded. • Mercury thermometers are replaced by electronic devices, with resulting mercury waste safely handled • Health facilities dispose IHCW in non-combustion	• Health facility documentation. • Project reports • Formulated BAT/BEP, best practices documentation. • On-site verification	• 'Business as usual' approach – no planning is carried out or/and the Plan is abandoned. • The lowest price criterion is dominant. • Significant adoption of EPP is

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
		(with individual action plans) pilot sustainable BAT/BEP and reduction in waste generation and uPOPs/mercury releases • BAT/BEP are not up taken on a larger scale • Overall waste management system is weak	and implemented. • Required training is provided on spot (at least, 300 staff trained)	installation. • Evaluation and documentation of practical results (inclusive of waste amounts minimized, uPOPs/mercury releases reduced) in conjunction with Outcome 4		beyond the project time frame. • No services exist for MSW recycling and/or safe disposal of chemicals. • Improved planning on the regional level allows fostering and developing waste disposal services.
	Establishment of HCW treatment centres in selected sites	• Overall waste management system is weak • Health facilities have no access to organised waste treatment system or the waste is incinerated in installations not fulfilling BEP/BAT criteria. • No non-incineration technologies procured and adopted to support new management system in selected regions • Waste disposal and transportation of waste in peripheral areas (away from municipal or capital centers) is disadvantaged due to high price • Low quality of service provision results in additional sanitary risks	• Tender is held and the winning bid(s) is/are selected. • EIA and permit procedure is carried on • At least 8 rural and 2 urban HCW treatment centres established with non-incineration demonstration supplied, installed and commissioned • Transportation: vehicles supplied or reconstructed to meet ADR standards (6 items) • Transportation and waste disposal pricing recommendations drafted for stakeholder review (criteria per weight or volume)	• HCW treatment centres successfully operate at preliminary planned capacity (950 tpa). • Pricing policies implemented at target groups of stakeholders and service providers • Applicable recommendations on possible pricing criteria proposed for legislative amendments • Waste reduction amounts and uPOPs reductions are measured and reported on	• Facility documentation and reports, including microbial inactivation efficacy, waste log, and financial assessment. • On-site verification • Project reports	• 'Business as usual' approach dominates despite project's efforts • Improved planning on the regional level allows fostering and developing waste disposal services. • Resistance to new approaches from existing private HCW treatment initiatives • Cost effectiveness of non-combustion methods attracts private and public investors.

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
Outcome 3.2: Linkages between sound HCWM practices and minimization of uPOPs and mercury demonstrated through training and awareness raising programmes	Development and dissemination of BAT/BEP technical guidelines and general awareness raising	• No technical BAT/BEP guidelines in line with international benchmarks (SC, BC) for uPOPs/mercury release reduction and HCW management in place • No guidance materials for data collection and processing • Hospitals do not have guidance materials in support of trainings and daily safe practices • General awareness on uPOPs/mercury and management is limited	• Baseline information is collected and processed. • Draft technical guidelines (concept, scope, and content) prepared and consulted with stakeholders. • Project team participates in scientific medical conferences (at least, 3), public campaigns (media reports, at least 10, interviews, at least, 4) • Changes are proposed to educational curricula of medical and other institutions offering medical degree programmes	• Technical guidelines approved and printed (legislative support to back guidelines proposed) • Hospitals receive materials for application in daily work • Project team participates in scientific medical conferences (at least, 2), public campaigns (media reports, at least 5, interviews, at least, 3), Zhasyl Damuu programme discussions and rountables • National curricula updated	• Printed draft and final guidelines • Project reports • Media reports • Changes to national curricula of medical institutions	• Required partnerships are developed and support to the process secured • Stakeholder participation is ensured • Media support is expected on a wider scale
	Development of national training programs on uPOPs/mercury risks and sound HCWM, partnership with stakeholders and national replication of BAT/BEP demonstration	• Currently, no HCW management training program exists as established by MPH • No manuals specifying details of waste management in a hospital setting exist • Limited in scope debriefings are practiced for new hospital staff, but no regular capacity building is in place or regularly planned by hospital facilities	• Training materials prepared in consultations with stakeholders and approved by the Project Board. • Training documentation adjusted to regional situation and needs • Training plan and schedule are developed for local, regional and national levels	• Training carried in two demonstration regions for major health facilities, regional administration, and waste management service providers. • Training carried in 12 regions for major health facilities, and regional administration and integrated into national training system. • Training program adopted and replicated by health institutions. • Media follows the initiative	• Published official documentation (law, state programs, etc.). • List of institutions that have adopted training curriculum. • List of training attendees, and training report. • On-site verification by training experts	• Required partnerships are developed and support to the process secured • Stakeholder participation is ensured • Media support is expected on a wider scale

	Indicator	Baseline	Targets		Sources of verification	Risks and assumptions
			Mid-term	End of project		
Component 4: Monitoring, learning, adaptive feedback, outreach, and evaluation						
Outcome 4: Monitoring, learning, adaptive feedback, outreach, and evaluation.	M&E and adaptive management applied to project in response to needs, mid-term evaluation findings with lessons learned extracted.	• No Monitoring and Evaluation system • No evaluation of project output and outcomes	• Monitoring and Evaluation system developed. • Mid-term-evaluation of project output and outcomes conducted with lessons learnt at 30 months of implementation.	• Final evaluation report ready in the end of project	• Project document inception workshop report. • Independent mid-term evaluation report.	• Availability of reference material and progress reports • Cooperation of stakeholder agencies and other organizations.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments from GEF Council	Responses from UNDP
Canada	
The project should consider lessons learned from similar projects (Tunisia GEF ID: 2995, and Global GEF ID:1802). Since many of the Disposal projects are very similar, they should strive to include lessons learned in the PIFs. The focus on these projects is on disposing of POPs. However, these projects allocate varied amounts to the specific activity of disposing of POPs. As this is the central activity of the project, the projects should strive to maximize the amount of project resources allocated to POPs disposal activities. There should also be a concerted effort to coordinate the initiatives of countries in the same regions (i.e. Benin and Cameroon) to take advantage of economies of scale and share information on challenges faced and on the resulting improvements for pesticide management. It is promising that these projects are about capacity building and the actual management of POPs, rather than simply updating NIPs	The project will closely collaborate and use experiences of similar activities carried in the past or within the project timeframe, namely the GEF Global Healthcare Waste Project (GEF ID 1802), Kyrgyzstan (GEF ID 5068), Tunisia (GEF ID 2995), and currently planned GEF/UNEP mercury program. The cost effectiveness of the capacity strengthening components will be further improved by taking full advantage of work conducted in various UNDP/WHO implemented HCWM projects which have already been completed or still under implementation. This will mean that available training modules and materials will be adapted for local use and translated into local languages. Note: The project's objective is on minimization and prevention of formation of unintentional POPs (uPOPs) during improper healthcare waste disposal through non-incineration technology demonstration and capacity building, and further minimization of mercury releases from the same sector through product substitution.
Switzerland	
Overall Comments According to the Project Review Sheet, PIF-drafts passed four times through the Secretariat and have been commented in extenso on various aspects. The PIF now recommended for clearance still consists in principle of 3 more or less isolated projects: NIP-update, mercury and POPs in connection with Health Care Waste Management (HCWM). Questions, Concerns and Challenges for further Project / Programme Refinement It is not clear, whether the mercury or the POP issues in connection with HCWM are of a high priority in the implementation of the NIP: emission inventories are not accurate, the measures described for sound HCWM would reduce the overall TEQ emissions by roughly estimated 1.5%, by using 75% of the required funds. A thorough update of the NIP seems necessary to allow prioritization of the fields of interventions that guarantee a rational use of the scarce financial means. It seems unlikely that such an update (including capacity building measures) can be made with less than 400'00 USD. About 75% of the funds are foreseen for Minimization of uPOPs emissions (and mercury from medical devices) through demonstration of sound HCWM. The measures listed seem to be mostly of the soft type (such as: mapping, tracking, planning, training, minimizing, cooperating, etc), it is not clear whether part of the funds are also used for improved facilities.	While the original NIP had gaps in data, one of the currently proposed elements on NIP update will, based on existing recommendations (decision SC-1/12), address inventory on newly added POPs to respond to changes in the Stockholm Convention. On other sources of POPs, the Party will rely on improved inventory numbers resulting from NIP follow-on programmes, such currently implemented GEF/UNDP programme on PCBs and proposed GEF/UNDP programme on uPOPs (with a mercury element, both with capacity building and practical demonstration on product substitution), the latter being supportive of the current consultations on ratification of the Minamata convention and, therefore, being of essential importance in having national level discussions on the country's position towards the new MEA. The current FSP programme, as its main objective, targets to address uPOPs in the healthcare sector, and this is based on the original NIP priorities as demonstrated in the project document. Further, in course of PPG implementation, it had become evident that uPOPs emissions were well underestimated at the initial NIP stage – this has been reported in the current FSP with adjusted estimates for one sector – health-care. Such updated information, obtained from the Government, indicate that healthcare waste incineration is one of the largest source of unintentional POPs in Kazakhstan, and it has been confirmed that improvement of the HCW management through BAT/BEP is of a high priority. The expected and potential reduction of uPOPs emissions have been re-estimated based on new information. A conservative scenario will allow decreasing uPOPs emissions from waste

Comments from GEF Council	Responses from UNDP
According to a comprehensive concept for sound HCWM, tailored to local conditions and having good chances for implementation, the necessary measures can be defined and the disposal/destruction facilities realized. Conclusions and Recommendations In teh light of teh concerns expressed, we recommend dividing the project into two phases and executing the steps accordingly: Phase 1: 1. Detailed and comprehensive NIP update 2. Identification of priority measures to reduce emissions with great efficiency and effectiveness, in fields that are identified as relevant to achieve essential impacts (maybe mercury/POPs in connection with HCWM, maybe others are more important?). 3. Elaborate and submit a project proposal according to the determined priorities for phase 2 Phase 2: 4. Project review – clearance 5. Realization of the measures step-by-step 6. Controls of the elements executed and evaluation of outcomes and impacts.	incineration processes by between 17 and 35%, while in a progressive scenario it may reach over 86% reduction. Hence, the effectiveness of the GEF grant utilization has been substantially increased – over ten-fold in comparison with the original PIF estimate. With respect to shifting the focus towards disposal/destruction facilities, the capacity building (being important part of the programme to allow for establishment of an integrated HCW management system) is indeed be coupled with the supply of demonstration non-incineration technology to illustrate BAT/BEP techniques, such as autoclaves, along with reconstruction of existing or supply of new, ADR accepted transportation equipment for appropriate training and increase of waste handling standards. The demonstration component is expected to allow for wider replication of the results through Government's substantial co-finance, which is an important planned outcome of the overall GEF intervention. With regard to the perceived outlook of the programme that unites several different focal areas in one, in reality, this is one focal area as per GEF-5 policy and the subject areas covered are closely interconnected. For example, mercury thermometers are in common use in hospitals and represent health risks alike the uPOPs releases during improper management of medical waste on-site. The current programme replicates the design of a previously successful and commonly praised GEF/UNDP/WHO global project in the same focal area. In respect to the addition of NIP update to the package, this is perceived by the Government as a timely intervention to address changes in the SC convention, and it will provide stronger national consultations with increase in cost-effectiveness due to complementary policy level support provided by the current uPOPs/mercury management project at its core.
Comments from STAP	Responses from UNDP
STAP Scientific and Technical screening of the Project Identification Form (PIF) Date of screening: January 23, 2012 Screener: Christine Wellington-Moore Panel member validation by: Hindrik Bouwman Consultant(s): **I. PIF Information** *(Copied from the PIF)* **FULL SIZE PROJECT GEF TRUST FUND** **GEF PROJECT ID**: 4442 **PROJECT DURATION** : 4 **COUNTRIES** : Kazakhstan **PROJECT TITLE**: NIP Update, Integration of POPs into National Planning and Promoting Sound Healthcare Waste Management in Kazakhstan	STAP had expressed Consent with the project's approach and overall design, and provided a few suggestions, rather than recommendations, to be considered during project formulation and future implementation. These have been fully taken into account during PPG phase as follows: - On bottom ash: The project will support the Government in adopting internationally recommended legal provisions on waste incineration, including end-of-pipe waste handling. However, one of the main obstacles on the way for improvement of the current situation is that the country lacks engineered landfills for any kind of waste. This issue needs to be addressed in overall country waste management policy, and it will be a subject of the NIP revision, and regional HCWM Plans. (i) Indeed, the project developers have taken into account several of existing guidelines and will refer in its work

Comments from GEF Council	Responses from UNDP
GEF AGENCIES: UNDP **OTHER EXECUTING PARTNERS**: Ministry of Environment Protection of the Republic of Kazakhstan **GEF FOCAL AREA**: POPs **II. STAP Advisory Response** *(see table below for explanation)* Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies): **Consent** **III. Further guidance from STAP** The project is quite ambitious, broadly seeking to tackle NIP Update, safe handling and disposal of mercury from the medical sector, and overall reduction of uPOPs generation through the practice of sound incineration of Health Care Waste (HCW). The exact quantities of waste generated by the nation's 14,434 health treatment and prevention sites are not certain, but certainly large, as are the dioxin emissions generated from incineration of medical waste. The estimated current TEQ emissions from HCW incineration at 45.7 g TEQ per annum is 13% of total TEQ emissions for the country. This project aims to reduce that amount by 5g TEQ per annum; 1.5% of the estimated total country TEQ emissions. Incineration is the preferred method, as opposed to disinfection and autoclaving, and due to the high cost of centralised incineration, and the long distances involved in transporting waste, many isolated, rural facilities simply illegally burn even non-infectious waste on site with batch-type furnaces. In the urban facilities, infectious waste is incinerated on site, with non-infectious and chemically disinfected waste commonly sent to unauthorized landfills for open burning. Processing and interim waste sites do not fulfil sanitary norms, and there are cases where waste disposal of mercury containing lights and equipment are disposed with regular household waste. Barriers to proper waste management are regulatory, financial/technical, institutional and awareness/knowledge related. The project therefore seeks to address ways to overcome each category of barriers as relates to mercury and overall health care waste disposal. Focusing on the more technical aspects, as relates to indicative activities for mercury reduction and containment, there is a comprehensive list of steps outlined including capacity building and awareness (general and specific) as relates to inventory, risk assessments, data tracking for database purposes, creation of mercury reduction plans, spill response and recovery, personal protection, segregation,	during FSP implementation to several guidance materials developed by the European Union[71], the World Health Organization[72], and the current GEF/UNDP/UNOPS/WHO global HCWM project (I-RAT tool)[73]. It should be noted that the global HCWM programme has developed approximately 26 training manuals and instructions related to sound HCWM that have recently received executive clearance from WHO and will be officially posted along with the 2nd edition of the Blue Book on waste management in health-care sector (http://apps.who.int/iris/bitstream/10665/85349/1/9789241548564_eng.pdf). Thanks to complementary support of the Government of France, these will also be available in French. Other tools will be considered in the work of the programme as well. (ii) The project team has taken account of this matter, and the project will particularly seek for opportunities to (1) improve waste classification and segregation, and (2) to recycle not contaminated waste from the health care. Waste disposal, and implementation of a recycling program for non-hazardous healthcare waste will be looked at through organised external support services, if locally available in pilot provinces. It is worthwhile noticing that initial PPG-stage research showed that improvements of waste segregation are possible but Kazakhstan has not yet developed full-fledged and self-sustainable recycling services. Hence, actual reduction of waste landfilled should not be overestimated. Appropriate training modules have been planned in the project. Further, the programme will cooperate with another currently running GEF/UNDP project on energy-efficient bulb replacement (in target hospitals) and mercury management. An additional element planned is the consideration of future contribution of the programme (and potential solutions), through mercury-based thermometer replacement, to creation of an e-waste stock from electronic thermometers at the end of their life-time (iii) The cost-benefit analysis is a part of the regional HCWM implementation plan, and the project is to demonstrate the savings in the current baseline situation with current high cost for local waste management. Cost-benefit analysis included covers all stages of healthcare waste management: purchasing less hazardous, more durable equipment (i.e. non mercury thermometers, EF lamps, less packed products); overall planning of HCWM at all levels; improved waste classification and segregation; safe but less costly waste treatment. At the same time, the project will look, in terms of policy and regulation development, at a system of monitoring and penalties

[71] Preparing a Waste Management Plan. A methodological guidance note, European Commission, 2012.
[72] Health-care waste management. Rapid assessment tool (RAT), Version 2011, WHO; National Health-Care Waste Management Plan. Draft Training Manual, UNEP and WHO, 2003.
[73] Individualized Rapid Assessment Tool (I-RAT) for Healthcare Waste Management, GEF UNDP Global Healthcare Waste Project, April 2009

Comments from GEF Council	Responses from UNDP
containment, long-term engineered storage and encapsulation or amalgamation. Similarly, in the HCW area, there is clear recognition of the merits of waste minimisation through appropriate procurement practices, material substitution, safe reuse, source reduction and the like; as well as the improvement of waste segregation and processing practices. In the latter category of activity specific subcategories of action are separation of ordinary municipal waste from the HCW, promotion of cleaner packaging (non PVC) et. al. Attention is also paid to the role of the waste management companies, and overall there seems to have been a fairly comprehensive consideration of all the players that will be involved in ameliorating the problems. STAP's comments therefore are more suggestions to improve the project development process: Though incineration bottom ash appears negligible in quantity, the STAP still seeks to remind that there be responsible handling of residues. (i) Given the quality of thought given to the proposed project interventions, the STAP is certain that current guidance is already being consulted by the project developers. However, all of the guidance being used it is not explicitly stated, though there is mention that the project will build upon the outputs of the Global GEF/ UNDP/WHO healthcare waste and mercury management project, which is still incomplete. At the risk of belabouring a point, the STAP simply reminds developers to be sure to use current guidance and case studies such as (a) The WHO Chapter on health care waste minimisation and management (http://www.who.int/water_sanitation_health/medicalwaste/058to060.pdf). There is practical advice to minimise waste such as reducing the use of injections and hence generation of PVC waste through use of pills. (b) Case studies such as "Best Practices in Health Care Waste Management: Examples from four Philippine Hospitals" (http://www.noharm.org/lib/downloads/waste/Best_Practices_Waste_Mgmt_Philippines.pdf) (c) The USEPA website gives links to "Hospital Prevention (P-2) strategies" (California Department of Health Services), and a "Guide to Mercury Assessment and Elimination in Health Care Facilities" (http://www.epa.gov/region9/waste/p2/hospart.html) which gives a breakdown of equipment of concern, methods of planning and implementation of HCW strategies and plans, and could be a good practical guide of past experience, complete with cost-benefit analyses. The page also includes a section on Pollution Prevention for Health care Professionals, which could help inform any training packages put together for doctor and nursing staff. So the STAP strongly recommends that developers should examine even non-GEF experiences in this field,	for non-compliance with rules. The penalties system will be developed to address previous cases (recorded in the global programme) of hospitals and private sector tending to absorb assigned fines with the penalty level being underestimated. (iv) The project has designed the transportation element, and all respective UN and ADR rules will be respected with appropriate transport infrastructure and personnel training. Optimization of the transport system will take place in the pilot provinces through regional HCWM plan. (v) Hospital selection criteria have been developed and these include recipient's declaration of preparedness and willingness to replicate BAT/BEP in the first place. The demonstration component will be backed by regional (provincial) and hospital waste management plans that will be designed to meet international benchmarks and standards. Further, planned improvements in regulatory mechanisms and enforcement system will ensure appropriate monitoring over the waste management processes. Training has been designed to accompany all pilot interventions and specifically suited for implementation of hospital HCWM plans at all levels to ensure that waste scheduled for decontamination is appropriately segregated, packed, transported, and safely disposed. (vi) PCDD/Fs emissions have been calculated with the use of the Dioxin toolkit. The baseline situation with regard to emissions in TEQ has updated accordingly and the project design is based on these resulting estimates.

Comments from GEF Council	Responses from UNDP
since the GEF has limited experience in this area of work. (ii) Another thing not explicitly stated in the project is the reduction of the municipal type of waste generated by hospitals, which can make up about 80% of the total waste stream from this source. Incineration of such waste leads to uPOPs as well in many cases, and it should be targeted in the overall training of the medical staff (see suggested guidance from EPA et. al.) (iii) In the Risk table, though rated low, there is risk associated with resistance due to stakeholder fear of additional burden associated with uptake of HCWM. However, cost-benefit analysis to show savings to the hospitals, and ultimate reduction of burden to workers managing smaller quantities of waste have often been the "selling point" that leads to successful implementation of HCWM in facilities. The STAP again emphasises the need to do a thorough search of case studies, and to find ways to incorporate these benefits meaningfully into the various stakeholder trainings and awareness activities, such that each group can see the benefits brought to bear for their particular group and the facility as a whole. (iv) Where centralised disposal may be necessary, care should be taken that appropriate transportation protocols are followed, as one would other Hazardous chemicals, taking into account any possible seasonal threats to the route selected that may be made more severe due to Climate Change. The document made a point of mentioning the long distances that can be involved, and this increases the chance of mishaps, spills and environmental and population exposure, which can be compounded by natural, weather-related events that may threaten transport (eg dust storms). (v) Though they should be low once all is implemented appropriately, should there not be a risk associated with inappropriate use of non-combustible, decontamination techniques, such that infectious waste might "slip through the cracks" as the waste handlers get up to speed in using these alternative techniques? There needs to be some mention of this, and the risk mitigation protocols that will be put in place to make sure that the overall HCWM runs as planned. (vi) The current NIP only has a superficial TEQ emission inventory. Although it is mentioned that the NIP will be updated, there is no mention of the use of the Dioxin Toolkit to obtain a more detailed and appropriate TEQ emission number. STAP would like to see this being done as it would provide better quantitative indicators for project monitoring via the POPs tracking tool.	

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[74]

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

Project Preparation Activities Approved	*Implementation Status*	*GEF/LDCF/SCCF/NPIF Amount ($)*				*Cofinancing ($)*
		Amount Approved	*Amount Spent Todate*	*Amount Committed*	*Uncommitted Amount**	
Component 1. Detailed assessment of policy and regulatory settings of the project as related to u-POPs/mercury emissions in HCWM.	Completed	22,000	22,000	0	0	75,000
Component 2. Assessment of the capacity of different stakeholders to support the implementation of project activities.	Completed	23,000	22,085	915	0	50,000
Component 3. Formulation of demonstration actions through situation analysis of the medical wastes management system in the 2-3 selected regions in the country.	Completed	60,000	34,000	26,000	0	100,000
Component 4. Feasibility analysis and budget; Overall support to Expert on HCW in consolidation of the FSP in line with applicable GEF templates, inclusive of M&E design, and full summarized description of barrier analysis, associated risks and their mitigation approaches, logical results framework, and project budget and work plan.	Completed	20,000	19,500	500	0	75,000
Total		125,000	97,585	27,415	0	300,000

PPG phase of the project "NIP update, integration of POPs into national planning and promoting sound healthcare waste management in Kazakhstan" achieved its main outcome, i.e. the full-size project proposal has been developed ready for submission to the GEF. The PPG phase covered costs of data and information collection, research and consultations needed for the FSP development.

To accomplish the PPG activities, a team of two international (Expert on Healthcare waste and uPOPs Management, and Expert on POPs and NIP update) and two local consultants (National Expert on Healthcare Waste Management and National Expert on Persistent Organic Pollutants (POPs)) was established which operated under overall supervision of UNDP-Kazakhstan's based Programme Analyst.

On 27 November, 2012, a national workshop to discuss the main objectives of the project was held in Astana, Kazakhstan. Over 25 participants took part in the workshop, including representatives of national and local government (Ministry of Environment Protection of the RK, Committee of Sanitary and Epidemiological Control of Ministry of Public Health, Committee of Industry of RK, Committee of veterinary control of the Ministry of Agriculture of the RK, Department of Fitosanitary inspection of the Committee of State Sanitary Inspection, Ministry of Emergency of the RK), private companies, working in the field of medical waste utilization (JSC "Utilization LTD", JSC "EcoProf", JSC "Ibraikhan LTD", JSC "Requiem"), public associations and NGOs working in the field of sustainable development, ecology, sound waste management (NGO "Center for Sustainable Development", NGO "EcoMuseum"), as well as representatives of international organizations, such as WHO and UNDP.

[74] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

A team of local and international experts has fielded a number of local trips to the initially proposed project sites (hospitals in Arshaly village in Akmola oblast, larger hospitals in Kyzylorda, Ust-Kamenogorsk, Almaty and Astana) to review the existing system of waste management, to meet relevant government entities and research institutions, business in the area of waste utilization, to collect inputs and discuss in greater details proposed project activities.

ANNEX E: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A