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***Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan***

**PIMS 5155**

**GEF # 5068**

**Midterm Review, November/ December 2016**

**Draft Evaluation Report**

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## DISCLAIMER

This report is the work of an independent consultant and does not necessarily represent the views, or policy, or intentions of the United Nations Development Programme.

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## Acronyms and Abbreviations

BAT	Best Available Technologies
BEP	Best Environmental Practices
DIM	Direct Implementation Modality
FAP	Health Dispensaries located in rural areas
FP	Focal Point
GEF	Global Environment Fund
HCF	Healthcare Facility
HCW	Healthcare Waste
HCWM	Healthcare Waste Management
LCM	Life Cycle Management
MAC	Maximum permissible concentration
MoH	Ministry of Health
MSW	Municipal Solid Waste
MTR	Midterm Review
NAP	National Action Plan (for POPs)
NIP	National Implementation Plan (for POPs)
OFP	Operational Focal Point
PIR	Project Implementation Review
PIU	Project Implementation Unit
PMU	Project Management Unit
POP	Persistent Organic Pollutants
SAEPF	State Agency for Environmental Protection and Forestry
SRC	Swiss Red Cross
TA	Technical Assistance
TEQ	Toxic Equivalents
UNDP	United Nations Development Programme.
UNEG	United Nations Evaluation Group
UNICEF	United Nations Children's Fund
UPOP	Unintentional Persistent Organic Pollutants
WHO	World Health Organisation

## 1 Executive Summary

Table 1: The Project Information Table

<b>Project Title</b>			
UNDP Project ID	00088593	PIF Approval Date	February 21, 2013
GEF Project ID	5068	CEO Endorsement Date	February 27, 2014
ATLAS Business Unit Award No.	00078201	ProDoc Signature Date	July 3, 2014
Country	Kyrgyzstan	Date PM hired	1 <sup>st</sup> – August, 2014 till December, 2014 2 <sup>nd</sup> – May, 2015
Region:	Central Asia	Inception W/shop date	August 22, 2014
GEF Focal Area/Strategic Objective	Chemicals and Wastes	MTR completion date	
Trust Fund	no	If revised, proposed op. closing date:	June 03, 2017
Executing Agency/Implementing partner	Ministry of Health of Kyrgyz Republic		
Other executing partners	State Agency for Environment Protection and Forestry		
<b>Project Financing</b>	<b>at CEO endorsement (USD)</b>	<b>At MTR (USD)</b>	
[1] GEF Financing	\$ 1,425,000	\$ 486,153	
[2] UNDP Contribution	\$ 416,400	\$ 38,156	
[3] Government	\$ 2,600,000	\$ 2,600,000	
[4] Other partners	\$ 4,015,709	\$ 4,015,709	
[5] Total co-financing	\$ 7,032,109	\$ 6,653,865	
<b>PROJECT TOTAL COSTS</b>	<b>\$ 8,457,109</b>	<b>\$ 7,140,018</b>	

### Project Description

The project focuses on the healthcare sector and aims to reduce UPOPs as well as Mercury releases. The project has a budget of US\$ 8.46 million, where GEF Financing

constitutes \$ 1,425,000; the UNDP Contribution is US\$ 416,400 for project management; and there is a total co-financing commitment of US\$ 7,032,109. The project started on 1 August 2014 and is scheduled for completion in July 2017.

The project's main stakeholders are the Ministry of Health, the State Agency for Environmental Protection and Forestry, Healthcare Entities, UNDP Kyrgyzstan's Programme Management Unit and Country Office. Other key stakeholders are the Ministry of Emergency Situations, the Swiss Red Cross, UNICEF, the Global Fund and two NGOs ("Ekois" and "Ecological Expertise").

As one of the steps to achieve the developmental objective of reducing the releases of UPOPs and mercury from healthcare entities, the project aims to strengthen the regulatory and policy framework pertaining to POPs and mercury, as well as to provide training and capacity building. The project will directly reduce UPOP emissions through improved healthcare waste management (HCWM) in eleven hospitals/ polyclinics and 100 rural Health Dispensaries ("FAPs"). Finally, a smaller pilot project component will phase out 1,300 mercury containing thermometers in eleven Bishkek healthcare facilities (HCF).

### **Project Progress Summary**

The project has completed all work covering the development of regulatory and policy framework for both POPs and mercury, these documents are currently in the process of being approved by the government ministries.

On the more practical side, autoclaves for five Bishkek healthcare facilities should arrive in December 2016, so the waste storage and treatment rooms can be completed in these institutions. Hereafter, other equipment (already purchased and delivered) can be distributed within the hospitals and training completed, so that all waste is source separated, safely stored in the wards, transported through the hospital and sterilised. In February 2017 five container based waste storage and treatment unit will be completed and delivered to five other HCFs, where after installation and training can also be undertaken there. Finally, also during the spring of 2017 the project will organise healthcare waste transport within Bishkek, where "clusters" are arranged around facilities with autoclaves, so that all healthcare waste generators will have access to treatment facilities.

The autoclaves for the 100 FAPs in Chuy and Issyk Kul Oblasts should arrive in April 2017, where after the equipment can be delivered, installed and training can be undertaken.

The procurement of mercury free thermometers is on-going and once completed, the phase-out plan will be implemented in the eleven targeted HCFs. Steps have already been taken, so that the mercury containing thermometers currently in use can be safely collected, packaged as hazardous waste and transported to a central storage facility prepared by the project. Once all mercury containing thermometers have been collected, these will be transported to the Khaidarkan Mercury Mine and Plant for disposal.

Table 2: MTR Ratings &amp; Achievement Summary Table

Measure	MTR Rating	Achievement Description
<b>Project Strategy</b>	N/A	<p>The project is directly linked and highly relevant to the implementation of the Stockholm Convention in Kyrgyzstan; it is hence perfectly aligned with the GEF Chemicals Focal Area which includes both POPs and Mercury. The project directly contributes to the execution of the National Implementation Plan on POPs by reducing the release of dioxins and furans.</p> <p>Since a joint project between the Ministry of Health and the Swiss Red Cross in 2005 demonstrated that proper healthcare waste management in hospitals greatly reduced nosocomial infections, HCWM has been a top priority for the Ministry of Health. Once this project is completed, all healthcare facilities with over 25 beds in Kyrgyzstan should manage all their generated infectious waste correctly.</p>
<b>Progress Towards Results</b>	Objective Achievement Rating: <b>S</b>	The project is on schedule and set to complete all its objectives. There is a certain risk (beyond the project's control) that all the developed national regulatory and policy framework on HCWM and mercury may not be approved by the Government of Kyrgyzstan by the project end in July 2017. It could also be foreseen that ensuring the smooth operation in 100 (sometimes remote) FAPs could take longer than expected.
	Outcome 1 Achievement Rating: <b>S</b>	All required regulatory and policy framework documents have been developed by the project. Given the expertise and commitment of those involved, one would expect the outcome of this component to be of a high standard. The documents are currently under review in the Ministries and are expected to be approved during 2017.
	Outcome 2 Achievement Rating: <b>S</b>	<p>The project is providing comprehensive healthcare waste management systems to eleven HCFs in Bishkek. Ten of these HCFs will become "hubs" with waste treatment facilities that will also serve surrounding infectious waste generators. Five of the ten facilities could allocate in-house rooms for waste storage and autoclaving. The rooms in these five building have been renovated to a very high standard. The other five sites could not provide space for the storage and autoclaving facilities. So these facilities will receive a storage and autoclaving system installed in a 20' or 40' container, depending on the required treatment capacity. A lot of thought and planning has gone into these ten treatment facilities, so it is anticipated that the outcome will be of a very high quality.</p> <p>The project has identified 100 FAPs suited for receiving assistance in establishing HCWM systems. These will be "table top" autoclaves for the sterilisation of their waste. The FAPs are set to receive their equipment in April 2017, as well as training and other support.</p> <p>The national training modules have been prepared and are already part of the curriculum in two of the six target institutions.</p>
	Outcome 3 Achievement Rating: <b>S</b>	<p>The national action plan on phasing out mercury and prohibiting mercury containing equipment usage in the healthcare sector has been developed and is undergoing its second review by Government.</p> <p>In early 2017 eleven HCFs will be supplied with electronic thermometers and the mercury containing thermometers will be packaged, transported and stored according to guidelines developed by the project. As it is collected, the mercury</p>

		containing waste will be stored in a dedicated room prepared at the Centre for Family Medicine no. 1 "Kyzyl Asker." The collected mercury waste will be transported to the Khaidarkan Mercury Mine and Plant for final treatment.
	Outcome 4 Achievement Rating: <b>MS</b>	The MTR remarks that the Quarterly Operational Reports have not been written, otherwise the project is operating in accordance with the requirements set out in the Project Document.
<b>Project Implementation &amp; Adaptive Management</b>	<b>S</b>	<p>The project is being implemented using Direct Implementation Modality (DIM) as per UNDP's procedures. The project's Executing Entities are the Ministry of Health and the State Agency for Environment Protection and Forestry, whilst UNDP is the Implementing Entity.</p> <p>The project has managed well when faced with adverse or unexpected circumstances. The first Project Coordinator left the project after five months and the present Project Coordinator joined nine months into the project, yet the project is still on schedule. Five hospitals were unable to provide suited rooms where healthcare waste could be stored and where autoclaves could be installed. The project solved this issue in a technically satisfying manner without incurring delays or increased costs. Finally, an acceptable sterilisation technology had to be found for FAPs when the pressure cookers suggested by the Project Document were found to be an unsuited solution. Again, the problem was resolved in a timely manner.</p> <p>Stakeholder involvement has been very high throughout the project period. At the national expert level, looking at participants from the national institutions and NGOs, the knowledge and awareness related to the project is high and project partners are well aware of the project's progress and are vested in its outcome. All stakeholders have had a good and proactive collaboration.</p>
<b>Sustainability</b>	<b>L</b>	<p>The core of the project is the improved healthcare waste management system provided to hospitals and polyclinics. This system has already been proven as technically and financially sustainable in Kyrgyzstan, where some systems have now operated successfully for ten years.</p> <p>It is less certain whether the 100 FAPs will be technically and financially able to operate their autoclaves over the longer term. Likewise, it is not certain that the phasing out of mercury thermometers in 11 HCF will be successful. These are both pilot projects that are testing new concepts that could serve Kyrgyzstan. Time will show whether the concepts are technically and financially sustainable.</p>

Note: The ratings scales are explained in Annex D

### Summary of conclusions

The MTR finds that this project is both well-managed and a successful project. All activities are on schedule and the quality of work is good. The project has been financially prudent and effective.

POPs and mercury are both part of the GEF Chemicals Focal Area, so the project is well adjusted to GEF's policy and objectives. For the past eleven years, establishing good healthcare waste management practices has been a key priority for the Ministry of Health, and this project ensures that all HCF within the country with over 25 beds now



have a reliable HCWM system. This is a tremendous achievement for the MoH that not only reduces POPs releases, but also offers tremendous benefits to public health through the prevention of “hospital acquired infections.”

The project should be set to complete all its objectives by the completion date in July 2017. There is a certain risk (beyond the project’s control) that all the developed national regulatory and policy framework on HCWM and mercury may not be approved by the Government of Kyrgyzstan by the project end in July 2017. It could also be foreseen that ensuring the smooth operation in 100 (sometimes remote) FAPs could take longer than expected.

The pilot project in 100 FAPs will allow the MoH to evaluate whether such a system is functional and can be replicated throughout the country. In a similar manner the phasing out of mercury thermometers in 11 HCF will be a test to see if this is a way forward that can either be duplicated in healthcare facilities or expanded to cover other sources of mercury containing equipment or materials.

*Table 3: Recommendation Summary Table*

Rec #	Recommendation	Entity Responsible
A	The regulatory and policy framework for Health Care Waste Management enhanced (Outcome 1.2)	
A.1	<b>Key recommendation:</b> See recommendation E.1	
B	UPOPs releases reduced as a result of improved HCWM systems in supported HCFs (Outcome 2.3)	
B.1	<b>Key recommendation:</b> The PMU must pay very close attention to the 100 FAPs where autoclaves are being installed in 2017. This will not be an easy task, due to the sheer number of FAPs covered by the project and the transportation times required to reach each FAP. Therefore, substantial human resources and several vehicles will probably be required to provide good technical support to all FAPs. Other than training and capacity building, it is likely that there will be other issues to address to ensure that the HCWM and treatment system is fully functional in every FAP.	PMU
B.2	<b>Key recommendation:</b> See recommendation E.1	
C	Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or lower level Hg products (Outcome 3.1)	
C.1	<b>Key recommendation:</b> See recommendation E.1	
D	Intermediate and long-term storage options for mercury containing wastes identified (Outcome 3.3)	
D.1	<b>Key recommendation:</b> See recommendation E.1	
E	Sustainability	
E.1	<b>Key recommendation:</b> If possible, the project should be extended for an additional nine months, i.e. till April 2018. As the project has been prudent in its financial management, this can be done as a no cost extension. Such an extension would address the risk that all project activities may not be completed in a satisfactory manner by July 2017, where the areas of concern are the operation of autoclaves in FAPs and the approval of all policy and regulatory documents covering HCWM and mercury management. The key activities during a possible project extension would be nos. 1 and 2 below:	GEF/UNDP

	<ol style="list-style-type: none"> <li>1. Ensure that ample support is provided to all 100 FAPs that have received autoclaves to address any problems that may arise. This could range from additional training, through technical support to assistance with maintenance. (“B”)</li> <li>2. Provide support and push for government approval of the policy and regulatory documents developed by the project pertaining to both HCWM and mercury management. (“A” &amp; “C”)</li> <li>3. It is expected that all collection, transport, storage and disposal of mercury containing thermometers will be completed by July 2017. An extension would mean that any delays in execution of this portion of the project would have no impact. It could be envisaged that the treatment at the Khaidarkan Mercury Mine and Plant is delayed due to technical, politic or financial disagreements - so an extension would allow the project to resolve any issues that could develop. (“D”)</li> <li>4. With an extension, it would be logical to follow up with the 11 HCFs in Bishkek to ensure that both the HCWM system and the mercury phase out is operating fully as planned. Such visits could be to all eleven facilities on a quarterly basis; where after training, technical advice or other support could be provided to resolve any identified issues. (“B”)</li> </ol>	
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## 2 Introduction

### 2.1 •Purpose of the MTR and objectives

The Midterm Review (MTR) of the UNDP-GEF project *Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan* was carried out according to the UNDP-GEF Monitoring and Evaluation Policy following the *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* (2014). Under UNDP Contract No. 16-323, Mr Peder Bisbjerg has been hired as the International Consultant to carry out this review. His Terms of Reference can be found in Annex A.

Under the *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed projects*, the aim of the MTR is to provide a systematic and comprehensive review and evaluation of the performance of the project to date by assessing its design, processes of implementation, achievement relative to its objectives. Under this overarching aim, its objectives are i) to promote accountability and transparency for the achievement of GEF objectives through the assessment of results, effectiveness, efficiency, relevance, sustainability and impact of the partners involved in the project, and ii) to promote learning, feedback and knowledge sharing on the results and lessons learned from the project and its partners as a basis for adjusting the course of the project to improve its performance in the remaining implementation period and as a basis for decision-making on policies, strategies, programme management and projects, and to improve knowledge and performance.

## **2.2 •Scope & Methodology: principles of design and execution of the MTR, MTR approach and data collection methods, limitations to the MTR**

The approach for the MTR is determined by the Terms of Reference (Annex A) and the *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed projects*. Both documents outline four focus areas:

1. Project Strategy
2. Progress Towards Results
3. Project Implementation and Adaptive Management
4. Sustainability

The MTR will concentrate on assessing i) the concept and design of the project, ii) its implementation in terms of quality and timeliness of inputs, financial planning, and monitoring and evaluation, iii) the efficiency, effectiveness and relevance of the activities that are being carried out, iv) whether the desired outcomes and objectives are being achieved, v) the likelihood of sustainability of the results of the project, and vi) the involvement of stakeholders in the project's processes and activities.

## **2.3 •Structure of the MTR report**

This report follows the structure for evaluations recommended in the *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed projects* (2014). As such, it provides a description of the project and the development context in Kyrgyzstan (Section 3), it then deals with the Findings (Section 4) of the evaluation within four sections (Project Strategy, Progress Towards Results, Project Implementation and Adaptive Management, and Sustainability, respectively). The report then draws together the Conclusions and Recommendations (Section 5):

# **3 Project Description and Background Context**

## **3.1 Background**

The project *Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan* is implemented by UNDP through the Ministry of Health and the State Agency on Environment Protection and Forestry. The projects overarching goal is to “Implement Best Environmental Practices (BEP) and Best Available Technologies (BAT) in the health-care sector to assist Kyrgyzstan in meeting its obligations under the Stockholm Convention to reduce UPOPs as well as Mercury releases.”

Persistent Organic Pollutants (POP) are a group of organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. Due to these characteristics, these compounds can bio-accumulate with potential significant impacts on human health and the environment. The 2001 Stockholm Convention on Persistent Organic Pollutants seeks to eliminate or severely restrict the production of these compounds. Most of the POPs that are currently used or were used in the past are pesticides, solvents, pharmaceuticals, or industrial chemicals. In the context

of this project, dioxins and furans are of interest. These were two of the original twelve POPs designated by the Stockholm Convention in 2001.

Dioxins are unintentional by-products of high-temperature processes, such as incomplete combustion or pesticide production. Dioxins are typically emitted from the burning of hospital waste, municipal waste and hazardous waste. Other sources are automobile emissions, as well as the combustion of peat, coal and wood. Dioxins have been associated with several adverse effects in humans, including immune and enzyme disorders, chloracne, and are classified as a possible human carcinogen. In laboratory studies of dioxin effects, an increase in birth defects and stillbirths, and lethal exposure have been associated with the substances. Food, particularly from animals, is the principal source of human exposure to dioxins.

Polychlorinated dibenzofurans are also by-products of high-temperature processes, such as incomplete combustion when waste is incinerated or pesticide manufacture. Structurally furans are similar to dioxins and the two compounds have similar toxic effects.

Small amounts of dioxins and furans are formed whenever organics, oxygen and chlorine are available at suitable temperatures; the optimal temperature range is 400 °C to 700 °C and the presence of a metal catalysts, such as copper, will increase the production. This means that formation of these POPs is highest when organic material is burned in less-than-optimal conditions such as open fires, building fires, dumpsite fires and forest fires. Historically, municipal and medical waste incineration was the most important source of dioxins and furans.<sup>1</sup>

Mercury is an element and it is not classified as a persistent organic pollutant. It is used in medical equipment such as thermometers and sphygmomanometers (measurement of blood pressure). Concerns about the element's toxicity have led to mercury thermometers and sphygmomanometers being largely phased out in clinical environments in favour of alternatives such as alcohol- or galinstan-filled glass thermometers and thermistor- or infrared-based electronic instruments. Mercury is also found in fluorescent lamps.

Mercury and most of its compounds are extremely toxic and must therefore be handled with care. Toxic effects include damage to the brain, kidneys and lungs, where the symptoms typically include sensory impairment (vision, hearing, and speech), disturbed sensation and a lack of coordination. The WHO describes mercury as “one of the top ten chemicals or groups of chemicals of major public health concern.” The major sources of atmospheric mercury emissions are both natural and human generated; with natural sources - such as volcanoes - being responsible for approximately half of all the emissions. For man-made emissions, coal fired power plants are the largest source (65%); followed by gold mining (11%); smelters (7%); cement manufacture (6%) and waste disposal (3%).

Kyrgyzstan is a party to the Stockholm Convention and with GEF funding and UNEP support developed its National Implementation Plan (NIP) on POPs. The NIP was approved by the Kyrgyzstan Presidential Decree No. 371 on 3 July 2006. As part of the NIP's preparation, an assessment of unintentional releases of dioxins and furans was

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<sup>1</sup> See [https://en.wikipedia.org/wiki/Dioxins\\_and\\_dioxin-like\\_compounds](https://en.wikipedia.org/wiki/Dioxins_and_dioxin-like_compounds)

undertaken. In 2003 the total releases of dioxins were determined to be 30.5 g-TEQ, where releases into the atmosphere accounted for 47%; into water for 36%; and into the soil for 1%.<sup>2</sup> The incineration of medical waste accounted for 25% of all releases and was therefore identified as one of the main priorities in the NIP.

Although Kyrgyzstan has not signed the Minamata Convention on Mercury - the 2013 international treaty designed to protect human health and the environment from man-made emissions and releases of mercury and mercury compounds - the phasing out of mercury is still required for the benefit of public health and the environment.

### **3.2 Project Description**

The project focuses on the healthcare sector and aims to reduce UPOPs as well as Mercury releases. The project has a budget of US\$ 8.46 million, where GEF Financing constitutes \$ 1,425,000; the UNDP Contribution is US\$ 416,400 for project management; and there is a total co-financing commitment of US\$ 7,032,109. The listing of co-financers and their contributions can be found in Annex H. The project is executed following the established UNDP Direct Implementation procedures

The project started on 1 August 2014 and is scheduled for completion in July 2017. The project start was difficult, as the first Project Coordinator left the assignment after five months due to ill health. The current Project Coordinator has been employed from 2 May 2015.

The project's main stakeholders are the Ministry of Health, the State Agency for Environmental Protection and Forestry, Healthcare Entities, UNDP Kyrgyzstan's Programme Management Unit and Country Office. Other key stakeholders are the Ministry of Emergency Situations, the Swiss Red Cross, UNICEF, the Global Fund and two NGOs ("Ekois" and "Ecological Expertise").

To achieve the developmental objective of reducing the releases of UPOPs and mercury from healthcare entities, the project aims to:

1. Strengthen the country's capacity to effectively phase out POPs and mercury;
2. Reduce UPOP emissions through improved healthcare waste management in healthcare entities included in the project; and
3. Reduce mercury emissions through the phase-out of mercury containing medical thermometers and improved management of mercury containing wastes.

The bulk of the budget focusses on improved healthcare waste management within healthcare entities. Here the project is assisting eight hospitals and three polyclinics in Bishkek, as well as 100 rural Health Dispensaries ("FAPs") in implementing proper healthcare waste management procedures and installing autoclaves for sterilisation of the waste. The use of sterilisation, rather than the present practice of burning of the infections waste in pits, should greatly reduce the emissions of dioxins and furans.

A smaller component is the phasing out of mercury containing thermometers, where the same eleven Bishkek healthcare facilities are targeted. These facilities will have all their mercury thermometers substituted with non-mercury devices. The mercury containing

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<sup>2</sup> There is no explanation of what happens to the remaining 16%.

thermometers will be transported to a central storage and subsequently disposed of in a safe manner. This component also aims to raise awareness about mercury and to ensure that there is adequate capability to respond to mercury spills.

The project also aims to strengthen the national regulatory and policy framework for both healthcare waste management and for the phase-out of mercury containing products and the associated drive to encourage mercury-free or lower level mercury products.

Specifically, the following Component and outcomes aim to achieve the above mentioned three objectives:

**Component 1: Strengthening of the national regulatory and policy framework**

Outcome 1.1: Strengthening of the national regulatory and policy framework for Health Care Waste Management

Outcome 1.2: The regulatory and policy framework for Health Care Waste Management enhanced.

**Component 2: Implementation of Best Available Technologies (BAT) and Best Environmental Practices (BEP) for HCWM Systems**

Outcome 2.1: Accurate insight in the HCWM situation at each of the HCFs supported by the project.

Outcome 2.2: Allocation of HCWM technologies, devices, supplies and Technical Assistance (TA) needs determined for each HCF

Outcome 2.3: UPOPs releases reduced as a result of improved HCWM systems in supported HCFs

Outcome 2.4: National training modules on HCWM available and being used by the MoH (preventive Medicine), national training centres and Medical Faculties.

**Component 3: Implement mercury waste management and reduction activities for the city of Bishkek**

Outcome 3.1: Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or lower level Hg products

Outcome 3.2: Improved mercury management practices at HCFs and phase-out of mercury containing thermometer

Outcome 3.3: Intermediate and long-term storage options for mercury containing wastes identified

**Component 4: Monitoring, adaptive feedback, outreach and evaluation**

Outcome 4: Projects results sustained and replicated

After the project has improved the healthcare waste management system in Bishkek, all hospitals in Kyrgyzstan with 25 and more beds should have implemented a HCWM system and have access to a waste treatment facilities, either on their own premises or at

an adjacent healthcare facility. The phase-out of mercury in hospitals and the implementation of HCWM systems in 100 FAPs are pilot projects. Should these systems be successful, they should obviously be replicated, as foreseen under Component 4.

An overview of the implementation status of the project, at the time of the mid-term evaluation, can be found in section 4.2.

## 4 Findings

### 4.1 Project Strategy

This section discusses the relevance of the project within its international and national context. The project is obviously directly linked and highly relevant to the implementation of the Stockholm Convention in Kyrgyzstan; and it is perfectly aligned with the GEF Chemicals Focal Area which includes both POPs and Mercury. The project directly contributes to the execution of the National Implementation Plan on POPs by reducing the release of dioxins and furans.

In 2005 a joint project between the Ministry of Health and the Swiss Red Cross demonstrated that proper healthcare waste management in healthcare facilities greatly reduced nosocomial infections; see the box below explaining the advantages of reducing nosocomial infections. Since then HCWM has been a top priority for the Ministry of Health and it has been a Government of Kyrgyzstan policy to ensure sound healthcare waste management within the country. Once this project is completed, all healthcare facilities with over 25 beds in Kyrgyzstan should manage all their generated infectious waste correctly.

#### **The benefits of proper healthcare waste management entities in healthcare facilities**

This project tackles healthcare waste management in order to reduce the emissions of UPOPs, but as described in this text box the project also has a large positive impact on public health: With relatively modest means, infectious waste can be properly handled with hospitals and clinics, safely stored and treated. This improvement decreases nosocomial infections within hospitals; greatly increasing the safety of patients, health workers, waste collectors and scavengers; and finally eliminates the pollution caused by this waste stream. Hence, other than the environment, the principal beneficiaries of this project are hospital and clinic patients and workers, as well as any person who comes into contact with the waste stream.

Any decrease in nosocomial infections (“hospital-acquired infections”) through proper management of the infectious waste is a very tangible benefit. Even in the best managed hospitals such infections are a serious threat. The United States *Centre for Disease Control and Prevention* estimates that there are roughly 1.7 million hospital-associated infections, from all types of microorganisms, including bacteria and fungi combined, within the United States every year and that the infections cause or contribute to 99,000 deaths each year.<sup>3</sup> With simple but appropriate waste management measures, this risk can be greatly reduced thereby

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<sup>3</sup> See [https://en.wikipedia.org/wiki/Hospital-acquired\\_infection](https://en.wikipedia.org/wiki/Hospital-acquired_infection)

protecting the wellbeing of healthcare facility staff, patients and those coming into contact with the waste.

The implementation of a healthcare waste management system may impact all population groups equally, but the most logical conclusion is that those with poor health and from lower income groups will benefit the most: Elderly, young children and those with health issues frequent hospitals and clinics more than the average person and will therefore, proportionally benefit more from the safer conditions at healthcare facilities. The best hospitals and clinics are generally sought out by the affluent, whereas people with a lower income are forced to use less costly facilities. These poorer facilities will also be those with the least organised infectious waste management systems and hence have the highest risk of nosocomial infections. Such facilities will gain the most by the implementation of a healthcare waste management system which in turn will make these facilities much safer for their patients and staff.

Kyrgyzstan is a party to the Stockholm Convention and must carry out the National Implementation Plan on POPs, to achieve impacts in the reduction of POPs production, use, and releases, and to reduce the adverse impact on human health and the environment caused by these pollutants. The State Agency for Environment Protection and Forestry, often with funding from GEF, endeavours to meet these goals.

The management of mercury and mercury products is a concern to the SAEPF, so the development of policies and a regulatory framework to manage this element is very welcome.

It must be remarked that the project design is sound and the project is on track to meet its objectives. The project budget and resources are adequate to meet the targets, and this MTR found that there is generally a very good collaboration amongst the parties. This evaluator has no significant recommendations for improvements; all recommendations can be found in section 5.2.

#### **4.2 Progress Towards Results**

A fundamental measure of a project's progress, is to review its outputs to date and assess the progress against the milestones and indicators anticipated during the project planning phase. In the following the progress to date and the outputs to date are evaluated. As requested, the GEF Tracking Tool for POPs and mercury follows this report as a separate file. This section evaluates each of the four components individually using a simplified Progress Towards Results matrix. A complete "Progress Towards Results" matrix can be found as Annex B.

For each component the text below will first provide a summary of the component's objective. Thereafter the simplified Progress Towards Results matrix will be presented, followed by a discussion of the status at the time of the MTR and any observations.

##### **Component 1: Strengthening of the national regulatory and policy framework**

The goal of this component is to strengthen the policy and regulatory framework pertaining to HCWM. The principal focus is to update the 2008 - 2012 Healthcare Waste Management Strategy to the period 2016 - 2020 and to broaden the strategy's scope to



not only cover infectious waste but also to cover other types of hazardous waste generated by the healthcare sector such as pharmaceutical, chemical, and radioactive waste.

The Project Document foresaw that a separate Strategy for Anatomical Waste should be prepared. It was (in this evaluator’s opinion, correctly) decided to include anatomical waste in the general Healthcare Waste Management Strategy.

The project was also to fill a number of gaps in the medical waste management regulations, where the following documents were to be developed:

- Standards for medical waste management in offices, which predominantly undertake immunizations;
- Standards for the management, clean-up, storage, transport and disposal of waste containing mercury and mercury compounds in health care settings;
- Standards for the management, clean-up, storage, transport and disposal of chemical and pharmaceutical wastes;
- Technical regulations for HCWM equipment and supplies.
- Standards for the monitoring of HCWM practices, procedures, etc. in HCFs;
- Import ban on PVC containing syringes and other medical products for which cost effective alternatives are available.

The current status can be found in Table 4 below. The status of project objectives and outcome delivery as per measurable indicators is rated according to three criteria: completed at the time of the MTR (green); expected completion by the end of the project (yellow); and, unlikely to be completed by the end of the project (red). A complete “Progress Towards Results” matrix monitoring all project indicators can be found in Annex B. The right-hand column gives the rating, where the Rating Scale can be found in Annex D.

Table 4: Status for Component 1 at MTR

COMPONENT 1: STRENGTHENING OF THE NATIONAL REGULATORY AND POLICY FRAMEWORK			
Indicators	End-of Project Target	Status at MTR	Rating
1.1 National Health Care Waste Management Strategy revised and updated. National Strategy for Anatomical Waste developed.	National Strategy on Healthcare waste management in the Kyrgyz Republic finalized.  National Strategy for Anatomical Waste drafted.	Completed - the project has made a single National HCWM Strategy.  It makes little sense to make a separate strategy for anatomical waste, as this just one sub-group of healthcare waste.	<b>S</b>
1.2 Number of approved and adopted standards and degrees developed as part of the project.	Standards on technologies for the processing and final disposal of HCW developed. Standards on HCW in immunization offices developed. Standards on DoD developed. Standards on treatment of chemical and	All the regulatory and policy framework, as well as all the standards described in the target column, have been developed. The documents are in review and	<b>S</b>

	<p>pharmaceutical waste developed. Standards on monitoring HCWM practices developed. Job descriptions for those responsible for HCWM at HCFs developed. Import ban drafted on PVC containing syringes and other medical products for which cost-effective alternative are available.</p>	<p>approval phase with the Kyrgyz Ministries</p>	
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All required documents have been developed by the project; it is difficult for this evaluator to judge the quality, as these are (for a good reason) written in Russian. From the meetings with those involved, it is clear that the strategy, the standards, job descriptions are needed and that those responsible for developing these documents undertook this work in a dedicated manner and involved all stakeholders. Given the qualifications and commitment of those involved, one would expect the outcome of this component to be of a high standard.

The documents are currently under review in the Ministries and are expected to be approved during the coming year.

### **Component 2: Implementation of Best Available Technologies (BAT) and Best Environmental Practices (BEP) for HCWM Systems**

This component builds on earlier work with healthcare waste management in Kyrgyzstan. In 2005 the Swiss Red Cross collaborated with the Ministry of Health to address nosocomial infections, better known to the layperson as “hospital acquired infections.” These are infections occurring within 48 hours of hospital admission, 3 days of discharge or 30 days of an operation. In Great Britain they affect 1 in 10 patients admitted to hospital and annually this causes 5000 deaths.<sup>4</sup> The risk of hospital acquired infections is higher in less developed countries. The Swiss project undertook two pilot projects and the conclusion was that a good healthcare waste management system greatly contributed to reducing such infections in hospitals. This led to a project between the Swiss Red Cross and the Public Centre for Infection Control covering 10 hospitals in Naryn and Talas. Other projects followed and by 2014 all hospitals with over 25 beds outside Bishkek had a healthcare waste management system.

The system developed by the Swiss Red Cross is described in Annex IX of the Project Document. The fundamental feature of the system is to offer safe healthcare waste management at the absolutely lowest costs possible. The system has proven very successful and sustainable, offering a tremendous benefit to the Kyrgyz healthcare system. Photos 1 to 4 below give an understanding of the system, they were taken at Balykchy Hospital during an unannounced visit in 2014.

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<sup>4</sup> See <http://ceaccp.oxfordjournals.org/content/5/1/14.full>



*Photo 1: At the ward level waste is source separated into ordinary waste (leftmost container), infectious waste goes into the buckets and syringes are rendered harmless by cutting off their needles (device on table). Note the instruction on the wall on how to sort the waste.*



*Photo 2: On a daily basis the infectious waste is removed from the wards and taken to a central storage close to the treatment area. Enamel containers are used to hold the waste, as this is an inexpensive solution. Each hospital department have their own designated buckets.*



*Photo 3: Two buckets will fit directly into the autoclave for sterilisation, thereby minimising the handling of infectious waste.*



*Photo 4: Records are kept for each batch autoclaved and the indicators on the right verify that the sterilisation was successful.*

The Project Document foresees the implementation of the system developed by the Swiss Red Cross in eight hospitals and three polyclinics in Bishkek. The use of autoclaving technology (rather than incineration)<sup>5</sup> also avoids the generation of any dioxins or furans, and is hence well in line with the project’s stated objective of avoiding releases of POPs.

The Project Document foresees a “zone/cluster” approach to healthcare waste management in Bishkek, where HCFs with a waste treatment system serves as a hub and serves surrounding facilities that do not have autoclaves. This is a sensible solution, as the capacity of the autoclaving system can then be fully utilised and smaller entities can also have their waste sterilised. The project is expected to plan the clusters in an optimal

<sup>5</sup> Both are recognised as Best Available Technologies for the treatment of healthcare waste.

manner to optimise the use of existing treatment capacity and to minimise transportation costs.

A present health dispensaries located in rural areas treat their waste by burning it in a pit; an undesirable practice that causes a local nuisance,<sup>6</sup> as well as the release of UPOPs. These facilities are frequently located in remote areas and are often under the charge of a nurse. Their core activity is maternity, but they deal with all forms of illness that can be found in small communities and also offer immunizations and vaccinations; these latter preventive measures seemingly being the principal source of their infectious waste. The project is undertaking a pilot scheme where 100 FAPs are being equipped with a proper HCWM system, including the associated capacity building and technical assistance. Each FAP will be equipped with enamel buckets, a needle cutter, awareness materials and a “table top” autoclave. Selected FAPs in Chuy and Issyk Kul Oblasts are targeted, as these regions are relatively close to Bishkek, facilitating the monitoring and support by the project.

According to the Project Document, there is limited training available on healthcare waste management for HCFs. So to avoid training that is provided on a piecemeal basis through international programmes and projects, the project was to establish and establish training curricula at national level to ensure the long-term availability of appropriate training programmes at institutions educating medical and nursing staff. The project is to revise existing training modules and ensure that these modules are used for teaching in the country’s leading medical and nursing schools.

Table 5: Status for Component 2 at MTR

COMPONENT 2: IMPLEMENTATION OF BEST AVAILABLE TECHNOLOGIES (BAT) AND BEST ENVIRONMENTAL PRACTICES (BEP) FOR HCWM SYSTEMS			
Indicators	End-of Project Target	Status at MTR	Rating
2.1 I-RATs completed for each of the HCFs supported by the project	All HCFs have participated in a HCWM assessment. An accurate UPOPs and Hg baseline has been established for each HCF.	I-RAT completed for 68 HCFs in Bishkek	<b>S</b>
2.2 Detailed procurement and TA plan for the implementation of Phase I.  Updated Zoning Plan	For each HCF, HCWM equipment, Technical Assistance (TA) and funding needs have been determined/ calculated for the first phase of the project.  A detailed procurement and TA plan has been drawn up for the first phase of the projects implementation  The HCF Treatment Zoning plan (using GIS/Remote Sensing) has been revised/updated.	Procurement and Technical Assistance plans have been completed for the needed HCWM equipment and funding requirements for each HCFs in Bishkek.  The zoning plan covering the transportation of HCW within Bishkek and the clusters of healthcare facilities sharing an autoclaving unit will be completed in early 2017.	<b>S</b>

<sup>6</sup> One of the two FAPs this evaluator visited stated that there were frequent complaints from local residents, especially regarding ampoules that popped in the fire.

<p>2.3 Waste segregation improved by xx %</p> <p>Number of HCFs that send their disinfected syringes to recyclers increased by xx %</p> <p>Average HCF infectious waste volumes reduced by xx %</p> <p>No of project HCFs practices composting increased by xx %</p> <p>Percentage of project HCFs that have introduced non-incineration technologies xx %</p> <p>Waste monitoring installed.</p> <p>No. of incidences/accidents involving infectious waste reduced by xx %</p> <p>Transportation of infectious and anatomical waste exclusively assumed by authorized vehicles.</p> <p>Average costs for HCWM reduced by xx%</p>	<p>MoUs signed between project and each HCF.</p> <p>HCF staff trained in best practices for HCWM, including:</p> <ul style="list-style-type: none"> <li>• Responsibilities for HCWM assigned and waste management committees operationalized in each project HCF.</li> <li>• HCWM plans drawn up for each project HCF.</li> <li>• Xx HCFs and xxx staff trained in best HCWM practices related to waste identification, classification, segregation, labelling, packaging, storage, treatment, transportation, etc. at HCF level.</li> <li>• Xx managers and professionals trained on HCWM related procurement, accounting and budgeting; monitoring and reporting; and HCWM related record keeping (incidents, accidents, waste recording, etc.)</li> </ul> <p>8 Bishkek hospitals and 3 policlinics supported in refurbishing/preparing waste storage locations and locations for technology installation</p> <p>Non-incineration technologies and HCWM supplies procured and installed for all project HCFs (11 HCFs in Bishkek, 1 zone and 100 FAPs):</p> <ul style="list-style-type: none"> <li>• Project HCFs equipped with HCWM supplies and non-incineration technologies</li> <li>• Global Fund recipient HCFs equipped with additional non-incineration technologies/HCWM supplies</li> <li>• (1) zone equipped with sufficient treatment capacity/ HCWM supplies (including the zones hub treatment facility, its satellites as well as decentralized facilities).</li> </ul> <p>(Pilot) 100 FAPs in rural areas equipped with pressure cookers and necessary capacity building and HCWM supplies.</p> <p>Autoclave operators and other staff trained on SOPs, safety precautions, and quality control of the new technology.</p> <p>Standard Operating Procedures (SOPs) for the procured technologies prepared/revised.</p> <p>Draft cost-sharing agreements for infectious waste treatment between service HCF and recipient HCF developed</p>	<p>The indicators for this outcome do not have much meaning.</p> <p>The project is on track to meet all the targets listed at left, except where noted below:</p> <p>The 100 FAPs will be equipped with autoclaves - not pressure cookers.</p>	<p>S</p>
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	<p>Staff involved in infectious waste transportation trained on the safe handling of HCW and Mercury Waste</p> <p>Optimum transportation routes determined</p> <p>Project HCF staff trained in composting and plastics recycling.</p> <p>Environmentally sound agreement reached with the Bishkek Mayors office and the EBRD on the handling of disinfected HCW and Hg containing wastes at the new engineered Bishkek landfill.</p>	<p>The project will recycle the plastic from syringes. There is no composting component.</p> <p>Sterilised waste will be transported as MSW to the Bishkek landfill. Mercury containing waste will be treated elsewhere.</p>	
<p>2.4 Training possibilities/opportunities on HCWM offered by national teaching institutions and schools.</p>	<p>National training modules developed by Preventive Medicine as well as those used by the National Training Centre have been revised/improved based on the WHO Healthcare Waste Project Global Training Materials</p> <p>MoUs signed between the project and medical university faculties and nursing schools.</p> <p>Training modules on HCWM designed and subsequently embedded in the curricula of the Medical Academy as well as the Medical Facility of the Kyrgyz-Russian-Slavik University and potentially a number of nursing schools.</p>	<p>The national training modules developed/used by both the SPA Preventive Medicine (Ministry of Health) and the National Training Centre have been revised/improved by an International Consultant based on the UNDP/ GEF/ WHO Healthcare Waste Project Global Training Materials.</p> <p>20 teachers from six leading national medical universities have been trained.</p> <p>The training materials are already used in two institutions and it is expected that soon six medical university faculties and nursing schools will be using the training materials.</p>	<p><b>S</b></p>

The project has moved ahead with providing comprehensive healthcare waste management systems to eleven HCFs in Bishkek. Ten of these HCFs will become “hubs” with waste treatment facilities that will also serve surrounding infectious waste generators. Five of the ten facilities could allocate in-house rooms for waste storage and autoclaving. These premises were in a poor state of repair and required extensive refurbishing.



Photo 5: A future storage room. Shelves will be installed to hold the buckets. Note the washing facility at right.



Photo 6: A future autoclaving room with the ventilation hoods in place.

The quality of the renovation work done in these five facilities is excellent. It is also obvious that a lot of thought has gone into the planning for these facilities. For example, for facilities that are likely to require additional sterilisation capacity in the future, an additional ventilation hood has already been installed. The flow of waste through the storage and treatment rooms has also been carefully thought out, as can be seen in Figure 1.

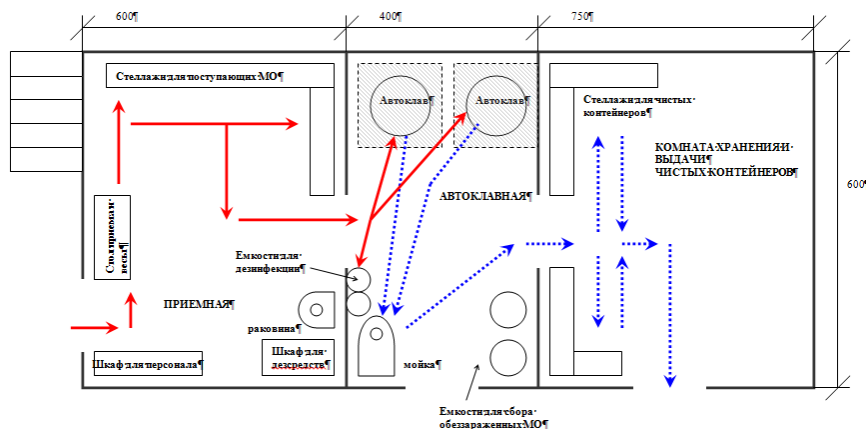


Figure 1: Example of how the flow of waste was planned. The red lines indicate the routes of infectious material and the blue lines sterilised materials.

The five HCF where rooms have been prepared for treatment facilities are: Clinical Maternity Hospital No. 2; Psychiatric Hospital; Bishkek Clinical Hospital No. 6; Therapeutic Recreation Association Administrative Department Office of the President Hospital; and Bishkek Clinical Hospital No. 1. The autoclaves for these facilities are expected to be delivered in December, where after all equipment will be installed, training undertaken and so on. The other necessary equipment, awareness materials and the training plans have already been organised by the project.

The other five sites could not provide space for the storage and autoclaving facilities. So these facilities will receive a storage and autoclaving system installed in a 20' or 40' container, depending on the required treatment capacity. It transpired that the land

designated for these containers at four of the five facilities was not under the hospital's ownership. So a complex and time consuming land registration process was required. These issues have now been resolved and the containerised treatment facilities are expected to be delivered in February 2017. The following HCFs will receive containerised units: Clinical Maternity Hospital no. 1 (40' container); Clinical Maternity Hospital no. 2 (20'); Republican Blood Centre (40'); Centre for Family Medicine no. 1 "Kyzyl Asker" (20'); and the Railway Hospital (20').

The Project Document proposed to use the upcoming Bishkek Sanitary Landfill as a possible site for hazardous waste disposal (in a special cell) and as the possible location for two shredders (valued at \$80,000) to shred the sterilised healthcare waste prior to landfill disposal. The purpose of shredding the sterilised healthcare waste is to ensure that all components of the waste are unrecognisable in the landfill. The project Management Board has decided that this is superfluous and has instead recommended the purchase of a vehicle suited for the transport of healthcare waste within Bishkek. This will facilitate the implementation of waste transport within the treatment clusters. This is judged a wise decision by this evaluator, as there is only cosmetic benefit to shredding the sterilised waste and as shredders are very costly to operate.

The project has identified 100 FAPs suited for receiving assistance in establishing HCWM systems. The Project Document proposed using pressure cookers for sterilising the waste, something that from a pragmatic point of view makes sense: The FAPs only generate small quantities of waste (about 125 grams per day), they are usually operated by a nurse and have very limited resources (most do not have running water); so a low-tech inexpensive solution seems appropriate. From a logical point of view issues can be raised with the pressure cooker option: Equipment designed for food preparation should not be used to treat infectious waste and the maximum operating temperature of a pressure cooker is below the regulatory minimum temperature required for sterilisation. Therefore, it was decided to propose "table top" autoclaves for these 100 FAPs.



Photo 7: Chon-Tash Village FAP



Photo 8: In the Besh-Kyungei Village FAP the autoclave is to be installed in the tiny waiting room where the bucket is. This is not an ideal solution and may require further work from the project to ensure that a satisfactory solution is found.



This is a pilot project and it will be interesting to see the outcome. The FAPs are set to receive their equipment in April 2017, as well as training and other support. Time will show whether the nurses working in the FAPs have the technical skills to operate an autoclave, if there are technical problems, financial issues, and so forth.

At present the FAPs burn their waste, causing localised nuisance, as well as emissions of dioxins and furans. When the waste is treated by sterilisation, it will evidently no longer be burn and this will raise another issue. These FAPs are located in areas without a waste collection service or a dumpsite, so what will happen to the sterilised waste? If it is still burnt after sterilisation, there will still be the same amount of dioxins and furans released. This is an issue that the project should address.

This evaluator is of the opinion that a lot of technical support will be required over an extended period to ensure that the autoclaves provided to the FAPs are working as planned.

As noted in Table 5 above, the national training modules have been prepared and seem well on the way to becoming part of the curriculum in six institutions.

### **Component 3: Implement mercury waste management and reduction activities for the city of Bishkek**

At present no measures are taken in Kyrgyzstan to manage mercury containing products. This means that no steps have been taken to phase out mercury, to ensure the safe disposal of mercury containing waste or to raise awareness about the risks posed by mercury. This component aims to address some of these issues.

Firstly, by developing a policy and regulatory framework that promotes the gradual phase-out of mercury-containing medical devices and the adoption of mercury-free alternatives in the health sector. Likewise, regulations should be drafted governing lighting products that contain mercury.

Secondly, by planning and implementing the phase-out of mercury containing thermometers in the eleven Bishkek HCF targeted by the project, where these are replaced by non-mercury devices. The project is also to train 500 medical staff in the safe management of mercury containing equipment, as well as in emergency response and clean-up in case of a spill. The Ministry of Emergencies staff is to receive more general training on how to deal with larger mercury spills. Finally, awareness should be raised in the general population on how to respond to a broken thermometer in the home.

Thirdly, the project is to plan and establish a temporary storage for the collected mercury containing thermometers from the eleven HCFs. The final treatment/ recycling/ disposal of the collected thermometers must also be planned and later carried out.

Table 6: Status for Component 3 at MTR

<b>COMPONENT 3: IMPLEMENT MERCURY WASTE MANAGEMENT AND REDUCTION ACTIVITIES FOR THE CITY OF BISHKEK</b>			
<b>Indicators</b>	<b>End-of Project Target</b>	<b>Status at MTR</b>	<b>Rating</b>
3.1 A regulatory framework	National action plan on the LCM of Hg containing products developed.	The national action plan on phasing out mercury and prohibiting mercury	<b>S</b>

<p>pertaining to the management of Mercury containing products is developing and available.</p>	<p>National standards/ guidelines on the management, storage and disposal of mercury containing products developed for large public and private entities, as well as HCFs.</p> <p>MSP degree drafted prescribing a phased approach/total phase-out for the use of Hg-containing thermometers.</p> <p>EU RoHS directives for lighting products transposed into national regulations through a degree.</p> <p>Assessment of potential Cost-Recovery Mechanisms for the future disposal/ treatment of Mercury containing products conducted.</p>	<p>containing equipment usage in the healthcare sector has been developed and is undergoing its second review by Government - so it should be close to approval.</p> <p>A draft degree has been developed for lighting products containing mercury.</p> <p>Estimates have been made for the quantities of mercury that could be recovered and the associated costs for disposal.</p>	
<p>3.2 80% of project HCFs have introduced Mercury-free devices.</p>	<p>Hg baseline assessments completed for each project HCF (as part of the I-RATs, see Activity 2.1.1).</p> <p>Mercury management and phase-out plans developed and implemented for each project HCF (included in the development of HCWM plans as part of Activity 2.3.2).</p> <p>500 medical personnel trained in the clean-up, storage and safe transport of Hg wastes.</p> <p>Training video produced on "Clean-up and Temporary Storage of Mercury Waste for Health Care Facilities" in Kyrgyz and Russian and used in training activities.</p> <p>Study on staff preferences for cost-effective Hg-free alternatives conducted at a number of project HCFs.</p> <p>Mercury-free thermometers introduced at the projects HCFs and personnel trained in their use.</p> <p>Emergency response teams (Ministry of Emergencies) trained on how to respond to large Mercury spills.</p>	<p>I-RAT completed for 68 HCFs in Bishkek.</p> <p>Phase out plans have been developed for mercury.</p> <p>Training on safe handling of mercury waste was conducted for 23 participants from relevant government departments. There are plans to train a further 400 people in 2017.</p> <p>A video has been developed to raise awareness what to do if a thermometer is broke. It is posted on YouTube in both languages.</p> <p>Completed</p> <p>The thermometers have been purchases but have not yet been delivered.</p> <p>Completed - see above.</p>	<p>S</p>
<p>3.3 Phased-out Mercury containing thermometers have been safely disposed of as possible within the limitations of the infrastructure present in Kyrgyzstan.</p>	<p>Assessment for short-term, interim and long-term storage and disposal options for Mercury containing spent products and Hg containing wastes completed (e.g. Khaidarkan Mercury Mine and Plant, EBRD hazardous cell, EBRD demercurization plant, interim storage, disposal abroad, etc.).</p> <p>Treatment/Disposal solution identified for the Mercury-containing equipment phased-out as part of the project.</p>	<p>The collection and disposal of mercury thermometers from 11 healthcare facilities is planned. A dedicated storage room has been established; the task of handling, packaging and transporting the collected mercury (a hazardous waste) is on-going and an agreement is in place with the Khaidarkan Mercury Mine and Plant for treatment and disposal.</p>	<p>S</p>

As can be seen from Table 6 above, this component is progressing smoothly. Again, due to language barriers, it was not possible for this evaluator to read the documents prepared by the national experts. It was clear that the documents were developed in consultation with all stakeholders by very capable national experts, so the outcome should be of good quality.

The project had some difficulties finding electronic thermometers that were sufficiently accurate, but this issue has been solved. In early 2017 the eleven HCFs will be supplied with electronic thermometers and the mercury containing thermometers will be packaged, transported and stored according to guidelines developed by the project. As it is collected, the mercury containing waste will be stored in a dedicated room prepared at the Centre for Family Medicine no. 1 "Kyzyl Asker", see Photo 9. Arrangements have been with the Khaidarkan Mercury Mine and Plant to have the collected mercury waste treated there.



Photo 9: The mercury storage room

This component is on track to be completed as planned. The phasing out of mercury containing thermometers is a pilot project and it will be interesting to see the outcome. It is far from certain that the involved HCFs will be able to maintain a mercury free environment, there could be many incentives to revert (at least partially) to the far less costly mercury thermometers. As stated, this is a pilot project and it will - whether successful or not - provide valuable data, understanding and information on how Kyrgyzstan should move forward to phase out mercury containing devices within the country.

#### Component 4: Monitoring, adaptive feedback, outreach and evaluation

This component covers the project's reporting, monitoring and evaluation. The present status can be found in Table 7 below.

Table 7: Status for Component 4 at MTR

COMPONENT 4: MONITORING, ADAPTIVE FEEDBACK, OUTREACH AND EVALUATION			
Indicators	End-of Project Target	Status at MTR	Rating
4 Number of high quality monitoring and evaluation	4 Quarterly Operational Reports submitted to UNDP each year 1 annual APR/PIR submitted to UNDP each year.	The Project is not submitting Quarterly Operational Reports.	MS

<p>documents prepared during project implementation.</p>	<p>1 Mid-term project review. M&amp;E results and insights are applied to provide feedback to the project coordination process, and have informed/ redirected the design and implementation of the second phase of the project.</p> <p>The MTE will inform on how many additional technologies would have to be purchased and how much additional capacity building would have to be carried out in the second half of the project.</p> <p>1 Final evaluation</p> <p>MTE and FE must include a lessons learned section and a strategy for dissemination of project results.</p> <p>Lessons learned and best practices are accumulated, summarized and replicated at the country level.</p>	<p>In progress.</p> <p>This is no longer relevant, as there are only 8 months of the project left today.</p>	
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It has been noted that the Quarterly Operational Reports have not been written; this could be a historical shortcoming as none were written under the first Project Coordinator.

To summarise, the project is well on track to achieving the developmental objective.

### **4.3 Project Implementation and Adaptive Management**

**Rating: S** (see Annex D for an explanation)

#### Management Arrangements

The project is being implemented using Direct Implementation Modality (DIM) as per UNDP’s procedures. The project’s Executing Entities are the Ministry of Health and the State Agency for Environment Protection and Forestry, whilst UNDP is the Implementing Entity.

The project is managed through a small Project Management Unit, consisting of a national Project Coordinator and a Project Assistant located within the UNDP Programme Management Unit. The Project Coordinator has overall responsibility for the implementation of project activities and the achievement of planned project outputs and reports to the National Project Director and to the UNDP Country Office. The Project Assistant provides administration, management and technical support to the Project Coordinator as required. International and national technical experts and specialists work under the direction of the Project Management Unit.

All major project decisions are taken in close cooperation with the key stakeholders and approved by the Project Board. On the Project Board, the role of Executive (project

“owners”) is taken by MoH and SAEPF. The Chair of the Project Board is the Deputy Minister of Health of KR and the Deputy Chair is the Director of the State Agency on Environment Protection and Forestry. For day to day communications, each ministry has a designated “Operational Focal Point” to ensure close cooperation. The Senior Supplier Role is taken by the UNDP Country Office, representing the interests of the funding parties. The Ministry of Health also has the role of Senior Beneficiary, representing those that will ultimately benefit from the project.

The Project Board approves the Annual Work Plans and is involved in all major project decisions. This has gone smoothly, through one senses that SAEPF at times is under the impression that the majority of project benefits are destined for the MoH. This is not an unfounded opinion, as the mercury component of the project constitutes less than 10% of the budget. Obviously, addressing UPOPs is also in the interest of SAEPF, but given that this is done through improved healthcare waste management, the Agency has no direct involvement. The SAEPF has been supportive of the project and is satisfied with the outcome to date.

Hence the Project Board has advised and guided the project as intended. All interviewed people were satisfied with the project management arrangements and felt that the lines of communication within the project worked well.

The project has adapted to change surprisingly well. The project encountered several unexpected issues, which could have caused delays or difficulties. The first Project Coordinator left the project after five months due to ill health change and the present Project Coordinator joined nine months into the project. Despite this disruption the project is on schedule to complete all activities on time.

Five hospitals were unable to provide suited rooms where healthcare waste could be stored and where autoclaves could be installed. The project adapted to this by providing storage and autoclaving facilities installed in 20’ and 40’ shipping containers (depending on the required treatment capacity) that could be installed adjacent to the healthcare facility. This solution caused further complications, as four of the five facilities did not own the land, so a complex land registration process has to be undertaken.

The Project Document recommends using pressure cookers for waste sterilisation in FAPs. This solution was rejected as unsuited, so the project had to find another solution that was both simple and inexpensive to operate. The table top autoclaves now proposed by the project may be a good solution, this will be known once these autoclaves are installed and operating.

### Financial Management

The project is being executed using the Direct Implementation Modality and financial resources are being used prudently. The project uses the UN ATLAS system as its accounting and financial system. It produces accurate and timely financial information for the project management unit. The system is set-up by Outcome (called Activity in the Atlas system) and each Outcome is sub-divided into line items such as local consultant fees, travel tickets, printing and publications, utilities, etc. The Table 8 below provides an overview of the budget spent at the time of the MTR. This expenditures for 2016 are up to 30 November, so the expenditures cover 28 months of project implementation with 8 months of implementation remaining. Seen from this perspective, the 37% of project

funds spent are on the low side, but considering that many costly items will be paid for in 2017, this is not surprising. It does not seem that a financial audit of this project has taken place to date.

Table 8: UNDP/GEF Fund Disbursement Status (US\$)

	<b>FY 2014</b>	<b>FY 2015*</b>	<b>FY 2016*</b>	<b>Total</b>	<b>Budget</b>	<b>Spent</b>
Outcome 1	7,527	28,625	31,820	67,971	142,760	47.6%
Outcome 2	9,058	116,509	248,037	373,604	977,740	38.2%
Outcome 3	0	8,613	30,845	39,458	120,000	32.9%
Outcome 4	2,307	2,812	0	5,120	55,000	9%
Project Mgmt.	9,230	10,004	18,922	38,155	129,500	29.5%
<b>Total</b>	<b>28,122</b>	<b>166,563</b>	<b>329,624</b>	<b>524,309</b>	<b>1,425,000</b>	<b>36.8%</b>

### Reporting

Given that the project is very well organised and has seemingly been able to coordinate a number of activities, the reporting is puzzling. The Project Management Unit was never requested to prepare or submit Quarterly Operational Reports, so none were prepared!

In the first year of the project, no Project Implementation Review (PIR) was prepared, probably due to the fact that there was a change of Project Coordinator. A PIR was prepared for the period 1 July 2015 to 30 June 2016.

Hence the activities and progress of the project a poorly documented.

### Procurement

The project has undertaken purchasing activities in a timely manner; so that items are generally ready (e.g. the rooms at the healthcare facilities that are to store and treat waste) prior to the arrival of equipment. Although the phase out of mercury thermometers is still months away, the storage room is ready, the project is close to selecting a company to transport the hazardous waste and an agreement is in place for the eventual disposal of the mercury holding equipment.

It was remarked that UNDP purchasing procedures are slow and at times a little cumbersome. This is probably a correct observation in some instances, but on the other hand these procedures are designed to ensure the procurement takes place in an inclusive and transparent manner.

### National Experts

The project has largely relied on national experts, this has worked well though the PMU reports that at times it is difficult to hire qualified local experts. The project especially had trouble finding a national expert with expertise on mercury management.

### Stakeholder engagement

Throughout the period of project implementation, it seems that stakeholder involvement has been excellent. At the national expert level, looking at participants from the national institutions and NGOs, the knowledge and awareness related to the project is high and

project partners are well aware of the project's progress and are vested in its outcome. This is certainly due to a close involvement of technical and national experts throughout the project, there also seems to have been a good and proactive collaboration between stakeholders.

The healthcare facilities and FAPs that are part of the project are also very keen to improve the standards of their workplace. Again, those encountered have a strong engagement in the project.

#### **4.4 Sustainability**

**Rating: L** (see Annex D for an explanation)

The healthcare waste management system provided to hospitals and polyclinics is already proven as financially sustainable; some systems have already operated successfully for ten years in Kyrgyzstan. It was found that on “average, the HCWM costs account for 0.68% of the operating budgets of the hospitals, making HCWM affordable for the hospitals.”<sup>7</sup> The healthcare waste management system provided is simple and has minimal operating costs; it furthermore has the advantage of being operated or overseen by skilled people such as nurses and doctors, resulting in a very robust system.

It is less certain that FAPs will be technically and financially able to operate their autoclaves over the longer term, there could be a number of possible issues:

- FABs are small rural clinics, usually staffed by a nurse. The equipment may be too complex to operate for some of the nurses;
- A lack of spare parts or other required item could cause an autoclave to stand idle;
- The electricity supply could prove too unreliable or insufficient; or
- Some FAPs may be in awe of such an expensive piece of equipment and either not dare to touch it or wish to preserve it in perfect condition by not using it.

The improvement of healthcare waste management is very important to the Government of Kyrgyzstan and there is no doubt that there will be continued strong support for the HCWM systems in hospitals and other facilities. Likewise, the pilot project in FAPs will be followed closely and, if successful, the Ministry of Health will be very keen to duplicate the results in the remaining 800 FAPs in Kyrgyzstan.

The phasing out of mercury thermometers in 11 HCF is a pilot project and the outcome will determine whether this is a sustainable solution. So long as inexpensive mercury thermometers are readily available, it is difficult to ensure that facilities and staff consistently use the safer but far more costly electronic thermometer. Irrespective of the

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<sup>7</sup> From *Summary of Swiss Red Cross experience in the implementation of a HCWM model and its replicate in rural hospitals in the Kyrgyz Republic* (J. Emmanuel, 2013) - Annex IX of the Project Document

outcome, the pilot project will provide valuable insight as to how mercury and mercury products should be managed.

## 5 Conclusions and Recommendations

### 5.1 Conclusions

The MTR has found this to be a well-managed and successful project. The project can be judged as follows:

**Progress toward results** - The project is on schedule and set to complete all its objectives. There is a certain risk (beyond the project's control) that all the developed national regulatory and policy framework on HCWM and mercury may not be approved by the Government of Kyrgyzstan by the project end in July 2017. It could also be foreseen that ensuring the smooth operation in 100 (sometimes remote) FAPs could take longer than expected. These facilities are very simple and a complex piece of machinery could cause turmoil, necessitating a lot of technical support from the project.

**Relevance** – Proper HCWM is a political priority for the Government of Kyrgyzstan and this project ensures that all HCF within the country with over 25 beds now have a reliable healthcare waste management system. This not only reduces the releases of POPs but also is a tremendous boost to public health, greatly decreasing the risks unwanted disease for hospital patients, staff and visitors. The pilot project in 100 FAPs will allow the MoH to evaluate whether such a system is functional and can be replicated throughout the country.

The GEF Chemicals Focal Area includes both POPs and mercury, so the project is well adjusted to GEF's focal area and operational programme strategies,

**Effectiveness** – The original Project Document was comprehensive and well thought out. There have been no changes to the original outcomes or objectives. One can commend all stakeholders on the close and productive collaboration.

**Efficiency** – The project has been financially prudent and effective. As repeatedly mentioned, the implementation of HCWM in hospitals gives “a big bang for the buck” due to the decrease in hospital acquired infections. There is one area where the expenditures may not be 100% efficient. When the switch was made to providing FAPs with autoclaves rather than pressure cookers for the treatment of infectious waste, it could have been considered to supply less than 100 FAPs. Given that most FAPs will probably be capable of operating the autoclaves as intended, this should not be an issue. Should the outcome be below expectations, then the issue could be raised why 100 relatively costly autoclaves were purchased.

**Sustainability** - The financially largest part of the project is the establishment of HCWM systems in 11 Bishkek hospitals is certain to be effective and sustainable, offering tremendous benefits to public health. Likewise, the regulatory and policy framework developed to strengthen both healthcare waste management and for the phase-out of mercury containing products will most likely be adopted, even if this is not by the project's completion date in July 2017.



Finally, the project's impact with regards to **gender** and the **poor** should also be briefly discussed. Those most directly involved with HCWM both in HCFs and in FAPs are generally nurses and women. When the management of infectious waste is improved, this not only improves their working conditions and safety, it also empowers them with the control of a system that is very important to the good performance of their facility.

Generally people with a good income will tend to use well management hospitals where the hygiene and risk of nosocomial infections is relatively low. Poor city dwellers and populations in rural areas are frequently forced to use lower standard facilities. This project will ensure that the hygienic standards are raised in (hopefully) 111 healthcare facilities in Bishkek, Chuy and Issyk Kul, something that will mostly benefit the poorer sections of the population.

## **5.2 Recommendations**

As previously concluded, this is a sound project that will meet all the objectives set out in the Project Document. The MTR does have two recommendations for the existing project:

Firstly, it is recommended that very close attention be paid to the 100 FAPs where autoclaves are being installed in 2017. This will not be an easy task, due to the sheer number of FAPs covered by the project and the transportation times required to reach each FAP. Therefore, substantial human resources and several vehicles will probably be required to provide good technical support to all FAPs. Other than training and capacity building, it is likely that there will be other issues to address to ensure that the HCWM and treatment system is fully functional in every FAP:

- The location of the autoclave may have to be reconsidered within certain FAPs;
- Measures may be needed to ensure good operations with an unreliable power supply;
- Steps may be necessary to safeguard hygiene in facilities without running water;
- Finding a harmless disposal route for the sterilised waste;
- Some autoclave operators that may be fearful of such a valuable machine and require additional training or support; and
- Provision of spare parts and/ or maintenance as required.

If it has not already been done, it is suggested that the project estimate the number of FAPs that can on average be visited by a national expert in a day; both when installation and training takes place, as well as for follow-up visits. Then estimate the number of follow-up visits required (e.g. one visit for installation and three follow-up visits for each FAP over a six-month period). This will give an estimate of the number of national experts and vehicles required - obviously taking into account that a national expert cannot both conduct training at a HCF in Bishkek and in a FAP at the same time! It can be expected that considerable resources will be required for the implementation of the autoclave systems in the FAPs and that this may be difficult to complete by July 2017.

Secondly, if possible, the project should be extended for an additional nine months, i.e. till April 2018. As the project has been prudent in its financial management, this can be

done as a no cost extension. Such an extension would address the risk that all project activities may not be completed in a satisfactory manner by July 2017, where the areas of concern are the operation of autoclaves in FAPs and the approval of all policy and regulatory documents covering HCWM and mercury management. The key activities during a possible project extension would be nos. 1 and 2 below:

1. Ensure that ample support is provided to all 100 FAPs that have received autoclaves to address any problems that may arise. This could range from additional training, through technical support to assistance with maintenance.
2. Provide support and push for the approval of the policy and regulatory documents developed by the project pertaining to both HCWM and mercury management.
3. It is expected that all collection, transport, storage and disposal of mercury containing thermometers will be completed by July 2017. An extension would mean that any delays in execution of this portion of the project would have no impact. It could be envisaged that the treatment at the Khaidarkan Mercury Mine and Plant is delayed due to technical, politic or financial disagreements - so an extension would allow the project to resolve any issues that could develop.
4. With an extension, it would be logical to follow up with the 11 HCFs in Bishkek to ensure that both the HCWM system and the mercury phase out is operating fully as planned. Such visits could be to all eleven facilities on a quarterly basis; where after training, technical advice or other support could be provided to resolve any identified issues.

The project extension would operate under the same organisational framework as at present.

### **Future Possible Projects**

Upon completion of this project, all hospitals in Kyrgyzstan with 25 and more beds will have a fully functional HCWM system. The logical next step for MoH and funding agencies would be to closely analyse the sustainability and benefits obtained from the installation of autoclaves to the 100 FAPs. Should the outcome be positive and the conclusion that it is advantageous to equip FAPs with integrated HCWM systems, the next step would be to also equip the country's other 800 FAPs with autoclaves. In parallel with such an intervention, the possibilities and opportunities of targeting even smaller sources, such as small clinics, doctor's offices, dentists and veterinary practices should also be examined. Such a project could be a phase II of this project or a new project for the MoH.

If the pilot project to phase out mercury in HCFs is successful, it should be evaluated whether this is a solution that could be duplicated throughout the country. Ideally, a much broader approach should be considered to addressing "one of the top ten chemicals or groups of chemicals of major public health concern." This project has developed a *National Action Plan on the Life Cycle Management of Mercury containing products*, so the next step is to implement the plan. Presumably, funding would be easier to obtain if Kyrgyzstan was a signatory of the Minamata Convention on Mercury. Any such project would need to consider which government institution would be the focal point if "all"

mercury is to be addressed. Another consideration is to assess whether mercury use can be phased out in a country with mercury and gold mines. There could be some significant conflicts between mining interests and those wishing to phase out the use of mercury.

## Annex A: Terms of Reference

# UNDP-GEF Midterm Review Terms of Reference

International consultant to conduct Mid-Term Evaluation of MedWaste Project

### **BASIC CONTRACT INFORMATION**

**Location:** Kyrgyzstan

**Application Deadline:** September 30, 2016

**Category:** Energy and Environment

**Type of Contract:** Individual Contract

**Assignment Type:** International Consultant

**Languages Required:** English

**Starting Date:** approx. October 31, 2016

**Duration of Initial Contract:** October 31, 2016 – December 18, 2016 (25 effective person-days)

**Expected Duration of Assignment:** Estimated 25 effective person-days (18 effective person-days home based and 7 effective person-days on field mission to Bishkek, Kyrgyzstan)

### **BACKGROUND**

#### **A. Project Title**

UNDP-supported GEF-financed “Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan” Project

#### **B. Project Description**

This is the Terms of Reference for the UNDP-GEF Midterm Review (MTR) of the medium-sized project titled “Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan” (PIMS#5155) implemented by UNDP through the Ministry of Health of the Kyrgyz Republic and the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic, which is to be undertaken in 2016. The project started on July 3, 2014 and is in its second year of implementation. In line with the UNDP-GEF Guidance on MTRs, this MTR process was initiated before the submission of the second Project Implementation Report (PIR). The MTR process must follow the guidance outlined in the document [\*Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects\*](#).

With ratification of the Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention) on 17 July 2005, the Project on unsound disposal of healthcare waste was designed mainly to provide well-elaborated mechanisms for protection of human health and environment from unintentional releases of POPs and mercury in Kyrgyzstan. In Kyrgyzstan, the main barriers that need to be addressed are both on the side of lacking knowledge and capacity for the proper management of waste at or before their origin, and on the side of lacking of financial resources and market-based mechanisms.

The objective of the project is to implement and adopt Best Environmental Practices (BEP) and Best Available Technologies (BAT) in healthcare facilities throughout the City of Bishkek to improve the management, treatment, and disposal of healthcare waste, as well as support a number of rural health posts (~ 100) in Chui and Issyk-Kul Oblast.

The project will assist Kyrgyzstan in meeting its obligations under the Stockholm Convention on Persistent Organic Pollutants (POPs) by adopting environmentally friendly treatment options for healthcare waste, which will lead to a reducing in UPOPs emissions controlled under the Convention (currently unintentionally POPs (UPOPs) are produced when healthcare waste are incinerated or burned in the open).

Another project objective is to reduce mercury releases from the health sector (generally caused by the breakage of Mercury containing thermometers), by supporting the phase out of Mercury containing medical equipment and the introduction of Mercury-free alternatives. This activity will assist Kyrgyzstan in meeting its obligations to the Minamata Convention on Mercury once it enters into force.

The project consists of four main components:

**Component 1:** Strengthening of the National Regulatory and Policy Framework for Health Care Waste Management

**Component 2:** Implementation of Best Available Technologies (BAT), Best Environmental Practices (BEP) for HCWM Systems.

**Component 3:** Implement Mercury Waste Management and Reduction Activities for the City of Bishkek.

**Component 4:** Monitoring, Adaptive Feedback, Outreach and Evaluation.

It can be safely assumed, that when the GEF project comes to an end, thanks to joint efforts of the Swiss Red Cross, the GEF and the Global Fund and 95% of HCW in Kyrgyzstan, will be treated by non-incineration. In combination with import restriction on certain PVC containing medical supplies and improved recycling of disinfected waste materials (plastics), the GEF project is expected to result in a reduction of UPOPs emissions of about 3 g-TEQ/yr. By putting import restrictions on Mercury containing thermometers and adopting the use of Mercury-free thermometers in healthcare facilities, the project could result in reducing Mercury emissions from the healthcare sector by 160 kg/yr.

## DUTIES AND RESPONSIBILITIES

### C. Scope of Work and Key Tasks

The MTR team will consist of one independent consultant who will conduct the MTR and be supported with an Interpreter (Russian-English-Russian).

The MTR consultant will first conduct a desk review of the project documents (i.e. PIF, Project Document, AWP, Project Inception Report, PIRs, Finalized GEF focal area Tracking Tools, Project Board meetings' minutes, Financial and Administration guidelines used by Project Team, project operational guidelines, manuals and systems, etc.) provided by the Project Team and Commissioning Unit. A list of documents that the project team will provide to the evaluator for review is included in Annex A of this Terms of Reference. Then they will participate in an MTR inception workshop to clarify their understanding of the objectives and methods of the MTR, producing the MTR inception report thereafter. The MTR mission will consist of several interviews with local stakeholders and site visits to local healthcare facilities in Bishkek.

The MTR consultant will assess the following four categories of project progress and produce a draft and final MTR report. See the [Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects](#) for requirements on ratings. No overall rating is required.

#### 1. Project Strategy

*Project Design:*

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results.
- Review how the project addresses country priorities
- Review decision-making processes

### *Results Framework/Logframe:*

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc..) that should be included in the project results framework and monitored on an annual basis.

## **2. Progress Towards Results**

- Review the logframe indicators against progress made towards the end-of-project targets; populate the Progress Towards Results Matrix, as described in the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for the project objective and each outcome; make recommendations from the areas marked as "not on target to be achieved" (red).
- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

## **3. Project Implementation and Adaptive Management**

Using the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; assess the following categories of project progress:

- Management Arrangements
- Work Planning
- Finance and co-finance
- Project-level monitoring and evaluation systems
- Stakeholder Engagement
- Reporting
- Communications

## **4. Sustainability**

Assess overall risks to sustainability factors of the project in terms of the following four categories:

- Financial risks to sustainability
- Socio-economic risks to sustainability
- Institutional framework and governance risks to sustainability
- Environmental risks to sustainability

The MTR consultant will include a section in the MTR report setting out the MTR's evidence-based **conclusions**, in light of the findings.

Additionally, the MTR consultant is expected to make **recommendations** to the Project Team. Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. The MTR consultant should make no more than 15 recommendations total.

### D. Expected Outputs and Deliverables

The MTR consultant shall prepare and submit:

- MTR Inception Report: MTR consultant clarifies objectives and methods of the Midterm Review no later than 1 week before the MTR mission. To be sent to the Commissioning Unit and project management. Approximate due date: (November 4, 2016)
- Presentation: Initial Findings presented to project management and the Commissioning Unit at the end of the MTR field mission. Approximate due date: (November 18, 2016)
- Draft Final Report: Full report with annexes within 2 weeks of the MTR mission. Approximate due date: (December 2, 2016)
- Final Report\*: Revised report with annexed audit trail detailing how all received comments have (and have not) been addressed in the final MTR report. To be sent to the Commissioning Unit within 1 week of receiving UNDP comments on draft. Approximate due date: (December 9, 2016)

\*The final MTR report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

### E. Institutional Arrangement

The principal responsibility for managing this MTR resides with the Commissioning Unit. The Commissioning Unit for this project's MTR is the UNDP Country Office in the Kyrgyz Republic.

The Commissioning Unit will contract the consultant, and ensure the timely provision of due payments and travel arrangements within the country for the MTR consultant. The Project Team will be responsible for liaising with the MTR consultant to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

The Certifying Officer of this assignment is Sustainable Development Dimension Chief.

### F. Duration of the Work

The total duration of the MTR will be approximately 25 effective person-days over a period of 7 *weeks* starting *October 31, 2016*. The tentative MTR timeframe is as follows:

- 3 *days*: Desk review and preparing MTR Inception Report;
- 2 *days*: Finalization and Validation of MTR Inception Report- latest start of MTR mission;
- 7 *days*: MTR mission: stakeholder meetings, interviews, field visits (including Mission wrap-up meeting & presentation of initial findings- earliest end of MTR mission);
- 8 *days*: Preparing draft report;
- 2 *days*: Incorporating audit trail on draft report;
- 3 *days*: Finalization of MTR report/Expected full MTR completion.

The start date of the contract is planned for October 31, 2016.

## G. Duty Station

### Travel:

- International travel for 7 effective person-days of field mission to Bishkek, Kyrgyzstan will be required during the MTR mission;
- The Basic Security in the Field II and Advanced Security in the Field courses must be successfully completed prior to commencement of travel;
- Statement of Medical Fitness for Work:  
Individual Consultants/Contractors whose assignments require travel and who are over 62 years of age are required, at their own cost, to undergo a full medical examination including x-rays and obtaining medical clearance from an UN - approved doctor prior to taking up their assignment. Where there is no UN office nor a UN Medical Doctor present in the location of the Individual Contractor prior to commencing the travel, either for repatriation or duty travel, the Individual Contractor may choose his/her own preferred physician to obtain the required medical clearance.
- Inoculations/Vaccinations  
Individual Consultants/Contractors are required to have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director. The cost of required vaccinations/inoculations, when foreseeable, must be included in the financial proposal. Any unforeseeable vaccination/inoculation cost will be reimbursed by UNDP;
- Consultant is required to comply with the UN security directives set forth under <https://dss.un.org/dssweb/>.
- The Individual Consultant must obtain security clearance before travelling to the duty station;
- All envisaged travel costs must be included in the financial proposal. This includes all travel to duty station. UNDP should not accept travel costs exceeding those of an economy class ticket and daily allowance exceeding UNDP rates. Should the IC wish to travel on a higher class he/she should do so using their own resources.

## REQUIRED SKILLS AND EXPERIENCE

### H. Qualifications of the Successful Applicants

Qualifications	Evaluation weight for each qualification
Master's degree or higher in natural or chemical sciences or other closely related field	15 %
At least 5 years of work experience in relevant technical areas	15 %
Experience with results-based management evaluation methodologies and/or experience applying SMART targets and reconstructing or validating baseline scenarios, confirmed with at least two project evaluations	10 %
At least one project evaluation/review experiences within United Nations system is an asset	10 %
Experience working with the GEF or GEF-evaluations, confirmed with at least one project is an asset	5 %
Knowledge of priorities and basic principles of POPs management and relevant international best-practices, confirmed with at least one project is an asset	5 %
Demonstrated understanding of issues related to gender and the Chemicals Focal Area, and/or experience in gender sensitive evaluation and analysis, confirmed with at least one project is an asset	5 %
Excellent English communication skills (written and oral), knowledge of Russian is an asset	5 %

### *Consultant Independence:*



The consultant cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

## **APPLICATION PROCESS**

### **I. Scope of Price Proposal and Schedule of Payments**

#### ***Financial Proposal:***

- Financial proposals must be “all inclusive” and expressed in a lump sum for the total duration of the contract. The term “all inclusive” implies all cost (professional fees, travel costs, living allowances etc.);
- Individual on this contract is not UN staff and are therefore not entitled to DSAs. All living allowances required to perform the demands of the ToR must be incorporated in the financial proposal, whether the fees are expressed as daily fees or lump sum amount.
- The lump sum is fixed regardless of changes in the cost components.

#### ***Schedule of Payments:***

The service provider will be responsible for all personal administrative and travel expenses associated with undertaking this assignment including office accommodation, printing, stationary, telephone and electronic communications, and report copies incurred in this assignment. For this reason, the contract is prepared as a lump sum contract.

The remuneration of work performed will be conducted as follows: lump sum payable in 2 installments, upon satisfactory completion and approval by UNDP of all deliverables, including the Final MTR Report.

**December 2, 2016** - 40% upon submission of the draft MTR Report;

**December 9, 2016** - 60% upon finalization of the MTR Report.

### **J. Recommended Presentation of Offer**

- a) Completed **Letter of Confirmation of Interest and Availability** using the [template](#) provided by UNDP;
- b) **Personal CV or a [P11 Personal History form](#)**, indicating all past experience from similar projects, as well as the contact details (email and telephone number) of the Candidate;
- c) Copy of **ID card**;
- d) Copy of **diploma**;
- e) **Brief description of approach to work/technical proposal** of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)
- f) **Financial Proposal** that indicates the all-inclusive fixed total contract price, supported by a breakdown of costs, as per template provided. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP. See Letter of Confirmation of Interest template for financial proposal template.

Incomplete applications will be excluded from further consideration.

Documents with a subject “International Consultant for Mid-Term Evaluation” should be submitted no later than 15:00 (local time), August 26, 2016 to email: [procurement@undp.kg](mailto:procurement@undp.kg) or by post to the address below:

United Nations Development Programme, 160, Chuy Avenue, Bishkek, 720040, Kyrgyz Republic

Receipt of bids will be made only during working hours from 09.00 – 17.00PM

## **K. Criteria for Selection of the Best Offer**

The award of the contract will be made to the Individual Consultant who has obtained the highest Combined Score and has accepted UNDP's General Terms and Conditions. Only those applications which are responsive and compliant will be evaluated. The offers will be evaluated using the "Combined Scoring method" where:

- a) The educational background and experience on similar assignments will be weighted a max. of 70%;
- b) The price proposal will weigh as 30% of the total scoring.

## Annex B: Progress Towards Results Matrix (Project Results Framework)

Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
<p><b>Objective:</b> Implement best environmental Practices (BEP) and Best Available Technologies (BAT) in the health-care sector to assist Kyrgyzstan in meeting its obligations under the Stockholm Convention to reduce UPOPs as well as Mercury releases</p>	<p>UPOPs emissions reduced as a result of improved HCWM treatment systems used by HCFs benefitting from the project.</p>	<p>Kyrgyzstan's NIP, calculated that the total releases of dioxins in 2003 were 30.5 g-TEQ. The majority of releases were indicated to be the result of combustion practices, with the greatest contribution made by incineration of medical wastes (7 g-TEQ)</p>	<p>In total the project expects to reduce UPOPs emissions by 3- TEQ/yr.</p>	<p>The I-RATs that will be conducted for each of the project's HCFs before project interventions will take place will provide insight in the amount of UPOPs produced and Mercury released on a yearly basis.</p>	<p>The implementation of HCWM systems in 11 hospitals/ polyclinics in Bishkek and for 100 rural FAPs is on track to be completed on time.</p>
	<p>Country capacity built to effectively phase out and reduce releases of POPs</p>	<p>The current regulatory framework does not cover all medical waste management challenges, which the country is facing, while existing guidelines do not have any legal status and as such are not enforceable.</p>	<p>Legal and regulatory framework enhanced through the revision of the national HCWM strategy, the development of a national strategy for anatomical waste, and the development of standards and decrees pertaining to HCWM.</p>	<p>Draft of the two National Strategies as well as drafts for the standards and degrees available.</p>	<p>The Ministry of Health established an inter departmental working group, which was responsible for the development of the National 2016-2020 HCWM Strategy. The draft National HCWM strategy covers all categories of healthcare waste (general waste, infectious waste, anatomical waste, pharmaceutical waste, chemical waste and radioactive waste). The final draft is with the Government for further review and approval.</p> <p><b>There is a risk that the Strategy may not be approved by July 2017</b></p>

Kyrgyzstan UNDP/GEF Healthcare Waste Project – MTR – Draft Evaluation Report

Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
	Mercury emissions reduced as a result of the phase-out of mercury containing medical thermometers and improved management of mercury containing wastes.	No national Mercury Assessment has been undertaken yet, but based on 2011 and 2012 import figures, between 58 and 305 kg of Mercury, contained in medical thermometers, is imported yearly.	The phase-out of Mercury containing thermometers will result in sustained Mercury reductions of approximately 160 kg Hg/year.	Guidance on “Measurements and Documentation” as developed under the Global Medical Waste Project will be used to provide for a before and after snap-shot.	Non-mercury thermometers have been purchased, the transport and storage of the mercury thermometers is prepared. The project has organised for disposal of the collected mercury at the Khaidarkan Mercury Mine and Plant.
<b>COMPONENT 1: STRENGTHENING OF THE NATIONAL REGULATORY AND POLICY FRAMEWORK</b>					
<b>Outcome 1.1</b> Strengthening of the national regulatory and policy framework for Health Care Waste Management	National Health Care Waste Management Strategy revised and updated.  National Strategy for Anatomical Waste developed.	Although a National Strategy (2008- 2012) on HCWM was elaborated, it has never been approved/adopted due to lack of funding for its implementation.  The collection, safeguarding and transport of anatomical wastes is highly inadequate.	National Strategy on Healthcare waste management in the Kyrgyz Republic finalized.  National Strategy for Anatomical Waste drafted.	National Strategy on HCWM available.  National Strategy for Anatomical Waste available	Completed - the project has made a single National HCWM Strategy. It makes little sense to make a separate strategy for anatomical waste.
<b>Outcome 1.2</b> The regulatory and policy framework for Health Care Waste Management enhanced.	Number of approved and adopted standards and degrees developed as part of the project.	HCWM related legislation is merely functioning as a framework and reflects the general requirements to prevent adverse effects on health and the environment. However	Standards on technologies for the processing and final disposal of HCW developed. Standards on HCW in immunization offices developed. Standards on DoD	Standards on technologies for the processing and final disposal of HCW available.  Standards on HCW in immunization offices available.	All the regulatory and policy framework, as well as all the standards have been developed. The documents are in review and approval phase with the Ministries

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Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		<p>most of these are guidelines do not have any legal status and as such are not enforceable.</p> <p>The current regulatory framework does not cover all medical waste management challenges, which the country is facing.</p> <p>A major challenge remains the implementation and enforcement of regulations and guidelines, which are often issued without providing HCFs or stakeholders with any support or capacity building to enable them meet the requirements set-out in these regulations /guidelines.</p>	<p>developed. Standards on treatment of chemical and pharmaceutical waste developed. Standards on monitoring HCWM practices developed. Job descriptions for those responsible for HCWM at HCFs developed. Import ban drafted on PVC containing syringes and other medical products for which cost-effective alternative are available.</p>	<p>Standards on DoD available.</p> <p>Standards on treatment of chemical and pharmaceutical waste available.</p> <p>Standards on monitoring HCWM practices available.</p> <p>Job descriptions for those responsible for HCWM at HCFs available.</p> <p>Import ban on PVC containing syringes and other medical products for which cost effective alternative are available.</p>	
<b>COMPONENT 2: IMPLEMENTATION OF BEST AVAILABLE TECHNOLOGIES (BAT), BEST ENVIRONMENTAL PRACTICES (BEP) FOR HCWM SYSTEMS</b>					
Outcome 2.1 Accurate insight in the HCWM situation at each of the HCFs supported by the project.	I-RATs completed for each of the HCFs supported by the project	Some baseline information is available mainly from prior HCWM assessments as well as from the projects PPG phase.	All HCFs have participated in a HCWM assessment. An accurate UPOPs and Hg baseline has been established for each HCF.	I-RAT reports (incl. Hg assessments) available for all assessed HCFs.	I-RAT completed for 68 HCFs in Bishkek
Outcome 2.2 Allocation of HCWM	Detailed procurement and TA plan for the	Some information is available on the type of TA and equipment/ supplies	For each HCF, HCWM equipment, Technical Assistance (TA) and	Detailed budget for each of the project's HCFs has been prepared.	Procurement and Technical Assistance plans have been completed for the needed

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Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
technologies, devices, supplies and Technical Assistance (TA) needs determined for each HCF	implementation of Phase I.  Updated Zoning Plant	that would be required for HCFs, however detailed information for each HCFs will be required to draw up a sound procurement and TA plan.  A Zoning Plan was developed in 2012 (see Annex VI) but is currently out-dated. The Zoning Plan will also require revision to reflect the outcomes of the I-RATS.	funding needs have been determined/ calculated for the first phase of the project. A detailed procurement and TA plan has been drawn up for the first phase of the projects implementation The HCF Treatment Zoning plan (using GIS/Remote Sensing) has been revised/updated.	Procurement/TA plan is available.  An updated “Zoning Plan” is available.	HCWM equipment and funding requirements for each HCFs in Bishkek.  The zoning plan covering the transportation of HCW within Bishkek and the clusters of healthcare facilities sharing an autoclaving unit will be completed in early 2017.
Outcome 2.3 UPOPs releases reduced as a result of improved HCWM systems in supported HCFs	Waste segregation improved by xx % Number of HCFs that send their disinfected syringes to recyclers increased by xx % Average HCF infectious waste volumes reduced by xx % No of project HCFs practices composting increased by xx % Percentage of project HCFs that	At the primary healthcare level, immunization waste is either burned in the open (in rural areas) or in the case of Bishkek mixed with regular household waste ending up on the Bishkek dumpsite or transported to a boiler house for low temperature incineration.  At Bishkek hospital level in Bishkek, the primary method of treating infectious medical waste is by chemical disinfection after which the waste ends up on the Bishkek	MoUs signed between project and each HCF. HCF staff trained in best practices for HCWM, including: <ul style="list-style-type: none"> <li>Responsibilities for HCWM assigned and waste management committees operationalized in each project HCF.</li> <li>HCWM plans drawn up for each project HCF.</li> <li>Xx HCFs and xxx staff trained in best HCWM practices related to waste identification,</li> </ul>	Signed MoUs.  Certificates of training completion and attendance sheets of training sessions. <ul style="list-style-type: none"> <li>List of committee members and copy of regular meeting minutes available.</li> <li>HCWM plans available.</li> <li>Certificates of training completion and attendance sheets of training sessions.</li> <li>Monitoring and reporting systems in place in each HCF and daily updated.</li> <li>Logbook available on number of</li> </ul>	The indicators for this outcome do not have much meaning.  The project is on track to meet all the listed targets.



Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		<p>contract with a local recycler, which collects chemically disinfected syringes.</p> <p>Although the SRC/MoH has successfully demonstrated composting at the rural level, none of the HCFs in Bishkek undertake composting.</p> <p>Transportation of infectious HCW in the city of Bishkek is extremely inadequate, more often than not, using passenger cars or ambulances, which are also used to transport patients, healthcare staff, etc.</p> <p>The City Health Department has received 1 transport vehicle through the phase I Global Fund project, which will soon be used to transport infectious HCW, between HCFs and treatment hubs. However the delivery/pick-up schedule has not yet been worked out in detail</p>	<ul style="list-style-type: none"> <li>• xx Global Fund recipient HCFs equipped with additional non-incineration technologies/HCWM supplies</li> <li>• (1) zone equipped with sufficient treatment capacity/HCWM supplies (including the zones hub treatment facility, its satellites as well as decentralized facilities). (Pilot) 100 FAPs in rural areas equipped with pressure cookers and necessary capacity building and HCWM supplies.</li> </ul> <p>Autoclave operators and other staff trained on SOPs, safety precautions, and quality control of the new technology.</p> <p>Standard Operating Procedures (SOPs) for the procured technologies prepared/ revised.</p> <p>Draft cost-sharing agreements for infectious waste treatment between service HCF and recipient HCF developed</p>	<p>SOP for procured technologies available in each project HCF.</p> <p>Certificates of training completion and attendance sheets of training sessions.</p> <p>Signed cost-sharing agreements.</p>	



Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
			<p>Staff involved in infectious waste transportation trained on the safe handling of HCW and Mercury Waste</p> <p>Optimum transportation routes determined</p> <p>Project HCF staff trained in in composting and plastics recycling.</p> <p>Environmentally sound agreement reached with the Bishkek Mayors office and the EBRD on the handling of disinfected HCW and Hg containing wastes at the new engineered Bishkek landfill.</p>	<p>Certificates of training completion and attendance sheets of training sessions.</p> <p>Optimized route schedule available.</p> <p>GIS/Remote Sensing maps available of the Bishkek transportation routes, clusters and treatment technologies.</p> <p>Waste logs kept at recipient hub indicating the amount, origin and state of waste received from the cluster HCFs.</p> <p>Photos of composting stations.</p> <p>Hospital records indicating the amount of disinfected waste sold to recyclers.</p>	
<p><b>Outcome 2.4</b></p> <p>National training modules on HCWM available and being used by the MoH (preventive Medicine), national training centers and Medical Faculties.</p>	<p>Training possibilities/opportunities on HCWM offered by national teaching institutions and schools.</p>	<p>Lack of a systematic approach to training medical and nursing staff on HCWM resulting in low awareness on the dangers of HCW and the risks to human health and the environment. As part of the Global Fund Phase II project, the MoH institute Preventive Medicine has developed training modules, with support of UNICEF and will be</p>	<p>National training modules developed by Preventive Medicine as well as those used by the National Training Centre have been revised/improved based on the WHO Healthcare Waste Project Global Training Materials</p> <p>MoUs signed between the project and medical university faculties and nursing schools.</p>	<p>National training modules finalized and approved for use at national level.</p> <p>National training modules being used by Preventive Medicine and the National Training Centre.</p> <p>Signed MoUs</p>	<p>The national training modules developed/used by both the SPA Preventive Medicine (Ministry of Health) and the National Training Centre have been revised/improved by an International Consultant based on the UNDP/ GEF/ WHO Healthcare Waste Project Global Training Materials.</p>

Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		<p>providing this training to various target groups. The National Training Centre provides post-graduate training (continuous professional development) as well as educational training for healthcare staff, which contains modules on HCWM.</p>	<p>Training modules on HCWM designed and subsequently embedded in the curricula of the Medical Academy as well as the Medical Facility of the Kyrgyz-Russian-Slavik University and potentially a number of nursing schools.</p>	<p>HCWM modules/training embedded in curricula at the Medical Academy as well as the Medical Facility of the Kyrgyz-Russian-Slavik University                      Medical and nursing students are being tested on HCWM knowledge as part of their education.</p>	<p>20 teachers from six leading national medical universities have been trained.                      The training materials are already used in two institutions and it is expected that soon six medical university faculties and nursing schools will be using the training materials.</p>
<p>COMPONENT 3: IMPLEMENT MERCURY WASTE MANAGEMENT AND REDUCTION ACTIVITIES FOR THE CITY OF BISHKEK</p>					
<p>Outcome 3.1                      Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or lower level Hg products</p>	<p>A regulatory framework pertaining to the management of Mercury containing products is developing and available.</p>	<p>In Kyrgyzstan, the management of Mercury containing products is not being addressed, whether in the healthcare sector or any other sector.                      When products that contain Mercury break or need to be disposed of, such wastes are being discarded along with regular municipal waste.                      No special measures are taken to protect healthcare facility staff, the environment or people/communities coming in close contact with such wastes.                      There are no restrictions on the importation of high Hg-content lamps (CFLs,</p>	<p>National action plan on the LCM of Hg containing products developed.                      National standards/guidelines on the management, storage and disposal of mercury containing products developed for large public and private entities, as well as HCFs.                      MSP degree drafted prescribing a phased approach/total phase-out for the use of Hg-containing thermometers.                      EU RoHS directives for lighting products transposed into national regulations through a degree.</p>	<p>Draft National Action Plan on LCM of Hg containing products available.                      Draft national standards/guidelines on the management, storage and disposal of mercury containing products available.                      Draft MSP degree prescribing a phased approach/total phase-out for the use of Hg containing thermometers available.                      Draft degree to transpose EU RoHS directives for lighting products into national regulations available.</p>	<p>The national action plan on phasing out mercury and prohibiting mercury containing equipment usage in the healthcare sector has been developed and is undergoing its second review by Government - so it should be close to approval.                      A draft degree has been developed for lighting products containing mercury.</p>

Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		tubes) or Hg-containing medical devices. Guidelines on the management, storage and disposal of Hg containing lamps are not available. Maximum permissible concentration (MAC) for metallic mercury (Hg) are set for air, water and soil.	Assessment of potential Cost-Recovery Mechanisms for the future disposal/ treatment of Mercury containing products conducted.	Assessment report of potential Cost-Recovery Mechanisms for the disposal/ treatment of Mercury containing products available  MACs are discussed and drafted	Estimates have been made for the quantities of mercury that could be recovered and the associated costs for disposal.  MACs have been set.
Outcome 3.2 Improved Mercury management practices at HCFs and phase-out of Mercury containing thermometer	80% of project HCFs have introduced Mercury-free devices.	Mercury containing sphygmomanometers have been phased-out approximately 10 years ago, however Mercury containing thermometers are still in wide use. In 2011 and 2012, respectively 203,121 and 116,034 were imported. When products that contain Mercury break or need to be disposed of, such wastes are being discarded along with regular municipal waste. Currently there are no safeguarding procedures in place at HCF level to ensure the safe clean-up, management and storage of broken thermometers or other mercury containing	Hg baseline assessments completed for each project HCF (as part of the I-RATs, see Activity 2.1.1). Mercury management and phase-out plans developed and implemented for each project HCF (included in the development of HCWM plans as part of Activity 2.3.2). 500 medical personnel trained in the clean-up, storage and safe transport of Hg wastes.  Training video produced on "Clean-up and Temporary Storage of Mercury Waste for Health Care Facilities" in Kyrgyz	I-RAT reports (incl. Hg assessments) available for all assessed HCFs.  HCWM plans available for each project HCF (including Hg management and phase out plans)  Certificates of training completion and attendance sheets of training sessions.  Videos posted on YouTube in both Russian and Kyrgyz.	I-RAT completed for 68 HCFs in Bishkek.  Phase out plans have been developed for mercury.  Training on safe handling of mercury waste was conducted for 23 participants from relevant government departments. There are plans to train a further 400 people in 2017. A video has been developed to raise awareness what to do if a thermometer is broke. It is posted on YouTube in both languages.

Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		wastes, as such exposing healthcare facility staff, patients or visitors to Hg exposure.	and Russian and used in training activities. Study on staff preferences for cost-effective Hg-free alternatives conducted at a number of project HCFs. Mercury-free thermometers introduced at the projects HCFs and personnel trained in their use. Emergency response teams (Ministry of Emergencies) trained on how to respond to large Mercury spills.	Report on Staff preference study available.  Collected amount (no. and weight) of Hg-containing thermometers replaced with Mercury-free devices.  Certificates of training completion and attendance sheets of training sessions.	
Outcome 3.3 Intermediate and long-term storage options for Mercury containing wastes identified	Phased-out Mercury containing thermometers have been safely disposed of as possible within the limitations of the infrastructure present in Kyrgyzstan.	Currently such wastes end up at the Bishkek landfill site, which is not engineered and doesn't have any leachate control, allowing Mercury to seep into the leachate and end up polluting nearby soil and water resources.  The dumpsite is also not fenced and waste pickers living on adjacent plots, have free access to pick through the waste, and as such expose themselves and their families to Mercury containing	Assessment for short-term, interim and long-term storage and disposal options for Mercury containing spent products and Hg containing wastes completed (e.g. Khaidarkan Mercury Mine and Plant, EBRD hazardous cell, EBRD demercurization plant, interim storage, disposal abroad, etc.).  Treatment/Disposal solution identified for the Mercury-containing	Assessment published.        Written agreement signed for the storage or disposal of the Mercury-containing equipment phased-out as part of the project.	The collection and disposal of mercury thermometers from 11 healthcare facilities has been planned. A dedicated storage room has been established; the task of handling, packaging and transporting the collected mercury (a hazardous waste) is on-going and an agreement is in place with the Khaidarkan Mercury Mine and Plant for treatment and disposal.

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Project Strategy	Indicators	Baseline levels	End-of Project Target	Proposed Sources of information	MTR assessment and rating
		wastes.	equipment phased-out as part of the project.		
COMPONENT 4: MONITORING, ADAPTIVE FEEDBACK, OUTREACH AND EVALUATION					
Outcome 4 Projects results sustained and replicated	Number of high quality monitoring and evaluation documents prepared during project implementation.	No documents in baseline situation.	<p>4 Quarterly Operational Reports submitted to UNDP each year</p> <p>1 annual APR/PIR submitted to UNDP each year.</p> <p>1 Mid-term project review. M&amp;E results and insights are applied to provide feedback to the project coordination process, and have informed/ redirected the design and implementation of the second phase of the project.</p> <p>The MTE will inform on how many additional technologies would have to be purchased and how much additional capacity building would have to be carried out in the second half of the project.</p> <p>1 Final evaluation</p> <p>MTE and FE must include a lessons learned section and a strategy for dissemination of project results.</p>	<p>4 QORs available for each project year.</p> <p>APR/PIR available for each project year.</p> <p>Mid-Term Evaluation Report available.</p> <p>Mid-Term Evaluation Report available.</p>	<p>On-going</p> <p>It can be noted that the Project is not submitting Quarterly Operational Reports.</p>

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			Lessons learned and best practices are accumulated, summarized and replicated at the country level.	Lessons-learned from the project easily accessible and searchable on-line. Project related documentation, photos and videos posted on the project's website and Facebook page. Reports submitted to UNDP	

## Annex C: Questions to be used in interviews

1. What is your role/relationship with the project?
2. What are the main achievements of the project?
3. So you have any recommendations as to what could have been done better or more efficiently?
4. Would there be reasons to prolong the project? If yes, why and what activities should be undertaken?
5. What steps have been taken to ensure replication of the concept?
6. Who pays for the operation of the new systems? Who supplies equipment, spare parts, transport and so forth?
7. Who is responsible for ensuring that the systems work?
8. Was staff trained? If yes, who, where and how?
9. Do you have standard operating procedures, record of quantities treated, instructive posters on the walls (for source separation), etc.?
10. Is the system cost effective?
11. Please provide all information on co-finance to date, including both cash and in-kind expenditure and a summary of the items on which the co-finance has been spent.
12. What are you doing to ensure sustainability of the project's processes and impacts?
13. Do you think that the system(s) are sustainable?
14. Who are the partners (i.e., people actively working to the same goals) on the project?
15. Who would you say *owns* the project?
16. Who are the stakeholders in the project (i.e., people that are involved in the project, either actively or passively or will be affected by the project in some way)?
17. Who are the main beneficiaries?
18. Have there been sufficient meeting and other communication regarding the project?
19. Did the project listen to your advice/ concerns/ requests for information?
20. Who prepares the TOR for all contracting?
21. Who signs the contracts?
22. Is the project having any unexpected positive or negative impacts?
23. How has it been working with a UNDP-GEF project?
24. What are the strengths and weaknesses of the Project Document?
25. Who are the project's champions?
26. Standard issues:

- Project Management
  - Procurement rules and efficiencies
  - UNDP training/support
  - Financial audits
  - Backing up data and digital information
  - Team functionality
  - Staff turn over
  - If training is provided, how is training is now being used in job?
  - Gender issues?
  - Need to provide all information, including equipment, inputs, infrastructure, tracking tool data.
  - Reasons or any delays in the project implementation.
27. How is the project aligned to the Ministry of Health's policies?
28. How is the project aligned to the SAEPF policies?
29. How is the project aligned to the UNDP goals?
30. The project has worked to train people and raise awareness? Who were the target groups? How is the project monitoring the outcome of their efforts?
31. How has any changes in attitude and awareness affected project implementation, and how is it being used in the daily, professional lives of the target groups?



## Annex D: Ratings Scales

### Ratings for Progress Towards Results:

<b>Highly Satisfactory (HS)</b>	The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as “good practice”.
<b>Satisfactory (S)</b>	The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
<b>Moderately Satisfactory (MS)</b>	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
<b>Moderately Unsatisfactory (MU)</b>	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.
<b>Unsatisfactory (U)</b>	The objective/outcome is expected not to achieve most of its end-of-project targets.
<b>Highly Unsatisfactory (HU)</b>	The objective/outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets.

### Ratings for Project Implementation & Adaptive Management:

<b>Highly Satisfactory (HS)</b>	Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as “good practice”.
<b>Satisfactory (S)</b>	Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action.
<b>Moderately Satisfactory (MS)</b>	Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action.
<b>Moderately Unsatisfactory (MU)</b>	Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action.
<b>Unsatisfactory (U)</b>	Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management.
<b>Highly Unsatisfactory (HU)</b>	Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management.

**Ratings for Sustainability:**

<b>Likely (L)</b>	Negligible risks to sustainability, with key outcomes on track to be achieved by the project’s closure and expected to continue into the foreseeable future.
<b>Moderately Likely (ML)</b>	Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review
<b>Moderately Unlikely (MU)</b>	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
<b>Unlikely (U)</b>	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.

## Annex E: Mission Programme

### MISSION AGENDA 28 NOVEMBER-2 DECEMBER 2016

*Mr. Bisbjerg Peder, International Consultant for Mid-Term Evaluation of the UNDP-GEF “Protect Human Health and the Environment from Unintentional Releases of Pops and Mercury from the Unsound Disposal of Healthcare Waste in Kyrgyzstan” Project*

#### Responsible staff from UNDP:

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Date	Activity	Participants	Venue	Remarks/Comments
<b>Day 1, Saturday, November 26, 2016</b>				
	Arrival in Bishkek	Bisbjerg Peder, International Consultant	Manas airport	Hotel booking
<b>Day 2, Monday, November 28, 2016</b>				
9.00 – 10.30	Meeting to discuss project issues and mission schedule ahead	Kumar Kylychev, SD Dimension Chief Zhyldyz Uzakbaeva, Project Coordinator Eliza Damirbek kyzy, Project Assistant	PMU office, 109/2 Turusbekova str.	Driver

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Date	Activity	Participants	Venue	Remarks/Comments
11.00-11.30	Interview meeting with UNDP CO Programme Team	Daniyar Ibragimov, EDRM Team Leader Aidai Ashiralieva, Programme Associate Aidai Arstanbekova, Monitoring and Evaluation Officer	UNDP CO, 160 Chui ave.	Driver
11.30-12.30	Interview meeting with UNDP CO Senior Management	Aliona Niculita, Deputy Resident Representative Daniyar Ibragimov, EDRM Team Leader Aidai Ashiralieva, Programme Associate Aidai Arstanbekova, Monitoring and Evaluation Officer	UNDP CO, 160 Chui ave.	
12.30 – 13.30	Lunch			
14.00 – 15.00	Security briefing at CO UNDSS	Timur Uzakbaev	UNDP CO, 160 Chui ave.	
15.00 – 16.00	Interview meeting with project partners	Nurjan Toktobaev, member of the Project Board, Swiss Red Cross Project Coordinator	SRC Project, 187 Sydykova str.	Driver / Translator
16.30 – 17.30	Interview meeting with project partners	Indira Jakipova, Ecois	Ahunabaeva /Tynystanova 411 room	Driver / Translator

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Date	Activity	Participants	Venue	Remarks/Comments
<b>Day 3, Tuesday, November 29, 2016</b>				
10.00 – 11.00	Interview meeting with the Ministry of Health of the KR	Gorin O.V., Deputy Minister of the Ministry of Health of the KR Ismailova Baktygul, Project's OFP, Head of Public Health Department	The Ministry of Health, 140 Moskovskaya str.	Driver / Translator
11.00 – 12.00	Interview meeting with the State Agency on Environment Protection and Forestry under the Government of the KR	Rustamov A.A., GEF OFP, the SAEPF Director Tolongutov Baigabyl, Director of Environmental Safety Centre, Project OFP	Office of the SAEPF, 228 Toktogula str.	Driver / Translator
12.00 – 13.00	Lunch			
13.00 – 15.00	Interview meeting with SPA Preventive Medicine Experts	Djumaliev G.A., uPOPs component Sharshenova A.A., Mercury component Kravtsov A.A., Technical expert on autoclaving	Office of the Preventive Medicine, 8 Logvinenko str.	Driver / Translator
15.30 – 16.30	Meeting with UNICEF	Damira Bakirova, UNICEF	UNICEF, 160 Chui ave.	Driver
17.00 – 18.00	Meeting with Global Fund	Nazgul Akaeva, UNDP GF	UNDP GF, business centre "Rossiya"	Driver
<b>Day 4, Wednesday, November 30, 2016</b>				

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Date	Activity	Participants	Venue	Remarks/Comments
9.00 – 9.30	Meeting with EBRD Project	Almira Ginyatullina BSW PIU Leader	465a Jibek-Jolu str., City Development Agency (Logvinenko)	Driver/ Translator
10.00 – 17.00	<p>Site visit to 5 healthcare facilities:</p> <ol style="list-style-type: none"> <li>1. Bishkek City Perinatal Centre;</li> <li>2. Psychiatric hospital;</li> <li>3. Bishkek Clinical Hospital №6;</li> <li>4. Therapeutic recreation association administrative department of office of the President;</li> <li>5. Bishkek Clinical Hospital №1;</li> </ol> <p>and to the interim storage for Hg thermometers, located in one of the pilot HCFs:</p> <ol style="list-style-type: none"> <li>6. Centre for Family Medicine №1 "Kyzyl Asker"</li> </ol>	Project Team	Bishkek	Driver / Translator
Day 5, Thursday, December 1, 2016				

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Date	Activity	Participants	Venue	Remarks/Comments
10.00 – 15.00	Site visit to 2 rural health posts (FAPs) in Chui: 1. FAP in Besh-Kyungei; 2. FAP in Chon-Tash	Project Team	Besh-Kyungei and Chon-Tash villages	Driver / Translator
15.30 – 16.30	Interview meeting with project partners	Pechenyuk Oleg, NGO “Nezavisimaya ekspertiza”	PMU office, 109/2 Turusbekova str.	Translator
16.30 – 17.30	Interview meeting with project partners	Chekirova Cholpon, Ministry of Emergency Situations of the KR	PMU office, 109/2 Turusbekova str.	Translator
<b>Day 6, Friday, December 2, 2016</b>				
09.00 – 10.00	Meeting with private sector reps	Bocharev Vladimir Ilich, Head of “Astra” LLC	PMU office, 109/2 Turusbekova str.	Translator
10.00 – 11.00	Meeting with private sector reps	Biynazarov Chingiz, Deputy general director Agroprom Holding recycling company	PMU office, 109/2 Turusbekova str.	Translator
11.00 – 12.00	Working on the PPT			
12.00 – 13.00	Lunch			
13.30 – 15.30	Preliminary findings presentation	All relevant stakeholders	Office of the SAEPP, 28 Toktogula str.	Driver / Translator

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Date	Activity	Participants	Venue	Remarks/Comments
16.30 – 17.30	Debriefing meeting with UNDP SM	Aliona Niculita, DRR Daniyar Ibragimov, EDRM Team Leader Kumar Kylychev, SD Dimension Chief Zhyldyz Uzakbaeva, Project Coordinator Aidai Arstanbekova, Monitoring and Evaluation Officer	UNDP CO, 160 Chui ave.	Driver
<b>Day 7, Saturday, December 3, 2016</b>				
	Departure	Bisbjerg Peder, International Consultant	Manas airport	

In addition,

Depending on your availability and workload, skype-meeting with Mr. Maksim Surkov, Regional Technical Advisor in UNDP IRH and Ms. Ute Pieper, Environmental Health Consultant through their skype names: maksim.surkov and utepieper.



## Annex F: List of persons met and site visits

Mr. Daniyar Ibragimov	UNDP EDRM Team Leader
Mr. Kumar Kylychev	UNDP SD Dimension Chief
Ms. Zhyldyz Uzakbaeva	UNDP Project Coordinator
Ms. Aidai Arstanbekova	UNDP Monitoring and Evaluation Officer
Ms. Aidai Ashiralieva	UNDP Programme Associate
Dr. Ismailova Baktygul	Head of Public Health Department, Ministry of Health, Project OFP
Mr. Tolongutov Baigabyl	Director of Environmental Safety Centre, State Agency on Environment Protection and Forestry - Project OFP
Dr. G.A. Djumalieva	U-POPs Component Expert, MoH Preventive Medicine
Dr. Aleksei Kravtsov,	Technical Expert on Autoclaving, MoH Preventive Medicine
Professor Dr. Ainash Sharshenova	Expert on Mercury Component, MoH Preventive Medicine
Dr. Bolot Kalmyrzaev	HIV Health Strengthening Specialist, Global Fund
Mr. Damira Abakirova	Health and Nutrition Officer, UNICEF
Dr. Nurjan Toktobaev	Member of the Project Board, Swiss Red Cross Project Coordinator
Ms. Almira Ginyatullina	EBRD Project MSW PIU Leader
Ms. Indira Jakipova	Project Partner, Ecois (an environmental NGO)
Mr. Oleg Pechenyuk	Project Partner, NGO “Nezavisimaya ekspertiza”
Mr. Vladimir Ilich Bocharov	Head of “Astra” LLC - a private sector company recycling the plastic part of syringes
Mr. Chingiz Biynagarov	Head of “Agrop Holding” - a plastic and rubber recycler
Dr. Ute Pieper	The Project’s International Expert - by Skype
Mr. Maksim Surkov	Regional Technical Advisor in UNDP IRH - by Skype

Six Healthcare Entities were visited in Bishkek:

Clinical Maternity Hospital No. 2  
Psychiatric Hospital  
Bishkek Clinical Hospital No. 6  
Therapeutic recreation association  
Administrative Department Office of the President Hospital  
Bishkek Clinical Hospital No. 1  
Branch of the Centre for Family Medicine No. 1 (Mercury Storage)

Two FAPs were visited:

Besh Kungei Village FAP  
Chon-Tash Village FAP

Warehouse with equipment destined for 100 FAPs was visited in Bishkek.

## Annex G: List of documents reviewed

- Project Identification Form
- The Project Document
- The Inception Report
- Project Implementation Review (20 November 2016)
- Project expenditures for 2014, 2015 and 2016 (up to 30 November 2016)
- Various Agendas and Minutes of Meeting (including some in Russian)
- Various Presentations (including some in Russian)
- Reports to SAEPF in Russian
- Back to the Office Reports
- POPs and Mercury Tracking Tool for the project
- A short description covering Mercury-containing thermometers disposal
- The UNDP Country programme document for Kyrgyzstan (2012-2016)
- The GEF Project Identification Form
- UNDP Initiation Plan for a GEF Project Preparation Grant (2013)
- UNDP Environmental and Social Screening results
- *Technical Assistance and Implementation Plans for 10 Pilot Facilities in Bishkek* by Dr. Ute Pieper (June 2015)
- *Rapid Assessment: Healthcare Waste Component of Global Fund HIV/AIDS and TB Projects in Kyrgyzstan* by Dr Ute Pieper (August 2015)
- List of the members of the Project Management Board
- List of Project Assets
- Handover documents for equipment, materials and goods (in Russian)

## Annex H: Co-financing table

### Project co-financing table

<b>Name of Entity</b>	<b>In-kind (US\$)</b>	<b>Cash (US\$)</b>	<b>Total (US\$)</b>
1. Swiss Red Cross		3,425,011	
2. Ministry of Health	1,700,000		
3. Ekois	56,698		
4. State Agency for Environmental Protection and Forestry (SAEPF)	900,000		
5. UNICEF	500,000		
6. Global Fund		416,400	
7. NGO "Ecological expertise" (SAICM GHS project)	34,000		
<b>TOTAL</b>	<b>3,190,698</b>	<b>3,841,411</b>	<b>7,032,109</b>

## Annex I: Signed UNEG Code of Conduct form

ToR ANNEX D: UNEG Code of Conduct for Evaluators/Midterm Review Consultants<sup>2</sup>

### Evaluators/Consultants:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

### MTR Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: PEDER BISBJERG

Name of Consultancy Organization (where relevant): \_\_\_\_\_

**I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.**

Signed at Bishkek (Place) on 27.11.2016 (Date)

Signature: Peder Bisbjerg