Phasing out mercury measuring devices in healthcare

Part I: Project Information

GEF ID
10716

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Phasing out mercury measuring devices in healthcare

Countries
Global, Burkina Faso, India, Montenegro, Uganda, Albania

Agency(ies)
UNEP

Other Executing Partner(s)
World Health Organization (WHO)

Executing Partner Type
Others

GEF Focal Area
Chemicals and Waste

Taxonomy
Focal Areas, Chemicals and Waste, Waste Management, Hazardous Waste Management, Mercury, Sound Management of chemicals and waste, Disposal, Influencing models, Transform policy and regulatory

environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Stakeholders, Civil Society, Non-Governmental Organization, Communications, Awareness Raising, Behavior change, Public Campaigns, Education, Private Sector, SMEs, Beneficiaries, Type of Engagement, Partnership, Information Dissemination, Participation, Consultation, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Gender results areas, Participation and leadership, Capacity Development, Access to benefits and services, Knowledge Generation and Exchange, Capacity, Knowledge and Research, Knowledge Generation, Knowledge Exchange, Learning, Indicators to measure change, Theory of change, Adaptive management, Targeted Research

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

12/10/2021

Expected Implementation Start

4/1/2022

Expected Completion Date

3/31/2026

Duration

60In Months

Agency Fee($)

758,100.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CW-1-1		GET	7,980,000.00	52,791,676.00
		Total Project Cost($)	**7,980,000.00**	**52,791,676.00**

B. Project description summary

Project Objective

To eliminate uncontrolled releases of mercury from healthcare settings

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing ($)
Component 1: Development and implementation of national health-system wide strategies for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.	Technical Assistance	Outcome 1: All countries participating in the project have developed national health-system wide strategies for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.	Output 1.1: National strategies for phasing out mercury-added thermometers and sphygmomanometers in healthcare developed or updated in selected countries.	GET	1,133,002.00	16,595,135.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing ($)
Component 2: Implementation of national strategies to phase out manufacture, import and export in all project countries, and demonstrations of substitution in use in at least 3 countries.	Technical Assistance	Outcome 2: An environment conducive to the cessation of procurement and manufacture of mercury-added medical measuring devices is facilitated in selected countries.	Output 2.1: Phasing-out mercury-added thermometers and sphygmomanometers used in healthcare, from procurement to the safe and environmentally sound interim-storage of mercury-containing wastes. Output 2.2: Mercury-containing medical waste is managed in an environmentally sound manner, from storage to disposal. Output 2.3: Awareness raising towards manufacturers	GET	4,688,236.00	23,948,133.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing ($)
Component 3: Knowledge management	Technical Assistance	Outcome 3: Improved and disseminated knowledge on the phasing-out of mercury-added medical measuring devices, including on their manufacture, import and export.	Output 3.1: WHO technical and information materials developed and/or updated. Output 3.2: UNEP technical guidance developed on the management of mercury-containing healthcare waste. Output 3.3: Good practice examples and lessons learned from the implementation of project components 1 & 2 documented and disseminated, including through WHO channels and the UNEP Global Mercury Partnership.	GET	1,678,762.00	5,313,192.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing ($)
Component 4: Monitoring and Evaluation	Technical Assistance	Outcome 4: Project achieves objective on time through effective monitoring and evaluation	Output 4.1: Periodic monitoring and terminal evaluation of project implemented and complete.	GET	100,000.00	3,192,966.00
				Sub Total ($)	**7,600,000.00**	**49,049,426.00**
Project Management Cost (PMC)						
				GET	380,000.00	3,742,250.00
				Sub Total($)	**380,000.00**	**3,742,250.00**
				Total Project Cost($)	**7,980,000.00**	**52,791,676.00**

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Government of Albania: Ministry of Health and Social Protection and Ministry of Tourism and Environment	In-kind	Recurrent expenditures	4,215,650.00
Other	Government of Burkina Faso: Ministry of Health and Ministry of Environment, Green Economy and Climate Change	In-kind	Recurrent expenditures	3,292,400.00
Recipient Country Government	Government of Montenegro: Ministry of Health and Ministry of Ecology, Spatial Planning and Urbanism	In-kind	Recurrent expenditures	3,143,000.00
Recipient Country Government	Government of India: Ministry of Health and Social Welfare	Public Investment	Recurrent expenditures	32,500,000.00
Recipient Country Government	Government of Uganda: National Environment Management Authority and Ministry of Health	Public Investment	Recurrent expenditures	3,000,000.00
Other	WHO	In-kind	Recurrent expenditures	6,340,626.00
GEF Agency	UNEP Global Mercury Partnership	In-kind	Recurrent expenditures	300,000.00
			Total Co-Financing($)	**52,791,676.00**

Describe how any "Investment Mobilized" was identified

[Note that co-financing is currently being confirmed and is expected to be consistent with the above table]

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNEP	GET	Albania	Chemicals and Waste	Mercury	1,145,968	108,867	1,254,835.00
UNEP	GET	Burkina Faso	Chemicals and Waste	Mercury	1,548,376	147,096	1,695,472.00
UNEP	GET	India	Chemicals and Waste	Mercury	2,694,068	255,936	2,950,004.00
UNEP	GET	Montenegro	Chemicals and Waste	Mercury	1,145,968	108,867	1,254,835.00
UNEP	GET	Global	Chemicals and Waste	Mercury	480,000	45,600	525,600.00
UNEP	GET	Uganda	Chemicals and Waste	Mercury	965,620	91,734	1,057,354.00
				Total Grant Resources($)	**7,980,000.00**	**758,100.00**	**8,738,100.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

200,000

PPG Agency Fee ($)

19,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNEP	GET	Global	Chemicals and Waste	Mercury	200,000	19,000	
				Total Project Costs($)	**200,000.00**	**19,000.00**	**219,000.00**

Core Indicators

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
23.96	29.20	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
23.96	29.20		

Indicator 9.3 Hydrochloroflurocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 9.6 Quantity of POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
98.36	210.80		

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	2,400,000	2,400,000		
Male	1,200,000	1,200,000		
Total	3600000	3600000	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Part II. Project Justification

1a. Project Description

describe any changes in alignment with the project design with the original pif

The overall project approach proposed here is consistent with the PIF including components and outputs. There have been changes made at the activity level of Output 2.3 to respond to information identified during the PPG. Specifically, some of the producers of Hg-added medical devices in India were found to be small scale in nature indicating a higher level of vulnerability than was contemplated in the initial project design. The activities covered by this output now include direct technical assistance provided by a socioeconomic expert with the purpose of identifying alternative sources of income. This consideration has also been added to the risks matrix.

Research carried out during the PIF found a significantly larger amount of Hg-added medical devices in India than was calculated as part of the PIF. GEBs have been updated accordingly.

During the PPG Montenegro was found to have ostensibly phased out the procurement of Hg-added medical devices in advance of the project. Thus many of the activities here will focus less on capacity building of procurement experts and more on ancillary activities and waste management.

Two additional barriers were identified during the PPG. The first relates to waste management practices at the facility level while the second relates to regulatory considerations. These are elaborated on in the appropriate sections below and responded to in the alternative scenario.

1a. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects; 3) the proposed alternative scenario with a brief description of expected outcomes and components of the project; 4) alignment with GEF focal area and/or Impact Program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up. ?

1a.1 The global environmental and/or adaptation problems, root causes and barriers that need to be addressed

i. Introduction to mercury in medical devices

Mercury is a naturally occurring silvery grey metal that is liquid at room temperature. It has a high expansion coefficient and amalgamates with several other metals, including gold and silver. These characteristics have led to different important applications including its use in thermometers, blood pressure measuring devices (sphygmomanometers), electric switches and as an amalgamate in gold and silver mining operations.

Mercury is highly toxic to humans and ecosystems and is considered by WHO as one of the top ten chemicals or groups of chemicals of major public health concern. Exposure to mercury can result in adverse impacts on the nervous, digestive and immune systems, lungs and kidneys. Children are especially vulnerable and may be exposed directly by eating contaminated fish. Methylmercury bioaccumulated in fish and consumed by pregnant women may lead to neurodevelopmental problems in the developing foetus. Transplacental exposure is the most dangerous, as the foetal brain is very sensitive. Neurological symptoms include intellectual disability, seizures, vision and hearing loss, delayed development, language disorders and memory loss.

Mercury occurs in various forms and compounds, with human exposure somewhat mediated by the bioavailability of each. Elemental mercury (Hgo) is the form most commonly used in industrial applications and released from natural sources. Exposure to elemental mercury occurs primarily through inhalation, with relatively little absorption through either the skin or gastrointestinal tract. When released in the environment elemental mercury can be converted to the more bioavailable methylmercury (CH_3Hg) through interactions with various microorganisms. Methylmercury is lipophilic and bioaccumulative, meaning that organisms tend to absorb it more quickly than they expel it. These characteristics in turn contribute to its tendency to biomagnify, meaning that creatures further up the food chain contain proportionally more mercury; shark or albacore have proportionally more mercury than salmon, for instance. Accordingly, humans consuming fish vast distances from mercury sources can incur mercury-attributable disease.

Releases in healthcare settings are primarily associated with damaged equipment and poor waste management practices. Mercury-added thermometers are comprised of a vacuum sealed glass tube enclosing a small bead of mercury (0.61?2.25 grams Hg, depending on type) which expands or contracts in response to temperature.[1][1] They typically have a reported lifespan of 5?10 years and are typically only discarded when the glass chamber is ruptured and a spill occurs.[2][2] Mercury evaporates at room temperature; an adequate quantity in a confined space can result in acutely poisonous air levels.[3][3] Individual thermometers are unlikely to present such a risk. A 2006 investigation in Chicago

(USA) homes found that mercury air concentrations following thermometer spills did not exceed the applicable USEPA threshold of 1 ?g/m3.[4][4]

Mercury-added sphygmomanometers contain substantially more mercury than thermometers (64?200 grams), though are much less prone to rupture.[5][5] In rare cases poisoning has been documented at spill sites in residential settings.[6][6] The devices themselves are comprised of a U-shaped glass tube containing a column of mercury. The column rises or falls in response to air pressure introduced by the blood pressure cuff. Because this air-mercury interface is imperfect, a majority of sphygmomanometers experience some level of mercury release over their lifetime, though in concentrations highly unlikely to produce adverse health outcomes.[7][7]

While any one piece of mercury-added medical equipment is unlikely to pose a significant human health risk and the environment, the aggregate impact of these devices is considerable. A 2004 study in Canada found more than 2 tons of annual mercury releases from thermometers alone.[8][8] Likewise a 2011 NGO study in India estimated annual national releases of 8 tons, with 69 % coming from poorly disposed sphygmomanometers and the balance coming from thermometers.[9][9] Globally, more than 10 % of annual mercury releases are attributable to the intentional use of mercury in products (a category which includes medical measuring devices as well as light bulbs and other products).[10][10] A 2017 UNEP report calculated the global use of mercury in ?measuring a control devices,? a category comprised nearly entirely of thermometers and manometers, as 330 tons.[11][11]

Mercury-added measuring devices have formed an essential component of medicine for centuries. The first mercury-added thermometer was developed in Germany in the early 18th century (by Fahrenheit); sphygmomanometers came about 170 years later in Austria. Owing largely to environmental and human health concerns, high-income countries began to phase-out the manufacture and use of these devices beginning in the early 2000s.

The instruments are also imperfect. Mercury-added sphygmomanometers are prone to produce inconsistent results either from user error or equipment issues.[12][12] One study of a hospital in London found that 38 % of the units were obscured by dirt or mercury oxidation, and current validation certificates were only available for 5 %.[13][13] Relatedly, ?terminal digit preference,? whereby a medical worker rounds the last digit up or down when recording systolic or diastolic blood pressure, could have significant public health implications.[14][14] A 1993 study of the medical charts of 28,841 pregnant women in Quebec found that > 78 % of blood pressure readings ended in ?0,? while only 2 % ended in an odd number other than ?5.?[15][15] Digital instruments sidestep this issue somewhat by presenting a discrete and immediately discernible value, while dial-based (i.e. aneroid) devices are less subject to obscured values from oxidation. Accordingly, there has been a general shift towards digital measuring devices resulting in substantial reductions in the use of mercury, the facilitation of more precise measurements and a broader diffusion of medical monitoring.

The Minamata Convention on Mercury entered into force on 16 August 2017. The Convention, which was shepherded into existence by the United Nations Environment Programme (UNEP), currently has 128 Signatories and 123 Parties (countries where it has been ratified). It covers a range of issues associated with mercury production, use, waste and disposal, providing a list of uses in which the manufacture, import and export are restricted, and applicable phase-out dates or reduction targets. The manufacture, import and export of sphygmomanometers and thermometers have a specified phase-out date of 2020. Parties may request exemptions. India, which is included in the project, has requested such an exemption for the manufacture of Hg-added sphygmomanometers and thermometers among other devices until 2025.

In practice the Convention targets relating to medical measuring devices have already been achieved by most high-income countries. The European Union removed mercury-added thermometers and sphygmomanometers from the market in 2014.[16][16] In the United States, mercury was effectively removed from medical measuring devices beginning in 2003 through a series of state laws and actions by professional associations, though no specific Federal laws exist.[17][17] In several low- and middle-income countries (LMICs), too, significant progress has been made. The Philippines began phasing out mercury-containing medical measuring devices in 2008. Argentina did so in 2009; Chile in 2011.[18][18] Mercury is an element and cannot be created or destroyed. Thus, in accordance with the Basel

Convention, mercury wastes are typically stabilized with sulphur and disposed of in specifically engineered landfills.[19][19]

ii. Barriers to be addressed

Despite these successes, a number of challenges remain. Mercury-added devices have been wedded to medicine for centuries, resulting in firmly rooted perspectives and processes across the supply chain. The barriers described in this section have been identified to be addressed by the project.

iii. Procurement-related issues

In both public and private hospitals many procurement officers have inadequate decision-making guidance in place.[20][20] There exists a general scepticism about perceived higher upfront costs of mercury-free alternatives. Procurement officers rightly also have concerns about the acceptability of these devices by the end-user (i.e. physicians and nurses)[21][21] On the surface, the upfront costs of non-mercury thermometers and sphygmomanometers would appear prohibitive. The sticker price of thermometers, for example, can be upwards of 5x the cost of mercury-added devices. However even a cursory review of the life-cycle costs of both types of instruments ? including procurement, maintenance, and disposal ? reveals significant savings with mercury-free alternatives. A Brazilian case study cited in the WHO step-by-step guidance of procurement during the year 2010?2011 found a 33 % savings in favour of digital instruments.[22][22] Similar studies were not available for the countries covered by the project, however data collected as part of the PPG indicate that savings in the project countries could be significant. Specifically, the average lifespan of mercury-added thermometers and sphygmomanometers in the countries surveyed was reported as 1 year and 3 years, respectively (Appendix 12). These values are substantially less than those reported elsewhere, indicating that more frequent replacement is required. Additionally, the cost of digital devices is becoming more competitive with that of their mercury-added counterparts. A recent study survey of popular thermometers in India found that the most affordable digital devices were actually lower in price than two of the three leading brands of mercury-added thermometers.[23][23] There is a need to collect these data and share them in the structured manner with procurement officers. In addition to regulatory and other interventions, there is a need to assess the feasibility and implement market-shaping strategies that support the universal availability of quality-assured mercury-free alternatives at an affordable cost to both health systems and the public.

iv. Perspectives of the medical profession

Perhaps the most significant barrier to the adoption of mercury-free alternatives is the conviction of medical practitioners. Indeed in the United States, the first country to phase-out mercury-added medical measuring devices, the most vehement opposition came from physicians.[24][24] For many, the low risk of any one patient being exposed was inadequate to justify the introduction of an unproven technology. The technical merits of this argument were subsequently challenged ? both by increased validation and improvements in digital equipment ? and generally settled. There is now broad agreement in high-income countries on the equivalent clinical accuracy of non-mercury medical measuring devices. However, in many LMICs these important discussions have only recently begun, triggered in part by the Minamata Convention. Data collected as part of the PPG supported this observation. In Albania for example, cardiologists and others in critical care settings were cited as being particularly reluctant to move away from the use of mercury-added sphygmomanometers, which were perceived as more accurate (Appendix 12). There is a need to support more informed discussion on their clinical utility. Where this has been done, physicians have quickly overcome initial apprehensions.[25][25]

v. Manufacturing- related challenges

Only one country proposed under the current project, India, has a mercury-added medical device manufacturing base. A 2020 study by the Indian NGO ToxicsLink found that a number of smaller scale manufacturers produced equipment primarily for domestic consumption.[26][26] This information was confirmed during the PPG however the greater detail obtained in the medical devices study carried out under the PPG phase (Appendix 12), which included a characterization of the Indian manufacturing base, found that domestic manufacturers meet only about 10 % of mercury-added medical device demand in India the remainder being imported., India exports about 10?20,000 Hg-added thermometers ? including medical thermometers -- each year.

Indian manufacturers can be usefully separated into two groups comprised of large and small firms. In the case of large firms, five companies were found to be responsible for ~90 % of domestic production. Each of these companies also maintains digital device product lines. These parallel lines would undoubtably result in unnecessary costs. Specifically, using mercury in production requires compliance and insurance expenses not associated with mercury-free devices.[27][27] Thus these manufacturers would stand to benefit from a phase-out of mercury-added devices. There is a need however to ensure that the digital devices they manufacture are consistent with standards introduced or modified during the project.

In the case of small producers there is a risk that they may be required to absorb any adverse financial impacts resulting from a phase-out. Some may lack the requisite skills, capacity and resources to transition product lines. There is a need to support these manufacturers through the provision of technical guidance and education materials to facilitate their transition toward more sustainable product lines or alternative sources of income.

vi. Lack of knowledge and awareness of mercury waste disposal in healthcare facilities

Mercury-added medical devices remain widely used in healthcare facilities. Research carried out as part of the PPG found that the majority of healthcare facilities in Albania and India utilize Hg-added devices and nearly 30 % of those Montenegro do (Appendix 12). The lifetimes of these devices vary significantly but appear to be substantially lower than has been reported in high income countries. Research of waste handling practices also carried as part of the PPG (Appendices 12 and 13) found that at the end of their life these materials are routinely combined with non-hazardous solid wastes and disposed of in an environmentally unsound manner. There is a lack of awareness and knowledge at the facility level to segregate these wastes in a manner that would facilitate proper management.

vii. Regulatory considerations

Each of the countries surveyed during the PPG have regulatory frameworks in place that address the use of mercury-added medical devices, however their efficacy varies from country to country. In Montenegro for instance, no facilities surveyed as part of the PPG reported procuring a mercury-added medical device after the year 2016. In Albania, by contrast, 100 % of small healthcare facilities reported having at least one mercury-added thermometer in regular usage. This value was 67 % in India, where 96 % of medium sized healthcare facilities reported having at least on mercury-added sphygmomanometer in regular usage (Appendix 12). The reasons for this vary but include a lack of clear guidance at the facility level that is consistent with relevant regulation as well as a lack of clear standards for mercury-free device.[28][28]

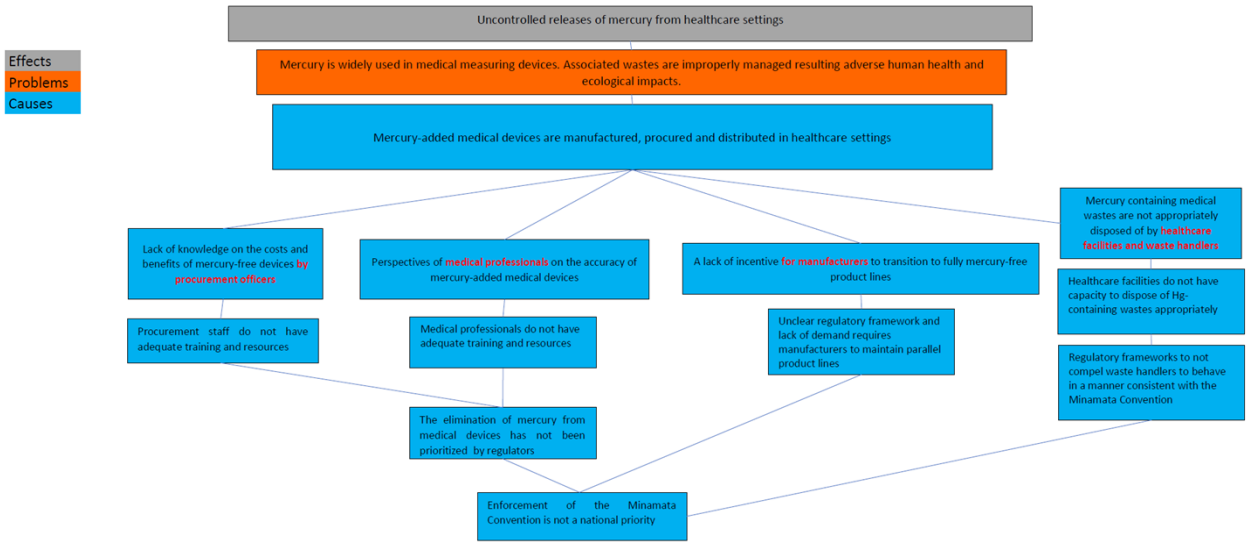

Figure 1. Problem Tree

1a.2 The baseline scenario or any associated baseline projects

viii. Alternatives to mercury-added devices

Thermometers and blood pressure measuring devices have formed integral parts of medicine for 140 years. The temperature of a healthy human body is typically between 36.5?37.5 centigrade. Variations (either an increase or decrease) are an immediately discernible symptom of illness. Fever can be indicative of systemic inflammation typically in response to the presence of a pathogen (such as SARS-CoV-2). It can also indicate hyperthermia from overexertion or heat exposure. Decreases can be symptomatic of hypothermia, a potentially life-threatening condition when the body begins to shut down in response to cold.

Blood pressure is the term used to describe the force exerted by circulating blood along the walls of vascular system. Blood pressure measurements account for both systolic (the maximum pressure exerted during the beat of the heart) and diastolic (the minimum in between beats) forces. Along with temperature, pulse, breathing rate and oxygen saturation, blood pressure measurements comprises one of the 5 ?vital? signs monitored by physicians. High blood pressure (i.e. hypertension) is the best indicator of heart disease, the cause of nearly 30 % of global deaths annually.[29][29]

ix. Digital thermometers

Digital thermometers are a class of instruments that displays temperature in digits, first developed in the mid-20th century. The underlying mechanism can have significant variation in construction and can include: thermistors, Galinstan-in-glass, alcohol-dye, tympanic infrared, temporal artery infrared, thermocouple-based, phase-change, and thermochromatic liquid crystal. All digital thermometers either use body contact or infrared as a basis for measurement. When compared with mercury-added thermometers, they are equally accurate and typically much easier to use. They are also prone to significantly less user error.[30][30]

x. Blood pressure measuring devices

There are two types of blood pressure measuring devices in general use besides mercury-added sphygmomanometers: aneroid and oscillometric. All three function by compressing the brachial artery until circulation stops, and then measuring the arterial pressure once it begins again (at its maximum, i.e. systolic) and after all external pressure from the cuff has been removed (at its minimum, i.e. diastolic). Aneroid devices are fully mechanical with pressure directly exerted on the mechanism and displayed on a dial. Oscillometric devices measure differences in air pressure received against a diaphragm and display readings digitally after interpretation through an algorithm. In all cases measurements are displayed in millimetres of mercury (mmHg) owing to the long usage of sphygmomanometers. Oscillometric devices can be fully automated though are prone to error. Hybrids oscillometric/ aneroid devices also exist and are in some cases preferable.[31][31] Aneroid devices are comparable in cost to mercury-added sphygmomanometers, while oscillometric and hybrid units are more expensive. All require validation (ability to produce a reading in humans), calibration (adjustment to a known value) and regular maintenance.[32][32]

xi. Waste management considerations

Healthcare facilities generate large and consistent streams of waste. A typical African hospital in an urban centre might produce anywhere from 0.1 to > 1 kg of waste per bed per day, while hospitals in high income countries can generate nearly 10 kg per bed per day.[33][33] The majority (> 85 %) of this waste will be non-hazardous, with the balance falling into one of the six following hazardous waste categories: sharps, infectious, pathological (e.g. human tissue), pharmaceutical, chemical (which includes Hg) and radioactive.[34][34]

xii. Non-mercury wastes

As with other sectors in LMICs, healthcare facilities face a number of challenges associated with proper solid waste disposal, mainly due to a lack of waste-related infrastructure in the countries. Open uncontrolled dumpsites remain the most frequently employed disposal option for solid waste in LMICs. Offsite migration of contamination at these dumpsites through leaching and windblown dust is common. Deliberately set fires (to reduce volume) and spontaneous combustion (due to thermal runaway) occur as part of normal operation. When a halogen (i.e. chlorine, bromine) is introduced into these combustion processes, the unintentional creation of highly toxic dioxins such as PCDD and PBDD occurs. In this way even non-hazardous waste can pose a significant human health risk depending on how it is disposed. Polyvinyl chloride (PVC) plastics and materials containing brominated flame-retardants (as well as other sources of halogens), in particular, require special attention.

Hazardous waste management in LMICs is not well characterised, though co-mingling of waste streams is broadly practiced. In the absence of professional hazardous waste disposal options, the responsibility of proper disposal of medical waste falls largely on healthcare facility operators. Most hazardous waste generated in these settings is biologically versus chemically contaminated. Accordingly, disposal practices tend to focus on biologically contaminated waste, with the most widely practiced medical waste disposal option in LMICs being high-temperature thermal destruction (i.e. burning).

xiii. Mercury-containing wastes

Uncontrolled burning is not a sound management of mercury waste. It is an element and cannot be created or destroyed. It poses a health risk primarily because it is disassociated and freely circulating in the environment. As such mercury wastes can be responsibly disposed of in a manner consistent with the Basel Convention using two principal methods. In the first, it can be stabilised with sulphide (forming HgS) and disposed of in a specially engineered landfill. In the second it can be solidified and stored deep underground.[35][35] High-income countries take different approaches depending on their capacity and other concerns, with some handling it domestically and others exporting it in a manner consistent with the relevant conventions. In practice, it is likely that most mercury contaminated wastes in LMICs are incinerated, stored in ?temporary? storage indefinitely, or co-mingled with other solid waste streams.

Transitioning healthcare facilities away from mercury-added medical measuring devices will result in long-term reductions of mercury-contaminated waste streams. However, it will also introduce important considerations in the near term, including the disposal of a possible increased rate of mercury-contaminated wastes generated from any expedited transition. This could occur as facilities

prematurely dispose of mercury-added equipment in the process of making upgrades. Likewise, end-of-life implications for mercury alternatives should be considered. To the extent that these devices contain PVC components, flame retardants, or other hazardous chemicals (e.g. phthalates) they should be handled accordingly. Considerations also have to be made for any implications of the current COVID-19 pandemic. Patient care in this case is a heavy generator of waste, including discarded personal protective equipment (PPE) and increased use and disposal of thermometers. PPE commonly contains PVC elements (e.g. face shields) as do thermometers. A number of agencies have made significant progress in assisting LMIC healthcare facilities with improving waste management practices. WHO has produced extensive guidance on waste management more generally and mercury specifically.[36][36] UNEP, UNDP and others regularly generate relevant reports and guidance.[37][37] Many of these guidance documents will be immediately relevant to the proposed project.

xiv. Regulatory context

Healthcare waste management is governed by a suite of international, national and subnational (e.g. provincial, municipal) regulatory frameworks. At the international level, relevant global and regional agreements, including the Basel, Minamata, Stockholm, and Bamako (in Africa) Conventions, oblige Parties to meet certain minimum waste management requirements. The Conventions tend to focus on practices that minimize transboundary concerns, such as those generated by the inadvertent creation of persistent organic pollutants (POPs) or poor management of global pollutants. To help countries meet these requirements, UN agencies and others have created a number of technical guidance documents, some of which are mentioned above.

Each country has its own national legislation regulating the management of healthcare waste. WHO has provided guidance on principles that might outline some of these laws, which still do not exist in many countries.[38][38] Most LMICs that have adopted laws have only done so recently and they tend not to be uniformly or consistently applied across healthcare centres.[39][39] In those countries that do not have specific legislation, healthcare waste management tends to be governed by rules or regulations of other broader laws.

As part of the development of the PPG, a review of the relevant legal framework in each country was conducted by national consultants to supplement work done as part of the PIF. The list below is not exhaustive though is intended to be adequate for project design. Additional contextual information on the legal and regulatory framework in Albania Montenegro is provided in Appendix 12. Individual

international and national technical consultants engaged by the project will identify any relevant laws and regulations not included below and share with the project through regular reporting.

Country	Relevant Laws and Regulations
Albania	National Plan and National Strategy on Waste Management (2011) Decision on the necessary measures for collection and treatment of biowaste, criteria and deadlines for their reduction (2014) Decision of Council of Ministers No. 442 of 26/6/2019 On the adoption of the rules for the prohibition of the export of metallic mercury, certain mercury compounds and mixtures, the safe storage of metallic mercury and the specific criteria for the storage of metallic mercury considered as waste Decision of Council of Ministers No. 665 of 21/09/2016 On the export and import of hazardous chemicals Decision of Council of Ministers No 319 of 15/5/2019 On the restriction for production, putting on market and use of certain hazardous chemicals and articles National Strategy on Integrated Waste Management (2018-2030) (2018) Regulation on hospital waste management (2010) Law No. 27/2016 On chemicals management Law No 7/2020 On the ratification of the Minamata convention on mercury Law No. 10 463, dated 22/09/2011 On integrated waste management Law No. 10 431, dated 09/06/2011 On environmental protection Law No. 10 237, dated 18/02/2010 On the safety and health at work Law No. 10277, dated 13/5/2010 On the accession of the Republic of Albania to the Rotterdam Convention
Burkina Faso	Law n ? 23-94 / ADP of May 19, 1994 Promulgating the Public Health Code Law No. 022-2005 / AN of May 24, 2005 of the Public Hygiene Code Law No. 017-2014 / AN of May 20, 2014 prohibiting the production, import, marketing and distribution of non-biodegradable plastic packaging and bags
India	Bio-Medical Waste Management Rules, 2016, amended 2018 Plastic Waste (Management and Handling) Rules, 2011. Plastic Waste Management Rules, 2016. The Bio-Medical Waste (Management and Handling) Rules, 1998
Montenegro	Law on Waste Management ("OG of MNE", No. 064/11, 039/16) Law on Chemicals ("Official Gazette of Montenegro?, No. 51/17) Law on Waters ("Official Gazette of the Republic of Montenegro", No. 27/07, "Official Gazette of Montenegro" 73/10, 32/11, 47/11, 48/15, 52/16 and 84/18) Decree on the procedure for establishing a system for collection and treatment of electrical and electronic waste (?OG of MNE?, No. 24/12) Rulebook on the limit values of the hazardous substances in electrical and electronic equipment ("OG of MNE", No. 067/18) Law on Environment, (Official Gazette of Montenegro 52/16) Rulebook on criteria, method and treatment of medical waste (Official Gazette of Montenegro 49/12) Rulebook on waste classification and waste catalogue (Official Gazette of Montenegro 059/13, 083/16)) Rulebook on the methods of testing hazardous properties of waste (Official Gazette of Montenegro 037/18) Rulebook on the detailed contents for notifying the chemical export (Fig. Gazette no. 116/20) Regulation on prohibited and what is permitted in the use, production and marketing of chemicals that pose an unacceptable risk to human health and the environment ("Off. Gazette of Montenegro", number 71/18)

Uganda	The National Environment (Audit) Regulations; N0. 45 of 2020 The National Environment (Management of Ozone Depleting Substances) Regulations; N0. 48 of 2020 The National Environment (Waste Management)Regulations; N0. 49 of 2020 The Strategic Environment Assessment Regulations, N0. 50 of 2020

Table 1. Identified relevant laws and regulations in the target countries.

xv. National Baselines

For the purpose of improving baseline information presented in the Project Information Form (PIF) a study of Hg-added devices was carried out during the PPG phase (Appendix 12). Specifically the study endeavoured to estimate the total amount of mercury contained in medical devices currently in use in healthcare settings in the target countries. A survey was conducted of a representative sample of healthcare facilities in three (4) countries (Albania, India, Montenegro, Uganda) and the results were extrapolated to estimate national mercury quantities. The survey also included questions relating to waste management. These have been utilized in the preparation of a separate waste management study attached as Appendix 13.

Surveys were conducted of 196 healthcare facilities in the four countries, including 43 in Albania, 75 in India, 40 in Montenegro and 38 in Uganda. In total 42 large hospitals, 77 medium sized facilities and 77 clinics were surveyed. Mercury added devices were found in all three countries with 55 % of surveyed facilities reporting the use of Hg-added thermometers and 60 % reporting the use of Hg-added sphygmomanometers. With regard to Hg-added thermometers, Albania reported the highest percentage of facilities currently using these devices (88 %). This was followed by 62 % of facilities in India, 32 % in Uganda and 28 % of facilities in Montenegro. With regard to Hg-added sphygmomanometers, India reported the highest percentage with 83 % using these devices. This was followed by 55 % in Uganda, 53 % in Albania and 30 % in Montenegro. In total 204 kg Hg were estimated to be in use in medical devices in Albania, 32,319 kg Hg in India, 19 kg Hg in Montenegro, and 1,249 kg Hg in Uganda.

Values for Burkina Faso were calculated using values from that country?s MIA. MIAs collect data on the number of medical thermometers and often the number of manometers in a given country, however the latter is rarely disaggregated based on the proportion used in medical settings. [40][40] Additionally the total amount of mercury (in grams) contained in these devices in not necessarily reported in all cases. Accordingly certain baseline values had to be imputed based on the existing data.

	Hg-added thermometers (n)	**Hg-added sphygmomanometers (n)**	**Mass Hg in thermometers (kg)**	**Mass Hg in sphygmomanometers (kg)**	**Data source**

Albania	7,844	1,961	8	196	*Survey*
Burkina Faso	293,420	29,342	293	2,934	*MIA*
India	831,686	524,797	832	52,480	*Survey*
Montenegro	209	186	0	19	*Survey*
Uganda	7,122	12,408	7	1,242	*Survey*
Total	**1,140,281**	**568,694**	**1,140**	**56,869**	

Table 2. Baseline by country. Estimated amount of mercury (kg) in medical devices in use in the project countries.

xvi. Albania

The Republic of Albania is an upper middle-income country located in the Western Balkans along both the Adriatic and Ionian Seas. Albania had a communist system of government following the second World War until 1992 when elections were held and has since been governed as a parliamentary constitutional republic. From the mid-1990s to 2009, the country experienced an average of 6 % annual growth in GDP making it the fastest growing non-oil economy in Europe for the decade preceding the global financial crisis.[41][41] Growth has since continued to expand at a rate of 1?4 % per year. The economy is comprised mostly of services (tourism makes up 27 % of imports), remittances (10 % of GDP) and agriculture (40 % of total employment), with only a very small manufacturing base.[42][42] Like much of the region, a large percentage of total employment (30?35 %) is in the informal sector.[43][43]

Albania has a relatively small population of just 2.8 million people. Following the change in the system of government in the early 1990s the population contracted more than 10 % with nearly 200,000 people leaving each year. In the most recent year for which data are available (2016) only 70,000 people left the country, the lowest net emigration since the communist government.[44][44]

Ranked by UNDP?s Human Development Index (HDI) ? a composite of three metrics measuring a long and healthy life, knowledge and a decent standard of living ? Albania is 69th in the world, of 189 countries evaluated.[45][45] Income inequality in Albania is some of the lowest in the region (and 44th

out of 153 of countries in the world by Gini coefficient) with around 14 % of its population below national poverty lines.[46][46]

Women make up only 49 % of Albania?s population and 29.5 % of parliamentary seats.[47][47] For context, Albania is 54th of 188 countries listed by the Inter-Parliamentary Union by women in parliament, with a higher percentage than Singapore and a lower percentage than Canada.[48][48] Albania has one of the higher gross enrolment ratios for women in tertiary education (typically above 70 %), meaning that around 70 % of women aged 18?22 are enrolled in university in any given year. This significantly exceeds the ratio for Albanian men, only 50 % of whom are enrolled.[49][49]

Albania spends the equivalent of about 5 % of its GDP on healthcare each year, or roughly 10 % of annual government expenditures.[50][50] This amounts to approximately USD 274 in per capita healthcare spending.[51][51] The country has an expansive network of public healthcare facilities comprised of 421 clinics and 43 hospitals. These are supplemented by nearly 200 outpatient centres or ?cabinets? and 10 private hospitals.[52][52] In total, Albania has about 30 hospital beds per 10,000 people, slightly lower than other countries in the region (Montenegro averaged 38 and Serbia 56 for example). Albania has 1.29 physicians per 1,000 people, about half the average of Montenegro and Serbia.[53][53]

Albania imports 100 % of its medical devices, having no domestic capacity for manufacture.[54][54] In 2020 Albania imported more than USD 35 million in medical supplies compared with USD 22 million in 2019 and only USD 14 million in 2018 (HS codes 9018, 0019, 9020, 9021 and 9022).[55][55] Data are not collected on thermometers for medical use only, but for 2020 Albania reported importing 180,000 liquid filled thermometers (HS code 902511) with a net value of USD 153,000.[56][56] Liquid filled thermometers then comprise a fraction of medical devices spending (< 0.005 % in both 2019 and 2020). Import data are not reported for sphygmomanometers specifically.

xvii. Burkina Faso

Burkina Faso is a francophone West African country with an ethnically heterogeneous population of 20 million people. The country is landlocked and shares borders with Benin, Cote d?Ivoire, Ghana, Mali, Niger and Togo. It is a low-income country ? having a per capita GNI of only USD 780 in 2019 ? in which 80 % of the workforce is engaged in Agriculture (primarily cotton).[57][57] Burkina?s GDP increased more than 5x in the period 2000?2019, driven largely by gold exports.[58][58] Indeed gold exports (HS 7108) from the country in period 2000?2003 ranged from USD 1.2?3.5 million per year. In 2019, they were USD 2.2 billion.[59][59]

Burkina Faso has the 6th lowest HDI in world, though in absolute terms HDI has improved 54 % since 2000. Ranked by Gini coefficient, Burkina Faso is 63rd of 153 countries ranked, indicating that the country has a more equal level of income distribution than most.[60][60] Forty-one percent of the country lives below the national poverty line.[61][61]

Women comprise about 50 % of the population of Burkina Faso which ranks 141st of 167 countries measured by UNDP?s Gender Development Index.[62][62] About 10 % of women are married before age 15, which is substantially less that of Niger (> 30 %) or Mali (~15 %), but about twice that of Ghana (~5 %).[63][63] Only 6.3 % of Burkina Faso?s parliament is female, placing the country at 176 of 191 ranked in this regard.[64][64]

Burkina Faso spends the equivalent of about 6 % of its GDP on healthcare, or about 9 % of total government spending.[65][65] This amounts to about USD 40 in per capita health care spending.[66][66] There are only 9 hospital beds for every 10,000 people in Burkina Faso. This lower value is characteristic of the region with Ghana (n=9), Mali (n=6) and Niger (n=3) all having a comparably sized health infrastructure. Similarly there are fewer than 0.05 physicians per 1,000 people in the

country. [67][67] Burkina imports ~USD 15 million in medical supplies each year and about USD 100,000 in liquid filled thermometers.[68][68]

xviii. India

India is the second most populous country in the world with > 1.3 billion people and the world?s largest democracy. Its population represents more than 2,000 ethnicities, 450 languages and every major religion. From 2000 to 2019 India?s GDP increased more than six-fold making it the world?s fifth largest economy (USD 2.89 trillion) and surpassing the United Kingdom for the first time in modern history. It is a lower middle-income country, having a per capita GNI of USD 2,120 in 2019, with a robust and heterogenous economy that includes agriculture, mining, manufacturing and tourism.[69][69] The vast majority of employment in India is informal in nature, comprising > 99 % of agricultural employment and ~78 % of non-agricultural employment.[70][70]

Incomes in India span both extremes. Ranked by its total number of billionaires, India is third in the world after the United States and China, while ~20 % of the population live on less than USD 1.90/ day.[71][71] India has a large middle class of more than 500 million people.[72][72] Because of this, income inequality measured by Gini coefficient could be characterized as moderate; India ranks 83rd of 153 countries, being slightly more equal than China but less equal than nearly all high-income countries. India is 131st of 189 evaluated by UNDP?s Human Development Index (HDI) having made substantial gains in absolute terms (> 30 %) since 2000.[73][73]

Only 48 % of India is female. This is potentially an important metric of gender inequity because, all else being equal, women tend to live longer and therefore typically comprise > 50 % of a country?s total population. Ranked by UNDP?s Gender Development Index (the ratio of female to male HDIs) India is among the lower performing in the world (158th of 167 measured). Only 30 % of women enroll in tertiary education, though importantly this metric is up from 7.5 % in 2000.[74][74] Fourteen percent of parliament?s lower house (Lok Sabha) is female; 11 % of its upper house (Rajya Sabha) is female, placing it 149th of 188 ranked by the Inter-Parliamentary Union.[75][75] With regard to corporate

leadership, India (16.6 % female seats on the boards of publicly traded companies) out-performs all BRICS but South Africa (28 %), though is well below the OECD average (26 %).[76][76]

India?s net capital outlays on healthcare were 7th in world in 2016 ? the most recent year for which data were available ? spending USD 6.2 billion on infrastructure and vaccines.[77][77] However on a per capita basis, India?s expenditures are more representative of a lower income country. At USD 72 per capita per year, the country spends more than Burkina Faso and Uganda on healthcare, but less than Albania and Montenegro. This represents the lowest spending on healthcare as a percentage of GDP (3.5 %) of the countries covered by the project.[78][78] There are only 0.76 physicians per 1,000 people in India.[79][79]

The Indian medical devices market is one of the 20 largest in the world, valued at more than USD 10 billion in 2020. The sector is expected to grow at compounded annual growth rate of 37 % over the next 5 years as estimated by the India Brand Equity Foundation, reaching USD 50 billion by 2025. Most of these devices (>75 %) are imported from abroad. The balance is manufactured domestically by dozens of firms concentrated in Andhra Pradesh, Haryana, Gujarat, Karnataka, Maharashtra, Tamil Nadu and Telangana. India allows 100 % FDI in the sector, and accordingly a number of major international firms operate within the country, including 3M, Bayer, GE and Roche, though the sector also includes a number of large domestic firms.[80][80] In 2020 India reported importing 3.7 million liquid filled thermometers (HS code 902511) with a net value of USD 5 million.[81][81]

xix. Montenegro

Montenegro is a small Balkan country along the coast of the Adriatic Sea. The population is just over 620,000 people comprised of Montenegrins, Serbs and Croats. It is an upper-middle income country with a per capita GNI of USD 9,060 (2019) and a GDP of USD 5.5 billion. Montenegro was formerly one of six constituent republics of the communist Socialist Federal Republic of Yugoslavia, then later of the subsequent Federal Republic of Yugoslavia, before finally becoming an independent in 2006 following a brief (2002?2006) relationship with Serbia. As the country transitioned to a market economy large inflows of foreign investment and personal remittances lead to sustained economic growth, averaging > 3 % annual growth in GDP since 2000.[82][82] In addition to remittances, which still

comprise > 10 % of Montenegro GDP, services (~60 %), agriculture, mining and tourism are all major contributors to GDP.[83][83]

Ranked by UNDP?s Human Development Index, Montenegro is 48th of 189 measured; lower than Argentina and Qatar, but above Romania and Russa. The country is relatively unequal with regard to income. Ranked by Gini coefficient, Montenegro is 90th in the world of 153 evaluated. This makes the country the most unequal in the region; Bosnia and Herzegovina is 42nd and Serbia is 70th, for example.[84][84] Twenty-four percent of the population live in poverty, compared with perhaps 17 % in Bosnia and Herzegovina and 23 % in Serbia.[85][85]

More than 50 % of the population is female, 62 percent of whom enrol in tertiary education compared with 46 % of males.[86][86] This is generally representative of the region where the female enrolment rate for tertiary education is relatively high. The Gender Development Index (GDI) for Montenegro is 81st of 167 countries evaluated by UNDP and is thus consistent with the region; Albania is 79th, Bosnia and Herzegovina is 110th and Serbia is 61st, for example. Montenegro has a relatively small gender pay gap of 11 %, compared with the European average of 16 %, including 16 % in France and 23 % in the UK.[87][87]

Montenegro has 23 physicians and 38 hospital beds per 10,000 people, compared with global averages of 13 and 28, respectively.[88][88] This is generally characteristic of the region where healthcare spending is high. Montenegro spends USD 731 per capita on healthcare, or 8 % of its GDP. This places it 44th of 189 in the world in spending.[89][89] Montenegro imports about USD 20 million/ year in medical devices (HS codes 9018, 9019, 9020, 9021) including USD 70,000?200,000 in liquid filled thermometers, depending on the year.[90][90]

xx. Uganda

Uganda is a landlocked East African country with 44 million people that according to one metric is one of the more linguistically and ethnically diverse countries on the planet.[91][91] Its annual GDP of USD 35 billion has increased nearly six-fold since 2000.[92][92] This followed on sustained economic growth after the end of the Ugandan Civil War (1980?1986) owing to macroeconomic stability, a post-conflict rebound, and premarket reforms.[93][93] The largest contributor to GDP in 2020 was services (43.6 %) followed by Industry (26.7 %) and agriculture (23.2 %).[94][94] Employment in Uganda is largely informal in nature (87 %) with agriculture being the dominate source of employment (> 72 %) and nearly entirely informal.[95][95]

Ranked by HDI, Uganda falls 159th of 189 countries evaluated. This is not uncharacteristic of the region with Kenya ranking 143rd and Tanzania ranking 163rd. In absolute terms Uganda?s HDI has improved 34 % since 2000. In terms of individual incomes, Uganda is more unequal than its neighbours, ranking 115th of 153 countries evaluated by GDP using by Gini coefficient (Tanzania is 99th, Kenya is 101st, DR Congo is 110th).[96][96] Though poverty as evaluated by the percentage of the population living on less than USD 1.90/ day (2011 PPP) is less in Uganda (~41%) than all of its neighbours save Kenya (37 %).[97][97]

Tertiary education enrolment rates in Uganda, as with most countries in the region save Kenya, remain low. Only 5.6 % of age-appropriate males and 4.1 % of age-appropriate females are enrolled.[98][98] Ranked by UNDP?s Gender Development Index Uganda is 153rd of 167 evaluated. Tanzania is 100th; Kenya is 109th. Thirty-three percent of Uganda?s parliament is female, compared with 21 % in Kenya and 37 % in Tanzania. This value exceeds a number of high-income countries, including the United States (27 %), Australia (31 %) and Germany (31 %).[99][99] Nearly 51 % of Uganda?s population is female.

Uganda consistently spends the equivalent of ~7 % of its GDP on healthcare, the second most in this project after Montenegro.[100][100] Uganda has an expansive healthcare system comprised of nearly

7,000 facilities, including more than 400 hospitals.[101][101] Despite this it has one of the lower number of hospital beds per 10,000 people in the region, and the second lowest in the project after Burkina Faso (5 per 10,000, compared with 14 in Kenya, 7 in Tanzania and 8 in DR Congo). There are 0.093 physicians for every 1,000 people in Uganda, compared with 0.2 in Kenya and 0.022 in Tanzania. [102][102] Uganda imports >USD 50 million in medical devices each year (HS codes 9018, 0019, 9020, 9021 and 9022). Data are not collected on thermometers for medical use only, but for the period 2016 ?2020 Uganda reported importing fewer than 10,000 liquid filled thermometers (HS code 902511). [103][103]

xxi. Availability of alternatives in project countries

As part of the PPG the availability of alternative medical devices was assessed and confirmed in Albania, India,, Montenegro and Uganda. In Montenegro a full 91 % of thermometers used in healthcare centres were reported to be Hg-free. In India this value was 63 % and Uganda 84 %. Even Albanian healthcare facilities, which reported only 24 % of thermometers in use as Hg-free, also reported that > 80 % of facilities have at least some Hg-free device in use. In India this is consistent with a 2021 Toxics Link report that found widespread availability of alternatives.

xxii. Healthcare waste management in project countries

As part of the PPG, a Mercury Waste Management Baseline Study was carried out (Appendix 13). The study confirms that for all project countries, waste management in itself often remains a key issue. All project countries identify mercury waste in their regulatory and policy frameworks, in some cases with quite a robust and extended set of legal tools. However, on the ground enforcement of these provisions often faces challenges. India and Montenegro for instance maintain guidelines that specifically address the safe handling of mercury containing medical devices and environmentally sound management of mercury wastes, however practical implementation is not always fully adequate.

The study found that mercury waste from medical devices is often separated within healthcare facilities, though ultimately disposed of through incineration or in municipal or industrial waste landfills or open dumps. Separate collection is a hurdle to be surmounted for most countries, and a clear obstacle to the subsequent appropriate management of mercury waste. Some countries do collect wastes from mercury containing medical devices separately but lack final disposal options. A number of countries, at health care facility level, actually appear to have on site storage of mercury waste, pending the availability of appropriate disposal options, hence leading to storage duration potentially exceeding the recommended limit. With the exception of India the project countries do not possess the infrastructure to manage mercury wastes in line with the requirements of the Minamata Convention and Basel Convention guidelines, including the means for stabilization. In response, some countries indicated mercury waste has been exported to countries for purpose of environmentally sound disposal.

xxiii. Associated baseline projects

xxiv. GEF projects

The GEF has supported a number of projects addressing issues in the area of healthcare and waste management and mercury waste management more generally, including one in a country covered by this project (India). The following projects have included or will include significant mercury-added medical devices or mercury waste management aspects:

? GEF 1802 ? ?Demonstrating and Promoting Best Techniques and Practices for Reducing Health-care Waste to Avoid Environmental Releases of Dioxins and Mercury? in India (GEF-3; IA: UNDP);

? GEF 4611 ? ?Reducing UPOPs and Mercury Releases from the Health Sector in Africa? (GEF-5; IA: UNDP);

? GEF 10798 ? ?Reduction of unintentionally-produced persistent organic pollutants and mercury through an environmentally-sound approach on health care wastes management in the Philippines with a special focus on the pandemic? (GEF 7; IA: UNIDO, concept approved);

? GEF 10721 ? ?Environmentally sound management of hazardous wastes containing POPs and Mercury? (GEF 7; IA: UNDP, concept approved);

? GEF 10526 ? ?Eliminate mercury use and adequately manage mercury and mercury wastes in the chlor alkali sector in Mexico? (GEF 7; IA: UNEP, concept approved);

? GEF 5484 ? ?Environmental Sound Management of Mercury and Mercury Containing Products and their Wastes in Artisanal Small-scale Gold Mining and Healthcare? (GEF 5; IA: UNDP);

? GEF 4998 ? ?Environmental Sound Life-Cycle Management of Mercury Containing Products and their Wastes? (GEF 5; IA: UNDP);

? GEF 3803 ? ?Environmentally Sound Management of Medical Wastes in India? (GEF 4; IA: UNIDO);

? GEF 9684 ? ?Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hot Spots and Measuring Progress to Impacts? (GEF 6; IA: UNEP).

A review of documentation generated as part of these projects ? and in particular GEF 4611 ? underscored the importance of sound management of mercury-containing wastes and a widespread lack of know-how on effective segregation, interim storage, or ultimate disposal options. Lessons learned

will be fully incorporated in the present project and guidance developed during the project fully utilized. Related components in the alternative scenario presented below draw from these lessons learned.

In addition, one other project is relevant which is also currently in the PPG stage having had the concept approved on 20 November 2019 (GEF 10349). The project ?Demonstration of phase-out of mercury-containing medical thermometers and sphygmomanometers and promoting the application of mercury-free alternatives in medical facilities in China? will be executed over 60 months and supported with USD 16 million in GEF resources. The project structure of 10349 is analogous to that proposed here, having included outputs related to improved procurement, support for manufacturers, and the responsible management of mercury-contaminated wastes. This similar approach should l facilitate knowledge sharing across projects as lessons learned could be immediately applicable. China is the world?s largest manufacturer of mercury-added medical devices followed by India. The studies undertaken with the PPG identified that the majority of devices both mercury and digital are in fact still imported from China, Hong-Kong and Macao. Close connection between the two projects would be essential to share approaches and avoid disruption to the supply of medical devices in both countries. The outcomes of each of these projects could therefore influence each other as markets potentially shift in response to project activities. In this way, the existence of 10349 should form a key consideration of the project baseline. WHO has been in contact with UNDP during the PPG and agreed to share information going forward.

xxv. Non-GEF projects

WHO has produced extensive relevant guidance, much of which has been summarized in the *Minamata Convention on Mercury: annotated bibliography of WHO information.* ***[104]***[104] This includes *Developing National Strategies for Phasing Out Mercury-Containing Thermometers and Sphygmomanometers in Health Care, including in the context of the Minamata Convention on Mercury: Key Considerations and Step-By-Step guidance* (Herein ?Step-by-step;? 2015); the *WHO technical specifications for automated non-invasive blood pressure measuring devices with cuff* (2020); *Priority medical devices list for the COVID-19 response and associated technical specifications* (2020); *Replacement of mercury thermometers and sphygmomanometers in health care* (2011) and *Decommissioning medical devices* (2019).

The Step-by-step acts as the basis of the alternative scenario below. The guidance provides a framework structured around the following four thematic areas: development of a stakeholder engagement strategy; situation assessment; strategy development and implementation; and monitoring and reporting. The guidance is not overly prescriptive and is amenable to different national contexts.

The present project was developed around the guidance and represents its first full employment at the national scale.

The remaining WHO guidance documents above will be fully integrated into project activities. For instance, the WHO guidance on automated blood pressure cuffs will be used in the development of national capacity building exercises targeting physicians and nurses. The guidance on decommissioning medical devices will similarly be used in capacity building activities targeting procurement officers. Finally, the 2011 guidance on replacement of medical devices will be used in capacity building exercise targeting Ministries of Health as well as procurement officers. These documents, like the ?Step-by-step,? are intended to amenable to different contexts and were designed particularly for LMICs. The text below provides additional background on these documents.

WHO technical specifications for automated non-invasive blood pressure measuring devices with cuff, Geneva: WHO; 2020, (available in English), focuses on automated non-invasive blood pressure measuring devices with cuff, including characteristics, regulatory requirements and standards, calibration and maintenance.[105][105] It also provides guidance on procurement, decontamination and decommissioning. Additional elements on accurate measurement of blood pressure and training for personnel are included. The manual responds to concern about the lack of accurate, good quality devices, especially in low- and middle-income countries, through technical consultation and expert review. These technical specifications relate specifically to Articles 4 (Mercury-added products), 16 (Health aspects), and 17 (Information exchange) of the Minamata Convention on Mercury.

Priority medical devices list for the COVID-19 response and associated technical specifications, Geneva: WHO; 2020, (available in English), describes the medical devices required for the clinical management of COVID-19, selected and prioritized according to the latest available evidence and interim guidelines.[106][106] These include oxygen therapy, pulse oximeters, patient monitors, thermometers, infusion and suction pumps, X-ray machines, ultrasound and computerized tomography (CT) scanners, and personal protective equipment. In order to facilitate access to quality-assured priority medical devices, the document also includes technical and performance characteristics, related standards, accessories and consumables. It is intended for policy-makers and planning officers in health ministries, procurement and regulatory agencies, intergovernmental and international agencies, and the medical device industry. These technical specifications relate specifically to Articles 4 (Mercury-added products), 16 (Health aspects), and 17 (Information exchange) of the Minamata Convention on Mercury.

Replacement of mercury thermometers and sphygmomanometers in health care, Geneva: WHO; 2011, (available in English, Russian, and Spanish) is a short guide that provides step-by-step instructions for the replacement of mercury thermometers and sphygmomanometers with suitable alternatives in health care settings. It identifies available resources that support the equivalent accuracy and comparable

clinical utility of the substituted products, while protecting health care workers and the environment.[107][107] It is designed for professionals responsible for institutions or ministries desiring to switch to safer nonpolluting technologies in health care. This guidance document relates specifically to Articles 4 (Mercury-added products), 16 (Health aspects), and 17 (Information exchange) of the Minamata Convention on Mercury.

Decommissioning medical devices. Geneva: WHO; 2019, (available in English) provides guidance for the process of decommissioning medical devices and tools for determining why, when, and how to decommission such devices. It is flexible and adaptable to various environments and health systems, especially in low- and middle-income countries[108][108]. The guide is for those involved in health technology policies and implementation: policy-makers, biomedical and clinical engineers in government and facility regulatory agencies, health technology managers, health care facility managers, health care workers who use and handle medical devices, waste handlers and other users of health care technology. The guide also includes disinvestment, a policy decision to withdraw health technology from a health care service when there is evidence that it is clinically ineffective, unsafe, inappropriate or not cost-effective. This guidance document relates specifically to Articles 4 (Mercury-added products), 11 (Mercury wastes), 16 (Health aspects), and 17 (Information exchange) of the Minamata Convention on Mercury.

Besides WHO, a leading actor in this area has been the international NGO Health Care Without Harm (HCWH). HCWH has worked in several of the target countries on mercury phase-outs and substitutions in medical measuring devices. A key PPG activity was the execution of medical device studies in project countries. These studies included a survey of randomly selected healthcare facilities. The survey utilized was a modified version of one developed by HCWH. Together with WHO, HCWH lead a Global Initiative to achieve virtual elimination of mercury-based thermometers and sphygmomanometers. The initiative is a component of the UN Environment Programme's (UNEP) Mercury Products Partnership, which is led by the US Environmental Protection Agency.[109][109] The organization maintains relevant expertise in multiple related areas and has produced a series of guidance documents which could be used to support execution.

A report generated by the Indian NGO ToxicsLink including in particular *Moving Towards Mercury-Free Health Care: Substituting Mercury-Based Medical Devices* (2009) and *An Insight of Mercury-Free Products in India* (2021) complements and is consistent with the key findings of the Medical Devices Study conducted using the PPG. ToxicsLink has produced multiple investigations into mercury-added medical devices in India, including assessment of their volume, barriers to adoption and availability of alternatives.

Finally there is a relevant ASEAN Cooperation project being undertaken to contribute to the goals of the ASEAN Socio-Cultural Community BluePrint 2025 which targets s the promotion of the environmentally sound management of mercury from used medical measuring devices. Links will be developed with this project to strengthen guidance for stakeholders.

xxvi. Country-specific UNEP Experience

UNEP has been involved in the implementation of projects in each of the 5 countries. In Albania, this has included the SAICM QSP Projects *Raising Awareness and Building Capacities on Pesticide Management* and *Strengthening SAICM Implementation in Albania.**[110]***[110] In Burkina Faso, UNEP is the IA on the GEF-supported PlanetGold initiative.[111][111] UNEP also implemented the 2014 ? 2015 project *Replacing mercury-added products and promoting improved management of mercury-added products waste in Africa.**[112]***[112] UNEP has also been working with the Ministry of Environment of Burkina Faso in the context of the UNEP Global Mercury Partnership, which it joined as a partner in 2010.

UNEP has implanted various projects in Montenegro including GEF IDs 10785, 9717, 9686 and 9684. In India, UNEP carried out the 2014 project *Assessment of the Mercury Content in Coal fed to Power Plants and study of Mercury Emissions from the Sector in India*.[113][113] In Uganda, UNEP supported the Government of Uganda in preparing its Minamata Initial Assessment and National Action Plan for artisanal and small-scale gold mining.[114][114] UNEP also supported work on the phase down of Hg dental amalgams.[115][115]

1a.3 The proposed alternative scenario with a brief description of expected outcomes and components of the project

The overall objective of the project is to eliminate uncontrolled releases of mercury from healthcare settings. This will result in the prevention of exposure of humans and the environment to mercury and its waste. The general approach is the establishment and implementation of a road map for a significant reduction in use and releases.

As part of the baseline, the following five barriers were identified:

- ? Procurement-related issues
- ? Perspectives of the medical profession
- ? Manufacturing related challenges
- ? Lack of knowledge and awareness of mercury waste disposal in healthcare facilities
- ? Regulatory considerations

The project has been designed to address these and is comprised of four components. The first involves the development of strategies based on detailed country assessment and best practices. The second involves implementing those strategies in each of the 5 countries and piloting a phase out of use in 3 countries. A third component covers knowledge management; the project will produce a series of documents that will benefit similar work elsewhere. Finally, a fourth component covers monitoring and evaluation.

The project will be based on the WHO document ?Developing National Strategies for Phasing Out Mercury-Containing Thermometers and Sphygmomanometers in Health Care, including in the context of the Minamata Convention on Mercury: Key Considerations and Step-By-Step guidance? (herein ?step-by-step guidance?).

The project will support the development of national health system-wide strategies to phase-out the manufacture and procurement of mercury-added thermometers and sphygmomanometers (blood pressure measuring devices) used in healthcare in 5 countries from 3 regions.[116][116] It will also involve the practical demonstration of the switch to mercury-free alternatives in at least 3 of the 5 targeted countries. In so doing it will strengthen collaboration between ministries of health and environment. The theory of change is in figure 2 below. The supporting problem and solution tree are attached in the appendices (Appendix 10).

The number of individual facilities targeted by the project will exceed 50,000. It is therefore not practical that the project team lead training efforts at each. Rather the overall approach will rely heavily

on existing institutional arrangements and infrastructure. The project team will provide technical expertise and consultation to leaders in health systems as they transition to Hg-free devices. In so doing, the effort will result in lasting national capacity that can be employed beyond the 5-year time horizon of the project.

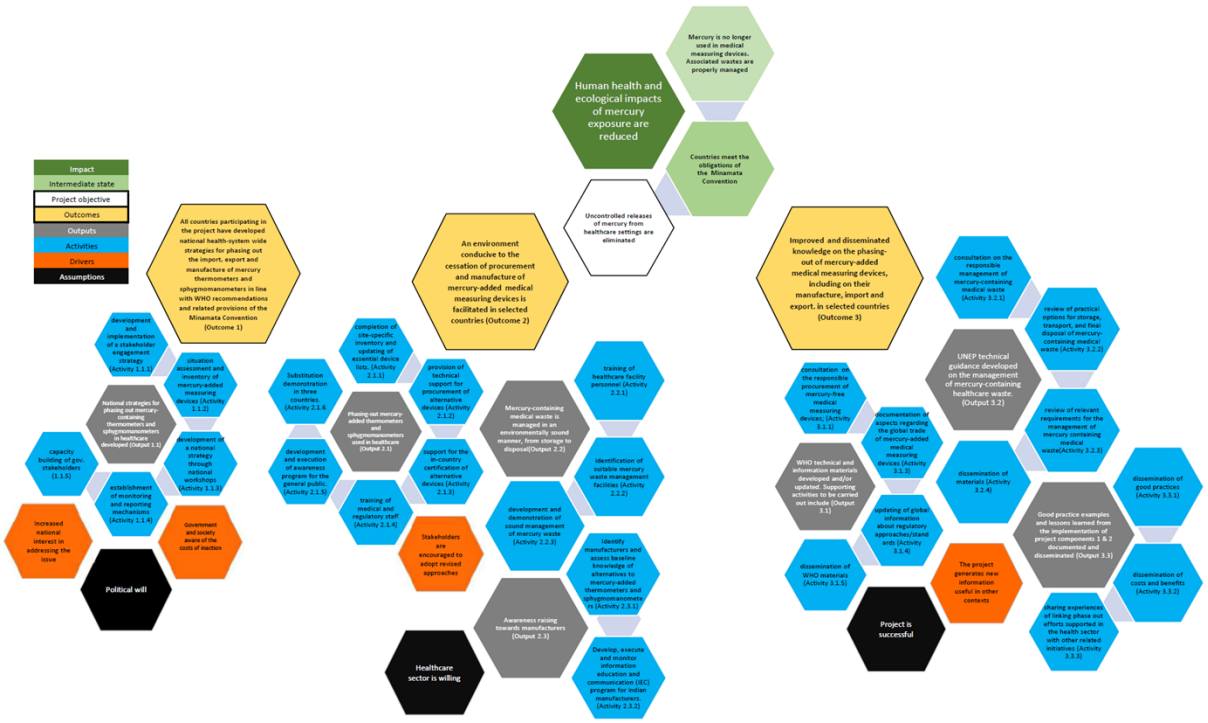

Figure 2. Theory of Change

Component 1: Development of national health system-wide strategies for phasing out the procurement and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.

The countries included in the project represent disparate geographic regions and income groups. Accordingly the institutional dynamics, regulatory approaches and healthcare systems differ substantially across the project. Moreover each country has made varying levels of progress in meeting their obligations to the Convention and implementation of relevant national policies and standards. Research carried out during the PPG revealed that Montenegro for instance has completely phased out procurement of Hg-added devices. Situation assessments carried out as part of this component will further inform execution. The WHO step-by-step guidance which forms the basis of this project was designed from this perspective. Specifically, the guidance sets out key considerations for health ministries in phasing out mercury-containing thermometers and sphygmomanometers. Specific examples and case studies of successful approaches are highlighted. The guidance is not overly prescriptive and thus requires being adapted to specific national and subnational contexts.

As part of the Component health ministries will lead the development of national strategies for the phase out. The ministries will be supported where appropriate by national and international technical

consultants, WHO, and the Global Mercury Partnership. The specific work will involve extensive stakeholder consultation and capacity building targeting each of the five barriers identified above. Specifically, stakeholders across the lifecycle of these devices will be consulted to better understand underlying causes of any residual hesitancy to the phase-out. Capacity building workshops will be held with government staff under this component to facilitate the implementation of national strategies under Component 2 and to address and any reluctance to the phase out (to the extent that it is present in government).

The stakeholder consultation will result in a diagnostic of procurement, use, and disposal of Hg-added medical devices in each country and present the results through ?situation assessments.? Each country?s assessment will form the basis of national strategies. These will also inform approaches to monitoring and reporting to assess implementation on an ongoing basis.

Output 1.1: National strategies for phasing out mercury-containing thermometers and sphygmomanometers in healthcare developed or updated.

The major output of Component 1 will be the production of national strategies for the phase-out. Each strategy will be developed following the guidance set out in the step-by-step, which is comprised of the following four major steps: (1) the development of a stakeholder engagement strategy; (2) situation assessment and inventory; (3) strategy development and implementation; and (4) monitoring and reporting.

For those countries which already have a national strategy in place, emphasis will be on review and assessment of areas where implementation has not been optimal or geographically equal.

National strategies will be developed in years 1 and 2 of the project. Implementation of the strategies will be carried out as part of Component 2 and will begin in year 2 and run until year 5 of the project. Each of the major steps in the development of national strategies is defined below in the activities.

1.1.1 development of a stakeholder engagement strategy and implementation.

As part of the Project Preparation Grant (PPG), preliminary national stakeholder assessments have been developed by short-term consultants. These assessments are required for the development of the initial project design but are not intended to be fully adequate for the purpose of designing and implementing national phase-out strategies. This activity will build on the initial work conducted during the PPG and identify additional stakeholders that might have not been included in the initial assessment.

The stakeholder engagement strategy will follow the medical device value-chain model and include consultations with actors from regulatory authorities, research and product development, components manufacturing, assembly, distribution, marketing and sales, and post sales services of Hg-added and mercury-free medical devices. Key stakeholders highlighted in the step-by-step include: regulatory authorities (e.g. health, environment, labour and industry); suppliers and manufacturers of Hg-added devices; hospital associations and mangers of health care facilities; public and private associations of

health professionals; clinicians, medical doctors and other health care providers; facility managers and janitors; researchers; and civil society. Key stakeholders with respect to cost, affordability, market shaping issues will be identified.

Consultations will be carried out through structured interviews, workshops and other methods determined appropriate during the strategy development.

1.1.2 carrying out of a situation assessment and inventory of mercury-added measuring devices, drawing on findings of Minamata Initial Assessment activities and preparatory research undertaken for this proposal as applicable.

The purpose of the situation assessment is to define the baseline and targets for national strategies. According to the step-by-step, this process includes the following major tasks: gauging the feasibility of replacement or substitution; determining the number of devices to be replaced or substituted; identification of relevant regulations and regulatory gaps; assessment of existing capacities and procedures for waste management; and the identification of priority areas and facilities for initial intervention.

As with the preceding activity (1.1.1 stakeholder engagement) much of the work related to this activity has been completed as part of the PPG. Specifically, the Hg waste management study (Appendix 13) and national surveys (Appendix 12) produced during the PPG provide important baseline information that will be immediately employable in this activity. Similarly the regulatory assessment carried out as part of the baseline above will not necessarily need to be duplicated here, though gaps can be filled where necessary. Work under this activity will therefore focus primarily on gauging the feasibility of replacement or substitution, including the availability and costs of alternatives, and the identification of priority interventions. In addition the assessment will include information on the current domestic and imported sources of Hg-added devices to be shared as part of Component 3.

A review of the prices, availability of mercury-added and mercury-free products in private and public-sector outlets as well as historical data on public sector procurement will be undertaken. Where applicable MEDMON (WHO tool) health facility surveys will be used to assess prices. A comparative study of life-cycle costs of thermometers and sphygmomanometers incl procurement, maintenance, disposal and waste management costs will be undertaken to identify potential savings with mercury-free alternatives.

1.1.3 development and/or review of a national strategy in consultation with relevant stakeholders, through national workshops.

The national phase out strategy for each country will include a plan of work and a package of proposed interventions. Interventions could vary in scope and scale. At a minimum the strategy will include the establishment and/or review of national policy related to Hg-added medical devices intended to ensure compliance with the Minamata Convention. Accordingly each policy will mandate the introduction of phase-out activities at health care facilities. Other interventions might include the development and issuance of guidelines for the safe handling of mercury wastes, the updating of product standards, or the support for suppliers or manufacturers to ensure adequate availability of alternatives. The specific

interventions will be in response to the barriers identified in the baseline and to the country specific context as defined in the situation assessments.

The preparation of a market transition plan, as part of for the national health system?wide strategy to phase?out mercury?added thermometers and sphygmomanometers will be important to sustain long-term market viability of mercury free device importation, manufacturing (in countries where applicable i.e. India). This would also include strengthening key foundational elements for market shaping and build capacity of national policy makers on how pricing policies may contribute to market shaping. The strategy?s plan of work will define roles and responsibilities for individual stakeholders and outline the management structure needed to support the strategy?s implementation. Timelines will be laid out with clear short- and midterm targets identified. Strategies will propose either substitution or replacement at end-of-life for Hg-added devices, informed by the results of the situation assessment.

1.1.4 establishment of monitoring and reporting mechanisms linked to the national strategy.

The strategy will include mechanisms for monitoring and reporting of various indicators relevant to the project. Such indicators could include the progress of individual interventions or the strategy as a whole; rates of mercury handling incidents; increases or decreases in the importation or production of mercury-free alternatives. The strategy will allow for modifying approaches based on new information related to the project.

1.1.5 capacity building of relevant government stakeholders.

The development and implementation of national strategies will be led by health ministries in concert with other agencies, and supported by technical consultants, WHO and the Global Mercury Partnership. Many of the measures to be implemented as part of the project require specialized knowledge, including that related mercury hazards and existing best practices on procurement, use and disposal. A series of capacity building workshops will therefore be held to ensure key staff in various agencies are provided access to necessary information and expertise.

Component 2: Implementation of national strategies to phase out procurement and manufacture in all project countries, and demonstrations of substitution in at least 3 countries.

As part of Component 2 the national strategies to phase-out Hg-added thermometers and sphygmomanometers developed in Component 1 will be implemented. The strategies will be based on the WHO step-by-step guidance which outlines key considerations for developing and implementing phase-outs. The strategies will be country specific; based on situation assessments and responding to national capacity and need. It is likely that in all cases, strategies will outline steps to replace Hg-added devices at their end of life as required by the Minamata Convention rather than encouraging the substitution of in-service devices. In at least three cases, projects to substitute in-service devices will be piloted. These projects will be limited in scope, focusing on a single large facility or multiple smaller facilities in sub-region or municipality. The specifics of the intervention will be defined in the phase-out strategies as part of Component 1.

Implementation will begin halfway through the second year of the project and continue through year 5. The effort will be led by health ministries with support from government agencies and technical consultants as appropriate.

The Component is comprised of two outputs. The first covers the phase out itself and includes substantial capacity building at the national and sub-national levels as well as updating or modification of standards, where required. Also as part of this output, the initial Hg device survey conducted as part of the PPG will be improved through inventories at all facilities, rather than a representative subsample. The second output deals with waste management considerations and includes training of waste managers and implementation of best practices where feasible.

Output 2.1: Phasing-out mercury-added thermometers and sphygmomanometers used in healthcare, from procurement to the safe and environmentally sound interim-storage of mercury-containing wastes.

The first Output of this component deals with the implementation of phase-out strategies developed as part of Component 1. The production of the output will be led by the health ministries with implementation beginning in year 2 of the project.

2.1.1 completion of site-specific inventory and updating of essential device lists.

An initial survey of Hg-added thermometers and sphygmomanometers was implemented during the PPG in four of the five project countries. At the time of submission of this CEO Endorsement Document, a survey was underway but not yet completed in Burkina Faso. The surveys were carried out through stratified random sampling of a statistically representative subsample (95 % confidence level; 20 % margin of error) of health care facilities in each country. The surveys utilised a simple questionnaire relating to procurement, stocks and disposal of Hg-added and Hg-free devices. National estimates were then extrapolated from these values and used for the purpose of calculating the baseline. Results are contained in Appendix 12.

As part of this activity, a more complete inventory of Hg-added devices at healthcare facilities will be supported in each country to address issues identified in the PPG stage in more detail. . A uniform format will be employed in all countries covered by the project. The results will then be used for the purpose of calculating baselines at the facility level.

National essential medical device lists are necessary tools for the adequate delivery of health care. Lists respond to the specific county context, facility size and medical application. For instance, one list of devices may provide required equipment for the prevention, diagnosis and treatment of a specific disease while another may provide medical devices that equip a specific type of health care facility or a specific room in a health care facility.[117][117] WHO provides examples lists that can be adapted as required, see for example the link in the footnote.[118][118] As part of this activity these lists will be reviewed in each country by health ministries and updated as required to ensure Hg-added devices are fully phased out.

2.1.2 provision of technical support for procurement of alternative devices.

A major barrier identified during the baseline is the lack of knowledge of procurement officers with regard to Hg-free devices. This applies both to the relative costs and benefits of Hg-free devices in comparison with Hg-added devices, as well to more practical matters related to procurement (e.g. identifying suppliers, determining the volume required). As part of this activity, national capacity developed as part of the first Component will be supplemented and replicated at the sub-national level. Specifically, procurement officers will be provided information and training required to make informed procurement decisions to ensure improved and cost-efficient procurement of quality assured mercury-free devices, taking into account the life-expectancy and durability of devices, essential features for different services, maintenance requirements, and supplier details, among other information. This is expected to accelerate the adoption of cost-efficient products (promote policies for use of life-cycle cost bs unit cost consideration) in both public and private sector, with support of public sector procurement processes.

2.1.3 support for the in-country certification of alternative devices.

Medical devices manufactured and used in any country are typically required to meet basic regulatory standards. In many cases voluntary certification schemes are also encouraged (e.g. the ICMED scheme in India). Because the implementation of the phase-out will result in an increased reliance on new Hg-free devices it is essential that these certification schemes are updated to minimize any interruption in provision. Technical support will be provided to relevant regulatory agencies in each country to ensure adequate knowledge of Hg-free device operating parameters and features. Specifically, a small number of workshops will be held with regulators and informational materials will be provided.

2.1.4 training of medical and regulatory staff.

Hg-free devices maintain a number of advantages over Hg-added devices in terms of accuracy and ease of use. Nevertheless a certain amount of support is required to ensure the appropriate application of these devices in healthcare settings. Moreover reluctance on the part of medical professionals to their adoption has been identified as a major barrier. Given the large number of facilities, it is not practical that the project team conduct trainings in each. Therefore, training guidelines and information will be provided to facility managers who will in turn be asked to confirm that their staff have been adequately trained.

The phase-out of Hg-added devices will rely on a proportionate increase in the need for Hg-free devices. This increased demand will likely be met by a number of suppliers representing multiple manufacturers and product lines. It is essential that these products consistently perform well in medical settings; both to ensure quality of care and to assuage any residual hesitancy of providers. Competent regulators and compliance staff will play a key role in assuring that the supply chain is composed of only adequately performing devices. The project will develop training materials and training regimens for regulatory and compliance staff and support their use through a limited number of capacity building workshops.

2.1.5 development and execution of awareness program for the general public.

The public will play a unique role in phaseouts. In clinical settings, individual patients will need to remain confident in the quality of care they receive. To the extent that reluctance to the transition exists in the population, a public-facing campaign could provide support to physicians and nurses as they work to assuage those concerns. In addition, a public facing campaign could help reduce the amount of Hg-added devices procured for home use which was identified in India, for example, as a major application of these devices. Finally, such a campaign could foment public pressure and support for the phase out which could in turn influence induvial facilities. The awareness programs will differ from country to country and respond to unique country contexts. The project will provide technical advice to health ministries in their development and implementation.

2.1.6 Substitution demonstration in three countries.

The majority of project activities relate to the replacement of mercury-added medical devices at their end of life. Data collected during the PPG indicates that mercury added thermometers typically have a lifespan of ~1 year while mercury-added sphygmomanometers? lifetimes vary widely from one year to nearly 20 years, though average ~3 years. Thus when these devices expire within the time frame of the project, responsible parties will be encouraged to ensure Hg-free devices are procured and Hg-added devices are disposed of responsibly. Activity 2.1.8 will pilot the active substitution of functional devices at settings in (3) different countries. The facilities will be identified in years 1 and 2 of the project and the demonstration will take place in years 3, 4 and 5.

Output 2.2: Mercury-containing medical waste is managed in an environmentally sound manner, from storage to disposal.

Article 11 of the Minamata Convention obliges Parties to manage mercury and mercury containing wastes in an environmentally sound manner. This objective remains a practical challenge for many countries in relation to Hg-added medical devices. The primary hazardous components of medical wastes tend to be biological in nature. Accordingly waste management systems largely prioritize this component, dealing with hazardous wastes through often rudimentary incineration which kills destroys material. This method is not appropriate for mercury wastes as it results in dispersion rather than destruction. When not incinerated mercury containing wastes are often comingled with non-hazardous material and disposed of in solid waste streams, resulting in releases downstream.

This output considers the various pathways through which mercury originating in medical devices is released to the environment, including accidental breakage, inadequate handling and storage, and inappropriate disposal methods. As with preceding outputs, Activities here relate to the provision of technical expertise rather the provision of services or infrastructure. Existing capacity will be assessed, proposals developed, and training provided. The output will be carried out with the substantive involvement of the Global Mercury Partnership.

2.2.1 training of waste managers on the handling and disposal of mercury-containing wastes.

Staff in waste management systems, from cleaners and maintenance staff to waste managers of large hospitals, often act as first responders in dealing with mercury wastes but are often under-trained and under-prepared to deal with the chemical specific hazards present. Relatively simple modifications to

existing practices (e.g. restricting access to spill sites, waste segregation, appropriate storage) can reduce the amount of uncontrolled releases and human exposure. The project will target these individuals by designing training regimens and materials and disseminating these products through capacity building workshops with waste managers of large facilities. Waste managers of smaller facilities will be targeted with the sharing of educational materials only.

2.2.2 identification of suitable mercury waste management facilities.

The capacity of project countries to manage mercury wastes will be reviewed during the project. Where possible local or regional facilities will be identified and assessed in each country, including interim and long-term storage.

2.2.3 development and demonstration of sound management of mercury waste in relevant countries;

Where mercury management infrastructure is amenable, the project will demonstrate sound practices from collection to disposal. The demonstration will involve trained staff throughout the waste management system and will be conducted in two (2) countries. The International Environment and Technology Centre (IETC) will provide ongoing technical support for the demonstration projects. Results will be recorded and shared with manager of other systems to facilitate uptake.

Output 2.3: Awareness raising towards manufacturers.

Of the five countries covered by the project, only India has a substantial Hg-added medical device manufacturing base which is estimated to meet ~10 % of domestic demand, the remainder being imported. The sector also exports 10?20,000 Hg-added thermometers each year, including those used in medicine. During the PPG, major manufacturers were identified and preliminary outreach was conducted. As part of the project manufacturers will be supported to further develop alternative product lines consisting of compliant Hg-free devices. Experience from elsewhere has shown that manufacturers typically welcome the transition from Hg-added devices as costs related to regulatory compliance are greatly reduced. This support in the context of enhanced regulation will help support these employers as the bridge product lines.

2.3.1 Identify manufacturers and assess baseline knowledge of alternatives to mercury-added thermometers and sphygmomanometers.

As part of the PPG all the major Indian manufacturers of Hg-added medical devices have been identified and preliminary outreach work has been conducted. As part of the project in depth interviews will be carried out with owners and operators to assess existing knowledge and support outreach to be carried out as part of Activity 2.3.2. Information collected during this activity will be documented as part of the knowledge management work of the project conducted under Component 3. In this way the work of this activity could support future interventions in this sector in India and elsewhere.

2.3.2 Develop, execute and monitor information education and communication (IEC) programme for Indian manufacturers.

In the case of large producers experts on Hg-free medical devices will be engaged to consult with individual manufacturers on the adoption of Hg-free product lines. Experts will visit individual facilities and provide bespoke recommendations to assist manufacturers. They will be supported with IEC materials developed specifically for the project, which will focus on ensuring regulatory compliance and pricing and use of assessments and recommendations from Component 2. In the case of small-scale producers, a socioeconomic expert will be engaged to assist in ensuring measures to identify alternative sources of income are identified. To ensure adequate uptake and applicability of the IEC campaign, ongoing monitoring will be carried out at manufacturing plants. Where necessary the IEC campaign will be modified to better meet the needs of the clients.

Component 3: Knowledge management

The proposed project will be among the first such efforts to support the use of the WHO step-by-step guidance with GEF resources. Its execution across five different countries in three regions with significant variation in income, demographics and capacity will provide a unique opportunity to assess the guidance?s efficacy in different contexts. In addition, the project includes a waste management component, as part of which large amounts of information on the capacity and throughput of waste management systems will be collected. This will include a mapping of key actors in the waste management system. It will also include the outlining of operational specifics in each country including equipment, training, and staffing. Finally it will include a review the regulatory approach of each country will be reviewed. The net result of this work will be a much improved understanding of the mercury-added medical devices landscape in the project countries that will have applicability beyond the project.

Output 3.1: WHO technical and informational materials developed and/or updated.

WHO maintains a broad range of technical and informational materials on a range of topics for the purpose of supporting health care providers. These include materials relating to the procurement, use and regulation of medical devices. The national strategies developed as Output 1.1.3 and implemented as part of Component 2 will rely on the use of these materials. Many of the documents that have been developed previously by WHO may be immediately deployable as part of the project. Others may require adaptation or updating. In some cases entirely new material may need to be developed to support market-shaping policies, sustainable procurement procedures and to suit the needs of specific health care settings. As part of this output existing knowledge will be assessed and relevant materials will be developed or updated as required.

3.1.1 consultation of executing partners, key stakeholders, and relevant experts on the responsible procurement of mercury-free medical measuring devices.

Stakeholders identified during Component 1 will be consulted to assess the applicability of existing materials and to identify areas where changes or new materials are required. This output will be executed jointly with Activity 1.1.1 which covers the development and implementation of the stakeholder engagement plan. Preliminary stakeholder engagement has already been carried out as part of the PPG. The information collected during this time will inform a preliminary list of changes to existing documents and new documents needed. This list will be reviewed with stakeholders involved

at different stages of procurement. A technical briefing note will be developed on how to consider total life-cycle cost during bid evaluation, rather than considering unit costs only. The target audience will be decision-makers on financing and procurement of mercury-free devices.

Activity 3.1.1 will result in the development of a work package consisting of changes to existing documentation and proposed new documents. During Activity 3.1.2 the completed documents will be circulated as draft for comment to key stakeholders. The purpose of this exercise is to ensure the applicability and utility of the work completed. Where feasible and necessary suggested changes to the work package will be made and the revised documents circulated again for comment.

3.1.2 documentation of aspects regarding the global trade of mercury-added medical measuring devices.

The international mercury trade, including mercury-added devices, is tightly governed by the Minamata Convention. To the extent that new information is identified regarding the global mercury trade it will be collected and shared with the Global Mercury Partnership. This could include information related to the mercury supply used by legitimate medical device manufacturers as well as any illicit trade uncovered during the project.

3.1.3 updating of global information about regulatory approaches/standards for mercury-free thermometers and sphygmomanometers used in healthcare.

Components 1 and 2 include extensive review with regulatory approaches and standards governing the manufacture, procurement, use and disposal of mercury-added medical devices. New information will be collected through stakeholder consultation (Activities 1.1.1, 1.1.2), technical review of existing regulations (Activities 2.1.4, 2.2.4) and through capacity building exercises (Activity 2.1.6). As part of Activity 3.1.4 a deliberate effort will be made to collect and store this information in a structured manner.

3.1.4 dissemination of WHO materials.

The WHO website is an essential point of reference for ministries of health and health providers around the world. It includes a vast repository of guidance documents covering topics related to health care provision in different settings. It also includes a number of data collections, including statistical databases of health care indicators, collection of regulations and disease specific monitoring data, among other information. Where applicable information collected as part of this project will be used to update documents and data on the WHO website. It will then be shared more broadly through WHO networks to facilitate phaseouts elsewhere.

Output 3.2: Technical guidance developed on the management of mercury-containing healthcare waste.

UNEP develops and maintains guidance on topics related to the environment and human health. These documents, which are generally intended to promote more sustainable practices, cover areas as disparate as banking, technical aspects of chemicals management, and regulatory development and

practice. UNEP houses the Global Mercury Partnership and accordingly releases reports and guidelines related to the safe management and disposal of mercury in accordance with related Conventions. The Global Mercury Partnership has not yet developed guidelines specifically related to mercury-containing medical waste but the project will build on existing expertise of International Environmental Technology Centre at UNEP. As part of this project these guidelines will be developed based on practical experience in the targeted countries. The guidance will be shared through UNEP networks to facilitate sound mercury waste management elsewhere and will form an integral part of future related UNEP projects.

3.2.1 consultation of executing partners, key stakeholders, and relevant experts on the responsible management of mercury-containing medical waste.

As part of this activity, stakeholder consultation will be conducted to map out actors, existing practice, and knowledge of environmentally sound mercury disposal in the project countries. The consultations will form the basis of other activities supporting the development of this output.

3.2.2 review of practical options for temporary storage in-country, transport, final disposal of mercury-containing medical waste and review of related protective equipment.

Preliminary research conducted during the PPG indicates that capacity in the project countries to soundly manage mercury wastes may be limited. As part of this activity this capacity will be assessed in more depth. This will involve a review of both human and infrastructural resources in each country and region. Practical solutions from other comparable contexts will be assessed for their applicability in the project countries. At the international level the activity will include a review of any regional compacts as well as the Minamata, Basil, Rotterdam and Stockholm Conventions.

3.2.3 review of relevant requirements for the management of mercury containing medical waste, including convention obligations.

With the close involvement of the Global Mercury Partnership, the project will ensure that any recommendations made are fully consistent with relevant regulations and convention requirements. At the national level this will include environmental and worker health and safety regulations, among others.

3.2.4 development and dissemination of guidance documents.

Based on the consultations and reviews conducted as part of the output, a guidance document will be developed on the handling of mercury-containing medical waste. The guidance will be practical in nature and developed specifically for a low-and middle-income country context. The guidance will then be distributed through the Green Growth Knowledge Platform and UNEP partners. This will involve targeting related projects where the guidance will be directly employed, including those supported by GEF resources.

Output 3.3: Good practice examples and lessons learned from the implementation of project Components 1 & 2 documented and disseminated, including through WHO channels and the UNEP Global Mercury Partnership.

Parties to the Minamata Convention are obliged to phase-out the manufacture, import and export of mercury-added sphygmomanometers and thermometers by 2020. However in practice, many countries have faced challenges meeting this obligation. The project will be among the first to directly assist countries in this endeavour and accordingly will be uniquely placed to promote lessons learned, including good practice examples. As part of this output, these lessons will be documented in a structured manner and disseminated through WHO and UNEP partnerships with the purpose of facilitating successful transitions elsewhere.

3.3.1 dissemination of good practices in the regulation and procurement of alternatives, and the phasing out of manufacturing of mercury-added medical measuring devices:

A deliberate effort will be made to identify and document successful approaches to various components associated with the phase out of Hg-added medical devices. These lessons learned will be disseminated through existing partnerships and channels of WHO and UNEP, including organizational websites and through related projects.

3.3.2 dissemination of costs and benefits associated with the phasing out of mercury thermometers and sphygmomanometers used in healthcare.

A major barrier identified during the PPG is the lack of knowledge of procurement officers about the relative costs and benefits of Hg-free devices. Where these costs have been documented elsewhere they have consistently been shown to be lower than their mercury-added counterparts. This is true for all individual aspects of the lifecycle, including manufacture, procurement and disposal, as well as in the aggregate. As part of this project, these costs and benefits of phaseouts will be documented and distributed beyond the project countries through the mechanisms mentioned above in Activity 3.3.1.

The International Medical Device Regulators (IMDRF) is a voluntary group of regulators from medium and high-income countries plus the European Union that meets semi-annually for the purpose of harmonizing regulation. The WHO serves as an observer. The IMDRF through its members and observers has access to a large number of relevant stakeholders and as such will serve an important role in the dissemination of lessons learned as part of this project. The project will also endeavour to identify and utilise similar forums and groups.

3.3.3 sharing experiences of linking phase out efforts supported in the health sector with other related initiatives.

As part the PPG related efforts have been identified. This includes GEF-supported UNDP projects (1802, 4611) as well as other related efforts in which the Global Mercury Partnership is engaged. It also includes NGO led activities, particularly those of Health Care Without Harm and the Indian NGO ToxicsLink. Many of the challenges encountered by this project will also be familiar to these efforts. To the extent that they have developed methods of overcoming these challenges, these methods may be integrated into the present project. Likewise the lessons learned here will be shared with other initiatives to help improve their efficacy.

1a.4 alignment with GEF focal area and/or Impact Program strategies;

The project aims to assist the target countries in meeting their obligations under the Minamata Convention by eliminating the use of mercury-added medical measuring devices. Four of the five target countries are required to phase out these devices, covered under Article 4 of the Convention, by 2020 (India has an exemption until 2025). As the primary funding mechanism for the Minamata Convention, the GEF?s objectives directly align with these targets. Specifically the project is consistent with GEF focal area CW-1-1 ?Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination.?

Component 1 deals with development of bespoke national strategies for the phasing out of mercury-added medical measuring devices. The WHO has developed broad guidance that must be actively adapted to individual country contexts. The resulting strategies will be implemented through activities carried out as part of Component 2 and more broadly shared as part of Component 3 on knowledge management.

1a.5 incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

The incremental costs of the project can be quantified as the amount required to redirect existing procurement, waste management, and medical device manufacturing schemes. Paragraph 7 of Article 13 of the Minamata Convention obligates GEF resources to countries? compliance efforts. Specifically it defines ?new, predictable, adequate and timely financial resources to meet costs in support of implementation of [the] Convention? and states that ?[the GEF] shall provide resources to meet the agreed incremental costs of global environmental benefits.?

The project will intervene directly in existing procurement efforts in the healthcare sector. The substantial resources that are currently allocated here for purchasing mercury-added medical measuring devices will be redirected toward more sustainable alternatives. In this way the project?s relatively small investment will be immediately amplified through other pre-existing mechanisms. The project will also invest directly in improving waste management practices. Here too, the approach will largely involve realigning and improving existing processes, thus implicitly leveraging investment.

In the case of India, the project will work with manufacturers to raise awareness about transition away from mercury-added product lines. A study carried out of such a transition by a US manufacturer found that the initial investment was returned within a year, owing largely to reduced compliance and insurance costs. As the domestic Indian market shifts more quickly away from mercury as a result of the project, these manufacturers may be able to eliminate the costly enterprise of maintaining two parallel product lines (mercury-added and mercury-free). To the extent that this occurs, these financial gains would be directly attributable to the project. The Indian Government has identified the growth of the medical devices industry In India as a priority through various initiatives including its ?Make in India? scheme. National health policy in India will also create a further demand for domestic

manufacturing and several State Governments are providing favorable regulatory and policy support for an increase in domestic production. The project outputs will work to support and sustain such a direction.

Co-financing for the project is substantial and draws from national healthcare budgets, including those of public hospitals and ministries of health. Additional co-financing will be invested by individual manufacturers in India and professional associations such as the Indian Medical Association which has more than 3 million members. Finally both the implementing and executing agencies will provide in-kind support.

1a.6 global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

Mercury is released from thermometers and sphygmomanometers through inadvertent rupture and poor waste management practices. The project will reduce the total amount of mercury-added medical devices in use in at least three of the targeted countries, thereby substantially reducing the frequency and likelihood that such ruptures will occur. Free mercury in the environment cycles globally through atmospheric transport and other mechanisms. Thus by reducing releases in these three countries, the project will result in immediate global environmental benefits.

The total project beneficiaries (indicator 11) were calculated as the total number of physicians, midwifes and nurses in the 5 target countries. Data were not available for health care waste management personnel, though these individuals will directly benefit from the project. The patient population and further the population of the target counties will benefit as well. Thus the use of the physician, midwife and nurse population, is highly conservative. Gender composition and total workforce data were taken from the WHO Global Health Observatory.[119][119]

The project will phase out mercury-added medical measuring devices at a rate of 20 % per year from the baseline resulting in a complete phase-out of these devices within the project?s timeframe. This phased approach will result in a total of 23,350kg mercury avoided (sub-indicator 9.2). This estimate is based on certain assumptions, explained below.

With the exception of India, which has an exemption until 2025, each of the countries in the project is obligated to have phased out mercury importation by 2020, before the project start date.[120][120] Thus GEBs are based on the presumption that procurement occurs from domestic stocks only.

As part of the PPG a survey of Hg-added medical devices was carried out of statistically representative sample of healthcare facilities in Albania, India and Montenegro. The results of this survey form the basis of GEB calculations in these countries. GEB calculations for Burkina Faso and Uganda use data presented in their Minamata Initial Assessments (MIA).

Reported procurement of the Hg-added devices by healthcare centres for the years 2016?2020 remained steady in all countries except Montenegro, where no procurement was reported after 2016. GEB calculations therefore assume that in the absence of the project, procurement would continue in the remaining for countries at replacement level.

Hg-added thermometers and sphygmomanometers in the project countries were found to contain 1,140 kg Hg and 33,219 kg Hg, respectively. The survey found an average lifespan of 1 year for Hg-added thermometers and 3 years for Hg-added sphygmomanometers. Thus for the purpose of baseline calculations, we assume that all 1,140 kg Hg contained in thermometers is replenished on an annual basis through the procurement of replacement devices. We further assume that all 33,219 kg Hg contained in sphygmomanometers will be replenished once during the 5-year project timeframe, resulting an estimated annual procurement of 6,644 (33,219/ 5 years). Annual procurement of Hg-added medical devices is therefore calculated as the sum of 1,140 and 6,644, or 7,784 kg Hg.

Assuming an annual replacement amount of 7, 784 kg Hg, and an annual phase-out of 20 %, the project will phase out 1,557 kg in year one, 3,113 kg in year 2, 4,670 kg in year 3 and so on. The net result of these activities will be a total of 23,350 kg of mercury procurement avoided.

The project will also endeavour to improve how mercury waste is handled. Assuming a 5 % annual uptake of improved waste management practices, the project will result in a proportionate 5,837 kg of mercury managed soundly. Thus the project?s total contribution to indicators 9.1 and 9.2 is calculated as 29,187 kg Hg. This amount is 22 % greater than that calculated as part of the PIF (23,956 kg Hg)

Sub-indicator 9.6 estimates include the total mass of equipment containing mercury. To calculate this value, we estimate the weight of a single thermometer as 15 grams and the weight of a single sphygmomanometer as 500 grams. Applying the same assumptions as above, this results in a total 210,815 kg Hg-contaminated material avoided.

1a.7 innovativeness, sustainability and potential for scaling up. ?

The present project represents progress against this issue in a broad and heterogenous geographic area. The five countries targeted are drawn from 3 continents and distinct in economic and social composition. Thus the lessons learned will potentially be widely applicable beyond on the project.

The general approach of the project will one of facilitating more responsible use of existing resources. From a procurement perspective, the proposed alternatives are more cost-effective over the medium term than mercury-added devices. They are also safer, equally accurate, and more precise. Thus if the initial barriers are overcome, sustainability is built in to the project; there is no precedent (which could be identified) of a healthcare system regressing back to mercury-added devices. Likewise from a supply perspective, the manufacture of a mercury-free product line does not carry additional costs

associated with the handling of hazardous materials. Manufacturers are also highly responsive to demand.

The project will target centralized procurement and will therefore immediately affect changes at scale. An effective knowledge management component will share lessons learned outside of the target countries facilitating changes beyond the project timeline and geography.

The WHO guidance ?Nine steps for developing a scaling up strategy? outlines the following measures: Planning actions to increase the scalability of the innovation; Increasing the capacity of the user organization to implement scaling up; Assessing the environment and planning actions to increase the potential for scaling-up success; Increasing the capacity of the resource team to support scaling up; Making strategic choices to support vertical scaling up (institutionalization); Making strategic choices to support horizontal scaling up (expansion/replication); Determining the role of diversification; Planning actions to address spontaneous scaling up; and Finalizing the scaling-up strategy and identifying next step. This guidance and associated resources will inform the development or updating of national strategies under Component 1. These resources will be included in reference materials and in capacity building exercises where appropriate.

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1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

The project will be executed nationally in all five project countries.

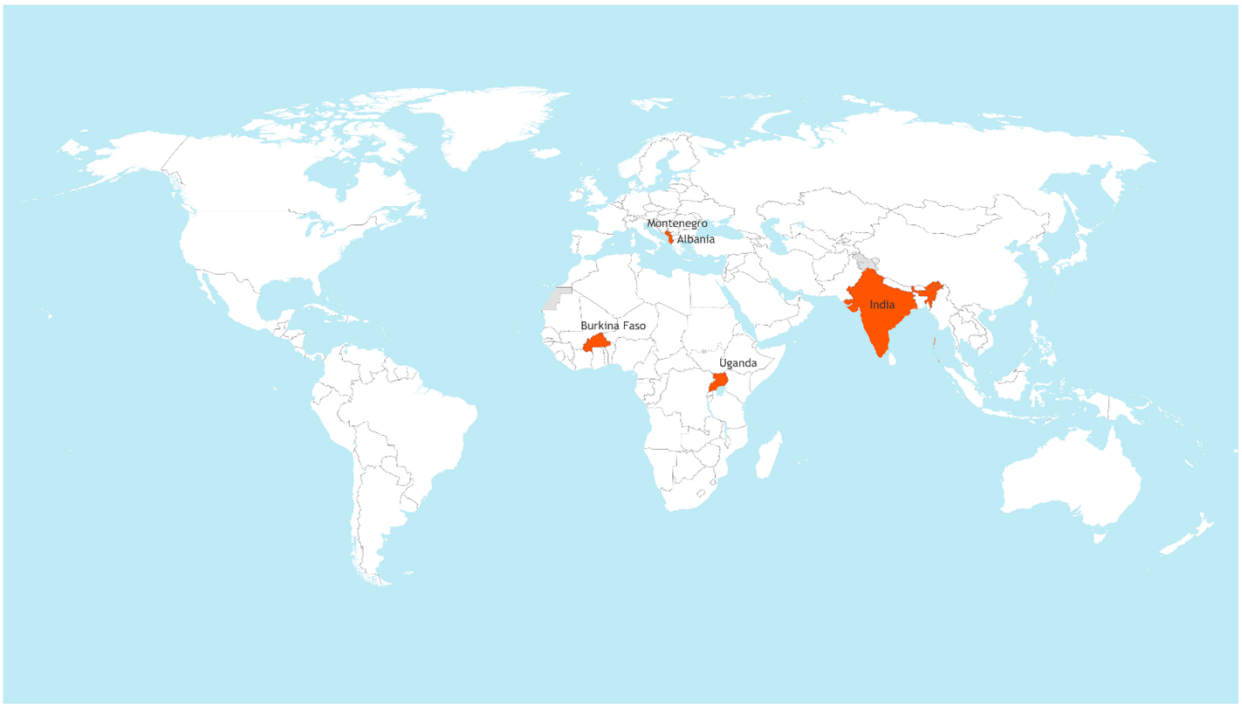

Figure 3. Project Map

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

n/a

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities

Private Sector Entities Yes

If none of the above, please explain why: No

Please provide the Stakeholder Engagement Plan or equivalent assessment.

International

Stakeholder Type	**List of Stakeholders**	**Proposed Engagement in the Project**
Multilaterals	**UNEP**	UNEP Chemicals and Health Branch GEF unit is the IA responsible for implementing the project components, in line with project budget and workplan. Will lead consultations with the national project partners, as well as coordinating and overseeing the Executing Agency.
	International Environment and Technology Centre (IETC)	This UNEP entity has the mandate to establish baseline and guidance material on waste management. It will be consulted and provide advice on the mercury waste management options.
	Global Mercury Partnership	The Global Mercury Partnership will provide assistance and assist in identifying actions for mercury waste management and feasible remediation at identified contaminated sites in the region. The Partnership will also draw on the ?South-south? experience of its member to inform mine successful mine closure. Finally the Partnership will be a key partner in facilitating Knowledge Management.
	WHO	Technical assistance during strategy development, education and communication campaign

	UNDP	Technical assistance during strategy development, inventory management software and reporting.
Albania		
Stakeholder Type	**List of Stakeholders**	**Proposed Engagement in the Project**
Government (central and provincial levels)	Ministry of Health and Social Protection	Receiving assistance on phasing down of mercury measuring devices, guidelines on procurement and preparing technical specifications; Procurement of medical devices, including technical specifications, critical stakeholders; Waste management in health system
	Public Hospitals management, health practitioners, managers, waste management	Switching to non-mercury measuring devices, Mercury waste management, Capacity building and awareness raising activities
	Local Units of Health Care Centres	Local Units of Health Care are the local authority entitled to coordinate and monitor the primary level of care. Thirty-six LUHC cover the territorial-based health care services in 61 municipalities in the country. In frame of the project they will be involved in capacity building activities, in activities related to switching to non-mercury measuring devices, as well as mercury waste management.
	Institute of Public Health (IPH)	IPH is a public institution, dependent from Ministry of Health. IPH is centre of scientific research, reference centre of services in the field of public health, university centre, and information centre. It has expertise in chemicals safety, in risk communication and awareness raising. It can be involved in capacity building and awareness raising activities in frame of the project.
	Ministry of Tourism and Environment	Drafting of guidance documents to assist the implementation of relevant chemicals legislation and legislation on sound waste management on mercury and mercury devices
	National Environmental Agency	Implementation of relevant chemicals legislation, sound waste management
	Operator for Health Care Services (OHCS)	OHCS is the main nation-based coordinator of health care services in the country. The regional directorates of OHCS approve the medical devices to be purchased by the Health Centres and OHCS checks the proper functioning of the devices.
	General Directorate of Customs under Ministry of Finance and Economy	Implementation of legislation, creating the barrier to import/export of mercury containing devices. Development of guidance documents for the implementation of the obligations of the chemical conventions and of the relevant legislation on import/export of hazardous chemicals in the context of the object of the project: mercury and mercury devices.

	National Agency for Drugs and Medical Devices	The NADMD is responsible among others for registration, inspection and reporting of medical devices in Albania. It can be involved in the process and discussions of phase out of mercury devices. For the time being mercury devices are not registered from this agency, as they are not considered as medical devices for their purposes. They do not have any guidance regarding mercury containing devices.
	National Centre of Quality, Safety and Accreditations of Health Care Institutions	The NCQSAHCI supports Ministry of Health and Social Protection on standards, indicators, health care services (clinical practical guidelines), etc. The centre will be invited in discussions about the quality and standards for the replacement devices
	National Centre on Continuous Education	The trainings will be included in the credits system of the continuous education for the medical staff
	General Directorate of Metrology	GDM performs the calibration/verification of instruments/ measuring devices. It can be involved in the project related to the calibration /certification of non- mercury measuring devices.
	State Health Inspectorate	State Health Inspectorate is responsible for all inspection functions in the area of responsibility of the ministry responsible for health. It will be included in capacity building activities, in order to be able to complement the activities of the projects through enforcement www.insq.gov.al
	Market Surveillance Inspectorate	MSI among other things, is responsible for controlling the implementation of legislation on the safety of non-food products. It can be involved in discussions on phasing down of mercury devices and in capacity building activities, in order to be able to complement the activities of the projects through enforcement.
Orders of Professionals	Order of Physicians https://www.urdhrimjekeve.org.al/	These organizations will be invited in brainstorming discussions about the strategy for phasing down the use of mercury devices and for its implementation
	Order of Nurses https://urdhriinfermierit.org/	
	Order of Pharmacists https://www.ufsh.org.al/	
Local affected communities, including indigenous people	Communities near waste management sites	Awareness raising activities aiming risk reduction
NGOs and CSOs	EDEN Centre	Awareness raising activities, investigations
	Regional Environmental Centre	Awareness raising activities
	REC Albania	
	Health and Environment Albania	Awareness raising activities
Private Sector	Private Economic Operators, suppliers	Switch to alternative measuring devices

	Private hospitals and clinics, procurement units	Cooperation in switching to alternative measuring devices,
	Waste management companies	Cooperation for sound interim storage of mercury and mercury containing devices, Capacity building activities with all health care centers, specialists of the waste management companies can act as trainers and advisers for creating the appropriate infrastructure for phasing down of the use of mercury measuring devices from health system.
Academic Institutions	University of Medicine	Revision of curricula, compilation of guidance documents
		Capacity building, including mercury hazards and related issues in the curricula for MDs and nurses.
	Hospital University Centre Tirana (QSUT)	Capacity building, including mercury hazards and related issues in the curricula for MDs and nurses.
	Faculty of Natural Sciences	FNS has been active during the preparation of MIA, particularly for the mercury inventory.
	Polytechnic University of Tirana, Environmental Engineering..	Polytechnic University of Tirana can be involved in Revision of curricula for waste management
Montenegro		
Stakeholder Type	**List of Stakeholders**	**Proposed Engagement in the Project**

Government (central and provincial levels)	Ministry of Health ? MoH	The Ministry of Health is responsible for monitoring environmental protection measures that affect the health of citizens, adopting health guidelines that regulate exposure to mercury and its compounds, as well as for educating about its harmful effects. The Ministry will chair in the Project Steering Committee, will participate in coordination of the project activities, assist the project with cross-sectoral communication, provide technical expertise and support project management and regular project reporting. Coordination for development and implementation of national health-system wide strategy for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention. Coordination of activities for establishment of monitoring and reporting mechanisms linked to the national health-system wide strategy The Ministry shall assist the project execution by managing / providing fulfilment of the international level obligations in accordance within its competence. MoH will secure synergies and coordination between the Project and initiatives within its competence. The Directorate for Waste Management and Utilities is responsible for creating a national legal and public policy framework for the field of waste management, including the transposition of regulations in this area. The Directorate is responsible for aligning the national legal framework with relevant EU legislation in this area.

Ministry of Ecology, Spatial Planning and Urbanism ? MESPU: Directorate for Ecology, Directorate for the Control of Industrial Pollution and Chemicals Management, Directorate for Waste Management and Communal Services	Ministry is a key institution for fulfilling the obligations arising from most international agreements in the field of environment and transposing European regulations in the field of horizontal legislation. The Ministry will provide political and institutional supervision for the overall project activities on behalf of the Government of Montenegro. The Ministry will participate in the Project Steering Committee, will coordinate project activities, assist the project with cross-sectoral communication, provide technical expertise and support project management and regular project reporting. The Ministry shall assist the project execution by managing/providing fulfilment of the international level obligations and collaborations since it has the competence for the implementation of multilateral and bilateral international treaties and conventions on environmental protection. MESPU will secure synergies and coordination between the Project and initiatives within its competence. The Directorate for the Control of Industrial Pollution and Chemicals Management is responsible for drafting the national legal and strategic framework in the field of chemicals management. The Directorate also carries out tasks related to the harmonization of national legislation with the acquis communautaire in the field of industrial pollution, as well as to participation in the work of international conventions and bodies relevant to this field. Participation in development and implementation of national health-system wide strategy for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.
Environmental Protection Agency (EPA): The Licensing Sector, The Sector for Monitoring, Analysis and Reporting, The Sector for the Implementation of the Aarhus Convention and the Management of the Cadastre of Pollutants	The Environmental Protection Agency will participate in the Project Steering Committee, will participate in coordination of the project activities, assist the project with cross-sectoral communication, provide technical expertise and support project management and regular project reporting.

	The Licensing Sector performs activities related to: issuing integrated permits, implementation of European directives related to industrial pollution (IED, IPPC and LCP), and control of major-accident hazards involving hazardous substances (SEVESO III); conducting the procedure of determining liability for damage or imminent danger of damage to the environment; issuing permits for waste management; issuing permits in the field of management of biocidal products and chemicals.
	The Sector for Monitoring, Analysis and Reporting performs tasks related to: preparation of proposals for environmental monitoring programs that contain monitoring programs for individual segments of the environment and areas, adopted on the basis of special regulations; development and maintenance of environmental databases; keeping an inventory of emissions and other. Specifically, at the stationary automatic air quality station near TPP Pljevlja, the Agency monitors the concentration of gaseous mercury in the air and reports on a monthly and annual basis.).
	The Sector for the Implementation of the Aarhus Convention and the Management of the Cadastre of Pollutants in the Field of Environmental Protection performs activities related to: establishing an environmental protection information system for efficient identification, classification, processing, monitoring and recording of natural resources and environmental management, as well as integrated management inventory of pollutants.
	Participation development of a national strategy in consultation with relevant stakeholders, through national workshops;
	Participation in the establishment of monitoring and reporting mechanisms linked to the national strategy;
	Capacity building of relevant government stakeholders.

Institute of Public Health (IPH)	The Institute of Public Health of Montenegro is a highly specialized health institution at the tertiary level of health care, whose activities are aimed at preserving and improving the health of all citizens. To organize training and capacity building for medical and non-medical staff in health sector regarding use, maintenance and hazardous chemical waste disposal. To participate in awareness rising campaign for general population. To help improving curriculum in institutions regarding mercury waste management as public health issue in line with WHO guidelines To provide assistance in development of monitoring and reporting system and inventory management software for mercury waste To educate medical and non-medical staff in health care institutions on the method of safe packaging and transportation of mercury-containing waste To educate health practitioners, management in health institutions and procurement officers regarding legal aspects for procurement of medical devices containing hazardous substances.

	Health care institutions	Establishment of a sustainable Mercury-containing medical waste collection system Establishment of a database on mercury-containing waste streams Improving the equipment of health care institutions with appropriate equipment for waste management, as well as equipment for protection at work of persons who are in contact with medical waste. Improving the equipment of health care institutions with appropriate equipment for waste management, as well as equipment for protection at work of persons who are in contact with medical waste. To participate actively in education and knowledge transfer activities
	The Directorate for Inspection Affairs (UIP)	Sector for Environmental Protection, Safety and Human Health, Social and Child Protection supervises the implementation of laws, other regulations and general acts related to environmental protection (Department for Environmental Inspection), over the implementation laws in the field of water management (Water Inspection Department). Also, when it comes to chemicals, inspection supervision over the application of regulations in this area is the responsibility of the sanitary and environmental inspection, while the supervision of cosmetic products is the responsibility of the sanitary inspection. Within its competencies, monitoring and control of the implementation of project activities in the field of collection, sorting, packaging, removal, storage and disposal of chemical waste.
	Customs Administration of Montenegro	Strengthen the capacity of the Customs Administration to better understand the importance of hazardous waste classification in relation to origin with a focus on mercury-containing hazardous waste.
Ministry of Education, Science,	University of Montenegro - Faculty of Medicine.	To implement/improve public health curriculum regarding management of hazardous waste in health care institutions

Culture and Sports, Academic institutions	Secondary School of Medicine, Podgorica	To implement/improve curriculum regarding management of hazardous waste in health care institutions. To organize practical exercises regarding hazardous waste management in health facilities.
	Postgraduate High School for Nurses, Berane	To implement/improve curriculum regarding management of hazardous waste in health care institutions. To organize practical exercises regarding hazardous waste management in health facilities.
	Primary, secondary schools and university	To organize lectures to school and university population on the harmfulness of mercury
NGOs and CSOs	NGO "Green Home", Ecological movement "Ozone", other NGO and CSOs	The role of the NGO sector is to promote the results of the project together with state institutions and to participate in capacity building campaigns of other stakeholders.
		During the second and third years of the project, representatives of the selected NGO would be trained within the project to strengthen their own capacities, so that in the next two years they could train other stakeholders to raise awareness about the harmful effects of mercury on human health and the environment.
Private sector	"Ekomedika" LLC hazardous waste management company	This company offers a complete service related to the disposal of hazardous medical waste (sharp objects, infectious and potentially infectious waste).After the training within the project, better application of regulations in practice in the direction of management of mercury-containing medical waste. Ekomedica can provide experiences from previous period dealing with hazardous waste, which can be beneficial for project development. Experiences regarding measuring and recording quantities of infectious waste can be beneficial in defining information system for mercury containing waste.

	"Hemosan" LLC hazardous waste management company	"Hemosan d.o.o." is the only company for sanitary and environmental protection that accepts, transports, stores and exports all types of hazardous and non-hazardous waste. In the previous period, they processed hazardous waste from health institutions. After the training within the project, better application of regulations in practice in the direction of management of mercury-containing medical waste. Realization of private-public partnership for the collection, sorting, packaging, removal, storage, export and disposal of chemical waste (mercury-containing waste) Experience in the previous period is of great importance for the improvement of the waste disposal system, and especially the introduction of the information system
	IT consulting company	To develop monitoring and reporting system and inventory management software, in line with requirements of National health system-wide strategies for phasing out the procurement and manufacture of mercury thermometers and sphygmomanometers
	Consulting company	To help develop strategy for phasing out the procurement and manufacture of mercury thermometers and sphygmomanometers, and to develop monitoring and reporting system. To develop Web site To develop communication and awareness raising campaign
	Events organization agency	Organization of the communication and awareness raising campaign
General population (local affected communities)	Citizens of Montenegro and foreigners with temporary or permanent residence in Montenegro	Promotion of project activities Education and raising the awareness about the harmfulness of mercury and the negative impact on human health

India

*The stakeholders below were identified during the PPG. Definition of their role in the project is forthcoming.

Designation	Name
Ministry of Environment, Forest and Climate Change	
Cabinet Minister	Bhupender Yadav
Private Secretary to Minister	Kushal Vashist
Minister of State	Ashwini Kumar Choubey
Private Secretary to HMOS	Mr. Kuldip Narayan
Secretary (EF&CC)	Mr. Rameshwar Prasad Gupta
Senior Economic Advisor. Development Monitoring and Evaluation (DME), Economic Cell (EC), Non-Governmental Organisation (NGO) Cell, Statistical Cell (SC), Global indices monitoring/ GIRG Dashboard,O/o SR(EA)	Mr. Arun Kumar
Joint Secretary. Clean Technology (CT), Control of Pollution (CP), Hazardous Substances Management (HSM), TTZ Matters(TTZM)O/o JS(NPG)	Mr. Naresh Pal Gangwar
Director Hazardous Substances Management	Mr. Satyendra Kumar
Ministry of Health and Family Welfare	
Union Minister	Shri Mansukh Mandaviya
PS to Minister	Shri Vaibhav Bajaj
Minister of State	Dr. Bharati Pravin Pawar
Secretary (H&FW)	Shri. Rajesh Bhushan
Senior PPS to Secretary HFW	G.Anil Kumar, K.Induprasad
Joint Secretary	Lav Agarwal
Addl DDG LS	Dr L Swasticharan
Central Pollution Control Board	

Chairman Section	Tanmay kumar
Member Secretary	Dr Prashant Gargava
RD Bhopal	Sh. P. Jagan
RD Bengaluru	Sh. S. Suresh
RD Lucknow	Sh. R. K. Singh
RD Kolkata	Sh. M.K. Biswas
RD Vadodara	Sh. Prasoon Gargava
RD Chennai	Smt. H D Varalaxmi
RD Pune	Sh. Bharat Kr. Sharma
RD Chandigarh	Sh. Gurnam Singh
RD Shillong	Sh. Zawthanglien Changsan
Project Office Agra	Sh. Kamal Kumar
5 Key States	
Uttar Pradesh	
Chief Minister	Yogi Adityanath
Cabinet Minister, Medical and Health, Family Welfare Maternal and Child Welfare Department, Uttar Pradesh	JAI PRATAP SINGH
State Minister, Medical and Health, Family Welfare Maternal and Child Welfare Department, Uttar Pradesh	Atul Garg
Director General Medical Health & Family Welfare Deptt.	
Maharashtra	
Chief Minister	Uddhav Thackeray
Health Minister	Rajesh Ankushrao Tope
Principal Secretary Woman & Child Development	
Bihar	
Chief Minister	Nitish Kumar
Health Minister	Mangal Pandey
Special Secretary	Pradeep Kumar Jha
West Bengal	
Chief Minister	Mamata Banerjee

Health Minister	Mamata Banerjee
Secretary	NS Nigam
Madhya Pradesh	
Chief Minister	Shivraj Singh Chouhan
Health Minister	Dr Prabhuram Choudhary
Add. Chief Secretary	Mohammad Suleman
Secretary & Commissioner Health	Akash Tripathi

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

The medical device global value chain model will be used to ensure all relevant stakeholders are identified and involved. This value chain spans research and development; components manufacturing, assembly, distribution, marketing and sales, post-sales services, input suppliers, buyers, regulatory bodies, sales outlets, private and state procurement agencies as well as users and user groups. The majority of principal stakeholders will come from ministries of health and environment and relevant regulatory agencies. In addition private healthcare groups, local NGOs, waste managers, physicians groups, and other staff groups such as labour unions will be key stakeholders. Finally academics and international experts will be engaged to support successful execution of the overall project.

Stakeholders will be engaged through formal semi-annual in-person stakeholder workshops as well as through ongoing project activities such as training workshops and consultations. During the semi-annual workshops, progress against indicators will be reviewed, necessary adjustments will be discussed and proposed, and next steps will be decided. All documentation generated as part of the project will be available on the project?s server to which all stakeholders will have access. An assessment of need and resource allocation will be made where required to ensure that all principal stakeholders are able to attend the semi-annual meetings. In addition, hard copies of project documentation will be made available for stakeholders without readily available access to a computer. Appendix 14 provides the agencies presently envisaged as the principal stakeholders in Albania, India and Montenegro. Stakeholders in Uganda and Burkina Faso will be identified as part of Component 1.

In the UN system, the office of the UN Resident Coordinator in each country will be engaged. The UN Resident Coordinator is the highest ranking representative of the UN development system at the

country level. The UN Resident Coordinator regularly convenes country team meetings of all UN agencies to discuss implementation of the UN Sustainable Development Cooperation Framework, focused on achieving the SDGs through coordinated country programming. UN Country Team meetings provides a venue to discuss issues of common interest, align planning, support implementation and coherently monitor activities across UN agencies. In India both WHO and UNEP have country offices and therefore they are key members of the UN country team on the ground and would have the opportunity to share information about the project at country team meetings. The issue of sustainable procurement in the UN system is a cross-cutting issue of relevance for all UN agencies at a country level. Phasing-out of mercury from medical devices and ensuring this policy is implemented in UN programming would be an important way the lessons learned from the project can be disseminated at country level for all UN agencies.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; Yes

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; No

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

A Gender Analysis and Action Plan are included in Appendix 9. The text below provides a brief summary of the gender context by country.

Albania

Women make up only 49 % of Albania?s population and 29.5 % of parliamentary seats.[1] For context, Albania is 54th of 188 countries listed by the Inter-Parliamentary Union by women in parliament, with a higher percentage than Singapore and a lower percentage than Canada.[2] Albania has one of the higher gross enrolment ratios for women in tertiary education (typically above 70 %), meaning that around 70 % of women aged 18?22 are enrolled in university in any given year. This significantly exceeds the ratio for Albanian men, only 50 % of whom are enrolled.[3]

Burkina Faso

Women comprise about 50 % of the population of Burkina Faso which ranks 141st of 167 countries measured by UNDP?s Gender Development Index.[4] About 10 % of women are married before age 15, which is substantially less that of Niger (> 30 %) or Mali (~15 %), but about twice that of Ghana (~5 %).[5] Only 6.3 % of Burkina Faso?s parliament is female, placing the country at 176 of 191 ranked in this regard.[6]

India

Only 48 % of India is female. This is potentially an important metric of gender inequity because, all else being equal, women tend to live longer and therefore typically comprise > 50 % of a country?s total population. Ranked by UNDP?s Gender Development Index (the ratio of female to male HDIs) India is among the lower performing in the world (158th of 167 measured). Only 30 % of women enrol in tertiary education, though importantly this metric is up from 7.5 % in 2000.[7] Fourteen percent of parliament?s lower house (Lok Sabha) is female; 11 % of its upper house (Rajya Sabha) is female, placing it 149th of 188 ranked by the Inter-Parliamentary Union.[8] With regard to corporate leadership, India (16.6 % female seats on the boards of publicly traded companies) out-performs all BRICS but South Africa (28 %), though is well below the OECD average (26 %).[9]

Montenegro

More than 50 % of the population is female, 62 percent of whom enrol in tertiary education compared with 46 % of males.[10] This is generally representative of the region where the female enrolment rate for tertiary education is relatively high. The Gender Development Index (GDI) for Montenegro is 81st of 167 countries evaluated by UNDP and is thus consistent with the region; Albania is 79th, Bosnia and Herzegovina is 110th and Serbia is 61st, for example. Montenegro has a relatively small gender pay gap of 11 %, compared with the European average of 16 %, including 16 % in France and 23 % in the UK.[11]

Uganda

Ranked by UNDP?s Gender Development Index Uganda is 153rd of 167 evaluated. Tanzania is 100th; Kenya is 109th. Thirty-three percent of Uganda?s parliament is female, compared with 21 % in Kenya and 37 % in Tanzania. This value exceeds a number of high-income countries, including the United States (27 %), Australia (31 %) and Germany (31 %).[12] Nearly 51 % of Uganda?s population is female.

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[1] World Bank, ?Albania | Data? (n 44).

[2] Inter-Parliamentary Union (n 50).

[3] UNESCO Institute for Statistics (n 51).

[4] UNDP (n 47).

[5] World Bank Group, ?Burkina Faso | Data? (n 59).

[6] Inter-Parliamentary Union (n 50).

[7] World Bank, ?India | Data? (n 71).

[8] Inter-Parliamentary Union (n 50).

[9] OECD (n 78).

[10] World Bank, ?Montenegro | Data? (n 84).

[11] ILO, ?Global Wage Report 2018/19: How Big Is the Gender Pay Gap in Your Country?? (n 89); ILO, ?Decent Work Country Program (2019-2021)? (n 89).

[12] Inter-Parliamentary Union (n 50).

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

All mercury-added and mercury-free medical measuring devices in the target countries are manufactured in the private sector. With regard to procurement, these actors will be engaged to provide competitive pricing of provision and maintenance of alternatives and any necessary training. They will also be engaged to ensure adequate supply to meet the vast needs of public healthcare systems. With regard to manufacture, these actors will be engaged to ensure they have access to any technical or financial resources required to transition to mercury-free product lines.

Private healthcare providers will directly benefit from the project. To the extent feasible private sector healthcare providers will be included in all major activities, including capacity building workshops and stakeholder engagement exercises.

With regard to waste management considerations, private companies will benefit from capacity building activities conducted as well as any improvements to national medical waste systems resulting from the project.

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Risk	Risk ranking	Mitigation measures
Operational/delivery risks		
Political instability and shifting priorities	Medium	The institutionalization of the project and the National Coordination Committee will be encouraged, limiting its reliance on any one or set of individuals who may be susceptible to replacement due to political changes.
National support is not provided or is not adequate for project needs	Medium	Have clear country and co-finance agreements and ensure country commitments to the established agreements.
Inadequate supply of mercury-free devices	Low	Market survey in each of the countries during PPG ensured adequate supply.
Lack of transparency in financial management and distribution	Low	Clear terms or reference in advance of work. Regular reporting of disposed funds against activities completed. Execution coordinated via EA to increase scrutiny of financial transactions.
Increased COVID-19 exposure risk to project staff and targeted communities	Medium	Best practices with regard to personal hygiene, PPE, social distancing and other measures will followed by project staff. Compliance will be monitored by the project manager.
Limited mobility of project team due to the ongoing COVID-19 pandemic inhibits project execution	High	The project would begin in 2022. In the event that the current situation has not improved and movement continues to be equally restricted (domestically and internationally) the project will be adjusted accordingly, including utilising remote guidance of international experts and an increased reliance on local experts. In either case, remote tools will be central to implementation. At the time of writing (October 2021) less than 1 % of Burkina Faso and Uganda are fully vaccinated; 17 % of India is fully vaccinated; and ~30 % of Montenegro and Albania are fully vaccinated.
Lack of availability of healthcare staff due to COVID-19	Medium	The national project coordinators to be recruited by WHO through the project will be briefed, prepared and expected to take on greater coordinating and liaising responsibilities with Ministries of Health in the respective countries in case of changing responsibilities of Ministry staff due to the pandemic.
Supply chain issues owing to COVID-19 pandemic limit supply of alternatives	Medium	Supply chains are beginning to improve as countries improve management of the pandemic. Purchasing of alternatives can be pushed out within the time five year time frame of the project as supply chains improve.
Demand for thermometers due to COVID-19 prohibitively increases replacement price	Medium	The project would begin in 2022 providing time for manufacturers to meet burgeoning demand and for prices to stabilise.

Indian manufacturers are unable to identify alternative income	Medium	Conduct extensive assessment of alternative income opportunities
Environmental safeguard risks		
Accident or spill during disposal	Medium	Have in place adequate health and safety plans, PPE and spill response plans and teams.
Lack of adequate storage and disposal options available	High	With national and regional stakeholders, national plans for capacity developed are prepared and support is sought
Enthusiastic uptake results in unmanageable quantities of waste	Medium	Closely link procurement with waste management to anticipate increases. Develop a waste management infrastructure capable of rapid scaling.
Social risks		
Poor uptake of alternatives	Medium	The project will refer to successful approaches from other countries when developing interventions. Careful partner vetting to ensure sufficient deference to the obligations of the Convention and authority to set policy
Female nursing staff are further marginalized for advocating Hg-free devices	Medium	Gender will integrated into guidance documents and training and specific mechanisms will be identified to minimize adverse social impacts on women.
Climate change risks		
Enthusiastic procurement results in increased waste and attributable GHG emissions	Low	The project will encourage responsible procurement and disposal. Waste management activities will consider climate change risks associated with waste management.
Increased volatility of poorly disposed Hg wastes due to climate change (i.e. increased ambient temperatures and forest/ brush fires)	Low	Waste management activities will consider climate change risks associated with waste management.
Climate-induced increases in infectious diseases increases demand for thermometers	Medium	Changes in disease patterns and subsequent increases in thermometer demand represent both opportunities and risks to the project. Increased demand could increase price and therefore encourage the continued use of Hg-added devices based on their lower sticker price. Conversely, increased international support (i.e. aid) coupled with demand could offer an opportunity to encourage more responsible procurement. The project will conduct a more thorough evaluation of these risks and opportunities during the PPG.

Table 4. Identified social, economic and environmental risks and their impact level and mitigation measures

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

Implementing Agency (IA): This project will be implemented by UNEP. UNEP will be responsible for the overall project supervision, overseeing the project progress through the monitoring and evaluation of project activities and progress reports. It will be responsible for quality assurance procedures, organize contracting with the Executing Agency, approve progress reports and clear disbursement. The IA will also monitor progress to ensure the quality of outputs. It will report the project implementing progress to the GEF and will take part in the Project Steering Committee (PSC). UNEP will closely collaborate with the EA and provide it with administrative support in the implementation of the project.

-

Executing Agency (EA): WHO will be the executing agency for this project. As EA, the key roles of WHO include:

- ? Establishing and housing the project executing unit (PEU)
- ? Perform day-to-day tasks and monitoring of planned activities. WHO will report to the IA and provide narrative and financial updates
- ? Lead the Global Project Steering Committee (PSC)

-

Project Executing Unit: The PEU (housed at WHO) will be staffed by a Project Manager. WHO will hire consultants (non-staff) for the PEU. WHO staff time on the project will be contributed as co-financing.

The role of the PEU is to:

- ? Ensure project execution (all technical aspects of project execution)
- ? Ensure project governance and oversight of the financial resources from GEF investment
- ? Provide staff time and expertise in guiding and advancing the project
- ? Sharing all achievements and project products/outputs with stakeholders
- ? Supervise respective consultants and project partner organizations to deliver against their contracts and in time
- ? Organize the PSC meetings and serve as its lead
- ? Manage and implement the project results and output level M&E framework, to evaluate project performance

? Manage the flow of information from the field and produce periodic monitoring reports

? Facilitate targeted technical assistance and WHO technical support

? Regular updates through Steering Committee and existing newsletters and networks that exist with WHO medical devices

WHO technical support: Technical support will be provided by WHO, drawing on WHO medical devices, essential medicines, WASH, chemical safety expertise. The role of the WHO technical support is to:

? Provide bespoke guidance to project partners on implementation

? Share best practices from other projects and regions

? Identify, as necessary, additional relevant expertise

? Be available for consult on a specific technical issues

Global Project Steering Committee: The PSC?s membership includes the IA, EA, focal points of the country projects, and other relevant national and international stakeholders including leading global and regional NGOs. The PSC will meet ten times over the course of the project. Where feasible and appropriate, meetings will be convened back-to-back with other relevant events or held via videoconference as needed and appropriate, to contain costs.

PSC meetings will be organized by WHO. The role of the PSC is to:

? Provide overall guidance and ensure coordination among all participating organizations

? Approve the annual work plan and budget

? Oversee any corrective actions needed

? Enhance synergy between the GEF project and other on-going initiatives globally and nationally

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National Project Steering Committee: The national project steering committees in each country will be co-led by ministry of health and ministry of environment. The committee will also include representatives from other relevant ministries, civil society organizations, experts that work on mercury and medical measuring devices, the National Project Coordinator (to be recruited by WHO), and the private sector. The national project steering committee will meet every 6 months or on an as-needed basis to:

? Provide overall guidance and ensure coordination among all participating organizations, sectors, and entities nationally

? Approve the annual work plan

? Oversee any corrective actions needed

? Enhance synergy between the GEF project and other on-going initiatives nationally

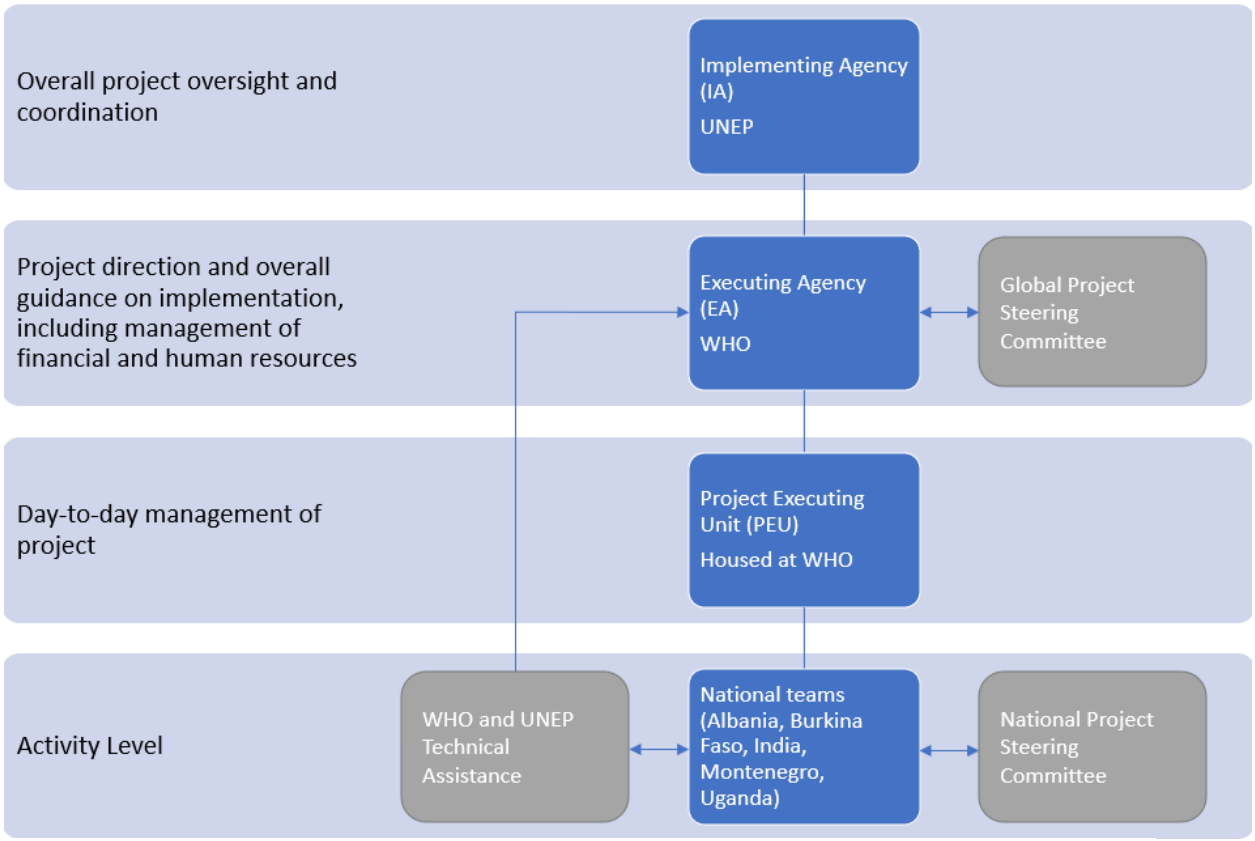

Figure 4. Institutional arrangements and coordination

The International Technology and Environment Centre and the Global Mercury Partnership will provide technical inputs for the delivery of the project. In addition to those immediately involved with the execution of the present project, the project team will coordinate with other project currently in development, including one by the Waste Partnership Area of the Global Mercury Partnership on phasing out mercury from medical devices in Asian countries and GEF-funded UNDP-implemented project in China: GEF 10349 ? ?Demonstration of production phase-out of mercury-containing medical thermometers and sphygmomanometers and promoting the application of mercury-free alternatives in medical facilities in China.? (GEF-7; IA: UNDP). Further detail on the exchange of information with 10349 is provided below in knowledge Management.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

This project supports the national priorities of the target countries, particularly those related to the Minamata Initial Assessments (MIA). These relationships are described below organized alphabetically by country.

Albania

Albania ratified the Minamata Convention in May 2020. From 2010?2019 Albania imported an average of > 300,000 liquid filled thermometers per year. These trade data are not disaggregated by the type of liquid (e.g. alcohol, mercury) or use (e.g. industrial, medical) but the 2020 Albania MIA estimates that perhaps > 1/3 of these were mercury-added medical devices. As a category, intentional mercury use in products is responsible for 76 % of annual mercury releases in Albania. Thermometers are the by far the largest contributor to this category responsible for nearly 6 times the amount of Hg releases annually than electrical switches, the next largest contributor. The Albania MIA notes that Hg sphygmomanometers have been successfully phased.

Accordingly, the MIA states that that ?reducing mercury in products is the most effective means to decrease the emissions into various media, particularly from the mercury containing waste streams.? And further that ?[f]ollowing the results of mercury inventory, it is important to develop a national strategy and relevant action plan to identify and protect populations at risk regarding mercury and its compounds, particularly vulnerable populations.? Thus the proposed project is fully consistent with the priorities set out in the MIA.

The project is in line with the United Nations Sustainable Development Cooperation Framework for Albania Strategic Priorities A and B on human capital and sustainable economic growth, respectively. With regard to Strategic Priority A the project directly supports otputs related to expanding and improving the healthcare system and improving pandemic response. With regard to Priority B the project directly contributes to the output on natural resource foundations through improved waste management.[1]

Burkina Faso

Burkina Faso ratified the Minamata Convention in April 2017. The Burkina Faso MIA outlines the ?[establishment of] an environmentally sound management system for municipal waste, biomedical waste

and hazardous waste containing mercury? as a national priority. Moreover it notes that ?products containing added mercury are one of the major sources of mercury input into Burkina Faso? and that ?[i]t is therefore essential to put in place a binding regulatory instrument to help regulate and limit the use of these products.?[2] There are perhaps 1524 kg of mercury in used in thermometers in Burkina Faso at present.

The project directly supports Pillar 2 on quality of the most recent (2018?2020) Sustainable Development Framework for Burkina Faso through improved waste management.[3]

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India

The project clearly aligns with India?s national ?*Atmanirbhar Bharat?* policy of self-sustainability. Specifically, the project will help facilitate the growth of a domestic Hg-free manufacturing sector. In addition, the project will strengthen medical and hazardous waste management sectors.

The India MIA is pending. India ratified the Minamata Convention in June 2018.

The project is in line with the Sustainable Development Framework for India Strategic Priority II on Health, Water and Sanitation.[4] In particular the project contributes to the identified need to ?[r]espond to the emerging challenges of non-communicable disease and environmental hazards.?

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Montenegro

The Montenegro MIA was recently completed with UNDP implementing but has not yet been adopted by the government (GEF 9198). The MIA once adopted, will form an integral part of the Montenegro National Implementation Plan. Data collected during the PPG indicate that a net of 19 kg Hg is used in medical devices currently. Montenegro ratified the Minamata Convention in June 2019.

The project is directly in line with United Nations Development Assistance Framework for Montenegro (2017?2021) priority are of Environmental Sustainability.[5] In particular the project response to the national prorates of improving human resource capacity the environmentally sound management of chemical wastes.

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Uganda

The Uganda MIA identifies artisanal small-scale gold mining as the primary source of mercury emissions within the country, followed by releases from consumer products. Thermometers alone account for approximately 20 kg/ year in emissions. Perhaps 80 % of liquid filled thermometers in Uganda contain mercury, accounting for more than 20,000 units used in medicine. Significantly, the MIA also estimates the number of sphygmomanometers at above 2,000. Uganda became a Party to the Minamata Convention in March 2019.

The project is in line with Strategic Priority 2 on shared prosperity in a healthy environment of the UN Sustainable Development Cooperation Framework for Uganda (2021-2015). Specifically the project responds to Outcome 2.2 on the protection of natural resources and the environment.[6]

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[1] Government of Albania and United Nations, ?United Nations Sustainable Development Cooperation Framework for Albania?.

[2] People?s Republic of Burkina Faso (n 113).

[3] Government of Burkina Faso and United Nations, ?Cadre de Coop?ration Entre Le Burkina Faso et Le Syst?me Des Nations Unies? <https://minio.dev.devqube.io/uninfo-production-main/473e243f-14d0-4ead-ae0c-427fac60b094_BurkinaFaso_UNDAF_2018.pdf>.

[4] Government of India and United Nations, ?Sustainable Development Framework for India? (2021) <https://minio.dev.devqube.io/uninfo-production-main/e2e675f0-48c5-4f5f-8991-bfd47e5f3593_INDIA_UNSDF_2018-2022.pdf>.

[5] Government of Montenegro and United Nations, ?UN Development Assistance Framework for Montenegro?.

[6] Government of Uganda and United Nations, ?UN Sustainable Development Cooperation Framework for Uganda (2021-2025)? <https://unsdg.un.org/sites/default/files/2020-11/Uganda-UNSDCF-2021-2025.pdf> accessed 1 November 2021.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

The Knowledge Management Approach for the project will be closely linked to the monitoring and evaluation function and coordinated by the EA. Knowledge management is an important function because of the development of national strategies for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in healthcare systems in line with WHO recommendations and

related provisions of the Minamata Convention; demonstrations of a phase out in use in at least 3 countries; improving and disseminating knowledge on the phasing-out of mercury-added medical measuring devices, including on their manufacture, import and export; creating an environment conducive to the cessation of procurement and manufacture of mercury-added measuring devices; and providing specific technical expertise on managing mercury-containing medical waste in an environmentally sound manner, from storage to disposal. The project will engage the expertise of the Global Mercury Partnership, which offers opportunities to learn from ongoing activities as well as for knowledge generation and dissemination.

An explicit aim of the project is to collate, connect, and make available evidence, knowledge, experiences, and good practice examples from countries to stimulate the phase out mercury measuring devices in healthcare. Project results will be made available nationally and shared with other countries participating in this project, and globally, through WHO, UNEP-IETC, the Global Mercury Partnership, and their networks including the International Medical Devices Regulators Forum (IMDRF), a voluntary group of medical device regulators from around the world who work to accelerate international medical device regulatory harmonization and convergence.

National and regional workshops, held in project countries, will allow for the sharing of experiences and lessons learned by project countries and other countries in the sub-region that have medical measuring devices as one of their mercury-related priorities.

The Executing Agency will maintain regular communication throughout the project in order to obtain up-to-date information and share results of the project components and ensure smooth and effective implementation of activities. Given the multiple partners involved in the project, UNEP will be cautious of redundancy and keep partners apprised of project progress and developments. As the results of this project are planned to be used for future projects, there will be a strong emphasis on documenting activities and outputs while developing user-friendly communication materials ensuring further dissemination. At the country level, the project will also develop or build on existing country-specific communication and knowledge management plans or platforms to ensure efficient cascading of information down to the healthcare facility level and to ensure sustainability of interventions. These mechanisms will be embedded in existing federal or local government or healthcare facilities, using knowledge products after the end of the project.

With regard to the UNDP-executed GEF ID 10349 project, China has requested that WHO participate in its execution. The activities of 10349 include increasing stakeholders? awareness and knowledge about the phase-out of mercury-added medical devices, and about mercury-free medical facilities, through websites, use of media, and other means. WHO will cooperate with 10349 in sharing and disseminating knowledge

about the replacement of mercury thermometers and sphygmomanometers in healthcare through the WHO project website and other means, such as through publications of case studies and newsletters.

WHO will further cooperate with GEF project ID 10349 to ensure incorporation of international best practice and experience in developing national legislation, regulatory frameworks, and capacity-building programs developed to support the phase-out of mercury-added thermometers and sphygmomanometers in healthcare.

As part of cooperation with 10349, WHO will promote the use of new WHO guidance ?WHO technical specifications for automated non-invasive blood pressure measuring devices with cuff.? These technical specifications include guidance on characteristics, regulatory requirements and standards, calibration, procurement, decontamination, and decommissioning.[1] The guidance responds to concern about the lack of accurate, good-quality devices, especially in low-and middle-income countries through technical consultation and expert review. Under the present project, WHO plans to develop similar guidance for thermometers. WHO also will promote the use of ?Decommissioning medical devices,? which is new WHO guidance for the process of decommissioning and provide tools for determining why, when, and how to decommission medical devices.[2] It is adaptable to various environments and health systems, especially in low- and middle income countries. The guide also includes disinvestment, a policy decision to withdraw health technology from a health care service when there is evidence that it is clinically ineffective, unsafe, inappropriate or not cost-effective.

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[1] WHO, *WHO Technical Specifications for Automated Non-Invasive Blood Pressure Measuring Devices with Cuff* (n 107).

[2] WHO, *Decommissioning Medical Devices* (n 110).

9. Monitoring and Evaluation

Describe the budgeted M and E plan

Project M&E will be conducted in accordance with established UNEP and GEF procedures and will be provided by the EA. The M&E plan includes an inception report, annual review and final evaluations. The Project Manager will be responsible for stakeholder engagement, gender monitoring, and outreach to the broader community in the country. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-?-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties

faced during implementation so that the appropriate support or correlative measures can be adopted in a timely fashion.

The Project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft projects outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

At the time of project approval ~50 % of baseline data are available. Baseline data gaps will be addressed during the first year of project implementation. The main aspects for which additional information are needed are:

- ? Measures to promote the establishment of detailed inventories of all healthcare facilities;
- ? Improved stakeholder analysis in Burkina Faso and Uganda;
- ? Hazardous waste infrastructure baseline assessment data.

Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-a-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of the project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

A mid-term management review or evaluation will take place after 12 months of project execution as indicated in the project milestones. The review will include all parameters recommended by the GEF Evaluation Office for terminal evaluations and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see **section 2** of the project document). The Project Steering Committee will participate in the mid-term review and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An exit strategy will be developed by the Project Steering Committee to ensure sustainability of project outcomes on the closure of the project.

In line with UNEP Evaluation Policy and the GEF?s Monitoring and Evaluation Policy the project will be subject to an independent Terminal Evaluation (TE). The Evaluation Office will be responsible for the Terminal Evaluation (TE) and will liaise with the Task Manager and EA throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will also have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF, executing partners and other stakeholders. The direct costs of the evaluation will be charged against the project evaluation budget. The Terminal Evaluation will be initiated no earlier than six months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to the submission of the follow-up proposal. Terminal Evaluations must be initiated no later than six months after operational completion.

The draft TE report will be sent by the Evaluation Office to project stakeholders for comments. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the Evaluation Office when the report is finalised and further reviewed by the GEF Independent Evaluation Office upon submission. The evaluation report will be publicly disclosed and may be followed by a recommendation compliance process.

Type of M&E activity	**Responsible Parties**	**Budget from GEF**	**Budget co-finance**	**Time Frame**
Inception Meeting	EA	10,000	100,000	Within 2 months of project start-up
Inception Report	EA	5,000	50000	1 month after project inception meeting
Measurement of project progress and performance indicators	EA	5,000	50000	Annually
Baseline measurement of project outcome indicators, GEF Core indicators (Tracking tools?)	EA	5,000	50000	Project inception

Mid-point measurement of project outcome indicators, GEF Core indicators (Tracking tools?)	EA	5,000	50000	Mid Point
End-point measurement of project outcome indicators, GEF Core indicators (Tracking tools?)	EA	5,000	50000	End Point
Semi-annual Progress/ Operational Reports to UNEP	EA	0	0	Within 1 month of the end of reporting period i.e. on or before 31 January and 31 July
Project Steering Committee (PSC) meetings and National Steering Committee meetings	EA	20,000	200000	Once a year minimum
Reports of PSC meetings	EA	0	0	Annually
Project Implementation Review (PIR) report	EA/IA	5,000	50000	Annually, part of reporting routine
Monitoring visits to field sites	EA	5,000	50000	As appropriate
			0	
Mid Term Review/Evaluation	IA	10,000	100000	At mid-point of project implementation
Terminal Review/Evaluation (whether a project requires a management-led review or an independent evaluation is determined annually by UNEP?s Evaluation Office)	UNEP Evaluation Office	10,000	100000	Typically initiated after the project?s operational completion
Audit	EA	0	0	Annually
Project Operational Completion Report	EA	5,000	50000	Within 2 months of the project completion date
Co-financing report (including supporting evidence for in-kind co-finance)	EA	5,000	50000	Within 1 month of the PIR reporting period, i.e. on or before 31 July

Publication of Lessons Learnt and other project documents	EA	5,000	50000	Annually, part of Semi-annual reports & Project Final Report
Total M&E Cost			**100,000**	**1,000,000**

Table 10. M&E Activities

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

Socioeconomic benefits will be delivered directly to the Indian Hg-added medical device manufacturing base in the form of technical assistance to support the identification and fostering of alternative sources of income. These manufacturers are often artisanal in scale and potentially vulnerable to lost income. The project will engage a socioeconomic expert to carry out an assessment of the industry and possible alternative product lines. These results will be shared with manufacturers and technical assistance will be provided to assist in the transition.

Socioeconomic benefits will also be delivered to the waste management sector through capacity building on environmentally sound disposal. Benefits will include increased demand from healthcare facilities for their services and an improved regulatory environment.

Socioeconomic benefits will be delivered to actors along the mercury-free medical devices supply chain, including wholesalers, vendors, freight and transportation workers and technicians. The shift away from Hg-added devices to Hg-free equipment represents a significant boon in demand.

Finally, socioeconomic benefits will be delivered to multiple beneficiaries through reductions in Hg exposure, including to workers along the value chain. Women of child-bearing age in particular will benefit owing mercury?s ability to migrate transplacentally and deposit in the foetus.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate	Low		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Phasing Out Mercury Medical Devices in Healthcare, GEF 10716
Risk Mitigation Plan

This document will serve to support the impact, probability and risk values identified in the UNEP Safeguard Risk Identification Form (SRIF) for the project.

Introduction to Phasing Out Mercury Medical Devices in Healthcare

The proposed Global Environment Facility (GEF) project will support the development of national health system-wide strategies to phase-out the manufacture, import, and export of mercury thermometers and sphygmomanometers (blood pressure measuring devices) used in health care, in 5 countries from 3 regions; and involve practical demonstration of the switch to mercury-free alternatives in at least 3 countries. The five project countries are Albania, Burkina Faso, India, Montenegro and Uganda.

The GEF project implementing agency is the United Nations Environment Programme (UNEP). The World Health Organization (WHO) will execute the project, working with ministries of health in the countries. The UNEP global mercury partnership will be involved in activities related to supply chains and waste management. The project would be a Full-sized GEF project, with a total GEF contribution of USD 7,980,000 over 5 years.

The overall objective of the project is to eliminate uncontrolled releases of mercury from healthcare settings. This will result in the prevention of exposure of humans and the environment to mercury and its waste. The general approach is the establishment and implementation of a road map for a significant reduction in use and releases.

As part of the baseline, the five following barriers were identified:

- Procurement-related issues
- Perspectives of the medical profession
- Manufacturing related challenges
- Lack of knowledge and awareness of mercury waste disposal in healthcare facilities
- Regulatory considerations

The project has been designed to address these and is comprised of four components. The first involves the development of strategies based on detailed country assessment and best practices. The second involves implementing those strategies in each of the 5 countries and piloting a phase out of use in 3 countries. A third component covers knowledge management; the project will produce a series of documents that will benefit similar work elsewhere. Finally, a fourth component covers monitoring and evaluation.

The project will be based in the WHO document ?Developing National Strategies for Phasing Out Mercury-Containing Thermometers and Sphygmomanometers in Health Care, including in the context of the Minamata Convention on Mercury: Key Considerations and Step-By-Step guidance? (herein ?step-by-step guidance?).

The project will support the development of national health system-wide strategies to phase-out the manufacture and procurement of mercury-added thermometers and sphygmomanometers (blood pressure measuring devices) used in healthcare in 5 countries from 3 regions. It will also involve the practical demonstration of the switch to mercury-free alternatives in at least 3 of the 5 targeted countries. In so doing it will strengthen collaboration between ministries of health and environment. The theory of change is in figure 2 below. The supporting problem and solution tree are attached in the appendices (Appendix 9).

The number of individual facilities targeted by the project will exceed 50,000. It is therefore not practical that the project team lead training efforts at each. Rather the overall approach will rely heavily on existing institutional arrangements and infrastructure. The project team will provide technical expertise and consultation to leaders in health systems as they transition to Hg-free devices. In so doing, the effort will result in lasting national capacity that can be employed beyond the 5-year time horizon of the project.

Introduction to the SRIF

UNEP officially adopted the Environmental and Social Sustainability Framework (ESSF) on 31 December 2014. The ESSF was revised in February 2020. UNEP?s Safeguards approach provides a holistic framework for the identification, assessment and management of a project?s potential environmental, social and economic risks at each stage of the project cycle. Application of the Framework will help UNEP Project Managers avoid?or minimize where avoidance is not possible?potential associated negative environmental, social and economic impacts that might otherwise arise as unintended consequences of their projects. It is expected that many UNEP projects will not significantly change due to application of the safeguard requirements.

Review Notes are generated using a template available through UNEP?s Project Information and Management System. The template includes a set of screening questions based on the eight Safeguard Standards presented in the Framework. It is essentially a checklist used to review the potential environmental, social and economic safeguard impacts of projects and to determine whether projects will trigger relevant safeguard policies. The eight Safeguard Standards presented in the Framework are as follows:

SS1: Biodiversity, Ecosystems and Sustainable Natural Resource Management

This safeguard aims to: preserve the integrity of ecosystems; conserve biodiversity; maintain and enhance the benefits of ecosystem services; promote nature-based solutions (NBS) wherever feasible or possible; promote sustainable management and use of living natural resources; ensure the fair and equitable sharing of the benefits from the utilization of genetic resources; and respect, preserve, and maintain knowledge, innovations and practices of indigenous peoples and local communities relevant for the conservation and sustainable use of biodiversity and their customary use of biological resources.

SS2: Climate Change and Disaster Risks

This safeguard aims to: strengthen resilience of communities to address risks of climate change impacts and disasters; ensure programmes and projects integrate climate change adaptation considerations and does not exacerbate vulnerability of communities to climate change impacts or disaster risks; and minimize programme and project-related greenhouse gas (GHG) emissions and intensity and maintain carbon sinks.

SS3: Pollution Prevention and Resource Efficiency

This safeguard aims to: avoid and minimize adverse impacts on human health and the environment from pollution and the unsound management of chemicals and wastes; promote more sustainable and efficient use of resources, including circular approaches and practices of using energy, land and water; avoid or minimize programme or project-related emissions of short and long-lived climate pollutants, unintentionally produced persistent organic pollutants, and ozone-depleting substances; avoid or minimize generation of hazardous and non-hazardous waste, and promote a human rights-based approach to the environmentally sound management and disposal of hazardous substances and wastes; avoid or minimize the generation of plastic waste in view of reducing the prevalence of marine plastic litter and microplastics in the marine environment; and promote safe, effective, and environmentally sound pest management.

SS4: Community Health, Safety and Security

This safeguard aims to: anticipate and avoid adverse impacts on health and safety of affected communities during the programme or project life cycle, from both routine and non-routine circumstances; ensure quality and safety in the design and construction of programme or project-related infrastructure, preventing and minimizing potential safety risks and accidents; avoid or minimize community exposure to disaster risks, diseases and hazardous materials associated with programme or project activities; ensure the safeguarding of personnel and property minimizes risks to communities and is carried out in accordance with international human rights standards and

principles; and have in place effective measures to address emergency events, whether human-made or natural hazards.

SS5: Cultural Heritage

This safeguard aims to: protect cultural heritage from damage, inappropriate alteration, disruption, removal or misuse and support its preservation and safeguarding and protection; ensure equitable sharing of benefits generated from integration and utilization of cultural heritage in programme or project; and promote meaningful consultation with stakeholders regarding preservation, protection, utilization and management of cultural heritage.

SS6: Displacement and Involuntary Resettlement

This safeguard aims to: avoid, or where avoidance is not possible, minimize and mitigate adverse impacts from land or resource acquisition or restrictions on land or resource use; prohibit forced evictions; enhance and restore the livelihoods and living standards of all displaced persons and to improve the living conditions and overall socioeconomic status of displaced poor and persons belonging to marginalized or disadvantaged groups; and ensure that resettlement activities are planned and implemented collaboratively with the meaningful and informed participation of those affected.

SS7: Indigenous Peoples

This safeguard aims to: recognize and foster full respect for indigenous peoples and their human rights, dignity, cultural uniqueness, autonomy, identity, and aspirations; promote indigenous peoples? rights to self-determination and development with culture and identity; recognize and respect the rights of indigenous peoples to their lands, territories, and resources that they have traditionally owned, occupied, or otherwise used or acquired; recognize, respect, protect and preserve indigenous peoples? culture, knowledge, and practices; promote interventions designed, managed, and implemented by indigenous peoples; ensure that programmes and projects are designed in partnership with indigenous peoples, with their full effective and meaningful consultation and participation, and respect free, prior and informed consent (FPIC); support countries to respect, protect and fulfill the rights of indigenous peoples; avoid adverse impacts on indigenous peoples from supported activities, and minimize, mitigate and remedy adverse impacts where avoidance is not possible; and ensure indigenous peoples obtain fair and equitable benefits and opportunities from supported activities in a culturally appropriate and inclusive manner.

SS8: Labour and Working Conditions

This safeguard aims to: promote, respect and realize fundamental principles and rights at work; protect and promote the safety and health of workers; ensure projects/programmes comply with national employment and labour laws and international commitments; and leave no one behind by protecting and supporting workers in disadvantaged and vulnerable situations, including a special focus, as appropriate, on women workers, young workers, migrant workers and workers with disabilities.

Risks of proposed interventions and management plan

SS1: Biodiversity, Ecosystems and Sustainable Natural Resource Management

No risks were identified with the project against this standard.

SS2: Climate Change and Disaster Risks

Climate change disturbances and environmental disasters are frequent in the some of the countries covered by the project, be it due to climate change, erosion, prolonged droughts, or other. Therefore, it is important that project activities have short-term strategies in mind for disasters during the project execution phase and mid- to long-term strategies for climate change effects felt during and after project execution. To ensure the sustainability of mid- to long-term strategies in the face of climate change specifically, climate risk mitigation plans must be worked into any activities that extend beyond the project execution, such as during the development of waste management strategies and guidelines and roadmaps (**2.2.1, 2.2.2, 2.2.3, 3.2.1, 3.2.2, 3.2.3 ,3.2.4**). These include both national and regional level activities.

Climate risk mitigation plans will vary depending on activity and location, but may include, for example, plans to increase resilience to the effects of hurricanes, such as infrastructure destruction and transport disruption, and assessments of locations and transport routes on their climate change vulnerability and/or resilience. Long-term solutions will bear in mind environmental changes up to and including 2050 and will use tools such as the Climate Change Knowledge Platform, Think Hazard, and others, to determine climate sensitivity, vulnerability and resilience.

SS3: Pollution Prevention and Resource Efficiency

Work conducted during the PPG found wide usage of mercury- added devices in all of the project countries. Moreover none of the countries had the capacity to adequately manage mercury containing wastes. As a result it is common practice for mercury containing wastes to be co-mingled with other solid wastes and disposed of in an unsound manner, including open burning, dumpsites and municipal landfills. This results in unquantified releases to air, water and soil. By promoting improved waste management practices, the project will decrease these fugitive emissions.

Activities under Components 1 and 2 of the project will phase out Hg-added devices in favour of Hg-free devices. This transition will result in a steep decline of mercury use in healthcare settings and associated wastes.

The project may increase the amount of Hg-added wastes and plastics wastes resulting from the substitution demonstrations. These wastes will need to be adequately managed. The project therefore includes this consideration under Output 2.2

SS4: Community Health, Safety and Security

The project could contribute to the development of new infrastructure to manage wastes, though such development would not be supported directly by the project and would likely occur

afterward. To the extent that the project cooccurs with and is involved in the development of new infrastructure, the adoption of appropriate safeguards will be encouraged.

As noted above the project may increase the amount of Hg-added wastes resulting from the proposed substitution. These wastes will need to be adequately managed. The project therefore includes this consideration under Output 2.2.

The project includes a set of activities related to hazardous waste management (Hg) under Output 2.2 including the execution of demonstration projects as part of Activity 2.2.3. These projects will likely involve the segregation of mercury wastes and the use of flasks for interim storage. The work will necessarily involve the movement of these wastes. The Global Mercury Partnership will be leading the execution of these demonstrations and will follow international best practice in the development of work programmes and occupational safety and health regimes.

SS5: Cultural Heritage

No risks were identified with the project against this standard.

SS6: Displacement and Involuntary Resettlement

No risks were identified with the project against this standard.

SS7: Indigenous Peoples

No risks were identified with the project against this standard.

SS8: Labour and Working Conditions

The project includes a set of activities related to hazardous waste management (Hg) under Output 2.2 including the execution of demonstration projects as part of Activity 2.2.3. These projects will likely involve the segregation of mercury wastes and the use of flasks for interim storage. The work will necessarily involve the movement of these wastes. The Global Mercury Partnership will be leading the execution of these demonstrations and will follow international best practice in the development of work programmes and occupational safety and health regimes.

The baseline evaluation in all countries identified unsound management of mercury wastes in different settings, including within clinics, immediately outside facilities, and further downstream at disposal. Workers therefore become exposed at different stages through the was management process. At the clinic level there is likely a disproportionate burden on the health of women whom represent the large majority of midwives and nurses and are therefore typically the first o respond to breaks.

Physicians, nurses and midwives will be targeted as part of phaseout activities conducted under Output 2.1. Phaseout materials will include guidance on the management of breaks within the clinic

setting. Other workers will be targeted at part of Output 2.2 on waste management and will be provided with guidance on adequate occupational safety and health procedures.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
10716 - Appendix 6b - COVID Questions	**CEO Endorsement ESS**	
10716 - Appendix 6a - SRIF	**CEO Endorsement ESS**	
Hg_med_devices_SRIF_Updated	**Project PIF ESS**	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Project Objective	Objective level Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS reference, link to SDGs, UNEP C&H framework

To eliminate uncontrolled releases of mercury from healthcare settings	Number of kg Hg phased-out or disposed % women in the Project Steering Committee across 5 countries	Hg-added medical devices are widely procured and utilised in project countries. The baseline will be improved during the PPG. PSC not yet formed. Gender inequalities vary across the countries.	**Mid-Point Target:** At least 10 tonnes Hg phased-out or disposed; PSC is 50 % female **End of Project Target:** At least 28.3 tonnes Hg phased-out or disposed; PSC is 50 % female	Updated country level reporting; Project final report; Project terminal evaluation report.	That countries substantially engage with the project in an effort to comply with their obligations under the Minamata Convention; that female participation is achievable with current ministerial staffing	UNEP MTS 2018 - 2021: Political and legal, institutional and fiscal strategies and mechanisms for sound chemicals management developed or implemented in countries within the frameworks of relevant MEAs and SAICM; SDG 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination; SDG 5.5: ensure women?s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life SDG 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Component 1: Development and implementation of national health-system wide strategies for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.					
Outcome 1	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**
Outcome 1: All countries participating in the project have developed or updated national health-system wide strategies for phasing out the import, export and manufacture of mercury thermometers and sphygmomanometers in line with WHO recommendations and related provisions of the Minamata Convention.	Number of national strategies developed	The WHO step-by-step guidance is designed to be amenable to different country contexts	**Mid-Point Target:** At least 5 national strategies developed or updated; gender perspective adopted in all 5 countries? plans **End of Project Target:** Same	Project reporting National strategy documents	That governments and healthcare providers are cooperative and forthcoming with information
Component outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**

Output 1.1: National strategies for phasing out mercury-added thermometers and sphygmomanometers in healthcare developed or updated in selected countries.	Number of stakeholder engagement strategies developed; Number of situational assessments carried out; Number of monitoring and reporting mechanisms developed; Number of stakeholders participating in capacity building exercises # of national strategies adopting gender perspective	Preliminary identification and consultation of stakeholders has been conducted. No situational assessments have been carried out. No project specific monitoring systems are in place nor have any capacity building exercises been conducted as part of the project. Strategies not yet developed	**Mid-Point Target:** At least 5 stakeholder engagement strategies, situational assessments (n=5) and monitoring and reporting mechanisms developed (n=5) developed; At least 100 stakeholders engaged in capacity building exercises; gender perspective adopted in all 5 countries? plans **End of Project Target:** Same	Project reporting Stakeholder engagement strategy documents Situational assessment reports Sign in sheets and agendas	That the current high level government interest is maintained over the medium term; That governments and healthcare providers are cooperative and forthcoming with information
Component 2: Implementation of national strategies to phase out manufacture, import and export in all project countries, and demonstrations of a substitution in at least 3 countries.					
Outcome 2	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**
Outcome 2: An environment conducive to the cessation of procurement and manufacture of mercury-added medical measuring devices is facilitated in selected countries.	Percent decrease in procurement of Hg-added medical devices	Hg-added medical devices are widely procured and utilised	**Mid-Point Target:** At least 40 % reduction in procurement from baseline **End of Project Target:** At least 100 % reduction in procurement from baseline	Final report Government websites	That country governments fulfil their obligations to comply with the Minamata Convention
Component outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**

Output 2.1: Phasing-out mercury-added thermometers and sphygmomanometers used in healthcare, from procurement to the safe and environmentally sound interim-storage of mercury-containing wastes.	Number of inventories completed; Number of essential medical device lists and procurement specifications reviewed and where necessary updated; Number of regulatory and compliance staff trained; % female trained	All project countries except for India have completed MIAs though facility specific inventories are not known to exist. No staff are known to have undergone training in compliance with the Minamata Convention. Most medical staff are female.	**Mid-Point Target:** Inventory guidance being utilised in all 5 countries; At least 50 staff trained; > 50 % female **End of Project Target:** At least 100 staff trained; > 50 % female	Project reporting Site inventories Sign in sheets and agendas	That the current high level government interest is maintained over the medium term; That governments and healthcare providers are cooperative and forthcoming with information
Output 2.2: Mercury-containing medical waste is managed in an environmentally sound manner, from storage to disposal.	Number of waste managers trained; Number of countries in which sound management of Hg wastes is demonstrated; % female trained	Limited infrastructure to manage Hg wastes exists in some project countries, presenting significant challenges for responsible Hg waste management. An unknown percentage of waste handlers are female.	**Mid-Point Target:** At least 20 waste managers trained; % of females trained is proportionate to female representation in this workforce in each country **End of Project Target:** At least 50 waste managers trained; sound management of Hg wastes demonstrated in 3 countries; % of females trained is proportionate to female representation in this workforce in each country	Project reporting Sign in sheets and agendas	That waste managers are receptive to support; that adequate physical infrastructure is in place or could be mobilized or identified to responsibly manage Hg wastes, either domestically or in neighbouring countries.

Output 2.3: Awareness raising towards Indian manufacturers	Number of manufacturers engaged; Percentage of manufacturers reached with IEC campaign; Number of gender specific suggestions included	Limited information on Indian manufacturers currently available. Data to be collected as part of PPG. IEC programme not yet developed	**Mid-Point Target:** Comprehensive inventory of Indian Hg-added medical device manufacturers completed; At least 3 gender specific suggestions included. **End of Project Target:** At least 70 % of manufacturers reached with IEC campaign; At least 3 gender specific suggestions included.	Inventory IEC materials Sign in sheets and agendas	That manufacturers are receptive to support
Component 3: Knowledge management					
Outcome 3	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**
Outcome 3: Improved and disseminated knowledge on the phasing-out of mercury-added medical measuring devices, including on their manufacture, import and export.	Number of non-project countries confirm their use of guidance developed by the project	No outreach to non-project countries has been conducted	**End of Project Target:** At least 10 non-project countries confirm their use of guidance developed by the project	Final report	That interest exists in non-project countries to comply with their obligations under the Minamata Convention
Component outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**

Output 3.1: WHO technical and information materials developed and/or updated.	Number of experts consulted; Number of materials distributed through WHO networks and website; Number of recommendations to minimize potential adverse gender outcomes	Preliminary consultation of experts has been conducted. No materials have been distributed. Consideration of gender varies across guidance documents.	**Mid-Point Target:** At least 10 experts consulted; at least 1 material distributed through WHO and UNEP networks and website; at least 1 recommendation per updated guidance document on minimizing adverse gender outcomes. **End of Project Target:** At least 15 experts consulted; at least 3 materials distributed through WHO networks and website; at least 1 recommendation per updated guidance document on minimizing adverse gender outcomes	Project reporting WHO website	That experts can be identified and consulted

Output 3.2: UNEP technical guidance developed on the management of mercury-containing healthcare waste.	Number of experts consulted; Number of materials distributed through UNEP website and the UNEP Global Mercury Partnership; Number of recommendations to minimize potential adverse gender outcomes	Preliminary consultation of experts has been conducted. No materials have been distributed. Consideration of gender varies across guidance documents.	**Mid-Point Target:** At least 10 experts consulted; at least 1 recommendation per updated guidance document on minimizing adverse gender outcomes **End of Project Target:** At least 15 experts consulted; at least 3 materials distributed through UNEP website the UNEP Global Mercury Partnership; at least 1 recommendation per updated guidance document on minimizing adverse gender outcomes	Project reporting UNEP website	That experts can be identified and consulted
Output 3.3: Good practice examples and lessons learned from the implementation of project components 1 & 2 documented and disseminated, including through WHO channels and the UNEP Global Mercury Partnership.	Number of non-project countries with whom lessons learned are shared; Number of formal engagements with International Medical Device Regulators Forum (IMDRF) and other channels; Number of gender specific lessons learned and good practice examples included	Project has not yet begun; no lessons learned exist. The IMDRF has not been engaged.	**End of Project Target:** Lessons learned shared with 25 non project countries; 2 formal engagements of IMDRF; At least 1 lesson learned and 1 good practice example are gender specific	Project reporting	That interest exists in non-project countries to implement similar strategies.

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

GEFSEC Comment	Response
The core indicator for mercury is clear.? Please include in 9.6 the estimate tons of material contaminated with mercury.? Please clarify if there are benefits to core indicator 10 and if so please provide an estimate.	**The following text has been added to pages 6 and ?35: ?Sub-indicator 9.6 estimates include the total mass of equipment containing mercury. To calculate this value, we estimate the weight of a single thermometer as 15 grams and the weight of a single sphygmomanometer as 500 grams. Applying the same assumptions as above, this results in a total 210,815 kg Hg-contaminated material avoided.**

Yes, however in the description please also identify how the China project (10349) contributes to the global baseline.	**The following text has been added on page 22: ?In addition, one other project is currently in the PPG having had the concept approved on 20 November 2019 (GEF 10349). The project ?Demonstration of phase-out of mercury-containing medical thermometers and sphygmomanometers and promoting the application of mercury-free alternatives in medical facilities in China? will be executed over 60 months and supported with USD 16 million in GEF resources. The project structure of 10349 is analogous to that proposed here, having included outputs related to improved procurement, support for manufacturers, and the responsible management of mercury-contaminated wastes. This shared approach will facilitate knowledge sharing across projects as lessons learned could be immediately applicable.**

The core indicator for mercury is clear.? Please include in 9.6 the estimate tons of material contaminated with mercury.? Please clarify if there are benefits to core indicator 10 and if so please provide an estimate.	**The total weight in tons of Hg-added devices has been added to 9.6, increasing the GEB estimate to 210 tons from 44 tons. Estimates have been changed throughout and the following text has been added to pages 6 and 35: ?Sub-indicator 9.6 estimates include the total mass of equipment containing mercury. To calculate this value, we estimate the weight of a single thermometer as 15 grams and the weight of a single sphygmomanometer as 500 grams. Applying the same assumptions as above, this results in a total 210,815 kg Hg-contaminated material avoided.**

Please provide additional information on the impacts on climate to the project and Covid-19	**With regard to COVID-19, in addition to the two risks previously identified (i.e. increased exposure and limited mobility) the following two risks have been included: availability of healthcare staff and increased thermometer price owing to COVID-19-induced demand. With regard to climate, in addition to the two risks previously identified (i.e. increased waste and increased volatility) a third risk has been included. This third risk relates to increased infectious disease incidence attributable to climate change and subsequent increases in thermometer procurement. Increased demand could increase price and therefore encourage the continued use of Hg-added devices based on their lower sticker price. Conversely, increased international support (i.e. aid) coupled with demand could offer an opportunity to encourage more**

Please clarify if the Project Execution Unit to be established in WHO will be staffed by new personnel or with existing WHO staff.	**The following text has been added on page 44 ?WHO will hire consultants (non-staff) for the PEU. WHO staff time on the project will be contributed as co-financing.?**

Yes, however please clarify if the KM will include work being conducted by the China project (10349) and if so how will these projects both contribute to global knowledge and best practices in this sector.	**The following text has been added beginning on page 45: ?With regard to the UNDP-executed GEF ID 10349 project, China has requested that WHO participate in its execution. The activities of 10349 include increasing stakeholders? awareness and knowledge about the phase-out of mercury-added medical devices and about mercury-free medical facilities, through websites, use of media, and other means. WHO will cooperate with 10349 in sharing and disseminating knowledge about the replacement of mercury thermometers and sphygmomanometers in healthcare through the WHO project website and other means, such as through publications of case studies and newsletters. WHO will further cooperate with 10349 to ensure incorporation of international best practice and experience in developing national**

Please clarify on Covid-19 and climate risks	**With regard to COVID-19, in addition to the two risks previously identified (i.e. increased exposure and limited mobility) the following two risks have been included: availability of healthcare staff and increased thermometer price owing to COVID-19 induced demand. With regard to climate, in addition to the two risks previously identified (i.e. increased waste and increased volatility) a third risk has been included. This third risk relates to increased infectious disease incidence attributable to climate change and subsequent increases in thermometer procurement. Increased demand could increase price and therefore encourage the continued use of Hg-added devices based on their lower sticker price. Conversely, increased international support (i.e. aid) coupled with demand could offer an opportunity to encourage more**

Canada Comments	Response
This project is in line with the Minamata Convention text and Canada supports this project in principle, but we believe that the project could be strengthened by further developing the specifics for each of the proponent countries. For example, there should be an expanded discussion on barriers in transitioning to mercury-free measuring devices each project area, particularly on policy/regulatory barriers and strategies to change consumer purchasing behaviour. Additionally, more specific information on the proposed project implementation activities in each country would be helpful.	**The barriers have been substantially revised in response to information collected during the PPG and have been made more country specific. In addition a barrier on regulatory considerations has been added. With regard to consumer purchasing behaviour, the project is primarily focused on procurement by healthcare facilities thought to some extent activity 2.1.7 which focuses on the general public addresses this concern. We note that the ProDoc now includes a full alternative scenario which provides detailed activity level information.**
Canada appreciates the coordination with GEF project 10349 ?Demonstration of production phase-out of mercury-containing medical thermometers and sphygmomanometers and promoting the application of mercury-free alternatives in medical facilities in China? to share experiences and early lessons learned.	
Germany Comments	**Response**

Germany approves the following PIF in the work program but asks that the following comments are taken into account: **Germany fully supports the proposal, it has great potential to reduce the mercury use in healthcare devices in the target countries in accordance with the Minamata Convention.**	
In some instances, facts about Armenia are still mentioned in the proposal. at two points, although it was replaced by Albania. E.g. in the description of the regulatory context, no information on Albania is provided as the information given still relates to the Armenian context.	**References to Armenia have been removed throughout.**
Please explain why five countries in a broad and heterogenous geographic area, from 3 continents and characterized by distinct in economic and social compositions were selected, instead of focusing on a specific region.	**Mercury added medical devices remain in wide in the 5 countries despite their heterogenicity. This information was confirmed during the PPG. The countries involved in the project will directly benefit through Components 1 and 2, however the project will have a global reach through the updating and sharing of guidance as part of Component 3. The heterogeneity of the project countries offers an obvious benefit in this regard as the guidance will reflect that heterogeneity and thus be more widely applicable.**

For the United Kingdom comments below, an initial agency response has been provided and can be found in the list of documents specific to the project in the GEF Portal.	

It is not clear how countries other than India are involved in this.	**All five countries are expected to phase out procurement of mercury added medical devices within the project timeframe.** **All activities will equally benefit the 5 countries covered by the project, with the exception of the substitution demonstration (2.1.8), the waste management demonstration (2.2.3) and activities under Output 2.3. Activity 2.1.8 will be carried out in India, Burkina Faso and an additional country that will be identified during the project. Countries to be covered by activity 2.2.3 have yet to be determined. Output 2.3 focuses on India as this is the only country with a significant Hg-added medical measuring device manufacturing base.**

The discussions on barriers are quite broad, and the cited examples are not related to the participating countries. Examples mentioned were from Brazil and the USA. Based on the information provided, it is impossible to know whether the identified barriers are specific to the targeted countries. It is essential to state the particular barriers in each country and how they will be overcome.	**The barriers have been substantially revised in response to information collected during the PPG and have been made more country specific. In addition regulatory and waste management barrier have been added.** **We note that information collected during the PPG reinforced the relevance of initial barriers included in the PIF, which were derived from secondary sources. In particular the short lifespan of mercury added devices, reluctance on the part of physicians and stable levels of use underscore some of the major barriers.**

Policy and regulatory barriers are not mentioned. Given that the project will be implemented in five countries with different legislation, policy, and regulatory frameworks, there could be policy and regulatory issues that could hinder project implementation and success. We encourage the project proponents to review possible policy and regulatory issues and propose actions for addressing them.	**In response to information collected during the PPG the project now includes a barrier related to regulatory considerations. The alternative scenario provided here also includes more detailed information on specific activities to be carried out during the project. Those directly related to regulatory frameworks include 1.1.3 on the development and review of national strategies; 2.1.3 on updated essential device lists; and 2.1.4 on in country certification.**

The project is focused on mercury use and waste from the healthcare sector, but dental amalgam is conspicuously missing in the project intervention. What is the reason for this? Please explain why the project is not addressing this aspect of healthcare mercury management.	**Amalgams and devices are considered separately by the Convention, with the latter *obligated* to be phased out and the former *encouraged* to be phased out. WHO also considers these devices and amalgams separately in the development of guidance. For instance, the current project is based on the WHO step-by-step[1] which considers devices only. Finally, dental offices and healthcare facilities are rarely co-located. Taken together these considerations result in two distinctly different projects with different stakeholders and relevant regulatory frameworks. Accordingly WHO currently has a mid-sized project in development on amalgams.**
We encourage the project proponents to double-check the baseline data in Hg procurement, especially for India and Montenegro, to ensure that they are accurate.	

STAP is encouraged that a well-articulated theory change has been presented. A description or inclusion of alternative pathways (plan B) if the proposed pathway is not feasible will further strengthen the current theory of change.	**An alternative theory of change has been developed for Component 2 only and is included with submission.**
The section on project components and outputs provides only a list of activities. A description of the proposed activities, with some specifics for each participating country, would help ascertain the project's quality and feasibility.	

The lack of manufacturing capacity for non-Hg medical equipment was identified as a barrier. However, the only intervention addressing this is an awareness-raising campaign in India. Undertaking awareness-raising is insufficient to support a shift from the manufacturing of Hg-based medical instruments to non-Hg. A more robust intervention, such as the demonstration of alternative manufacturing methods, and creating the business case and financing model for such a shift are needed. We recommend that the project proponents consider the best set of interventions to help move manufacturers away from Hg-based medical instruments.	**This barrier has been substantially revised in response to information collected during the PPG. Approximately 90 % of domestic manufacture is done by 5 companies, each of which already maintain mercury-free product lines. Accordingly, they stand to directly benefit from the project as demand for Hg-added devices ? which are more expensive to produce ? decreases. With regard to these larger firms activities will focus on pricing and standardisation.** **The remaining 10 % of domestic manufacture is done by small firms that may have difficulty transition to non-Hg lines. Most work under the relevant Output (2.3) will therefore focus on this group and will include engaging a socioeconomic expert for the purpose of identifying alternative sources of income.**

It is stated that the expected GEBs are estimated and that the estimates will be improved during the PPG phase. It is essential that this is done. Also, the methodology for monitoring and evaluation should be articulated, as this will be the only way to assess the project's success	**GEBs have been recalculated based on inputs from the Medical Devices Study (Appendix 12) carried out during the PPG. Calculations are explained in the relevant sections above. Activity 1.1.4 directly addresses the development of monitoring and reporting mechanisms for the phase out. Activity 2.3.3 addresses the assessment of Output 2.3?s efficacy. An M&E plan for the project has been articulated in section 9 of the ProDoc.**

Apart from addressing mercury procurement and manufacture, the project also intends to address healthcare waste management. This will prevent the burning of waste, which will prevent the emission of uPOPs (dioxins and furans). While this was mentioned in Section 2f (description of GEBs), no value was provided for expected uPOPs emissions avoidance. The core indicator section of the PIF also did not include this uPOPs avoidance benefit. This is an essential component of the project. STAP recommends that the uPOPs avoidance benefit be assessed, and plans to capture and monitor its achievement should be incorporated into the project design and implementation.	**Research done during the PPG revealed poor segregation of Hg-contaminated wastes at the facility level and limited national capacity to handle these wastes. At present activities addressing waste management considerations represent ~10 % of budget. These resources will be targeted on mercury wastes specifically to ensure measurable impact. Broader waste management projects are better placed to address uPOPs, the management of which was potentially considered during the PIF phase. Reference to uPOPs has been removed throughout.**

The IEO Terminal Evaluation of Chemicals and Waste projects1 revealed that there is limited evidence that GEF's chemical and waste projects successfully put in place sustainable strategies and financial mechanisms for scaling up. The proposal has not provided information on how the sustainability of the project will be ensured. There is a danger that this project will repeat the same drawback identified by the IEO. STAP recommends that more thought should be given to the sustainability and durability of the project. We recommend that the project proponents review STAP reports related to this issue, including: **o STAP 2020. https://stapgef.org/multi-stakeholder-dialogue** **o STAP 2019.**	**The relevant guidance documents refer to a number of measures identified by the STAP to facilitate long term sustainability. Several of these have been directly integrated into the project design, including: Critically assess the context for system Transformation (addressed through 1.1.2 situation assessment); Make use of existing processes or coalitions, where possible (1.1.1 stakeholder engagement); Enable flexible programme implementation (annual steering committee meetings); Embed monitoring, evaluation and learning (1.1.4, 2.3.3, M&E plan.** **Significantly, the primary partners in execution and co-financing are the ministries of health and environment in each of the countries. Activities relate to the realigning of long term human and financial resources to meet Convention**

Scaling up and replication are vital to the sustainability and durability of project outputs. The proposal states that "the lessons learned will potentially be widely applicable beyond the project;" however, it does not say how this will be done. We recommend that a more detailed analysis of scaling-up and replication should be provided. Useful resources in this regard include: **o WHO, 2010. https://www.who.int/immunization/hpv/deliver/nine_steps_for_developing_a_scalingup_strategy_who_2010.pdf** **o GIZ (2011). https://www.shareweb.ch/site/Learning-and-Networking/sdc_km_tools/Documents/GIZ-Scaling-up-in-development-cooperation.pdf** **o STAP 2020. https://stapgef.org/multi-stakeholder-dialogue** **o STAP 2019. https://stapgef.org/achieving-enduring-outcomes-gef-investment**	**The following text has been added to section 1a.7 of the ProDoc: ?The WHO guidance ?Nine steps for developing a scaling up strategy? outlines the following measures: Planning actions to increase the scalability of the innovation; Increasing the capacity of the user organization to implement scaling up; Assessing the environment and planning actions to increase the potential for scaling-up success; Increasing the capacity of the resource team to support scaling up; Making strategic choices to support vertical scaling up (institutionalization); Making strategic choices to support horizontal scaling up (expansion/replication); Determining the role of diversification; Planning actions to address spontaneous scaling up; and Finalizing the scaling-up strategy and identifying next step. This guidance and associated**

The project noted the potential impact of climate risk on success and presented useful mitigation measures. We, however, encourage the project proponent to carry out a detailed climate risk assessment following STAP's guidance on climate risk screening, which is available at: **o https://stapgef.org/sites/default/files/documents/GEF%20AGENCY%20RETREAT%20Mar-Apr%202020.pdf** **o https://stapgef.org/stap-guidance-climate-risk-screening**	**The relative influence of the project on climate change or vice versa is limited and we feel that the major concerns are adequately addressed in the risk matrix above. The waste management considerations of the project are focused entirely on segregation and sound management of mercury-contaminated wastes. A broader waste management mandate would have more substantial climate impacts and might require a rigorous climate focused screening which we feel is not merited by the current scope of the project.**

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

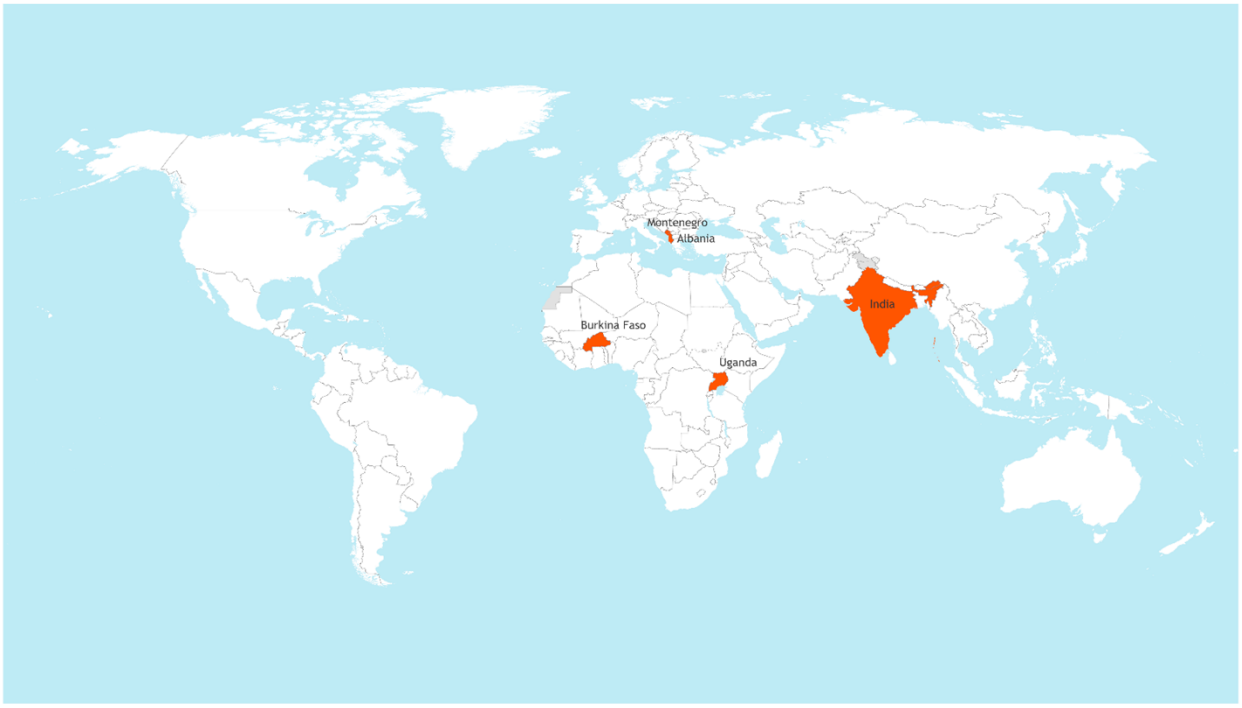
PPG Grant Approved at PIF: ?????	
Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***

	Budgeted Amount	*Amount Spent To date*	*Amount Committed*
WHO Subcontract	**$150,000**	**$50,000**	**$100,000**
Consultant	**$50,000**	**$50,000**	**$0**
Total	**$200,000**	**$100,000**	**$100,000**

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: 30 November 2021

World Health Organization

ANNEX E: Project Budget Table

Please attach a project budget table.

Project Title: Phasing out mercury measuring devices in healthcare
Project Number: 10716
Project Implementing Agency: UN Environment
Project Executing Agency: World Health Organization (WHO)
Project implementation period: **From:** **Jul-22** **To:** **Jul-26**

Class	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
	Component 1						
Output 1.1							
010	**Staff & Personnel (Including Consultants)**						
011-0101	National strategy technical consultant (Geneva)	63,000	31,500				94,500
011-0102	Regional coordination consultant (EURO)	18,000	9,000				27,000
011-0103	Market consultant (Geneva)		7,688				7,688
011-0104	Regional coordination consultant (AFRO)	27,498	13,749				41,247
011-0106	Regional coordination consultant (SEARO)	28,998	14,499				43,497
011-0107	National technical consultant (Albania)	30,375					45,563
	Health/ Env. (50/50)		15,188				
011-0108	National technical consultant (Burkina Faso)	31,500					47,250
	Health/ Env. (50/50)		15,750				

011-0109	National technical consultant (India) Health/ Env. (50/50)	42,188	21,094				63,281
011-0111	National technical consultant (Montenegro) Health/ Env. (50/50)	30,375	15,188				45,563
011-0112	National technical consultant (Uganda) Health/ Env. (50/50)	20,718	10,359				31,077
011-0113	Medical Devices Expert	77,175	47,163				124,338
011-0114	Gender and socioeconomic expert	17,150	8,575	8,575	8,575	8,575	51,450
	Subtotal	**386,977**	**209,751**	**8,575**	**8,575**	**8,575**	**622,452**
120	**Contract Services**						
011-1201	Inception meeting and project wrap up	50,000				50,000	100,000
011-1202	Capacity building workshops (Albania)	20,000	10,000				30,000
011-1203	Capacity building workshops (Burkina Faso)	20,000	10,000				30,000
011-1204	Capacity building workshops (India)	30,000	15,000				45,000
011-1205	Capacity building workshops (Montenegro)	20,000	10,000				30,000
011-1206	Capacity building workshops (Uganda)	20,000	10,000				30,000
011-1207	Interpretation and translation	10,000	5,000				15,000
	Subtotal	**170,000**	**60,000**	**0**	**0**	**50,000**	**280,000**
160	**Travel**						

011-1601	National travel for workshops (Albania)	10,000	5,000				15,000
011-1602	National travel for workshops (Burkina Faso)	10,000	5,000				15,000
011-1603	National travel for workshops (India)	20,000	10,000				30,000
011-1604	National travel for workshops (Montenegro)	10,000	5,000				15,000
011-1605	National travel for workshops (Uganda)	10,000	5,000				15,000
011-1606	International travel for workshops	7,000	3,500				10,500
011-1607	International travel for workshops	7,000	3,500				10,500
011-1608	International travel for workshops	7,000	3,500				10,500
011-1609	International travel for workshops	7,000	3,500				10,500
	Subtotal	**88,000**	**44,000**	**0**	**0**	**0**	**132,000**
125	**Operating & Other Costs**						
011-1251	Administrative support	70,000	35,000				105,000
	Subtotal	**70,000**	**35,000**	**0**	**0**	**0**	**105,000**
130	**Supplies, Commodities & Materials**						
011-1301	Office supplies	10,000	5,000				15,000
	Subtotal	**10,000**	**5,000**	**0**	**0**	**0**	**15,000**
135	**Equipment, Vehicles & Furniture**						
011-1351	Computers and tablets	20,000	10,000				30,000
	Subtotal	**20,000**	**10,000**	**0**	**0**	**0**	**30,000**
	Output 1.1 Total	**744,977**	**363,751**	**8,575**	**8,575**	**58,575**	**1,184,452**
	COMPONENT 1 TOTAL	**744,977**	**363,751**	**8,575**	**8,575**	**58,575**	**1,184,452**

Component 2						
Output 2.1 010	**Staff & Personnel (Including Consultants)**					
021-0101	National strategy technical consultant (Geneva)	31,500	77,000	77,000	70,000	255,500
021-0102	Market consultant (Geneva)	7,688	25,625			33,313
021-0103	Regional coordination consultant (EURO)	9,000	18,000	18,000	18,000	63,000
021-0104	Regional coordination consultant (AFRO)	13,749	27,498	27,498	27,498	96,243
021-0105	Regional coordination consultant (SEARO)	14,499	28,998	28,998	28,998	101,493
021-0106	National technical consultant (Albania) x2	15,188	37,125	37,125	37,125	126,563
021-0107	National technical consultant (Burkina Faso) x2	15,750	38,500	38,500	38,500	131,250
021-0108	National technical consultant (India) x3	21,094	51,563	51,563	51,563	175,781
021-0109	National technical consultant (Montenegro) x2	15,188	37,125	37,125	37,125	126,563
021-0110	National technical consultant (Uganda) x2	10,359	25,322	25,322	25,322	86,325

021-0111	Medical Devices Expert		47,163	42,875	42,875	94,325	227,238
021-0112	Public Communications Expert			42,875	42,875		85,750
021-0113	Communications Expert (Albania)		9,000	20,250	20,250		49,500
021-0114	Communications Expert (Burkina Faso)		15,750	21,000	21,000		57,750
021-0115	Communications Expert (India)		14,063	18,750	18,750		51,563
021-0116	Communications Expert (Montenegro)		9,000	20,250	20,250		49,500
021-0117	Communications Expert (Uganda)		10,359	13,812	13,812		37,983
	Subtotal	**0**	**259,347**	**546,568**	**520,943**	**428,456**	**1,755,313**
120	**Contract Services**						
021-1201	Capacity building workshops (Albania)		10,000	20,000	20,000	20,000	70,000
021-1202	Capacity building workshops (Burkina Faso)		10,000	20,000	20,000	20,000	70,000
021-1203	Capacity building workshops (India)		15,000	20,000	20,000	20,000	75,000
021-1204	Capacity building workshops (Montenegro)		10,000	20,000	20,000	20,000	70,000
021-1205	Capacity building workshops (Uganda)		10,000	20,000	20,000	20,000	70,000
021-1206	Interpretation and translation		5,000	20,000	20,000	20,000	65,000
	Subtotal	**0**	**60,000**	**120,000**	**120,000**	**120,000**	**420,000**
160	**Travel**						
021-1601	Travel for workshops (Albania)		5,000	10,000	10,000	10,000	35,000
021-1602	Travel for workshops (Burkina Faso)		5,000	10,000	10,000	10,000	35,000

021-1603	Travel for workshops (India)		5,000	10,000	10,000	10,000	35,000
021-1604	Travel for workshops (Montenegro)		5,000	10,000	10,000	10,000	35,000
021-1605	Travel for workshops (Uganda)		5,000	10,000	10,000	10,000	35,000
021-1606	International travel for workshops		3,500	7,000	7,000	7,000	24,500
021-1607	International travel for workshops		3,500	7,000	7,000	7,000	24,500
021-1608	International travel for workshops		3,500	7,000	7,000	7,000	24,500
021-1609	International travel for workshops		3,500	7,000	7,000	7,000	24,500
021-1610	Travel for fieldwork (Albania)		5,000	10,000	10,000	10,000	35,000
021-1611	Travel for fieldwork (Burkina Faso)		5,000	10,000	10,000	10,000	35,000
021-1612	Travel for fieldwork (India)		5,000	10,000	10,000	10,000	35,000
021-1613	Travel for fieldwork (Montenegro)		5,000	10,000	10,000	10,000	35,000
021-1614	Travel for fieldwork (Uganda)		5,000	10,000	10,000	10,000	35,000
021-1615	Study tour		100,000				100,000
	Subtotal	**0**	**164,000**	**128,000**	**128,000**	**128,000**	**548,000**
125	**Operating & Other Costs**						
021-1251	Administrative support		70,000	70,000	70,000	70,000	280,000
021-1252	Printing costs (national materials)			10,000	10,000		20,000
021-1253	Publication costs (national materials)			20,000	20,000		40,000
	Subtotal	**0**	**70,000**	**100,000**	**100,000**	**70,000**	**340,000**
130	**Supplies, Commodities & Materials**						

021-1301	Office supplies		5,000	10,000	10,000	10,000	35,000
	Subtotal	**0**	**5,000**	**10,000**	**10,000**	**10,000**	**35,000**
135	**Equipment, Vehicles & Furniture**						
021-1351	Computers and tablets		10,000	20,000			30,000
	Subtotal	**0**	**10,000**	**20,000**	**0**	**0**	**30,000**
140	**Transfers & Grants to Implementing Partners**						
021-1401	Substitution demonstration (India)		0	125,000	125,201	0	250,201
021-1402	Substitution demonstration (Burkina Faso)		0	75,000	50,000	0	125,000
021-1403	Substitution demonstration (TBD)		0	75,000	50,000	0	125,000
	Subtotal	**0**	**0**	**275,000**	**225,201**	**0**	**500,201**
	Output 2.1 Total	**0**	**568,347**	**924,568**	**878,943**	**756,456**	**3,628,514**
Output 2.2							
010	**Staff & Personnel (Including Consultants)**						
022-0101	National Medical Waste Expert (Albania)	0	0	37,125	0	0	37,125
022-0102	National Medical Waste Expert (Burkina Faso)	0	0	38,500	0	0	38,500
022-0103	National Medical Waste Expert (India) x2	0	0	68,750	0	0	68,750
022-0104	National Medical Waste Expert (Montenegro)	0	0	37,125	0	0	37,125
022-0105	National Medical Waste Expert (Uganda)	0	0	25,322	0	0	25,322
	Subtotal	**0**	**0**	**206,822**	**0**	**0**	**206,822**
120	**Contract Services**						

022-1201	Waste management workshops (Albania)	0	0	5,000	0	0	5,000
022-1202	Waste management workshops (Burkina Faso)	0	0	5,000	0	0	5,000
022-1203	Waste management workshops (India)	0	0	10,000	0	0	10,000
022-1204	Waste management workshops (Montenegro)	0	0	5,000	0	0	5,000
022-1205	Waste management workshops (Uganda)	0	0	5,000	0	0	5,000
022-1206	Interpretation and translation	0	0	10,000	0	0	10,000
022-1207	Publication costs	0	0	10,000	0	0	10,000
022-1208	Printing costs	0	0	10,000	0	0	10,000
022-1209	Training of waste managers handling mercury	0	0	90,000	90,000	40,000	220,000
022-1210	Sound management demonstration	0	0	125,000	125,000		250,000
	Subtotal	**0**	**0**	**275,000**	**215,000**	**40,000**	**530,000**
160	**Travel**						
022-1601	Travel for facility assessments and training (Albania)	0	0	5,000	0	0	5,000
022-1602	Travel for facility assessments and training (Burkina Faso)	0	0	5,000	0	0	5,000
022-1603	Travel for facility assessments and training (India)	0	0	10,000	0	0	10,000
022-1604	Travel for facility assessments and training (Montenegro)	0	0	5,000	0	0	5,000

022-1605	Travel for facility assessments and training (Uganda)	0		5,000	0	0	5,000
	Subtotal	**0**	**0**	**30,000**	**0**	**0**	**30,000**
	Output 2.2 Total	**0**	**0**	**511,822**	**215,000**	**40,000**	**766,822**
Output 2.3							
010	**Staff & Personnel (Including Consultants)**						
023-0101	Socioeconomic expert			25,725	25,725		51,450
	Subtotal	**0**	**0**	**25,725**	**25,725**	**0**	**51,450**
120	**Contract Services**						
023-1201	Workshop for manufacturers			10,000			10,000
023-1202	Interpretation and translation			10,000			10,000
023-1203	Printing costs (development of IEC materials)			10,000	10,000		20,000
023-1204	Identifiation and awareness raising of manufacturers	0	0	40,000	50,000	50,000	140,000
	Subtotal	**0**	**0**	**70,000**	**60,000**	**50,000**	**180,000**
160	**Travel**						
023-1601	Travel for fieldwork			5,000	5,000		10,000
	Subtotal	**0**	**0**	**5,000**	**5,000**	**0**	**10,000**
	Output 2.3 Total	**0**	**0**	**100,725**	**90,725**	**50,000**	**241,450**
	COMPONENT 2 TOTAL	**0**	**568,347**	**1,537,115**	**1,184,668**	**846,456**	**4,636,786**
Component 3							
Output 3.1							
010	**Staff & Personnel (Including Consultants)**						

031-0101	Healthcare facility waste management expert	51,450	51,450	51,450	51,450	25,725	231,525
031-0102	Health risk assessment expert	0	102,900		0	0	102,900
031-0103	Medical Devices Expert	0	0	51,450	51,450	0	102,900
	Subtotal	**51,450**	**154,350**	**102,900**	**102,900**	**25,725**	**437,325**
120	**Contract Services**						
031-1201	Regional workshops			150,000	150,000		300,000
031-1204	Interpretation and translation (for meetings)			30,000	30,000		60,000
031-1205	Printing costs		10,000	10,000	20,000	20,000	60,000
031-1206	Publication costs		10,000	10,000	20,000	20,000	60,000
031-1207	Translation for publications		10,000	10,000	20,000	20,000	60,000
	Subtotal	**0**	**30,000**	**210,000**	**240,000**	**60,000**	**540,000**
125	**Operating & Other Costs**						
031-1251	Administrative support	35,000	35,000	35,000	35,000	35,000	175,000
	Subtotal	**35,000**	**35,000**	**35,000**	**35,000**	**35,000**	**175,000**
	Output 3.1 Total	**86,450**	**219,350**	**347,900**	**377,900**	**120,725**	**1,152,325**
Output 3.2							
120	**Contract services**						
032-1201	Development of technical guidance on mercury waste management in heatlhcare	0	0	50,000	70,000	50,000	170,000
		0	**0**	**50,000**	**70,000**	**50,000**	**170,000**
	Output 3.2 Total	**0**	**0**	**50,000**	**70,000**	**50,000**	**170,000**
Output 3.3							
010	**Staff & Personnel (Including Consultants)**						

033-0101	Public Communications Expert					42,875	42,875
033-0102	Communications Expert (Albania)					15,000	15,000
033-0103	Communications Expert (Burkina Faso)					21,000	21,000
033-0104	Communications Expert (India)					18,750	18,750
033-0105	Communications Expert (Montenegro)					15,000	15,000
033-0106	Communications Expert (Uganda)					13,812	13,812
	Subtotal	**0**	**0**	**0**	**0**	**126,437**	**126,437**
120	**Contract Services**						
033-1201	Regional and national workshops	0	0	30,000	30,000	10,000	60,000
033-1202	Global workshops			20,000	40,000		70,000
033-1203	Interpretation and translation			10,000	10,000		20,000
033-1204	Printing costs			10,000	10,000		20,000
033-1205	Publication costs (web, infographics, videos)			30,000	30,000		60,000
	Subtotal	**0**	**0**	**100,000**	**120,000**	**10,000**	**230,000**
	Output 3.3 Total	**0**	**0**	**100,000**	**120,000**	**136,437**	**356,437**
	COMPONENT 3 TOTAL	**86,450**	**219,350**	**497,900**	**567,900**	**307,162**	**1,678,762**
MONITORING AND EVALUATION							
120	**Contract Services**						
0ME-1201	Monitoring and Evaluation	20,000	20,000	20,000	20,000	20,000	100,000
	MONITORING AND EVALUATION TOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**20,000**	**100,000**
PROJECT MANAGEMENT COSTS (PMC)							

010	**Staff & Personnel (Including Consultants)**						
PM-0101	Project management - staff	66,000	66,000	66,000	66,000	66,000	330,000
	Subtotal	**66,000**	**66,000**	**66,000**	**66,000**	**66,000**	**330,000**
160	**Travel**						
PM-1601	Travel Project management	10,000	10,000	10,000	10,000	10,000	50,000
	Subtotal	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**50,000**
	PMC Total	**76,000**	**76,000**	**76,000**	**76,000**	**76,000**	**380,000**

USD GRAND TOTAL	**927,427**	**1,247,448**	**2,139,590**	**1,857,143**	**1,308,193**	**7,980,000**

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

n/a

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

n/a

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as

established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

n/a