

TASK 2: DEFINE THE TECHNICAL GUIDELINES FOR LOCAL EXPERTS TO CARRY OUT INVENTORIES ON THE PRESENCE OF MERCURY IN PUBLIC HOSPITALS.

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TASK 2: DEFINE THE TECHNICAL GUIDELINES FOR LOCAL EXPERTS TO CARRY OUT INVENTORIES ON THE PRESENCE OF MERCURY IN PUBLIC HOSPITALS.

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Description **This report provides the technical instructions to be followed by the Lebanese local expert (Mr. Nathalie Karam to carry out the inventory of medical devices containing mercury at Lebanese health care facilities.**

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ACRONYMS

Acronym	Definition
ASGM	Artisanal and small-scale gold mining
GEF	Global Environment Fund
Hg	Mercury
MC	Minamata Convention
MOPH	Ministry of Public Health
PHC	Primary Healthcare Centre
UNPF	United Nations Population Fund
WHO	World Health Organization

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1. Introduction and objectives

The Centre of Regional Activity for Consumption and Sustainable Production, also named MedWaves, is an international cooperation centre for the development and innovation in the Mediterranean basin productive sector.

Since 2018 MedWaves forms part of the “*Mediterranean Sea Program (Medprogramme): Enhancing Environmental Security - GEF ID 9607¹*”, within its framework MedWaves is implementing the project “*Component 1.1 (Child Project or CP 1.1): Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hotspots and Measuring Progress to Impact (GEF ID 9684)*”

The following report is encompassed in CP 1.1 Output 1.4 “*Development of pilot activities in Lebanon and Tunisia on new alternatives contributing to the reduction of mercury in the health sector*”. This project aims to achieve the following objective:

- To provide the technical instructions to the Lebanese local expert (Mr. Nathalie Karam) to carry out the inventory of medical devices containing mercury at the Lebanese health care facilities participating in the project.

Within this scope, the objectives of Ramboll for this assignment are identifying and synthesizing the most updated guidelines and technical instructions published by the reference institutions such as the World Health Organization (WHO) and the United Nations Environmental Program (UNEP) regarding the creation of inventories of dangerous waste, and specifically of medical devices containing mercury.

¹ Available in: <https://www.thegef.org/>

2. PROJECT BACKGROUND

2.1 General characteristics of mercury

Mercury is a naturally occurring heavy metal with significant health hazard which has been used since ancient times. It is a unique metal that is liquid at room temperature, it has a freezing point of -39 °C and a boiling point of 357 °C².

Mercury is released by volcanic eruptions, often in the form of mercury salts such as mercury sulphide and as a by-product in many human activities. Mercury compounds are used in chemical manufacturing, industrial processes and are contained in many consumer and industrial products, included those ones used as sanitary devices as thermometers and sphygmomanometers (blood pressure devices).

Due to its high surface tension and volatility, elemental mercury forms small drops when spilled and vaporizes rapidly into the air. Indoors, mercury spills become an inhalation hazard³.

Mercury vapour, when inhaled, can affect the central nervous system and, depending on exposure levels, can impair cognition and in some cases cause death. Mercury is also harmful if absorbed through cuts and abrasions of the skin. Of even more concern in terms of public health is the toxicity produced when mercury emitted into the environment accumulates in lake, river, stream, and ocean sediments. There, anaerobic organisms digest and transform it into methyl mercury, a more toxic form of mercury which accumulates and becomes concentrated up the food chain in plankton, fish, birds, and mammals including humans. Methyl mercury is an organic compound of special concern for foetuses, infants, and children because extraordinarily low doses impair neurological development⁴.

Target organs of elemental mercury vapour inhalation include lungs, kidney, and central nervous system. Symptoms of mercury poisoning include shortness of breath, dyspnoea, and cough with acute exposure; chronic exposure to lower doses generally leads to irritability, depression, tremors, and slurred speech.

Exposure to elemental mercury in health care settings from spills or broken equipment, such as mercury-containing fever thermometers and sphygmomanometers, is a serious health problem for employees, patients, and visitors, as well as those tasked with repairing and cleaning up such broken equipment.

Furthermore, spilling of mercury and incineration of mercury-containing medical waste contributes to both indoor and outdoor emissions.

In 2007, a survey stated that in Buenos Aires more than 40.000 thermometers were lost per year, most to breakage, in their 33 public hospitals and 38 clinics⁵. The same study performed

² Available at: <http://www.inchem.org/documents/icsc/icsc/eics0056.htm>

³ Agency for Toxic Substances and Disease Registry, (<https://www.atsdr.cdc.gov/toxprofiles/tp46.pdf> accessed 20 of October of 2022)

⁴ Developing national strategies for phasing out mercury-containing thermometers and sphygmomanometers in health care, including in the context of the Minamata Convention on Mercury- Maria Neira, Director of the Department of Public Health, Environmental and Social Determinants of Health, WHO. 2015. Available at: <https://fctc.who.int/publications/i/item/9789241508339>

⁵ Karliner, J. et al. Mercury free health care. World Medical Journal, 2008, 54(2):39-45.

another survey in Mexico detailing that the national paediatric teaching hospital broke an average of 385 thermometers per month.

In 1996, before a significant number of hospital-based incinerators were closed, the United States Environmental Protection Agency (US EPA) designated the burning of medical waste as the fourth largest mercury emission source in the United States⁶.

2.2 Minamata Convention

The Minamata Convention on Mercury⁷ – a global legally binding instrument to protect human health and environment from the adverse effects of mercury – entered into force on 16 August 2017. Countries that are Parties to the Convention are now legally bound to fulfil a range of mandatory measures such as banning new mercury mines; phasing out mercury-added products, including thermometers, batteries, light bulbs, etc.; and regulating the use of mercury in artisanal and small-scale gold mining (ASGM).

With the Convention's core objective "to protect human health and environment from anthropogenic emissions and releases of mercury and mercury compounds," it could be said that all of the Convention's 35 articles are "health-related articles". In response to the health-related issues or activities and articles of the Convention, the Sixty-seventh World Health Assembly adopted and approved resolution WHA67.11 (2014): *Public health impacts of exposure to mercury and mercury compounds: the role of World Health Organization (WHO) and ministries of public health in the implementation of the Minamata Convention*⁸.

The resolution calls on Member States to address the public health aspects of mercury and mercury compounds in the context of the health sector by identifying measures and preparatory actions to be taken by their health ministries for implementation of the health-related articles of the Convention. The resolution also calls upon the WHO Secretariat to create tools, offer guidance, and provide training materials to support Member States in managing the public health impacts of mercury and mercury compounds.

2.3 Environmental impact of mercury-containing medical devices

Mercury is used in a variety of consumer, industrial and medical products, and processes. Product examples are fluorescent light bulbs and batteries, medical devices (e.g., thermometers, blood pressure instruments), laboratory chemicals, pharmaceutical products, and various temperature and moisture measurement and sensing devices (barometers, hygrometers, flame sensors)⁹.

Typical mercury thermometers contain 1 milligram (mg) of mercury, regarding fluorescent lamps they contain around 5 to 10 mg of mercury each. The mercury released by breaking only one sphygmomanometer or by breaking 100 thermometers is equivalent to the mercury released by breaking 10,000 fluorescent lamps. Since mercury from only one thermometer is

⁶ Treatment technologies for mercury soil, waste, and water. Washington DC, United States Environmental Protection Agency Office of Superfund Remediation and Technology Innovation, 2007. Available at: https://www.epa.gov/sites/default/files/2015-08/documents/treat_tech_mercury_542r07003.pdf

⁷ United Nations Environmental Program (UNEP). Minamata Convention. Available at: <https://www.mercuryconvention.org/en>

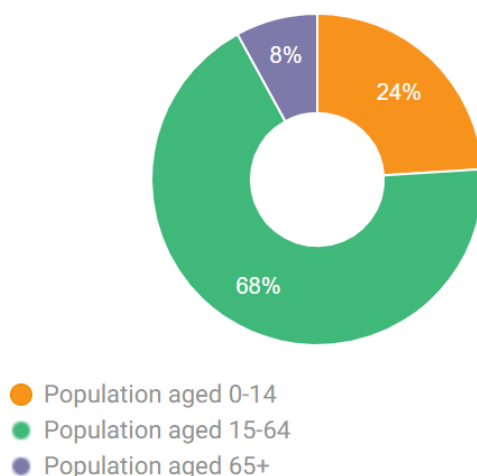
⁸ Public health impacts of exposure to mercury and mercury compounds: the role of WHO and ministries of public health in the implementation of the Minamata Convention. Available at: <https://apps.who.int/iris/handle/10665/162849>

⁹ Youth Round Table Society. 9-8-38, Opposite Aagman Hotel, Akab Bajaja, Faizabad (U.P.) 224001 India. Available at: <https://ipen.org/sites/default/files/documents/YRT%20Mercury%20Use%20from%20Health%20Care%20System%20factsheet.pdf>

enough to contaminate a 20-acre lake such that the fish would be unsafe to eat, a release involving several thermometers and sphygmomanometers could potentially be a grave environmental and public health problem¹⁰.

2.4 Lebanese Health Sector

According to the United Nations Population Fund (UNPF) on 2022 Lebanon has a population of 6.7 million people distributed in the following age groups¹¹:



In May 2018 the Ministry of Public Health (MOPH) published the "Lebanon Health Resilience Project" stating the number of public health care facilities in Lebanon:

- 33 public hospitals
- 213 Primary Healthcare Centres

The list of public hospitals that have been targeted in the project are listed in [Annex I](#).

On the other hand, a survey conducted by the Syndicate of Private Hospitals in 2011 stated that the number of private hospitals in Lebanon is¹²:

- 116 private hospitals

The private health sector is very relevant in Lebanon and despite it is not involved in the replacement program of medical devices containing mercury it should be informed about the upcoming restriction on the use of medical devices containing mercury and the raising awareness material about mercury hazards and mercury waste management.

2.4.1 Use of Mercury in Lebanese Health Sector

¹⁰ The Mercury Problem: Fast Facts in Going Green: A Resource Kit for Pollution Prevention in Health Care, Health Care Without Harm, Washington, DC, 2002.

¹¹ Data obtained from the World Population Dashboard (United Nations Population Fund). Available at: <https://www.unfpa.org/data/world-population/LB>

¹² National Health Statistics Report in Lebanon. Prepared by the Institute of Health Management and Social Protection (IGSPS) at Saint-Joseph University and coordinated by Dr. Michèle Kosremelli Asmar with the technical support of the WHO office in Beirut and the Lebanese Ministry of Public Health and the financial assistance of the WHO office in Beirut. Available at: [175_pdf_1.pdf \(usj.edu.lb\)](#)

IndyACT, an environmental NGO based in Lebanon that forms part of the International Pollutants Elimination Network, published the report "Mercury Use in Lebanon"¹³ that studied the current use of mercury in Lebanese hospitals.

The study concluded that around 84 % of the surveyed hospitals are still using mercury containing products, mainly mercury containing thermometers and sphygmomanometers, 35% of the surveyed hospitals still used gastrointestinal tubes containing mercury and 18% used barometer containing mercury. In addition, most hospitals informed that are aware of the health risks associated with the use of mercury and have mercury spill clean-up and disposal policies and procedures. Only 17% are ready to become mercury-free without financial assistance, while 67% showed interest in phasing out mercury in the presence of financial assistance.

¹³ Report "Mercury Use in Lebanon" performed by IndyACT. Available at: <https://ipen.org/documents/mercury-use-lebanon>

3. Technical instructions to carry out the inventory of medical devices containing mercury at Lebanese health care facilities

3.1 Scope

The technical instructions included in this report should be used during the performance of the inventory of the amount of mercury containing medical devices at the Lebanese health care facilities targeted to participate in Child Project 1.1 (listed in [Annex I](#)).

The inventory will compile information regarding the use of medical devices containing mercury, the availability of free mercury alternatives, the procurement policy, the waste management procedures for medical devices containing mercury and the existence of replacement plans.

The instructions provided will also include the processing of the data obtained to calculate the amount of elemental mercury and mercury-contaminated waste that will be generated to calculate the costs associated with the management of the waste.

3.2 Questionnaire design

A questionnaire had been designed to compile the required information from the concerned health care facilities.

The questionnaire is named "*Questionnaire on medical devices containing mercury in governmental hospitals*" and consist of the following sections which will be subsequently detailed.

- Heading - Organization Identifiers
- Section 1 - Use of medical devices containing mercury in governmental hospital
- Section 2 - Alternatives to medical devices containing mercury
- Section 3 - Technical specifications for procurement.
- Section 4 - Waste management and mercury replacement program

The questionnaire can be consulted in [Annex II](#).

3.2.1 Heading - Organization identifiers

This section is composed of a brief introduction to the use of mercury in medical devices and the hazards that pose the release of mercury to health and the environment.

Complementary this section includes an introduction to the Child Project 1.1 and the purpose of the questionnaire.

The identifiers of the respondent, listed below, are also required in this section.

- Name of the government hospital
- Date of licensing
- Address
- Name of the respondent

- Position
- Office phone
- Mobile phone
- E-mail address
- Signature
- Date

3.2.2 Section 1 - Use of medical devices containing mercury in governmental hospital

The main objective of this section is to require the respondent to inform about the type of thermometers and sphygmomanometers that are used in their facilities.

In case that mercury containing medical devices are used the following data must be provided:

- Number of devices containing mercury bought per year.
- Number of devices containing mercury you have in stock.
- Number of obsolete devices containing mercury (non-functional, not used...).
- Number of devices containing mercury used and to be disposed of.

In addition to thermometers and sphygmomanometers which are the only devices under the scope of the project for replacement, collection, and disposal this section compiles information about less common medical devices and products susceptible to contain mercury, including:

- Gastrointestinal tubes as Cantor tubes, feeding tubes and Miller Abbot tubes.
- Oesophageal dilators.
- Pharmaceutical products.
- Barometers.
- Manometers.
- Vacuum gauges.

This information is required to take advantage of the consulting process and have an updated view of the use of mercury containing products in Lebanese health care facilities nowadays.

3.2.3 Section 2 - Alternatives to of medical devices containing mercury

This section is focused on informing the respondent about the upcoming obligation to stop using thermometers and sphygmomanometers containing mercury and understanding if the organization disposes of mercury free alternatives.

In case the facility still uses mercury containing medical devices the respondent is invited to confirm if they are interested in replacing their thermometers and sphygmomanometers by mercury free alternatives and inform about any challenges, they may face to perform the replacement, such as financial or technical restraints or lack of suppliers.

3.2.4 Section 3 - Technical specifications for procurement.

The purpose of this section is to understand if the organization implements any procedure for the procurement of new medical devices and if the procedure is referenced to any international or national standard.

The respondent must clarify if there is any internal or external requirement that prohibits or limits the purchase of mercury containing medical devices.

3.2.5 Section 4 - Waste management and mercury replacement program

The centre of attention of the last section is the waste management of mercury contaminated waste and the replacement of medical devices containing mercury.

The respondent must detail if the organization has implemented any procedure to clean up broken thermometer spills and how the mercury contaminated waste is collected and stored in the facility.

At the same time the organization must inform about any mercury replacement program that is planned or being implemented, as well as any estimated cost of the above-mentioned replacement program.

In case the organization has undergone an environmental audition it must be reported.

3.3 Inventory Design

The data obtained from the answered questionnaires will be uploaded to an excel file named "CP 1-1 Lebanon Working document", specifically in sheet "A2. Hg Inventory".

The inventory will contain the following data:

- Name of the Health Care Facility
- Address
- Telephone
- Contact person
- Email
- N° of thermometers
- N° of sphygmomanometers
- N° of Oesophageal dilators/bougies
- N° of Gastrointestinal tubes
- N° of Intraocular pressure devices
- N° of Barometers
- Estimated Hg (kg) collected as waste

The inventory will also remark on which organization disposes of an appropriate management procedure for mercury contaminated waste.

3.4 Data processing

To obtain the estimated amount of mercury to be managed the N° of each medical device will be multiplied by the estimated content of mercury, using upper tier estimates to avoid underestimated results and ensure the safe disposal of the devices to be collected and to be disposed of.

As mentioned above the estimates of mercury content in each medical device has been obtained using the upper tier limits selected from the publications of various reference

sources¹⁴ such as Health Care Without Harm or the World Health Organization. The estimates of mercury content are as follows:

- Thermometers (3 g)
- Sphygmomanometers (100 g)
- Oesophageal dilators/bougies (1000 g)
- Gastrointestinal tubes (1000g)
- Intraocular pressure devices (175 g)
- Barometers (600 g)
- Manometers (500 g)
- Vacuum Gauges (600 g)

¹⁴ Various sources: Health Care Without Harm, Guide for Eliminating Mercury from Health Care Establishments. Available at: https://noharm-global.org/sites/default/files/documents-files/2460/Mercury_Elimination_Guide_for_Hospitals.pdf; World Health Organization, Policy Paper: Mercury in Health Care. WHO/SDE/WSH/05.08. Available at: https://www.who.int/docs/default-source/wash-documents/mercury-in-health-care.pdf?sfvrsn=11857b44_15#:~:text=For%20health%20care%2C%20these%20include,properly%2C%20either%20gives%20accurate%20results. Government of Canada. Available at: <https://www.canada.ca/en/environment-climate-change/services/pollutants/mercury-environment/products-that-contain/medical-measuring-devices.html> United Nations Development Programme, GEF Global healthcare Waste Project. GUIDANCE ON THE CLEANUP, TEMPORARY OR INTERMEDIATE STORAGE, AND TRANSPORT OF MERCURY WASTE FROM HEALTHCARE FACILITIES. Available at: <https://noharm-global.org/documents/guidance-cleanup-temporary-or-intermediate-storage-and-transport-mercury-waste-healthcare>. Northeast Waste Management Officials' Association (NEWMOA). Available at: <https://www.newmoa.org/prevention/mercury/projects/legacy/healthcare.cfm#:~:text=Older%20esophageal%20dilators%20consist%20of,the%20bottom%20of%20the%20tube>.

4. EXPECTED OUTCOME

The main goal of the inventory is to provide accurate data on the number of thermometers and sphygmomanometers containing mercury to be collected and replaced in each health care facility participating in the Child Project 1.1.

Together with the estimated amount of elemental mercury the data will allow calculating the cost of the waste treatment by an authorized waste manager.

On the other hand, the inventory will provide a representative overview of the current use of medical devices, products, and equipment containing mercury in Lebanese health care facilities.

The data relating to the medical devices, products and equipment's containing mercury, other than thermometers and sphygmomanometers, can be used in the case the project had enough budget to manage its disposal or replacement. Alternatively, the data can be used in upcoming projects related to the implementation of Article 4 of the Minamata Convention which restricts the use of mercury added products.

ANNEX I. LIST OF PUBLIC HOSPITALS

The list is provided by Ms. Nathalie Karam the local consultant participating in the Child Project¹⁵.

PUBLIC HOSPITALS TARGETED IN THE PROJECT

1. Baabda governmental hospital
2. Baalbeck governmental hospital
3. Bcharreh governmental hospital
4. Beirut governmental hospital
5. Bent jbeil governmental hospital
6. Daher elbachek governmental hospital
7. Dr Abdullah Al Rassi Governmental Hospital
8. Ehden governmental hospital
9. Ftouh keserwan governmental hospital
10. Governmental Hospital of Beirut Quarantine
11. Hasbaya governmental hospital
12. Hermel governmental hospital
13. Jezzine governmental hospital
14. Kana governmental hospital
15. Kartaba Governmental Hospital
16. Marjaayoun governmental hospital
17. Mays el jabal governmental hospital
18. Nabatieh governmental hospital
19. Orange Nassau governmental hospital
20. President elias harawi governmental hospital
21. Rachaya governmental hospital
22. Saida governmental hospital
23. Shahr el gharbi governmental hospital
24. Sibliin governmental hospital
25. Sir Danniye governmental hospital
26. Sour governmental hospital
27. Tannourine governmental hospital
28. Tebnin governmental hospital
29. Tripoli governmental hospital

¹⁵ Source: Email. Nathalie Karam (personal communication November 22, 2022).

ANNEX II. QUESTIONNAIRE ON MEDICAL DEVICES CONTAINING MERCURY IN GOVERNMENTAL HOSPITALS IN LEBANON

Questionnaire on medical devices containing mercury in governmental hospitals

Elemental mercury has been used for decades in thermometers and sphygmomanometers in the health-care setting. In the healthcare sector, elemental mercury may be released as a result of spillage from broken thermometers or leaking equipment. Inhalation of these mercury vapors may cause damage to the lungs, kidneys, and central nervous system.

The child project is funded by GEF and being implemented in coordination between SCPRAC, UNEP/MAP and the national responsible authority (Ministry of Environment). The component 1-child 1.1 seeks to demonstrate the phase-out of mercury containing devices from the medical sector through the adoption of environmentally sound alternatives in Mediterranean countries.

The following survey has been developed to gather relevant data that will support and help to phase-in alternatives of mercury in healthcare sector in Lebanon. The information collected as part of this survey is strictly confidential and will be solely used for the purpose of this study.

Name of the governmental hospital	
Establishment date	
Address	
Name of respondent	
Position	
Telephone	
Mobile phone	
Email	
Signature	
Date	

This questionnaire is divided into 4 sections:

- Section 1: Use of medical devices containing mercury in governmental hospital
- Section 2: Alternatives to medical devices containing mercury
- Section 3: Technical specifications for procurement
- Section 4: Waste management and mercury replacement program

CONFIDENTIAL

Section 1: Use of medical devices containing mercury in governmental hospital

1. Are you currently using medical devices containing mercury? Please specify the type of equipment you have.

- **Thermometers:**
 - ☐ Mercury thermometers
 - ☐ Infrared tympanic thermometers
 - ☐ Digital thermistor thermometers
 - ☐ Other
- **Sphygmomanometers :**
 - ☐ Mercury blood pressure monitors (manuals)
 - ☐ Digital display aneroid sphygmomanometers
 - ☐ Blood pressure monitor based on a strain gauge
 - ☐ Other
- **Esophageal dilators/bougies**
 - ☐ Esophageal dilators/bougies containing mercury
 - ☐ Esophageal dilators/bougies filled with water and tungsten
 - ☐ Other
- **Gastrointestinal tubes (Miller Abbott, Blakemore and Cantor tubes)**
 - ☐ Gastrointestinal tubes containing mercury
 - ☐ Gastrointestinal tubes without weight or with tungsten gel as weight
 - ☐ Other
- **Intraocular pressure devices**
 - ☐ Mercury-containing intraocular pressure devices
 - ☐ Other
- **Other equipment**
 - ☐ X-ray machines with mercury switches
 - ☐ Mercury barometers
 - ☐ Other:

2. Please specify the number of mercury thermometers, sphygmomanometers, esophageal dilators (bougies) and barometers you would have?

Thermometers

Please also consider equipment with built-in mercury thermometers such as incubator/water bath thermometers.

Number of mercury thermometers you buy per year

Number of mercury thermometers you have in stock	
Number of obsolete mercury thermometers (non-functional, unused...)	
Number of mercury thermometers used and to be disposed of	
Sphygmomanometers	
Number of mercury sphygmomanometers you buy per year	
Number of mercury sphygmomanometers you have in stock	
Number of obsolete mercury sphygmomanometers (non-functional, unused...)	
Number of mercury sphygmomanometers used and to be disposed of	
Esophageal dilators/bougies	
Number of mercury-containing dilators you buy per year	
Number of mercury-containing dilators you have in stock	
Number of obsolete mercury-containing dilators (non-functional, unused, etc.)	
Number of mercury-containing dilators used and to be disposed of	
Gastrointestinal tubes (Miller Abbott, Blakemore and Cantor tubes)	
Number of mercury-containing gastrointestinal tubes you buy per year	
Number of mercury-containing gastrointestinal tubes you have in stock	
Number of obsolete mercury-containing gastrointestinal tubes (non-functional, unused, etc.)	
Number of mercury-containing gastrointestinal tubes used and to be disposed of	
Intraocular pressure devices	

Number of mercury-containing intraocular pressure vessels you buy per year	
Number of mercury-containing intraocular pressure devices you have in stock	
Number of obsolete mercury-containing intraocular pressure devices (non-functional, unused, etc.)	
Number of mercury-containing intraocular pressure devices used and to be disposed of	

3. Reference to the ratification of the Lebanese government of the Minamata Convention (Law 2/2017), are you aware that mercury, its use, and the exposure to it is harmful and will be restricted?

- ☐ Yes ☐ No
☐ We have stopped the use of mercury-containing devices on the site _____
☐ We plan to stop using devices containing mercury in ____
☐ We plan to continue to use devices containing mercury and will request an exemption from use.

4. What other mercury-containing devices are used in your facility?

- ☐ Laboratory chemicals
☐ Pharmaceuticals with the addition of mercury
☐ Other (e.g., barometers, pressure gauges, vacuum gauges...)

Please fill in the table,

<u>Mercury-containing devices</u>	<u>Quantity (kg)</u>
Laboratory chemicals	
Pharmaceuticals with the addition of mercury	
Other (e.g., barometers, pressure gauges, vacuumeters...)	

Section 2: Alternatives to medical devices containing mercury

1. Are you aware of any alternatives to medical devices containing mercury to mercury?

- ☐ Non
- ☐ Yes, please list known alternatives

- ☐ Are you using alternatives? Please list

2. Are you interested and willing to switch to a mercury-free alternative? (Please keep in mind that phasing out mercury is legally binding)

- ☐ Yes
- ☐ No, not at the moment. If no, then please elaborate more on the reasons:

Financial Challenges

Technical challenges

Market Challenges

Other challenges

3. As it is legally binding to switch to non-mercury alternatives, what are your needs / type of support?

Disposal of obsolete mercury-containing devices	
Disposal of the existing stock of mercury-containing devices	
Purchase of new mercury-free devices	
Financial support	
Other, please specify	

Section 3 : Technical specifications for procurement

1. How is the procurement of new equipment / devices conducted?

- ☐ According to an international directive
- ☐ According to national laws, please specify ____
- ☐ According to an internal policy, please specify ____
- ☐ As needed
- ☐ Others, please list

2. Who is your current supplier(s) of medical devices? Does it offer mercury-free medical devices?

3. Do you have a long-term contract with one of your medical device suppliers?

4. Are there any legal procurements specifications for mercury thermometers and sphygmomanometers or mercury-containing devices in your facility?

- ☐ Yes
- ☐ Non
- ☐ If yes, please list

5. How would you incorporate the international standards in the procurement specification?

- ☐ Respecting mercury-related conventions (such as the Minamata Convention)
- ☐ By referring to ISO or EN

- ☐ Other, please list

Section 4: Waste management and mercury replacement program

1. What are your facility's habits for cleaning and removing debris from a broken mercury thermometer? Please specify the actions and method of waste collection and disposal.

2. What are the storage facilities for damaged mercury-containing devices in your facility?

- ☐ Isolated areas
☐ Plastic/polyethylene containers
☐ Other, please list:

3. What is the current method of disposing of medical devices containing mercury? Which company manages the disposal?

4. Does your institution have a budget for a mercury replacement program? Do you have an estimate of its overall cost?

- ☐ Yes, if yes, please specify the estimated cost _____
☐ No
☐ We are trying to fund such a program

5. Are you aware of the steps to mercury replacement program?

- ☐ Yes
- ☐ Non
- ☐ We have difficulty understanding all the steps

6. Have you ever conducted an environmental audit? If yes, please give more details (date, internal, external, consulting firm...)

Has it been approved by the Ministry of the Environment?

- ☐ Yes, if yes, please provide the reference number and date and a copy of the approval letter _____
- ☐ No, please specify _____

If you are willing to provide any document or picture relevant to the project devices, please enclose it as an annex.

- Picture examples:
 - o Medical devices containing mercury.
 - o Equipment containing mercury.
 - o Hazardous waste warehouse.
- Document examples:
 - o Procurement contracts.
 - o Waste management contracts.
 - o Audit reports.