

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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Prepared by **Antoni Guiu**
Checked by **Rosa Cirera, Ana Isabel Sánchez**
Approved by **Peter Wouters**
Description **This report provides the technical instructions to be followed by the Tunisian local expert (Mr. Saïd Tlig) to carry out the inventory of medical devices containing mercury at Tunisian health care facilities.**

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Ramboll Iberia S.L.
Plaza de Carlos Trias Bertrán, 4
28020 Madrid
Spain
T +34 91 418 45 43

CIF: B-84575869
Registered in the Commercial
Register of Madrid
Tomo 22230, Folio 195
Hoja M-396793

Ramboll Iberia, S.L.
Carrer Diputació 211
Principal
08011 Barcelona
Spain
T +34 932 553 192

<https://ramboll.com>

CONTENT

1. Introduction and objectives	4
2. Project background	5
2.1 General characteristics of mercury	5
2.2 Minamata Convention	6
2.3 Environmental impact of mercury-containing medical devices	6
2.4 Tunisian Health Sector	7
3. technical instructions to carry out the inventory of medical devices containing mercury at Tunisian health care facilities	8
3.1 Scope	8
3.2 Questionnaire design	8
3.2.1 Heading - Organization Identifiers	8
3.2.2 Section 1 - Use of mercury thermometers and sphygmomanometers in public hospitals.	9
3.2.3 Section 2 - Alternatives to mercury thermometers, sphygmomanometers, and gastrointestinal tubes.	9
3.2.4 Section 3 - Technical specifications for procurement.	10
3.2.5 Section 4 - Mercury-containing waste management and mercury equipment replacement programme	10
3.3 Inventory Design	10
3.4 Data processing	11
4. Expected outcome	12
Annex I. List of hospitals and clinics in Tunisia	13
ANNEX II. Questionnaire on mercury-containing devices in public hospitals in Tunisia	15

ACRONYMS

Acronym	Definition
ASGM	Artisanal and small-scale gold mining
GEF	Global Environment Fund
Hg	Mercury
INS	<i>Institut National de la Statistique</i> (National Institute of Statistics)
MC	Minamata Convention
UNEP	United Nations Environmental Program
WHO	World Health Organization

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 Tunisian local expert (Mr. Saïd Tlig) to carry out the inventory of medical devices containing mercury at the Tunisian 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 Tunisian Health Sector

With a population of 11.803.588 people in 2022¹¹, Tunisian health infrastructure is formed by:

- 15 general hospitals.
- 22 specialized institutes, centres and hospitals.
- 31 regional hospitals.
- 108 circumscription hospitals.
- 2,157 primary health care facilities.

The Ministry of Health reports that mercury waste generated ranges from 5.6 kg/year for small hospitals (300-500 beds) to 16 kg/year (>500 beds). For the 25 hospitals targeted by the project (see [Annex I](#)), the volume is estimated at 140 - 400 kg of mercury-containing equipment per year.

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 National Institute of Statistics of Tunisia (L'Institut National de la Statistique: INS). Available at: <http://www.ins.tn/en> accessed on the 20th of October of 2022.

3. Technical instructions to carry out the inventory of medical devices containing mercury at Tunisian 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 Tunisian 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 in order 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 sur les dispositifs contenant du mercure dans les hôpitaux publics en Tunisie*" (Questionnaire on mercury-containing devices in public hospitals in Tunisia) and consist of the following sections which will be subsequently detailed.

- Heading - Organization Identifiers
- Section 1 - Use of mercury thermometers, sphygmomanometers, gastrointestinal probes (e.g., Cantor probes, oesophageal dilators, Miller-Abbott probes) in public hospitals and private clinics.
- Section 2 - Alternatives to mercury thermometers, sphygmomanometers, and gastrointestinal tubes.
- Section 3 - Technical specifications for procurement.
- Section 4 - Mercury-containing waste management and mercury equipment 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 mercury thermometers and sphygmomanometers in public hospitals.

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.
- Dental Amalgams.
- 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 Tunisian health care facilities nowadays.

3.2.3 Section 2 - Alternatives to mercury thermometers, sphygmomanometers, and gastrointestinal tubes.

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 - Mercury-containing waste management and mercury equipment replacement programme

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 Tunisia Mercury 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 tierw 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 sources¹² 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)

¹² 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 Tunisian 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 hospitals and clinics in Tunisia

The list is provided by Mr. Saïd Tlig, the local consultant participating in the Child Project¹³.

1. ETABLISSEMENTS PUBLICS DE SANTÉ (PUBLIC HEALTH CARE STABLISHMENTS)

Centre de Traumatologie et des Grands Brulés de Ben Arous
Hôpital Mongi Slim
Hôpital Habib Thameur
Hôpital Aziza Othmana
Hôpital Charles Nicolle
Hôpital La Rabta
Institut Salah Azaiez
Institut Hedi Raies d'ophtalmologie de Tunis
Institut National de Neurologie
Institut Mohamed Kassab d'Orthopédie
Institut Pasteur
Centre de Maternité et de Neonatologie
Hôpital d'Enfants de Tunis
Hôpital de Pneumo-Phtisiologie
Hôpital Razi
Institut National de Nutrition et de Technologie Alimentaire
Hôpital Sahloul
Hôpital Farhat Hached
Hôpital Fattouma Bourguiba
Hôpital Hédi Chaker
Hôpital Habib Bourguiba, Sfax
Complexe sanitaire Djebel Ouest

2. HÔPITAUX RÉGIONAUX (REGIONAL HOSPITAL)

HR Haj Ali Soua, Ksar Hellal
HR HOUHoucine Bouzaïene de Gafsa
HR Mohamed Ben Sassi de Gabes
HR Habib Bourguiba de Medenine
HR Sadok Mokadem de Jerba
HR El Martri de l'Ariana

3. POLYCLINIQUES (POLYCLINICS)

Polyclinique El Omrane
Polyclinique El Khadhra
Polyclinique de Sousse
Polyclinique de Sfax

4. DÉFENSE NATIONALE (NATIONAL DEFENSE)

Hôpital Militaire de Bizerte
Hôpital Militaire de Gabes
Hôpital Militaire d'Instruction de Tunis

¹³ Source: Email. Saïd Tlig (personal communication September 5, 2022).

5. MINISTERE DE L'INTERIEUR (MINISTRY OF INTERIOR)

Hôpital des Forces de Sécurité de l'Intérieur, La Marsa

6. CLINIQUES PRIVÉES (PRIVATE CLINICS)

Clinique Saint Augustin
Clinique Les Jasmins
Clinique Taoufik-Tunis
Clinique El Menzah
Clinique Avicenne
Clinique El Manar – STE Les Cliniques de Tunisie
Clinique Générale et Cardiovasculaire Tunis
Clinique El Amen

ANNEX II. QUESTIONNAIRE ON MERCURY-CONTAINING DEVICES IN PUBLIC HOSPITALS IN TUNISIA

Questionnaire sur les dispositifs contenant du mercure dans les hôpitaux publics en Tunisie

Le mercure métal est utilisé depuis des décennies dans les thermomètres et les sphygmomanomètres des établissements de soins de santé. Dans le secteur de la santé, le mercure peut se libérer en se déversant lors de bris de thermomètres ou de fuite à partir d'équipements. Ce métal livré à l'environnement est capable d'évaporation et de ce fait, l'inhalation de vapeurs de mercure peut occasionner des dommages aux poumons, aux reins et au système nerveux central.

Le projet "Child" financé par le FEM, est mis en œuvre en coordination entre le CAR/PSP, le PNUE/PAM et l'autorité nationale responsable (Ministère chargé de l'Environnement). La composante 1-Child 1.1 vise l'élimination progressive des dispositifs contenant du mercure dans le secteur de la santé par l'adoption d'alternatives écologiquement rationnelles dans les pays méditerranéens.

L'enquête suivante est destinée à recueillir des données pertinentes qui soutiendront et aideront à l'introduction progressive d'alternatives au mercure dans les équipements médicaux du secteur de la santé en Tunisie. Les informations recueillies dans le cadre de cette enquête sont strictement confidentielles et ne seront utilisées que dans le cadre de la présente étude.

Nom de l'hôpital gouvernemental	
Date d'établissement	
Adresse	
Nom du répondant	
Position	
Téléphone bureau	
Téléphone mobile	
Courrier électronique	
Signature	

Date	
------	--

Ce questionnaire se subdivise en 4 sections :

- Section 1 : Utilisation de thermomètres à mercure, de sphygmomanomètres et de sondes gastro-intestinales (par exemple : sondes de Cantor, dilatateurs œsophagiens, sondes de Miller-Abbott) dans les hôpitaux publics.
- Section 2 : Alternatives aux thermomètres, sphygmomanomètres et tubes gastro-intestinaux à mercure.
- Section 3 : Spécifications techniques pour l'approvisionnement.
- Section 4 : Gestion des déchets contenant du mercure et programme de remplacement des équipements au mercure.

CONFIDENTIAL

Section 1 : Utilisation de thermomètres et de sphygmomanomètres à mercure dans les hôpitaux publics.

1. Etes-vous en cours d'utilisation d'un équipement contenant du mercure ? Veuillez préciser le type d'équipement dont vous disposez.

- **Thermomètres :**
 - ☐ Thermomètres à mercure
 - ☐ Thermomètres tympaniques à infrarouge
 - ☐ Thermomètres numériques à thermistance
 - ☐ Autres
- **Sphygmomanomètres :**
 - ☐ Tensiomètres à mercure (manuels)
 - ☐ Sphygmomanomètres anéroïdes à affichage digital
 - ☐ Moniteur de pression sanguine basé sur une jauge de contrainte
 - ☐ Autres
- **Sondes gastro-intestinales (sondes de Cantor, dilateurs œsophagiens/bougies, sondes d'alimentation ou sondes Miller Abbott)**
 - ☐ Tubes gastro-intestinaux contenant du mercure
 - ☐ Autres (par exemple, l'alternative du tungstène)
- **Baromètres**
 - ☐ Baromètres à mercure
 - ☐ Autres

2. Veuillez préciser le nombre de thermomètres à mercure, de sphygmomanomètres, de dilateurs œsophagiens (Bougies) et de baromètres dont vous disposeriez ?

Thermomètres	
<i>Veuillez également considérer les équipements avec des thermomètres à mercure incorporés comme les thermomètres d'incubateur/bain d'eau.</i>	
Nombre de thermomètres à mercure que vous achetez par an	
Nombre de thermomètres à mercure que vous avez en stock	
Nombre de thermomètres à mercure obsolètes (non fonctionnels, non utilisés...)	
Nombre de thermomètres à mercure utilisés et à éliminer	
Sphygmomanomètres	
Nombre de sphygmomanomètres à mercure que vous achetez par an	
Nombre de sphygmomanomètres à mercure que vous avez en stock	

Nombre de sphygmomanomètres à mercure obsolètes (non fonctionnels, non utilisés...)	
Nombre de sphygmomanomètres à mercure utilisés et à éliminer	
Tubes gastro-intestinaux (tubes de Cantor, dilatateurs œsophagiens/bougies, tubes d'alimentation ou tubes Miller Abbott)	
Nombre de tubes gastro-intestinaux au mercure que vous achetez par an	
Nombre de tubes gastro-intestinaux au mercure que vous avez en stock	
Nombre de tubes gastro-intestinaux au mercure obsolètes (non fonctionnels, non utilisés...)	
Nombre de tubes gastro-intestinaux à mercure utilisés et à éliminer	

3. Êtes-vous conscient que le mercure, son utilisation et l'exposition à ce métal sont nocifs et qu'il existe déjà une réglementation internationale ferme pour limiter, voire totalement éradiquer son usage ?

- ☐ Oui; ☐ Non
☐ Nous avons mis fin à l'utilisation de dispositifs contenant du mercure sur le site _____ par an.
☐ Nous prévoyons d'arrêter l'utilisation de dispositifs contenant du mercure en _____ par an.
☐ Nous prévoyons de continuer à utiliser des dispositifs contenant du mercure et demanderons une exemption d'utilisation.

4. Quels autres dispositifs contenant du mercure sont-ils utilisés dans votre établissement ?

- ☐ Amalgames dentaires
☐ Produits chimiques de laboratoire
☐ Produits pharmaceutiques avec ajout de mercure
☐ Autres (par exemple baromètres, manomètres, jauges à vide...)

Veuillez remplir le tableau,

<u>Dispositifs contenant du mercure</u>	<u>Quantité (kg)</u>
Amalgames dentaires	
Produits chimiques de laboratoire	
Produits pharmaceutiques avec ajout de mercure	
Autres (par exemple, baromètres, manomètres, vacuomètres...)	

5. Au sujet de l'approvisionnement en amalgames dentaires et de la gestion de leurs déchets solides et liquides.

- Veuillez bien préciser la source pour l'approvisionnement en amalgame dentaire dans votre établissement :

<u>Source d'approvisionnement</u>	<u>Quantité par an (kg)</u>
Source 1	
Source 2	
Source 3	

- Veuillez bien préciser comment sont gérés les déchets/rejets humides des amalgames dentaires dans votre établissement :
 - ☐ Déversés dans le réseau d'assainissement
 - ☐ Récupérés par un séparateur
- Veuillez bien préciser comment sont gérés les déchets solides d'amalgames dentaires dans votre établissement :
 - ☐ Rejetés en mélange avec les DASRI
 - ☐ Maintenus en stock à part, prêt à l'enlèvement

Section 2 : Alternatives pour l'utilisation de thermomètres, sphymomanomètres et tubes gastro-intestinaux au mercure

1. Connaissez-vous des alternatives aux thermomètres, sphymomanomètres et tubes gastro-intestinaux au mercure ?

- ☐ Non
- ☐ Oui, veuillez énumérer les alternatives connues
- ☐ Utilisez-vous des alternatives à ces équipements ? Prière d'énumérer

2. Êtes-vous intéressé et disposé à passer à une alternative sans mercure ? (Notez bien que l'élimination progressive du mercure est une obligation légale).

- ☐ Oui
- ☐ Non, pas pour le moment. Si non, veuillez en expliquer les raisons :

Défis financiers

Défis techniques

Défis liés au marché

Autres défis

3. Voyant l'obligation légale de passer à des équipements de substitution sans mercure, quels sont vos besoins / le type de soutien nécessaire ?

Elimination des dispositifs obsolètes contenant du mercure	
Elimination du stock existant de dispositifs contenant du mercure	
Achat de nouveaux dispositifs sans mercure	
Soutien financier	
Autres, veuillez préciser	

Section 3: Spécifications techniques pour l'approvisionnement

1. Comment se déroule l'acquisition de nouveaux équipements / dispositifs ?

- ☐ Selon une directive internationale
- ☐ Selon des lois nationales, veuillez préciser
- ☐ Selon une politique interne, veuillez préciser
- ☐ Selon les besoins
- ☐ Autres, veuillez énumérer

2. Existe-t-il des spécifications légales d'achat de thermomètres et de sphygmomanomètres au mercure ou de dispositifs contenant du mercure dans votre établissement ?

- ☐ Oui
- ☐ Non
- ☐ Si oui, veuillez énumérer

3. Comment intégreriez-vous les normes internationales dans le cahier des charges?

- ☐ En respectant les conventions relatives au mercure (comme la Convention de Minamata)
- ☐ En se référant à l'ISO ou à l'EN
- ☐ Autres, veuillez énumérer

Section 4: Gestion des déchets et programme de remplacement du mercure

1. Quelles sont les habitudes de votre établissement pour nettoyer et éliminer les débris d'un thermomètre à mercure cassé ? Veuillez préciser les actions et la méthode de collecte des déchets et leur élimination.

2. Quels sont les moyens de stockage des dispositifs contenant du mercure endommagés dans votre établissement ?

- ☐ Zones isolées
- ☐ Conteneurs en plastique/polyéthylène
- ☐ Autres, veuillez énumérer :

3. Votre établissement dispose-t-il d'un budget pour un programme de remplacement des dispositifs au mercure ? Avez-vous une estimation de son coût global ?

- ☐ Oui, si oui, veuillez préciser le coût estimé _____
- ☐ Non
- ☐ Nous essayons de financer un tel programme

4. Connaissez-vous les étapes du programme de remplacement des dispositifs au mercure ?

- ☐ Oui
- ☐ Non
- ☐ Nous avons des difficultés à comprendre toutes les étapes

5. Avez-vous déjà réalisé un audit environnemental ? Si oui, veuillez donner plus de détails (date, interne, externe, cabinet de conseil....)

A-t-il été approuvé par le Ministère chargé de l'Environnement ?

- ☐ Oui, si oui, veuillez préciser le numéro de référence et la date ainsi qu'une copie de la lettre d'approbation _____
- ☐ Non, veuillez préciser _____

Nom et Prénom

Cachet et signature