



Reducing UPOPs and Mercury Releases from The Health Sector in Africa

Mercury component of the project

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UNDP

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Project

Reducing UPOPs and Mercury Releases from the Health Sector in Africa

GEF financed UNDP implemented project in Ghana, Madagascar, Tanzania and Zambia

- ► 6,5mln USD GEF financing (2016-2020)
- Partners Strong regional expert team!
 UNDP Health HIV and Development (HHD)
 WHO
 - NGO Healthcare Without Harm (HCWH)

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...to implement best environmental practices and introduce <u>non-incineration</u> healthcare waste treatment technologies and <u>mercury-free</u> *medical devices* in four Sub-Saharan African countries to reduce harmful releases from the health sector.

- Stockholm Convention
- Minamata Convention

Project aims to Reduce exposure to UPOPs





Project aims to Reduce exposure to Mercury





Project will also help reduce infections







Project

- Institutional capacities to strengthen policies and regulatory framework
- Development of a national action plan for advanced HCWM and Mercury phase-out
- Demonstration of non-incineration treatment and mercury free technologies in pilot facilities
- Demonstration advanced HCWM practices Improve segregation, collection, storage, transport practices

Reduction in greenhouse gas emissions through recycling



President of Republic, Madagascar







Project

- Institutional capacities to strengthen for national training (existing healthcare workers and college students)
- Alternative waste treatment methods (bio-digestion, waste to energy)
- Capacity building for data collection and data management in low resource settings
- Coordination with other programmes, WASH and Sustainable Procurement

Communication and outreach to engage with potential donors for replication and scale up





Specifically...

Make available in the region affordable Mercury-free devices that conform to international standards and Minamata Convention on Mercury.

- Available segregation and collection system for mercury containing devices
- Strategy for the collection and disposal of the collected mercury

Ensuring occupational health and safety

Monitoring to ensure sustainability, mercury elimination exit plan





- The protection of human health is at the core of the Minamata Convention, whose objective (Article 1):
 - "is to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds".
 - The Convention sets a phase-out date of 2020 for the manufacture, import and export of mercury thermometers and sphygmomanometers.

Followed mercury elimination strategy

Stakeholder engagement strategy

Situation assessment and inventory

Strategy and program development

Collection, transportation, storage

Recovery / recycling

Disposal Operations

Monitoring and reporting





Carried out activities...

Stakeholder engagement strategy:

Carrying out of awareness raising workshops and trainings

Situation assessment and inventory:

Inventory of to be replaced devices in the pilot facilities

Strategy and program development

Development of a replacement strategy (1:1 exchange)









Carried out activities...II

Collection, transportation, storage:

- Central procurement of devices for all four countries
- Collection of mercury containing devices and transport to interim storages
- Set up of interim storages in the project countries (e.g. modified 20" container, special storage room)



Constructed interim store for mercury waste, Madagascar (2018)



Carried out activities...III

Collection, transportation, storage:

Example of national temporary interim storage of mercury waste from the healthcare sector (MoH, Lusaka, 2019)







Challenge: missing trust in digital equipment of the user

Mercury vs Electronic Standards







Including of Key Specifications for Non-Mercury Digital Thermometers

- Specifications are defined by two international standards:
 - EN 12470-3:2000+A1:2009
 - ASTM E1112-00
- Certification of conformity to international standards, including EN 12470-3:2000 or ASTM E1112 and copy of the certificate from the notified body must be available







- Procurement of only clinical products with full certification from companies following international quality standards
- Check of the quality standards of the supplier
- Visual check of supplied equipment based on checklist
- Quality assurance by testing of equipment







Challenge... exchange

Code	Item	Ghana	Madagascar	Tanzania	Zambia	Total New
HGF-01-01	Mercury free aneroid sphygmomanometer	148	146	283	208	785
HGF-01-02	Mercury free automatic spygmomanometer	47	145	20	213	425
HGF-01-03	Mercury Free Digital Blood Pressure Monitor	24	-	3	-	27
HGF-02-01	Mercury free digital thermometer	225	963	160	953	2.301

A 1:1 exchange in the countries was planned, which equals to about 190 kg of mercury to be collected - 0,022 kg/bed

Reality.... much, much less...

Code	Item	Ghana	Madagascar	Tanzania	Zambia	Total (kg)
HGF-01-01	Mercury free aneroid sphygmomanometer	22,20	21,90	42 <i>,</i> 45	31,20	117,75
HGF-01-02	Mercury free automatic spygmomanometer	7,05	21,75	3,00	31,95	63,75
HGF-01-03	Mercury Free Digital Blood Pressure Monitor	3,60	-	0,45	-	4,05
HGF-02-01	Mercury free digital thermometer	0,23	0,96	0,16	0,95	2,30
	Total mercury collected (kg)	33,08	44,61	46,06	64,10	187,85





Lesson learned

- Some resistance by users to accept the new devices
- No interim storage places for mercury containing waste available in the countries
- Visual check of equipment showed that supplied thermometers were not in accordance with the specification
 - Wrong thermometers were replaced by supplier
- Quality assurance by testing of equipment showed that several sphygmomanometers were inaccurate
 - Sphygmomanometers were replaced by supplier
- Main question remaining:

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How to finally dispose of the collected mercury containing waste?





But... What to do???







Final treatment and/or disposal



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- Exportation to countries only that can handle hazardous waste correctly
 - Basel convention=> authorisations required from:
 - Departing country
 - Arriving country
 - All countries being passed (even by air)
 - Can take (very) long
 - Potentially (very) expensive
 - Waste generator stays responsible for their waste until final disposal!





Disposal: Permanent Storage

- Isolate mercury waste from the biosphere for geological periods of time
- Permanent storage in deep rock facilities aims at finding solutions that do not rely on long-term maintenance or repair
- Potential sites: underground mines that are no longer used and have suitable geological conditions
- Potential host rocks include the following:
 - Salt rock

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- Clay formations
- Hard rock formations





Outlook - Challenges

- Most African countries are most likely not prepared for 2020
- Key issues from the health sector:
 - Trust in digital replacements
 - Missing possibilities and protocols for accuracy tests
 - Limited experience in purchasing medical quality products
 - Ownership of products
- Key issues from the environmental side:
 - Missing temporary storage places
 - With the exception of export, no possibilities for final disposal



- Second procurement round is ongoing, taking the "lessons learned" into consideration
 - Local procurement to strengthen local capacities
 - Local quality check
 - Selection of beneficiaries based on the possibility of 1:1 exchange
 - Creation of "mercury free" pilot
- Development of an exit strategy for the project
 - Close cooperation with the E-waste sector as they face similar problems but on a larger scale



Many thanks...

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1st PLACE Moniruzzaman Sazal, Bangladesh

Floods in Bangladesh

Bangladesh is one of the most vulnerable countries to the impacts of climate change. Low-lying coastal countries, such as Bangladesh, are vulnerable to sea level rise and increased occurrence of intense, extreme weather conditions such as the cyclones, as well as the melting of polar ice.





Rabemanantsoa Andry, Madagascar

Between Beauty and Sun Protection

In Madagascar, women use a cream based on Masonjoany (Enterospermum madagascariensis) to protect their face against ultraviolet rays and to be beautiful at the same time.



