

2019

Project Implementation Review (PIR)

**UPOPs/Mercury from Health Sector in Africa**

[Basic Data](#_Toc1)

[Overall Ratings](#_Toc2)

[Development Progress](#_Toc3)

[Implementation Progress](#_Toc4)

[Critical Risk Management](#_Toc5)

[Adjustments](#_Toc6)

[Ratings and Overall Assessments](#_Toc7)

[Gender](#_Toc8)

[Social and Environmental Standards](#_Toc9)

[Communicating Impact](#_Toc10)

[Partnerships](#_Toc11)

[Annex - Ratings Definitions](#_Toc12)

# Basic Data

|  |  |
| --- | --- |
| **Project Information** | |
| UNDP PIMS ID | 4865 |
| GEF ID | 4611 |
| Title | Reducing UPOPs and Mercury Releases from the Health Sector in Africa |
| Country(ies) | Regional - Africa, Ghana, Madagascar, Tanzania, Zambia, Regional Centre - Istanbul, Regional - Africa |
| UNDP-GEF Technical Team | Chemicals |
| Project Implementing Partner | SVK10 (Regional Centre - Istanbul) |
| Joint Agencies | *(not set or not applicable)* |
| Project Type | Full Size |

|  |
| --- |
| **Project Description** |
| The overall objective of this full size GEF funded project, implemented by UNDP in partnership with WHO and the NGO Health Care Without Harm, is to implement best environmental practices and introduce non-incineration healthcare waste treatment technologies and mercury-free medical devices in four Sub-Saharan African countries (Ghana, Madagascar, Tanzania and Zambia) to reduce harmful releases from the health sector.    In each of these four countries, the generation of healthcare waste (HCW) is rapidly increasing. Sub-Saharan countries face particular challenges in dealing with increasing HCW quantities, because HCW treatment technologies that meet international guidelines and fit local circumstances, are simply not available at market prices that facilities and governments can afford. As a result, countries most often opt for low technology incinerators, which result in significant releases of unintentional persistent organic pollutants (UPOPs). Such pollutants are considered to be among the most harmful, persistent, and bio-accumulative global pollutants in the world and therefore controlled under the Stockholm Convention on POPs.    Similarly, Sub-Saharan countries face challenges in handling products and wastes containing mercury. Mercury, one of the world's most ubiquitous heavy metal neurotoxicants, has been an integral part of many medical devices such as thermometers and sphygmomanometers. When these devices break or leak with regularity, they add to the global burden of mercury in the environment and expose health care workers to the acute effects of the metal itself. Considering the harmful effect of mercury, the phase-out of such devices by 2020 is anticipated under the recently adopted Minamata Convention. |

|  |  |
| --- | --- |
| **Project Contacts** | |
| UNDP-GEF Regional Technical Adviser | Mr. Etienne Gonin (etienne.gonin@undp.org) |
| Programme Associate | Mr. Jatupon Thongying (Jack) (jatupon.thongying@undp.org) |
| Project Manager | Mr. Selimcan Azizoglu (selimcan.azizoglu@undp.org) |
| CO Focal Point | Mr. Joel Ayim Darkwah (GHANA) (joel.darkwah@undp.org)  Ms. Verosoa RAHARIVELO (verosoa.raharivelo@undp.org) |
| GEF Operational Focal Point | *(not set or not applicable)* |
| Project Implementing Partner | *(not set or not applicable)* |
| Other Partners | Ms. Susan Wilburn (swilburn@hcwh.org) |

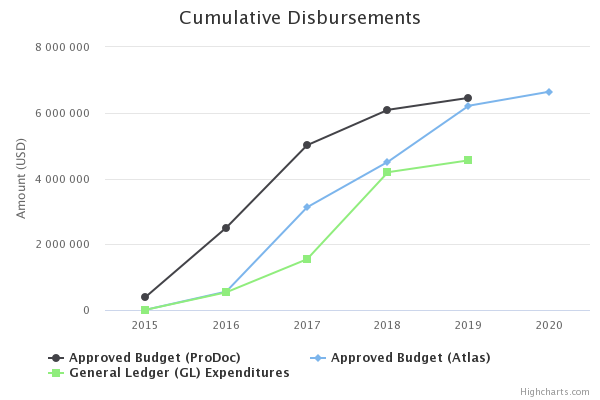
# Overall Ratings

|  |  |
| --- | --- |
| Overall DO Rating | Highly Satisfactory |
| Overall IP Rating | Highly Satisfactory |
| Overall Risk Rating | Low |

# Development Progress

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Description** | | | | | | |
| **Objective**  **Non-incineration and**  **Mercury-free technologies**  **introduced in African**  **countries.**  **Affordable non-incineration**  **technologies available in the**  **African region.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Non-incineration and Mercury-free technologies introduced in 4 participating African countries. | In 2012, there were approximately 115 non-incineration HCW technologies installed throughout Africa.  In the project countries, 1 non-working technology was present in Tanzania, 1 working hydroclave in Ghana and none in Madagascar - the status could not be assessed in Zambia (April 2014). | *(not set or not applicable)* | Non-incineration technologies and Mercury-free medical devices introduced at 4 central treatment facilities, 22 hospitals and 24 health posts. | With regards to demonstration of advanced healthcare waste management (HWCM) and treatment methods including non-incineration and Mercury-free technologies, the Project Document envisages the implementation of two procurement rounds for HCWM equipment; first round in 2017-2018 (with an approx. value of USD 1.25mln) and the second round in 2018-2019 (with an approx. value of USD 1mln).    The procurement of non-incineration HCWM systems and mercury-free devices that conform to BAT and international standards forms a critical part within the project. Therefore, a general strategy for the procurement of equipment was developed to ensure successful installation and operation of the HCWM equipment through a detailed assessment of the local situation in the four project countries and at each of the pilot site was carried out in an earlier stage of the project.    The evaluation of the assessment showed that the pilot facilities are lacking required infrastructure. Also, strong possible problems in the sustainable future operation of to be provided equipment, including the financing of the operation costs and the availability of maintenance services could be noticed. To overcome these challenges, a procurement strategy was developed to ensure; (1) the ownership on the equipment of the countries and the pilot facilities; (2) accurate installation of the equipment; (3) lowest possible follow up cost in the operation of the equipment; (4) future maintenance of the equipment and availability of spare parts. This strategy was discussed and agreed during the regional project meeting. The general procurement strategy was detailed under the progress on the indicator, “Number of HCWM systems and Hg free devices procured.”    The project recently completed the first round of procurement and has, so far, supplied mercury free medical devices and HCWM items, including safety and personal protective equipment (PPE); consumables including sharp containers, waste bags; internal equipment including waste bins, needle cutters; logistic equipment including collection and transport bins; chemical storage equipment; and non-incineration treatment equipment to 24 pilot HCFs in four project countries (Ghana: 5; Madagascar: 6; Tanzania: 5; Zambia: 8) with 7,405 beds in total.    Among 24 pilot facilities supported with HCWM items, 14 facilities (Ghana: 3; Madagascar: 3; Tanzania: 5; Zambia: 3) has received non-incineration technologies or autoclaves (steam-based sterilization technology) as being:  • 3 central treatment facilities (Madagascar: 1; Tanzania: 1; Zambia: 1). In Ghana, the project is supporting a private central treatment facility with autoclave technology.  • 11 hospitals/health posts (Ghana:3; Madagascar:2; Tanzania:4; Zambia:2) which are planned to serve as cluster facilities to treat medical waste from other hospitals/health posts in their close vicinity.    The remaining 10 pilot facilities (Ghana: 2; Madagascar: 3; Zambia: 5) have only received HCWM items (so excluding treatment equipment). These pilot facilities will either send their medical waste to cluster facilities supported by the project or will use the existing non-incineration treatment equipment in the facility (like two facilities in Ghana). With HCWM items provided, the project aims to support indirect introduction or better management of non-incineration technologies in these facilities.    As of 30 June 2018, all countries received the HCWM items and treatment equipment; in Ghana (Apr-18) and in Tanzania (May-18), autoclaves were already installed/tested/commissioned; and in Madagascar and Zambia, autoclaves will be installed in August 2018 right after the completion of infrastructural requirements for autoclave housing. More details on the procurement strategy, BoQs, installations, training and commissioning of non-incineration technologies will be detailed in below sections to avoid repetitions.    The Project Document targets 36,900 beds as for the usage of non-incineration treatment, as number of beds. While 24 pilot facilities in the first round of the project currently accumulate 7,405 beds, it should be noted that (1) there will be additional capacity to be provided in the second round; (2) the waste treated by the autoclaves installed/supported by the project is expected to continuously increase with operationalized central/cluster facilities, which will be able to collect and treat medical waste for other HCFs in their areas. The project, along with respective pilot facilities and MoHs, are currently putting efforts to attract more HCFs for non-incineration treatment (with fees) in the central/cluster facilities and such efforts will also work well with feasibility and sustainability of autoclave operations. The progress on this respect will be reported on in the next PIR report.    With regards to mercury free medical devices, all 24 HCFs in four project countries already received mercury-free devices (aneroid and automatic sphygmomanometers, digital blood pressure monitors and digital thermometers) in total of 2,301 devices. While the project in Ghana already handed over mercury free medical devices to pilot HCFs, the envisaged one-to-one exchange with mercury containing devices are yet to be fully completed due to reasons including delays in testing for validation/calibration of devices and in arranging centralized interim storage for collected mercury waste. In the next reporting period, the project will carry out an inventory of mercury containing devices collected in each project country and will be able to report on the amount of mercury waste collected. Further details on the introduction of mercury free devices including distribution strategy, storage sites and trainings on mercury free devices will be reported on in below sections to avoid repetitions.    Meanwhile, the regional component organized support missions of regional expert team to all four project countries to ensure buy-in of mercury free alternatives procured and the site readiness for the implementation of the treatment technology as well as to provide support in the implementation of the healthcare waste management plan, mercury phase-out strategy and national workplans.    In the last reporting period, two key issues for the introduction of non-incineration and mercury-free technologies were noted: a first one was related to the disposal of mercury waste in the project countries which was challenging due to a lack of central storage places or treatment plants for the disposal/treatment of collected mercury-containing devices. In this reporting period, all project countries agreed with national stakeholders and identified a central interim storage, mostly in the main pilot HCFs in the project country. The collected devices will be stored in the pilot hospitals and from there be transported to a central interim storage facility for longer term storage until treatment and disposal will be possible. The storage facility will be either a modified 20-foot container or will be done in one of the newly constructed waste houses. In all countries the project is also working with the local environmental authorities for the approval of the interim-term storage of the mercury waste.    Second issue was related to insufficient infrastructure in health care facilities which was challenging to accommodate non-incineration technologies. This challenge was almost overcome. although with some delays (especially in Madagascar and Zambia but as of 30 June 2018, they are near to completion for the required infrastructure) by making formal agreements (MoUs) with pilot HCFs or respective national partners to agree/confirm responsibilities on the project; ensuring MoH’s additional public funding for pilot HCFs and lately, the project supported pilot facilities with additional procurement (for ex. in Madagascar, procurement of electric cables and extension of housing) to timely meet infrastructural needs for autoclave installations.    In this reporting period, the project noted additional 6 key issues/lessons learnt on the introduction of non-incineration and mercury free technologies. Although, most of them were envisaged within the procurement strategy, they are worth to note as part of learning process:    (1) Installation site: For setting up the treatment technology, housing is needed to avoid negative weather impacts and to ensure safety requirements. The setup of small scale buildings in the project countries took 6-12 month and resulted in some delays due to the necessary administrative and financial procedures. The construction of buildings is comparably fast (about 2 months).    (2) Infrastructure requirements: The operation of the steam treatment systems requires the availability of water and electricity. Especially the comparable high demands on the electricity connection (cables with a capacity to provide 25 to 75 kVA) proved to be a challenge and required in some hospitals the setup of new power transformers.    (3) Validation/calibration of mercury free devices: Low capacity observed in project countries especially for validation, calibration of medical equipment which can be a challenge for the quality assurance during procurement process and durability for the usage of mercury free, digital medical devices.    (4) Replacement of mercury containing devices: medical devices such as thermometers and sphygmomanometers are not always owned by the hospitals but in some countries by the physicians and the patients. For an exchange of these devices, final recipients must be well identified and if necessary, changed.    (5) Preventive maintenance: the capacity of technicians in the hospitals is limited or qualified technicians are not available. Service contracts with external companies might be required to close this gap.    (6) Operation costs: the availability of funds to cover operation costs of new treatment systems are limited due to budget constraints. Strategies to cover or compensate additional operation cost need to be developed. | As part of the first phase, by mid-2018, the project has successfully introduced and operationalized non-incineration and/or mercury free technologies in 24 pilot facilities (Ghana: 3; Madagascar: 6; Tanzania: 5; Zambia: 8) in 4 participating countries.    Among 24 facilities, 14 pilot facilities (Ghana: 3; Madagascar: 3; Tanzania: 5; Zambia: 3) received in total of 18 non-incineration treatment systems (autoclaves as steam-based waste treatment technology) with maintenance toolboxes, voltage stabilizers and testing tools.    The remaining 10 pilot facilities (Ghana: 2; Madagascar: 3; Zambia: 5) have only received HCWM items (so excluding treatment equipment). These pilot facilities will either send their medical waste to cluster facilities supported by the project or will use the existing non-incineration treatment equipment in the facility (like two facilities in Ghana). With HCWM items provided, the project aims to support indirect introduction or better management of non-incineration technologies in these facilities.    To ensure implementation of advanced healthcare waste management (HCWM) practices in the pilot facilities, the project provided HCWM logistics equipment along with the treatment equipment. All 24 facilities received full set of (HCWM) items, including safety and personal protective equipment (PPE); consumables including sharp containers, waste bags; internal equipment including waste bins, needle cutters; logistic equipment including collection and transport bins; chemical storage equipment. All these facilities also received mercury-free medical devices (thermometers and sphygmomanometers).    The Project Document targets 36,900 beds as for the usage of non-incineration treatment, as number of beds. While 24 pilot facilities in the first round of the project currently accumulate 7,405 beds, it should be noted that (1) there will be additional capacity to be provided in the second round; (2) the waste treated by the autoclaves installed/supported by the project is expected to continuously increase with operationalized central/cluster facilities, which will be able to collect and treat medical waste for other healthcare facilities (HCFs) in their areas. The project, along with respective pilot facilities and MoHs, are currently putting efforts to attract more HCFs for non-incineration treatment (with fees) in the central/cluster facilities and such efforts will also work well with feasibility and sustainability of autoclave operations.    In this reporting period, after delivery of the HCWM systems, the project has intensified its support to pilot facilities and first completed installations and commissioning of equipment after the trainings provided. At current stage, all facilities had first experiences in piloting advanced HCWM practices, non-incineration waste treatment and non-mercury technologies. As noted in the recently completed Midterm Review report (March 2019), the buy-in from participating countries and pilot facilities is strong and there is a considerable progress overall in terms of HCWM practices in project countries.    In the earlier reporting periods, two key issues were noted as a challenge to the introduction of non-incineration and mercury-free technologies were noted: a first one was related to the disposal of mercury waste in the project countries which was challenging due to a lack of central storage places or treatment plants for the disposal/treatment of collected mercury-containing devices. A second one was related to insufficient infrastructure in health care facilities to accommodate non-incineration technologies. The project has almost overcome both challenges through arrangement of interim storage areas for mercury- free devices and provision of additional project support for the infrastructural readiness of pilot sites, although both causes admissible delays in project implementation.    In this reporting period, additional three key challenges were identified especially after introduction of advanced HCWM practices and operationalization of autoclave technologies in pilot facilities:  1) First one is related to HCWM logistics, more specifically to the implementation of source separation or segregation in pilot facilities, which is important so that the waste is correctly segregated to sustain the work of installed waste management system. Although there is strong buy-in on the objectives of the project, this still requires improved engagement with the hospital’s top management and an endeavor to ensure that staff at all levels are aware of the benefits of proper HCWM. Therefore, although there had been many on-site trainings organized together with MoHs of respective countries, the project considers conducting/ repeating additional capacity building activities at pilot facilities, mostly to target senior level officers for better provision and supervision of HCWM practices at facility level.    2) Another key challenge is related to the maintenance of non-incineration waste treatment technology. As noted in earlier periods, the technical capacity of technicians in the hospitals is limited or qualified technicians are not available. To fill this gap, the procurement contract had already included a guarantee of services by local agent of the supplier and capacity building trainings for the new technology. In this reporting period, it is observed that while there is a technical capacity of the local agent, the availability of local agent is an issue. Therefore, in some of pilot facilities, there had been disruptions of operations due to small maintenance issue, mostly due to not applying preventive maintenance practices. At current stage, the project considers additional service contracts with external companies might be required to close this gap and improve the existing capacity both for preventive and corrective maintenance of the supplied technology.    3) The last key challenge identified is related to secured landfilling areas to transfer the treated healthcare waste. The placement of sterilized waste on a dumpsite or landfill, without any change of physical form has become a concern to all project countries. Although there are question marks over its costs and maintenance issues, the project considered to provide shredding systems to pilot facilities to overcome this, mostly political concern, in order to help increase in utilization of the supplied volumes of autoclaves.    Above challenges were also noted by the Midterm Review report and project’s responses were discussed extensively during the regional project meetings in Ghana (Dec-18).    Although, as expected in such pilot project, there are continuing challenges against the introduction and further operationalization of non-incineration and mercury-free technologies in all 4 project countries, the project and the country capacities to overcome these challenges have been considerably improved. Overall, progress in this outcome is on track and likely to be completed as planned. |
| UPOPs releases from the health sector reduced or avoided. | UPOPs baseline:  Ghana: 19.8 g-TEQ/yr (pre-selected hospitals)  Madagascar: 4.0 g-TEQ/yr (pre-selected hospitals)  Tanzania: 1.7 g-TEQ/yr (pre-selected hospitals)  Zambia: 6.3 g-TEQ/yr (pre-selected hospitals) | *(not set or not applicable)* | Amount of UPOPs releases from HCW incinerators reduced by 31.8 (g-TEQ/yr). | During the first procurement round of non-incineration technologies, the project delivered in total 18 autoclaves (Ghana: 5; Madagascar: 3; Tanzania: 5; Zambia: 5) in different sizes of 80/130/260/1300 liters. As of 30 June 2018, only in Ghana and Tanzania were autoclaves installed and ready for operation but yet to start for the treatment. In Madagascar and Zambia, autoclaves are planned to be installed by the end of August 2018 and are expected to be operationalized in late September 2018.    Based on supplied volume of autoclaves and assumptions of an average density of the waste of 120 kg/m³; 6 treatment cycles per day; 260 days per year for autoclave operation, treated waste amount in all countries is estimated 1,048.3 tonnes (t) per year (Ghana: 187.2 t; Madagascar: 234.0 t; Tanzania: 290.2 t; Zambia: 337.0 t).    Currently, healthcare waste in the pilot hospitals is either dumped and burned openly or is treated in small incinerators without control and flue gas treatment. Unfortunately, such incinerators, even if they are properly operated, emit significant levels of dioxins and furans (about 0,4 grams of Toxic Equivalent (g-TEQ) in air emissions and in ash residues per ton of waste burned). In accordance with the UN Environment toolkit (2012) on the calculation of persistence organic pollutants, the level of generated dioxins and furans by using autoclaves are considered as zero. With the current setup of the autoclaves in the countries and estimated amount of treated waste, total amount of dioxins (UPOPs) releases reduced/avoided is estimated as 42.1 g-TEQ per year in all project countries (Ghana:7.5 g-TEQ; Madagascar:9.4 g-TEQ; Tanzania:11.7 g-TEQ; Zambia: 13.5 g-TEQ). In other words, if the autoclaves will be operated in the pilot facilities as planned, 42.1 TEQ grams of Dioxins emitted can be avoided per year. According to the project document, the project is expected to result in a reduction of UPOPs emissions of about 31.8 g-TEQ/yr. For comparison, the current total amount of emitted dioxins in Germany is less than 70 g-TEQ per year. Meanwhile, given estimations considering the first round of the project are well above of the project’s end target for Madagascar, Tanzania and Zambia, but not yet for Ghana.    It should be reminded that in Ghana, the project additionally supports a Public Private Partnership (PPP) by supporting existing a private centralized treatment facility in Accra, called Zoompak Medical Waste Facility, through updated legislation and enforcement in favor of non-incineration technologies; facilitation dialogues and MoUs with public and private hospitals; provision of trainings; and networking opportunities with key stakeholders. During the period of project’s support, from Q1 2016 to Q2 2018, the client base of Zoompak has increased from 2 to 57 HCFs consisting of 53 private, 3 non-profit and 1 public facility. While the amount of waste treated by Zoompak facility and consequently dioxins reduced are increasing, the project is now working with Zoompak on the crosschecked data for the waste treated by the facility. The project will be able to provide up-to-date data on the treatment amount in the following year’s report.    Above estimations on the amount of waste to be treated and dioxin emission to be reduced/avoided primarily reflect the most positive scenario which the current capacities in pilot HCFs can reach up to. Meanwhile, in this reporting period, the project has started to reinforce the capacity in pilot facilities to ensure proper data collection practices with simple tools including waste generation and waste treatment trackers which was developed and tested earlier in different countries by the project’s partner, Health Care Without Harm (HCWH). These data tools were introduced to project countries during country missions and the last regional project meeting (Zanzibar, Tanzania: May-18) and are now being tailored to the needs in close communication with national project teams and stakeholders. To facilitate and centralize the data collection efforts, the last project regional project board (May-18) also advised to test digital data collection methods in selected pilot HCFs.    In the following reporting period, the project aims to provide a close follow-up on data collection efforts in project countries. This exercise will help the project team properly analyze the realized amount of waste treated in project facilities and provide evidence on the progress of the indicator related to UPOPs emissions reduced/avoided. | In the first procurement round of HCWM equipment, supplied capacity of autoclaves could enable to avoid 42.1 grams of Dioxins emitted (TEQ/yr) per year - Ghana (12,5g), Madagascar (9,4g), Tanzania (11,7g), Zambia (13,5g).    Supplied capacity in the second round can help additional avoidance of 7,6 grams of Dioxins emissions (TEQ/yr), which will make in total of approx. 50 g-TEQ per year of Dioxin emission to be avoided. For comparison, the currently total amount of emitted dioxin in Germany is less than 70 g-TEQ per year.    Meanwhile, given estimations considering the first round of the project are well above of the project’s end target for Madagascar, Tanzania and Zambia, but not yet for Ghana.    It should be reminded that in Ghana, the project additionally supports a Public Private Partnership (PPP) by supporting existing a private centralized treatment facility in Accra, called Zoompak Medical Waste Facility, through updated legislation and enforcement in favor of non-incineration technologies; facilitation dialogues and MoUs with public and private hospitals; provision of trainings; and networking opportunities with key stakeholders. During the period of project’s support, from Q1 2016 to Q2 2019, the client base of Zoompak has increased from 2 to 90 HCFs; and the amount of waste treated increased from 12.4 tonnes in 2016 to almost 120 tonnes in 2019.  While the amount of waste treated by Zoompak facility and consequently dioxins emission reductions are increasing. In the current projection, Zoompak’s contribution to dioxin reduction will be almost 5 grams/year and this has a potential to be increased with Zoompak’s latest service agreement with national hospital in Ghana, Korle Bu Teaching Hospital in Accra.    Above estimations on the amount of waste to be treated and dioxin emissions to be reduced/avoided primarily reflect the most positive scenario which the current capacities in pilot HCFs can reach up to. Meanwhile, in this reporting period, the project has reinforced the capacity in pilot facilities to ensure proper data collection practices with simple tools including waste generation and waste treatment trackers which were developed and tested earlier in different countries by the project’s partner, Health Care Without Harm (HCWH). These data tools were introduced to project countries and initial data collection efforts show that the current capacity use of autoclaves fluctuates between 10% and 20% as an average ratio of project countries. In the previous section, key challenges on utilization of autoclaves indicated with regards to maintenance capacity and shredding of treated waste. It can also be noted that while data collection/reporting capacities are improved, these figures will likely increase as well to the expected level. It should be reminded that the supplied volume of autoclaves is usually above the capacity needed for a specific pilot facility because most of pilot facilities are considered to be cluster facilities which can receive and treat healthcare waste from other facilities. At this early stage of introduction, while there are some progresses already, the utilization of cluster treatment system is not maximised yet - it will potentially increase considerably in future years of the implementation. |
| Mercury releases from the health sector reduced. | Mercury baseline:  Ghana: 8.2 kg/yr (pre-selected hospitals)  Madagascar: 2.8 kg/yr (pre-selected hospitals)  Tanzania: 6.3 kg/yr (pre-selected hospitals)  Zambia: 8.0 kg/yr (pre-selected hospitals) | *(not set or not applicable)* | Amount of Mercury releases from the health sector reduced by 25.3 (Kg/yr). | In this reporting period, the project has concluded the first procurement round of the mercury-free devices for the 24 pilot facilities. In total, 2,301 mercury-free devices (aneroid and automatic sphygmomanometers, digital blood pressure monitors and digital thermometers) were delivered to project countries. These devices will be in active use after the one-to-one (1:1) exchange with mercury-containing devices.    According to the UN Environment toolkit for Identification and Quantification of Mercury Releases (2017), clinical thermometers typically contain 0.5-1.5 g mercury, sphygmomanometers in average contain about 80 g mercury. Assuming an average of 1 g mercury per thermometer and 80 g mercury per sphygmomanometers and assuming a 1:1 exchange in the countries, in total, 101.26 kg of mercury waste (Ghana: 17.75kg; Madagascar: 24.24kg; Tanzania: 24.64kg; Zambia: 34.63kg) can be estimated for collection during the first procurement round, if a 1:1 exchange achieved. It can be noted that project document targets the amount of Mercury releases from the health sector reduced by 25.3 kg and the above estimation is well beyond of the project’s overall end target for each country.    However, initial reports from countries reveal 1:1 exchange will not be possible in most of pilot facilities. Second, for example in Madagascar, pilot facilities do not have enough mercury-containing devices as hospitals generally request patients to bring their own thermometers and physicians/nurses do use their own BP machines. Therefore, in the second round the project will consider new strategies for the exchange of mercury-free and mercury-containing devices.    Upon the exchange of devices, mercury-containing devices will be stored in a centralized interim storage in each project country and inventory of collected mercury waste will be carried out to estimate and formalize the realized amount of mercury waste collected. | In earlier reporting period, the project has concluded the first procurement round of the mercury-free devices for the 24 pilot facilities. In total, 2,301 mercury-free devices (aneroid and automatic sphygmomanometers, digital blood pressure monitors and digital thermometers) were delivered to project countries.    According to the UN Environment toolkit for Identification and Quantification of Mercury Releases (2017), clinical thermometers typically contain 0.5-1.5 g mercury, sphygmomanometers in average contain about 80 g mercury. Assuming an average of 1 g mercury per thermometer and 80 g mercury per sphygmomanometers in total, 101.26 kg of mercury waste (Ghana: 17.75kg; Madagascar: 24.24kg; Tanzania: 24.64kg; Zambia: 34.63kg) can be estimated as the amount of Mercury releases reduced by supplied volume of mercury-free medical devices.    It can be noted that the project document targets the amount of Mercury releases from the health sector reduced by 25.3 kg and the above estimation is thus well beyond the project’s overall end target for each country.    In order to improve country ownership and capacity building on green procurement practices, as decided in earlier regional project board meeting, the second round of procurement of mercury-free devices is being organized nationally in a decentralized way. Currently, procurement, delivery and exchange of mercury-free devices are ongoing in all project countries and all related activities are expected to be finalized before the end of November 2019.    Upon the exchange of devices, mercury-containing devices are being stored in a centralized interim storage in each project country (except in Ghana, where discussions on ownership and location of the storage are ongoing) and the inventory of collected mercury waste is still pending - to be carried out to estimate and formalize the realized amount of mercury waste collected. Therefore, the total amount of collected mercury waste will be reported in the next period. |
| Country capacity built to effectively phase out and reduce releases of POPs and mercury. | The regulatory and policy framework in the four project countries do not cover all medical waste management challenges, which the project countries are facing. | *(not set or not applicable)* | Completed draft, revision or adoption of a national policy, plan, strategy, standard and/or guidelines in each country. | In the earlier reporting period, the project successfully made national stakeholders well-aware of the project objectives on the reduction of UPOPs and mercury releases from the health sector through regional/national project inception workshops (Ghana: Feb-16; Zambia: June-16; Tanzania: Sep-16, Regional: Sep-16; and Madagascar: Nov-16), regional project teams training (December 2016) and numerous national technical working group meetings specific to policy component of the project (Ghana: Mar-17; Tanzania: Mar-17; Madagascar: May-17; Zambia: May-17). As a responsible partner of the project, WHO is taking the lead in the development of national HCWM policies, guidelines and standard operation procedures (SOPs) in project countries. These policies, guidelines and SOPs provide an outline of how each country will meet national targets set through the Stockholm Convention on POPs and the Minamata Convention on Mercury (in accordance with existing national commitments related to these Conventions).    All countries have experienced considerable progress on the review and update of the national legal framework on HCWM. Status of developments with respect to the review of the policy framework in the project countries has been summarized below.    Tanzania has completed the planned activities in the policy component of the project upon the MoH approval of (1) revised National Policy Guidelines for HCWM and (2) developed a set of HCWM standards (on minimization, re-use and recycling; segregation, storage, transportation and treatment, disposal including equipment and tools required).    Madagascar and Ghana are in the final stage of the planned activities. The revised National Guidelines on HCWM and the revised National HCWM policy in both countries have been successfully approved. The facility-level SOPs are being updated/pre-tested in all facilities and expected to be approved before the end of year.    In Zambia, activities on policy component are ongoing. The project completed the review of the Public Health Act and drafting of the proposed text incorporating HCWM issues into the Public Health Act. ZEMA’s guidelines on HCWM were reviewed and proposed draft text revisions for ZEMA to incorporate in the guidelines are available. Drafting of the SOPs on HCWM continues. In Zambia, the project ensured the non-incineration technologies are included into the National Health Strategic Plan.    In parallel with the policy framework review, the project emphasizes the challenges related to inadequate financial mechanisms to sustain HCWM plans in project countries. The project, meanwhile, aims to make HCWM implementers aware of financial (and human) resources required for proper HCWM at facility level. Therefore, the project has included modules on HCWM Human Resources (along with job descriptions) and HCWM budgeting into training programmes for pilot HCFs to support them in their preparation of facility-level HCWM implementation plans.    Although many financial challenges on advanced HCWM systems still exist in all project countries, the project works to ensure HCWM-specific budget allocation at both facility and MoH levels. With the operational and financial data collected from pilot HCFs, the project will analyze the actual HCWM costs to be used in further feasibility studies with the potential benefit of inciting various development partners in the health sector to fully take up HCWM concerns into their programmes. | In the earlier reporting period, the project successfully made national stakeholders well-aware of the project objectives on the reduction of UPOPs and mercury releases from the health sector through regional/national project inception workshops and numerous national technical working group meetings specific to the policy component of the project. As a responsible party of the project, WHO is taking the lead in the development of national HCWM policies, guidelines and standard operation procedures (SOPs) in project countries. These policies, guidelines and SOPs provide an outline of how each country will meet national targets set through the Stockholm Convention on POPs and the Minamata Convention on Mercury (in accordance with existing national commitments related to these Conventions).    All countries have experienced considerable progress on the review and update of the national legal framework on HCWM. Status of developments with respect to the review of the policy framework in the project countries has been summarized below.    Tanzania has completed the planned activities in the policy component of the project upon the MoH approval of (1) revised National Policy Guidelines for HCWM and (2) development of a set of HCWM standards (on minimization, re-use and recycling; segregation, storage, transportation and treatment, disposal including equipment and tools required).    Madagascar and Ghana also completed the planned activities. The revised National Guidelines on HCWM and the revised National HCWM policy in both countries have been successfully approved. The facility-level SOPs are updated/pre-tested in all facilities.    In Zambia, activities on the policy component are ongoing. The project completed the review of the Public Health Act and drafting of the proposed text incorporating HCWM issues into the Public Health Act. ZEMA’s guidelines on HCWM were reviewed and proposed draft text revisions for ZEMA to incorporate in the guidelines are available. Drafting of the SOPs on HCWM continues. In Zambia, the project ensured that non-incineration technologies are included into the National Health Strategic Plan.    The project also supports mainstreaming of sustainable procurement practices in the health sector by promoting and piloting procurement of non-incineration technologies. In participating countries, the project also mainstreams these practices to be part of national procurement guidelines. One of the outcomes of these efforts is that in Madagascar, MoH already issued an official note that forbids the purchase of mercury- containing medical devices at national level. A workshop for the dissemination of this note to the various departments of the Ministry of Health as well as the orders (order of pharmacists, order of physicians) was organized by the MoH with the support of the project. Currently, an inter-ministerial decree on the same subject, involving particularly the Ministry of Commerce and Customs, is envisaged in the coming months.    A second key outcome of the progress in policy component is that in Ghana, the project has worked with the Health Facilities Regulation Authority (HeFRA) to incorporate HCWM issues in the legislative instrument that outlines its mandate. This paved the way for HeFRA to include HCWM issues into the assessment checklist for issuing or renewing operational licenses of healthcare facilities.    Overall, the project’s planned activities on the policy component have almost been completed except remaining progress in Zambia. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 1**  **Technical guidelines, evaluation criteria and allocation formula adopted.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Mid-term evaluation criteria and formula for the allocation of technologies among countries available. | Evaluation criteria and allocation of technologies among project countries not agreed upon. | *(not set or not applicable)* | First Regional Conference organized.  Evaluation criteria and allocation of technologies among project countries agreed upon. | End of project target was achieved on this indicator in the last reporting period with the organization of the first regional project meeting, the regional inception workshop organized in Johannesburg, South Africa (Sep-16). The regional inception workshop also hosted the first regional project board meeting where countries agreed on mid-term evaluation criteria and a formula for the allocation of technologies which are summarized below.    The technology allocation formula (“how many technologies will each country/facility receive”) was already pre-defined for the first phase of the project (component 3a) noting that because the HCWM situation in the four project countries is very different, the size and type of facilities to be supported by the project may vary from country to country and so do their locations and the circumstances under which they operate. As such the project currently supports different set-ups in each of the countries. But very briefly, in the 1st procurement round, there is an equal budgetary distribution at regional level among 4 project countries, which means about USD 313,611 will be available per country. This amount will include costs associated with non-incineration systems at health posts, hospitals, central/cluster treatment facilities; recycling systems; mercury-free devices; and logistics and installation.    The project document indicates that after the Mid-Term Review (MTR) and based on criteria agreed upon by all the project countries at the first regional project meeting, additional facilities will be supported in the second half of the project’s implementation (i.e. 14 additional hospitals averaging 150 beds each and 12 additional rural health posts). In which countries these facilities will be located, will depend upon the results of the MTR. Therefore, based on the countries’ and facilities’ progress during the project’s mid-term review, a decision will be made on which countries would be able to accept additional non-incineration and mercury-free medical devices and which ones would not. The criteria for the decision on which countries would be able to accept more technologies and devices, and if so how many, was needed to be taken at the start of the project, during the first regional project meeting (also referred to as a “formula for the allocation of additional HCWM systems and Mercury-free devices”).    Thus, the regional inception workshop also included the first Project Board (whose members are representatives of participating governments, UNDP, WHO and HCWH) which approved following key decisions for the implementation at regional level:  • Procurement is to be centrally carried out by UNDP Istanbul Regional Hub (two procurement rounds, first in 2017-2018 and second in 2018-2019) noting that in the project preparation stage, the procurement was planned to be organized by UNDP Copenhagen Procurement Support Office (PSO) due to their procurement experiences in such health technology equipment and the low procurement capacity of UNDP Istanbul Regional Hub (IRH) at the time of its office move from Bratislava to Istanbul. In the view of enhanced capacity of IRH and cost reduction opportunity (considering high costing proposal from UNDP Copenhagen PSO), the project board approved the consideration of project’s technology procurement to be centrally organized by UNDP Istanbul Regional Hub, as a modification to the solution initially proposed in the Project Document.  • Selection criteria for pilot healthcare facilities (HCFs), technology allocation formula and MTR criteria recommendations were also approved, in line with the description in the Project Document.  • The technology allocation formula for the first set of equipment/devices was already defined in the project document. The technology allocation formula to be used in the 2nd procurement round (expected in early 2019) was also discussed during the first project board meeting. Second set of technology allocation formula (“how many technologies will each country/facility receive”) for component 4(a) will be used following the mid-term review, whose objective is to evaluate the progress of the project countries and facilities in adopting BEP and BAT. The Project board agreed on indicators of MTR as follows: (1) The promulgation of HCWM and Mercury reduction policies (issued policies); (2) Successful implementation of BAT/BEP in the model facilities (sites which manage waste in accordance with BEP); (3) Proper operation and maintenance of the initial batch of non-incineration HCWM systems and mercury-free devices (sites which treat waste in accordance with BEP and use mercury free devices); (4) Safe storage of healthcare mercury waste (quality of storage facilities); (5) Effective national training programs.  • The general idea for the technology allocation formula was approved as follows: (1) Point based evaluation, based on the fulfillment of indicators; (2) Total achieved points for all countries combined will be 100%; (3) Number of sites to be equipped per country will be based on the reached % as per the pre-agreed formula. | End of project target was achieved on this indicator in the previous reporting periods with the organization of the first regional project meeting, the regional inception workshop organized in Johannesburg, South Africa (Sep-16). The regional inception workshop also hosted the first regional project board meeting where countries agreed on mid-term evaluation criteria and a formula for the allocation of technologies which are summarized below.    The Project board agreed on evaluation indicators of MTR as follows: (1) The promulgation of HCWM and Mercury reduction policies (issued policies); (2) Successful implementation of BAT/BEP in the model facilities (sites which manage waste in accordance with BEP); (3) Proper operation and maintenance of the initial batch of non-incineration HCWM systems and mercury-free devices (sites which treat waste in accordance with BEP and use mercury free devices); (4) Safe storage of healthcare mercury waste (quality of storage facilities); (5) Effective national training programs.    The technology allocation formula (“how many technologies will each country/facility receive”) was also approved as follows: (1) Point based evaluation, based on the fulfillment of indicators; (2) Total achieved points for all countries combined will be 100%; (3) Number of sites to be equipped per country will be based on the reached % as per the pre-agreed formula.    In this reporting period, MTR provided these ratings for the progress in project countries (Ghana: 27%; Madagascar: 27%, Tanzania: 22%; and Zambia: 24%) and consequently budget distribution for 2nd round of procurement happened to be as follows: Ghana: $ 275,746; Madagascar: $ 275,746; Tanzania: $ 224,682; and Zambia: $ 245,107.    Overall, this approach proved to be successful for motivating project countries and also for better planning of the second stage of the project. |
| **The progress of the objective can be described as:** | | **Achieved** | | | | |
| **Outcome 2**  **Country capacity to assess, plan, and implement HCWM and the phase-out of Mercury in healthcare built.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| 4 teams of national experts (16 in total) trained at regional level | Some knowledge on Mercury and UPOPs releases from the health sector built during the PPG phase. | *(not set or not applicable)* | 16 national experts trained in non-incineration HCWM systems, policies, waste assessments, UNDP GEF and WHO tools, national planning, BAT/BEP guidelines, Mercury phase-out, international standards, and other technical guidelines.  Master trainers trained in content, effective teaching methods, evaluation tools, and Training of Trainers programs. | End of project target was achieved on this indicator in the last reporting period with the successful organization of the first regional project meeting, project team’s training at regional level in Nakuru-Kenya (Dec-16)    As stipulated in the Project Document, an intensive 12-day training of trainers (ToT) workshop was conducted at regional level to prepare teams of national experts comprised of government personnel (e.g. National Project Director) and local consultants (e.g. National Technical Coordinator and Technical Advisors/Experts) selected by the countries. The teams underwent comprehensive training in non-incineration HCWM systems, policies, waste assessments, UNDP GEF and WHO tools, national planning, BAT/BEP guidelines, mercury phase-out, international standards, and other technical guidelines and well as project implementation related activities (Gantt charts, critical path analysis, budgeting, monitoring, etc.).    ToT workshop was conducted with 28 participants (50% men; 50% women). Trainees were from all 4 project countries (18 national experts) and included participants from 4 other African countries (Kenya, Uganda, Mauritius and South Africa) which are implementing related HCWM programmes, including GEF-funded projects.    The second goal of the training was to train same 28 national experts as Master Trainers on Healthcare Waste Management (MTs-HCWM) because as part of Outcome 3b of the project, it is planned to establish national training infrastructures. Therefore, MTs-HCWM also received an intensive training in content, effective teaching methods, evaluation tools, and Training of Trainers programs. The MTs-HCWM currently play a crucial role in the development of the training framework, the development of required curriculums, the provision of trainings (mainly ToTs) and the development of concepts to ensure the sustainability of the training program in project countries.    The regional ToT also covered a module on WASH in health care facilities and included an introduction to WHO/UNICEF’s Water and Sanitation for Health Facility Improvement Tool (WASH FIT), which is a risk-based, monitoring tools for WASH services (including HCWM). Furthermore, the regional ToT has also included session on Gender inequality (facilitated by a representative of the Independent Electoral and Boundaries Commission (IEBC) of Kenya) with brief introduction of key conventions which ensure women rights in Africa and then opened up a discussion session on gender inequality issues in the healthcare waste area. Interactive session with active participations of national experts from the 8 African countries emphasized the need of an introductory assignment to analyze gender inequality gaps in HCWM and provide sets of recommendations for action.    The training successfully brought a common understanding of project objectives and deliverables; fostered regional cooperation and information exchange among the countries, facilitated project planning and ensured consistency with international standards and guidelines.    During the training, several guidelines, SOPs, and other supporting documents developed by regional expert team (RET) of the project were also made available for MTs-HCWM and country teams for their easy reference while developing national curricula and enhancing trainings at national level. These documents include:  • HCWM tools for the set up and operation of advanced healthcare waste management systems at facility level.  • Outline national HCWM plan.  • Guidance on human resource planning, job descriptions and capacity building.  • Standard Operation Procedures (SOPs) for segregation of HCWM waste, sharp items; collection of waste, internal transportation of waste, storage of waste; spillage of infectious materials and mercury; maintenance of HCWM equipment; needle stick injuries; pharmaceutical waste management; and treatment for hazardous waste. | End of project target was achieved on this indicator in the previous reporting periods with the successful organization of the first regional project meeting, project team’s training at regional level in Nakuru-Kenya (Dec-16)    As stipulated in the Project Document, an intensive training of trainers (ToT) workshop was conducted at regional level to prepare teams of national experts comprised of government personnel (e.g. National Project Director) and local consultants (e.g. National Technical Coordinator and Technical Advisors/Experts) selected by the countries. The teams underwent comprehensive training in non-incineration HCWM systems, policies, waste assessments, UNDP GEF and WHO tools, national planning, BAT/BEP guidelines, mercury phase-out, international standards, and other technical guidelines and well as project implementation related activities (Gantt charts, critical path analysis, budgeting, monitoring, etc.).    ToT workshop was conducted with 28 participants (50% men; 50% women). Trainees were from all 4 project countries (18 national experts) and included participants from 4 other African countries (Kenya, Uganda, Mauritius and South Africa) which are implementing related HCWM programmes, including GEF-funded projects.    The second goal of the training was to train the same 28 national experts as Master Trainers on Healthcare Waste Management (MTs-HCWM) because as part of Outcome 3b of the project, it is planned to establish national training infrastructures. Therefore, MTs-HCWM also received an intensive training in content, effective teaching methods, evaluation tools, and Training of Trainers programs. The MTs-HCWM currently play a crucial role in the development of the training framework, the development of required curriculums, the provision of trainings (mainly ToTs) and the development of concepts to ensure the sustainability of the training program in project countries.    The regional ToT also covered a module on WASH in health care facilities and included an introduction to WHO/UNICEF’s Water and Sanitation for Health Facility Improvement Tool (WASH FIT), which is a risk-based, monitoring tools for WASH services (including HCWM). Furthermore, the regional ToT has also included a session on Gender inequality (facilitated by a representative of the Independent Electoral and Boundaries Commission (IEBC) of Kenya) with brief introduction of key conventions which ensure women rights in Africa and then opened up a discussion session on gender inequality issues in the healthcare waste area. This interactive session with active participation of national experts from the 8 African countries emphasized the need of an introductory assignment to analyze gender inequality gaps in HCWM and provide sets of recommendations for action.    The training successfully brought a common understanding of project objectives and deliverables; fostered regional cooperation and information exchange among the countries, facilitated project planning and ensured consistency with international standards and guidelines. |
| **The progress of the objective can be described as:** | | **Achieved** | | | | |
| **Outcome 3**  **Institutional capacities to strengthen policies and regulatory framework, and to develop a national action plan for HCWM and Mercury phase-out enhanced.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Ghana: ANNEX I  Madagascar: ANNEX II  Tanzania: ANNEX III  Zambia: ANNEX IV | In each of the project countries the baseline pertaining to the HCWM policy and regulatory framework is different and is summarized in detail in Annex I, II, III, and IV respectively. | *(not set or not applicable)* | Ghana: ANNEX I  Madagascar: ANNEX II  Tanzania: ANNEX III  Zambia: ANNEX IV | Cumulative progress on HCWM policies and regulatory framework is already summarized above, under the indicator, “Country capacity built to effectively phase out and reduce releases of POPs and mercury”. In this section, to avoid repetitions and to complement status reporting, next steps for remaining tasks and proposed activities are summarized below for each project country:    In Ghana, the project now plans to print and disseminate approved HCWM policy and guidelines for its outreach to different regions. Approval and dissemination of SOPs are expected before the end of year. The project now considers the development of a HCWM regulation.    In Madagascar, national policy on HCWM will be disseminated in Madagascar’s 22 regions. The national technical guidelines on HCWM and the technical booklet for the basic health centers were finalized and printed out in Malagasy and French version. The distribution of these documents in 4 regions (Ihorombe, Atsimo Andrefana, Menabe, Boeny) will be finalized. Updates of the existing SOP at the model health facilities on HCWM reflecting the best environmental practices and non-incineration of infectious waste will be completed after the installation/training on autoclaves. In Madagascar, the project also considers development of a HCWM regulation and implementation strategy.    In Tanzania, the review of policy guidelines, standards, equipment catalogue and strategic plan to incorporate BEP and BAT concepts for healthcare waste management is complete, the documents have been endorsed by MoH management. The project, in close collaboration with MoH, now plans to print endorsed documents for further dissemination during the district and regional health officer meeting and exhibitions in November 2018. As the next step, the project now considers the review and update a national strategic plan for HCWM and development of an implementation strategy on HCWM.    In Zambia, the project, along with the support of WHO in Zambia, is working on finalization and adoption of the Public Health Act revision with proposed text incorporating HCWM issues, policy review and SOPs. As the next steps, the project also considers the development of HCWM regulation, HCWM guideline, inclusion of HCWM issues with non-incineration and mercury free technologies into National Health Strategic Plan and update of National HCWM Plan. | Cumulative progress on HCWM policies and regulatory framework is already summarized in earlier sections. To avoid repetitions, please see the progress reporting under the indicator, “Country capacity built to effectively phase out and reduce releases of POPs and mercury”. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 4**  **National plan with implementation arrangements adopted.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of National Action Plans for project implementation available. | No National Action Plans for project implementation available.  Pre-selection of HCFs has already taken place (see Annex I, II, III, and IV respectively). | *(not set or not applicable)* | 1 National Action Plans for each project country developed (including the selection of up to 1 central or cluster treatment facility, 2 hospitals and 3 small rural health posts as models) | During the earlier reporting period, a national action plan for each country (including I-RAT assessments for each pilot facilities) was developed with pilot healthcare facilities (HCFs) selected as per the selection criteria agreed during the regional inception workshop.    HCWM situation in the four project countries is very different, the size and type of facilities to be supported by the project vary from country to country and so do their locations and the circumstances under which they operate. As such the project currently supports different set-ups in each of the countries than what was initially projected.    During the first procurement round, 24 pilot HCFs in four countries were selected by the national partners. The project has provided mercury free medical devices; HCWM items including safety and personal protective equipment (PPE); consumables including sharp containers, waste bags; internal equipment including waste bins, needle cutters; logistic equipment including collection and transport bins; chemical storage equipment; and non-incineration treatment equipment to 24 pilot HCFs in four project countries (Ghana: 5; Madagascar: 6; Tanzania: 5; Zambia: 8) with 7,405 beds in total.    In the first procurement round, while all 24 facilities received mercury-free devices and HCWM items, only 14 facilities (Ghana: 3; Madagascar: 3; Tanzania: 5; Zambia: 3) have received non-incineration technologies (autoclaves).    Among 14 pilot HFCs, 3 hospitals are with central treatment facility (Madagascar:1; Tanzania:1; Zambia:1) and 11 hospitals/health posts with cluster treatment facility serving in small areas (Ghana:3; Madagascar:2; Tanzania:4; Zambia:2) The remaining 10 pilot facilities (Ghana:2; Madagascar:3; Zambia:5) will either benefit from central/cluster facilities or their own existing non-incineration waste treatment options.    To ensure the readiness of the facilities to receive the equipment and to ensure an on-time delivery of all planned outputs, following key activities were agreed on to be carried out in all project countries and which have been monitored on a monthly basis. (1) Site selections, MoUs, initial waste generation assessments; (2) preliminary preparations for installations of autoclaves; (3) Installations, testing and commissioning of autoclaves; (4) mercury elimination plans, preparation for mercury free medical devices; (5) distribution/exchange of mercury free devices, storage sites for mercury waste; (6) advocacy on phasing out/down mercury in the health sector, training on staff in usage of mercury free medical devices; (7) mapping with recycling industry, engagement with recycling companies, liaise with private partners to support PPP for HCWM; (8) identify national experts/trainers to be trained on non-incineration and mercury free technologies, development of HCWM curriculum for short courses targeting experts at facility level, liaise with training institution to include HCWM in curriculum; (9) country-specific activities, assessment of Hepatitis B and Hepatitis C (HBB/HCV) at pilot facilities and support provision of vaccine (Ghana), piloting bio-digestion treatment (Tanzania), introduction of WASH FIT (Madagascar), initialize recycling of non-infectious waste (Zambia).    Other key activities including policy framework review, gender and communication/outreach, which are also part of agreed national action plans were delisted above as they are separately reported on in respective sections of the PIR report. The status and cumulative progress on key country actions are summarized below in the numbered order given above:    Ghana:  (1) In the first phase of the project, Ghana piloted mercury-free devices in 5 HCFs and among these 5 HCFs, three hospitals; Eastern Regional Hospital (ERH), Cape Coast Teaching Hospital (CCRH) and Tegbi Health Centre (THC) pilot non-incineration treatment technology. Two other hospitals, Komfo Anokye Teaching Hospital (KATH) and Winneba Trauma Specialist Hospital (WTSH) benefit from HCWM items provide by the project to advance on their existing non-incineration treatment systems. Another two hospitals, reported earlier as pilot facilities, Seventh Day Adventist Hospital and Metropolitan Hospital were removed from the project as there was no MOU signed with these facilities, but they can be served later as being part of ERH and CCRH clusters, respectively.    An MoU was signed by five model facilities, which benefit non-incineration treatment technology, and the Director General of the Ghana Health Service. The HR requirements for waste management were included in the MOU and approved by both the Director General (DG) of the Ghana Health Service and the management of the model facilities. As the Environmental Protection Agency (EPA) is a co-financier to this project, the Ghana project team has facilitated the environmental permits for pilot facilities to operate supplied autoclaves.    Initial waste generation assessments for all model facilities, including mercury containing devices, assessment of chemical waste generations and current HCWM practices in the pilot facilities, have been completed. The Ghana project team has finalized the baseline assessment report for the model facilities including results from all the assessments which have taken place since the project’s inception up until now.    (2) With regards to preparations and installations of autoclaves, in this reporting period, the project has supported 3 pilot HCFs, ERC, CCRH and THC, to ensure site readiness for autoclave installation. The project provided sample plans/drawings for autoclave housing; facilitated the signatures of MoU including HR requirements; and facilitated the environmental permits for autoclave operation. Site readiness has been confirmed by Mangelklicks, the local agent of the technology supplier, TTM as per the technical checklist.    (3) Therefore, the project was able to install all autoclaves in all three sites and trainings on operation and maintenance were provided to respective staff of hospitals and MoH. All necessary tests were done successfully, and commissioning of autoclaves were carried out by Chief Technical Expert (Apr-18). Autoclaves in all three hospitals are currently functional with minor challenges related to electricity efficiency reported. With the current capacity of autoclaves supplied to Ghana, pilot HCFs will be able to treat approximately up to 187.2 tonnes/year of medical waste which will help to reduce/avoid UPOPs emissions by 7.5 g-TEQ/year. The project will be able to provide initial status and data on the operation of autoclaves in the next reporting period.    (4) With respect to the mercury elimination strategy/plan, the Ghana project team undertook a mercury inventory and verification exercise in all model facilities and consequently a mercury replacement strategy has been developed and shared with facilities. It is noted that all pilot HCFs have eliminated the procurement of Mercury devices from their procurement plan for 2018 particularly sphygmomanometers and thermometers.    In preparation for the receipt of mercury-free medical devices and the preparatory staff preferences assessment, focal points of pilot facilities and the clinical engineering unit of the Ghana Health Service were involved in discussions related to the technical specifications of proposed mercury-free devices to be supplied by the regional component. With support from the focal points, a list of proposed mercury-free BP apparatus and thermometers were compiled and shared with the regional team for consideration during procurement of the equipment.    (5) In this reporting period, the project completed procurement and distribution of mercury free medical devices. 5 pilot facilities in Ghana has received in total of 444 mercury free devices (digital thermometers, sphygmomanometers, digital BP monitors) which will let Ghana phase out by up to 17.75kg mercury. The replacement exercise of mercury free/containing devices has been completed, although 1:1 exchange cannot be achieved according to first reports, mainly due to some hospitals already changed to mercury free alternatives. The project currently awaits the inventory of collected mercury containing devices, which will give a better picture in terms of the amount of mercury collected.    With regards to the identification and preparation of storage facilities for mercury-containing devices, the project team has initially held discussions with a GIZ e-waste project in Ghana and the Komfo Anokye Teaching Hospital (KATH) to support the provision of storage for the mercury-containing devices. These discussions did not conclude with a suitable solution. In this reporting period, the project has agreed with EPA and Ghana Health Services on the interim storage of mercury containing devices to be organized in the EPA office at Cape Coast. An MoU was developed between the EPA and the Ghana Health Service to discuss the roles and responsibility of each agency in managing the facility. Terms of Reference for the purchase of the 20-footer container to store collected mercury waste have also been developed and the procurement of the container is ongoing.    The project has also noted first feedbacks on the usage of devices supplied and following feedbacks will be considered for further actions either replacement or lessons learnt for second procurement round:  • The devices are functioning well in most of the facilities. However, the Cape Coast Teaching hospital has reported “leaking bladder” for the palm type (aneroid) sphygmomanometer. According to the users, the synthetic nature of the bladder limits its elastic properties, causing a leakage during use.  • The outer arm jacket piece that fits around the arm for the aneroid sphygmomanometer is small therefore cannot be used on plus sized clients who are in the majority for this facility.  • The digital thermometers are not very convenient for the tertiary facilities (i.e. Cape Coast Teaching Hospital, Eastern Regional Hospital, Komfo Anokye Teaching Hospital and Trauma and Specialist Hospital, Winneba)    (6) With regards to advocacy on phasing out/down mercury in the health sector, the Ghana project team has started an advocacy drive in all pilot facilities. The National Technical Advisor has developed a presentation on the health effects of exposure to mercury which has been disseminated to all facilities. It is expected that the advocacy drive will affect the behavior of health workers and persuade them to shift to the use of mercury free devices when providing health services. The project also coordinates stakeholder engagements for the health sector and the EPA to sensitize relevant players towards developing a national strategy for phasing out/down mercury from the health sector under the Minamata Convention. These engagements also seek to validate recommendations for the health sector in the Minamata Initial Assessment (MIA) report for Ghana where Ghana project team has been in close communication to find synergy with capacity building and advocacy activities on mercury phase-down, with UNITAR and UNIDO, which implement the Mercury Initial Assessment (MIA) and the National Action Plan (NAP) for ASGM in Ghana. Furthermore, the project’s focal point at UNDP in Ghana, Joel Ayim Darkwah published an editorial in state newspaper “The daily graphic” on the coming into force on the ban on mercury under Minamata convention. This was also posted on the UNDP Ghana website, please refer the links provided in the communications section of the PIR.    All facilities have trained health care workers in the use of the consumables supplied to facilitate establishment of HCWM systems. Advocacy is still ongoing for facilities to replace more of mercury containing sphygmomanometers which has comparably higher amount of mercury and will help to enhance the mercury phase out process.    (7) With regards to the mapping of the plastics recycling industry, the Ghana project team liaised with the Ministry of Local Government and Rural Development and Zoomlion Limited, a private waste management company to compile a list of recycling companies in Ghana to initiate discussions on possible collaborations. The list also indicated locations of these companies to enable the Ghana project team to consider which facilities could be linked to recycling companies in their area of operation or close to them, in case any exists. The key challenge for the project in Ghana is that most of active recycling companies are based in Accra but not much active in the regional of pilot HCFs located in.    (8) Following regional project team’s training, the project in Ghana with the support of master trainers, has developed a curriculum for short courses targeting experts at facility level. Curriculum approval of Ministry of Education is awaiting the next approval date for all courses.    The project has liaised with a training institution to include HCWM in curriculum. The Accra School of Hygiene ran its first modular course for health care waste practitioners for about 26 trainees from hospitals, district and municipal assemblies as well as consultants working the environmental management. Facilitators for the training were drawn from the national experts, tutors from the School of Hygiene, and trainers from project facilities and Zoompak medical waste facility.    The project liaised with the School of Hygiene to revise the existing curriculum to include current trends and international requirements of HCWM. The School of Hygiene administered the revised curriculum for the 2017/2018 academic year. The school in collaboration with the project is now planning a specific modular course on HCWM in July 2018.    (9) The country specific, flagship activity for Ghana was on assessment of HBC and HCV at pilot facilities and completed in the earlier reporting period. The assessment was conducted with a survey to ascertain the Hepatitis B and C status of health workers in the model facilities. The findings showed that generally about 76.6% of health workers sampled from all model facilities have undergone screening for the Hepatitis B virus. In addition, 21.3% have been screened for Hepatitis C. Averagely 2.1% tested positive. Of those who tested negative, about 51.1% have fully completed their vaccination. Those who tested positive were treated.    At the Komfo Anokye Teaching Hospital (KATH), the project team learnt that information on the hepatitis B status of a health worker was included in the requirements for employment - an initiative that has ensured that all their staff are vaccinated against the Hepatitis B virus. In the Cape Coast Teaching Hospital, most of the health workers received the first hepatitis B vaccination dose. As the project sensitized the issue, the hospital’s occupational health and safety focal point is currently putting together logistics to screen and immunize about a total of about 500 staff (40% men; 60% women) who have been identified as new staff since the last exercise.    Madagascar:  (1) The national action plan was approved and signed by UNDP and the Ministry of Environment (MoE) in January 2017. The action plan included the introduction of mercury-free devices in 6 pilot HCFs and, among 6 pilot HCFs, introduction of non-incineration treatment for health care waste in three hospitals (CHU-HJRA, CHU-HJRB and CHRD Manjakandriana). Three other model HCFs, i.e. CHMET Tsaralalana, CSB Manjakandriana and CSB Sambaina will use the central/cluster facilities in CHU-HJRA and CHRD Manjakandriana.    The project signed an MoU with MoH. The initial waste generation assessment including assessment of mercury containing devices and assessment of chemical waste generation completed in December 2016 for the pilot facilities which will receive non-incineration treatment equipment. In these hospitals, chemical waste originates mostly from the laboratory and the radiology units, but no specific treatment has been adopted for this type of waste. The project has recently provided HCWM items for healthcare providers to strengthen the management of chemical wastes in pilot health facilities. Also, possibilities for public-private partnerships (PPPs) will be considered for the management of chemical waste management.    (2) With regards to preparations and installations of autoclaves, in this reporting period, the project has supported all 3 pilot HCFs (CHU HJRB, CHU HJRA and CHRD Manjakandriana) to ensure site readiness for autoclave installation. The project provided sample plans/drawings for autoclave housing; HR requirements; and facilitated discussion for the environmental permits for autoclave operation. As of 30 June 2018, site readiness was not yet confirmed by Hospiteq, the local agent of the supplier. Buildings in all three pilot facilities are ready but the cable installation for three-phase electricity is ongoing both for CHU HJRA and CHU HJRB, sites are expected to be ready by the first week of August 2018.    (3) Following confirmation on site readiness, with the mission of technicians of MediClave, manufacturer of autoclaves, the project will install autoclaves in all three sites and trainings on operation and maintenance will be provided to respective staff of hospitals and MoH in late August 2018. All necessary tests and commissioning of autoclaves will be carried by Chief Technical Expert along with national technical expert and respective MoH staff. With the current capacity of autoclaves supplied in Madagascar, pilot HCFs will be able to treat approximately up to 234.0 tonnes/year of medical waste which will help to reduce/avoid UPOPs emissions by 9.4 g-TEQ/year.    (4) The national mercury elimination plan for the 6 pilot HCFs was finalized/validated in July 2017 by the national technical working group. Preparation for the elimination of mercury-containing devices, the provision of the mercury-free medical devices and the training of the healthcare providers on their use have been included in the national mercury elimination plan. The plan will be updated after the provision/replacement of the mercury free medical devices at pilot facilities.    5) 6 pilot facilities in Madagascar has received in total 1254 mercury-free devices (digital thermometers and sphygmomanometers) which will help Madagascar mercury phase out by up to 24.24kg. The replacement exercise of mercury free/containing devices is still ongoing, although initial reports indicate that very low amount of mercury containing devices will be collected as in Madagascar some medical devices such as thermometers and sphygmomanometers are not always owned by the hospitals but in by the physicians and the patients.The project currently awaits the inventory of collected mercury containing devices to see the extent of the low amount.    With regards to the preparation of storage facilities for mercury-containing devices, the project has agreed with national partners to use one of the room of the existing waste treatment facility in CHU HJRA as a temporary centralized storage of the mercury waste for the project.    (6) With regards to advocacy on phasing out mercury in the health sector, the project made various guidelines, SOPs available or updated by the support of NTWG members. In the last reporting period, NTWG meetings and trainings in Toamasina and in Antsirabe, technical staff from regional health divisions in Vakinanakaratra and Atsinanana, hospital staff of CHRR Vakinankaratra and 2 basic health centers, CSB Ambalavato and CSB Ambohimanarivo, CHU Analakinina and CHU Morafenoand the public pre-service institution IFIRP Atsinanana have been informed on Minamata Convention in the health sector.    A mercury sensitization mission was conducted by the project team and focal points of model health facilities in Mahajanga (July 2017) with public and private health facilities (2 CHUs, 3 private health centers and the training institute for dentists). The following points are to be noted; most health facilities have mercury equipment (used or in stock). Most dentists still use dental amalgam or still have these products in stock. Overall, they are aware of the risks and dangers of handling mercury but do not know what to do in the event of a spill or what to do to temporarily store it.    During the exchanges with the teachers and students of the IOSTM (Institute of Tropical Odonto-Tropical Stomatology of Madagascar) the following points were raised; the institute no longer uses amalgam and educates students to stop using it. However, it still has stock of this product. Most dentists still use amalgam (more than 60%) at the request of the client. Very few or no documents exists or is available for local staff. During advocacy missions in the last reporting period, the guide for cleaning up a mercury spill and temporary storage of mercury/ mercury waste was presented and shared with local stakeholders.    (7) With respect to recycling, the project prepared a list of recycling companies in Madagascar. It was agreed during the national technical working group (NTWG) meeting that each pilot HCF will prepare an individual MOU with the selected company, in order to sustain their agreement even after the close-out of the project. The MOUs are expected to be effective in 1 month after the launch of the non-incineration treatment to better reflect the estimation of the recyclable products for the company.    (8) Madagascar has identified and trained 14 national trainers composed of technical staff from SSENV-MOH, trainers from university hospitals and technical staff from the divisions in charge of Analamanga region and the basic health centers at the MOH. In this reporting period, 59 health workers (40% men; 60% women) trained in best environmental practices in HCWM from the project.    The project in Madagascar has developed national learning resource packages in best environmental practices of HCWM (i) for in-service staff at health care facilities and (ii) for pre-service training institution of the future care providers.    A learning resource package (LRP) includes the (i) curriculum for the trainer, (ii) participant’s notebook that is the reference document for trainee, (iii) PowerPoint slides, (iv) other support materials (pre-test and post-test, evaluation of the day…)  Three types of learning resource packages (LRP) were prepared for the in-service staff at health care facilities:  1.For care providers: physicians, paramedics including nurses, midwives and laboratory technicians (in French)  2.For operators and support staff (In Malagasy)  3.For national decision makers (relevant divisions at MOH) and managers of the hospitals (in French)    Two LRPs for the training institution, one is the LRP for paramedics and second is the LRP for the Faculty of Medicine to serve as reference documents for the teachers/trainer.    The project, with the support of master trainers and technical experts, developed these LRPs mentioned above using the materials shared in the regional ToTs in Kenya (Dec-16). Regarding the in-service LRP, the existing training materials used by the Health and Environment department ‘SSENV’-MOH which leads the HCWM across the country was consulted also with the revised national technical guidelines in HCWM (that includes non-incineration treatment).    In Madagascar, the public pre-service training institution for paramedics depends both on the Faculty of Medicine and the specific division, DIFP-Direction des Instituts de Formation des Paramédicaux, at the MOH. There are also many private pre-service institutions for paramedics across the country, but they do not depend on any specific state structure apart of the Ministry of higher education that gives them authorization to open and recognition of the diploma issued. Thus, the best way to transmit them the knowledge of best environmental practices in HCWM was found to provide them the LRP documents and a training to them.    In the second half of 2018, the final version of LRPs for in-service staff at health care facilities will be officially handed over to the Health and Environment department ‘SSENV’-MOH and will become the national LRPs. This department will use the LRPs to expand the training in best environmental practices in HCWM at the national level.    LRPs for pre-service training institutions are also available and representative of the DIFP, the responsible division at MoH, and trainers from the training institution for paramedics, l'Institut de Formation Inter Régional des Paramédicaux (IFIRP) of Toamasina were trained. The project will support the dissemination of the LRP to the 6 public IFIRPs across the country.    The final LRP for paramedics will be shared also to the main private institutions for paramedics across the country. The project will support their dissemination and the training of the teachers and preceptors from these main private paramedics training institutions.    (9) The WASH FIT initiative (WHO/UNICEF Water and Sanitation for Health Facility Improvement Tool) was introduced to project countries during the regional inception workshop in Johannesburg, in September 2016, and detailed training on it was provided during the regional project teams training in Nakuru in December 2016. Madagascar was selected as the first project country to implement the tool. A follow-up training-of-trainers on WASH FIT took place in Madagascar in December 2016, which trained 16 local experts (33% men; 67% women).    In this reporting period, the project in Madagascar supported the introduction of WASH-FIT in 3 model health facilities in Manjakandriana which completed the first step in introducing WASH-FIT by organizing initial WASH FIT assessment; creating WASH FIT committee; development of first annual improvement plan. CHU HJRA completed their Initial WASH FIT assessment and created their WASH FIT committee in February 2018. Learnings from this implementation will be shared in the next report.    Tanzania:  (1) In the first phase of the project, the project has identified five model HCFs, Muhimbili Hospital, Mwananyamala Hospital, Mbagala Sinza Hospital and Bugurini Anglican Health Centre to pilot advanced HCWM with mercury-free devices and non-incineration treatment technology.    These pilot HCFs have officially communicated to UNDP CO and the Ministry of Health (MoHCEDC) their commitment in providing necessary infrastructure to successfully implement the project and MoUs with pilot facilities were signed.    In preparing these sites to accommodate new HCWM technologies and concepts, the Tanzania project team organized a two-day orientation meeting on 30-31 March 2017 for the five participating health facilities. The meeting included participants from the Ministry of Health, the Local Government Authorities, HCWM coordinators and project’s pilot facilities. The meeting provided a vital opportunity to share an overview of the HCWM project, HCWM experiences from different sites, introduce the concept of recycling and re-use of Healthcare waste (HCW), share the IRAT findings, review the mercury inventory, provide an overview of the mercury elimination strategy, introduce Health Care Without Harm’s initiative, Global Green and Healthy Hospitals (GGHH) network, provide an overview of technologies and infrastructure requirements.    Initial waste generation assessments for all model facilities, including mercury containing devices, assessment of chemical waste generations and current HCWM practices in the pilot facilities, have been completed through IRAT assessments. During the I-RAT exercises, some discrepancies regarding the physical counting of waste were identified and the Tanzania project team conducted the physical counting of waste at each project facility for 14 days. This re-assessment provided guidance to project facilities for their future waste generation assessments.    (2) With regards to preparations and installations of autoclaves, in this reporting period, the project has supported 5 pilot HCFs to ensure site readiness for autoclave installation. The project provided sample plans/drawings for autoclave housing; facilitated the signatures of MoU including HR requirements; and facilitated the environmental permits for autoclave operation. Site readiness was confirmed as per the technical checklist by Medeor, the local agent of the supplier.    (3) The project was able to install all autoclaves in all five sites and trainings on operation and maintenance were provided to respective staff of hospitals and MoH. All necessary tests (except Mwananyamala whose site was not ready during the mission of the manufacturer, MediClave technicians but became ready after site readiness) were done successfully, and commissioning of autoclaves were carried out by Chief Technical Expert (May-18). Autoclaves in all 5 hospitals are currently functional but not yet fully as of 30 June 2018. As autoclaves are being operationalized, status and initial data on autoclave operation will be reported on in the next reporting period. With the current capacity of autoclaves supplied in Tanzania, pilot HCFs will be able to treat approximately up to 290.2 tonnes/year of medical waste which will help to reduce/avoid UPOPs emissions by 11.7 g-TEQ/year.    (4) With respect to the mercury elimination strategy plan, the Tanzania project team has already submitted the mercury devices’ inventory for all project sites. Also, the project team has briefed project facilities on the exchange of mercury containing devices with mercury-free ones. The project’s national technical expert designed an inventory to assist in assessing the situation regarding the number of mercury containing devices in the country. The project developed a detailed list of mercury-containing devices in Dar es Salaam and other regions in the country, and 8 representative zonal hospitals namely: Bugando referral hospital, Mbeya referral hospital, Sekouture Regional referral hospital, Dodoma Regional referral hospital, Mawenzi Regional referral hospital, Mt. Meru Regional referral hospital, Morogoro Regional referral hospital, Bombo Regional referral hospital.    (5) The project in Tanzania distributed a total of 446 mercury-free devices to the 5 pilot HCFs, which will help Tanzania reduce mercury emissions by up to 24.64kg. Replacement and collection of Mercury containing devices is ongoing in all five project facilities, this activity is expected to be completed end of August 2018. Ministry of Health has identified an interim centralized storage area for Mercury containing devices in Muhimbili Hospital, Dar es Salaam. The project in Tanzania will support the procurement and construction of interim storage area in Muhimbili Hospital.    (6) While developing the national action plan, the project also outreached to regional and zonal hospitals listed above to orient hospital staff on the usage of mercury-free medical devices and raise awareness on mercury poisoning. Project supports MoH for widely distribution and enforcement of the mercury elimination plan in Tanzania.    (7) With regards to recycling activities in Tanzania, the project engaged a national consultant to carry out a mapping of plastic recycling industries and the potential for them to buy recyclable plastics from healthcare facilities. A list of plastic industries operating in the country was obtained from the Ministry of Trade and Industry. Also, the Small Industries Development Organization (SIDO) was consulted for a list of small-scale plastic industries and recyclers in the country.    With the efforts of the project, three pilot HCFs (Muhimbili, Mwananyamala and Sinza Hospitals) are now in the final stage of contracting with a company, FINID, for recycling of the autoclaved plastic waste. The project team will aim to support the two remaining sites for the same.    (8) Following regional ToT, the project in Tanzania identified 18 national trainers and organized a national ToT on HCWM (Dec-17). With the support of national experts trained, the project in Tanzania developed a short course (12 days) training materials for HCWM focal points at HCFs. The project has agreed with the Centre for Educational Development in Health Arusha (CEDHA) which is a tertiary public training institution, to include this HCWM course as part of short courses offered by the institutions.    The project has also liaised with training institutions to revise existing curriculums to include HCWM with mercury-free and non-incineration technologies. The project has already initiated discussions on the revision of curriculums with key national training institutions including CEDHA, Muhimbili University of Health and Allied Sciences (MUHAS), Muhimbili School of Hygiene, Tanga School of Hygiene and Mpwapwa School of Hygiene. In September 2018, the Tanzania project team and deans/directors of environmental health departments from all the schools will meet for the review. Along with MoH, MUHAS and CEDHA will lead the discussions for revised national HCWM curriculum.    (9) With technical support provided by the project’s partner, NGO Healthcare Without Harm (HCWH), the project will be piloting a bio-digester as another alternative to waste incineration in one of the pilot HCFs, Mwananyamala Hospital in Dar es Salaam. The bio-digester will help for the safe disposal of placenta waste and other organic waste streams such as kitchen scraps, waste food, and paper with the additional benefit that it will produce biogas which can be used for heating water at maternity operating theater. The construction is in the final stages. The running bio-digester is expected to be handed to hospital management in August 2018. The project will report on status of bio-digestion and its feasibility/replicability in Tanzania in the next reporting period.    Zambia:  (1) Zambia will pilot mercury-free devices in 8 HCFs representing different levels of health care facilities and among these 8 HCFs, three hospitals; University Teaching Hospital (UTH), Ndola Teaching Hospital (NTH) and Kabwe General Hospital (KGH) will pilot non-incineration treatment technology.    At the regional training held in Kenya in December 2016 on the selection of health care facilities, it was suggested that two facilities within Lusaka would be added so that they can act as satellite facilitates and transport their waste to the cluster treatment facility that will be installed at UTH. Matero and Chilenje level 1 hospitals, both located in Lusaka, were added to the project and this was approved by the project steering committee in May 2017. As such, UTH will act as a central treatment facility and receive health care waste for treatment from Matero and Chilenje level one hospitals, and possibly many more HCFs in later stage. Both Kabwe General Hospital and Ndola Teaching Hospital will receive their own non-incineration treatment technologies for treating waste generated on site and will also aim to receive medical waste for treatment (by fee) from other HCFs in close vicinity. The remainder of the health care facilities will not have their medical waste treated by non-incineration treatment technologies, instead they will engage in the mercury phase-out and other relevant health care waste management components of the project.    During the earlier reporting period, the project finalized the list of the required non-incineration equipment capacities for the treatment of HCW for the three cluster treatment facilities (namely University Teaching Hospital, Kabwe General Hospital and Ndola Teaching Hospital) and included the purchase of a vehicle for transporting infectious waste from two proposed satellite pilot sites to the central cluster treatment facility. Additional funds for the purchase of the utility vehicle and additional non-incineration equipment were sourced from the UNDP in Zambia as co-financing.    I-RAT assessments were carried out in all eight HCFs. The I-RATs highlighted issues with respect to HCWM at several points in each of the assessed HCFs. For example, with respect to HCWM administration; gaps were identified in the areas of policy and planning, and, training and budgeting. Under ward-level handling; classification and segregation of health care waste was patchy, and posters and signage were almost non-existent. Under transport and treatment of health care waste; the performance was generally poor on both internal and external transportation of waste. Regarding storage, it was noticed that most times there was a delay in collecting general (non-infectious waste), and almost no facility had any action on hazardous chemical waste, except for Matero Level 1 hospital, which has an in-house treatment facility.    For the pilot HCFs in Zambia, the initial waste generation assessment, assessment for mercury-containing devices and assessment for chemical waste were completed. Overall these assessments, especially IRAT has been a useful tool to the project by providing valuable insights into the strengths and weaknesses of the HCFs which in turn has identified further areas of intervention for the project, for example poor waste segregation practices.    (2) With regards to preparations and installations of autoclaves, in this reporting period, the project has supported all 3 pilot HCFs to ensure site readiness for autoclave installation. The project provided sample plans/drawings for autoclave housing; HR requirements; and facilitated discussion with ZEMA for the environmental permits for autoclave operation. Site readiness was confirmed as per the technical checklist by Mission Pharma, the local agent of the supplier, except for UTH missing minor works such as outside wash bay, open drainage cleaning and repairing, exterior painting of the building and a few plumbing works.    (3) With the mission of technicians of MediClave, manufacturer of autoclaves, in early August 2018, the project will install autoclaves in all three sites and trainings on operation and maintenance will be provided to respective staff of hospitals and MoH. All necessary tests and commissioning of autoclaves will be carried by Chief Technical Expert along with national technical expert and respective MoH and ZEMA staff. With the current capacity of autoclaves supplied in Zambia, pilot HCFs will be able to treat approximately up to 337.0 tonnes/year of medical waste which will help to reduce/avoid UPOPs emissions by 13.5 g-TEQ/year.    (4) Regarding the mercury elimination plan, the project finalized the inventories for mercury containing devices in pilot facilities. The project prepared a concept note and a mercury elimination strategy in consultation with the Chief Medical Equipment Officer in the MoH on the receipt and distribution strategy for mercury-free medical devices. Initial assessment found that most HCFs have already started to phase out mercury-containing devices, and in fact, that there is minimum use of mercury in dental amalgam in Zambia. A challenge identified is the reluctance of some health care providers, and training schools to move away from mercury-containing devices, as they do not perceive the mercury-free devices to be as reliable clinically.    (5) The project completed procurement and distribution of mercury-free medical devices in Zambia. 8 pilot facilities in Zambia have received in total 1374 mercury-free devices (digital thermometers and sphygmomanometers) which will help Zambia phase out mercury by up to 34.63kg. The replacement exercise of mercury-free/containing devices is ongoing, although 1:1 exchange cannot be achieved according to first reports, mainly due to the fact that some hospitals already changed to mercury-free alternatives. The project team currently awaits the inventory of collected mercury-containing devices.    With regards to the identification and preparation of storage facilities for mercury-containing devices, the project engaged with the Minamata Convention’s Zambia focal point, to start discussion on storage of mercury containing devices (MCDs) and eventual disposal. These discussions did not conclude with a suitable solution yet. In this reporting period, the project has agreed with ZEMA and MoH on the interim storage of mercury-containing devices to be centrally organized in the temporary storage at Ministry of Health HQ grounds in Lusaka. Contractor, ALLCAS Enterprises of Lusaka, commenced works on installation of the temporary storage of MCDs. After a 1:1 exchange of MCDs, collected mercury will be transported in secure containers to the temporary central storage facility at MoH HQ in Lusaka. The work will continue in the second half 2018 to engage with ZEMA on a long-term strategy for mercury removal, in line with Minamata Convention recommendations.    (6) Advocacy on mercury phase-out is ongoing at all levels in pilot HCFs including senior hospital management. All pilot HCFs will be re-trained on use of mercury-free medical devices at the time of distributing the devices in September 2018.    (7) Concerning recycling, a mapping of the recycling industry in Zambia and way forward on recycling of healthcare waste was completed. It should be noted that recycling in Zambia is quite limited. A list of recycling companies was shared by ZEMA but was found to be heavily focused on Lusaka province and on companies which recycle oil. Upon further exploration, a number of additional companies have been identified and contact has been made and discussions are underway. However, progress in this area is very slow. The project continues to collaborate with Waste Master Company which invited the project to observe the recycling of expired syringes within their contract with Medical Stores Limited to dispose of a national stock of expired syringes.    In this reporting period, the project in Zambia, facilitated the discussions to start a recycling demonstration at Chilenje level 1 hospital in Lusaka. An MoU was drafted between Chilenje Level 1 Hospital and the recycling company, Waste Master Limited, however this MoU has not been signed as management at Chilenje escalated the signing to MoH. This is being followed up by the project staff so that operation can start.    (8) National experts (from the project, MoH and ZEMA) who were trained in the regional training in Nakuru, Kenya, reviewed the training resource materials developed by regional expert team and adjusted them to train national trainers. The resource materials were used at ToT workshops to train managers, clinical staff and waste handlers of the 8 HCFs. The materials were broken down into three ToT workshops which were conducted and trained 56 healthcare workers in the last reporting period.    With regards to the inclusion of HCWM into the curriculum of health sciences, to date, only preliminary meetings have been held with stakeholders from the University of Zambia to review the curricula of health sciences. Further activities on curriculum development and liaising with training institutions are planned for internal development with assistance from UNDP in Zambia.    (9) Country-specific, flagship activity for Zambia is the recycling of non–infectious waste. The progress is already summarized above in (7). Furthermore, it should be noted that the 2018 regional project board (Tanzania, May-18) agreed and decided an additional work on this flagship activity for Zambia, which is the expansion of recycling activities with the production of reusable sharp containers. In the next reporting period, the project in Zambia will intensify its efforts on the demonstration of recycling in pilot HCFs and realization of production of reusable sharp containers. | During the earlier reporting periods, all national project teams have developed national action plans that enabled them to strengthen national policies, regulatory frameworks, and national plans for HCWM and Mercury. Project Steering Committees and Technical Working Groups set up and meeting on a regular basis are ensured at national level. The regional component with its regional expert team (with experts from UNDP, WHO and HCWH) provided coordination and substantive technical support within an enabling environment of South-South cooperation.    A national action plan for each country (including I-RAT assessments for each pilot facilities) was developed with pilot healthcare facilities (HCFs) selected as per the selection criteria agreed during the regional inception workshop. HCWM situation in the four project countries is very different, the size and type of facilities to be supported by the project vary from country to country and so do their locations and the circumstances under which they operate. As such the project currently supports different set-ups in each of the countries than what was initially projected.    In the first procurement round, while all 24 facilities received mercury-free devices and HCWM items, only 14 facilities (Ghana: 3; Madagascar: 3; Tanzania: 5; Zambia: 3) have received non-incineration technologies (autoclaves).    Among 14 pilot HFCs, 3 hospitals are with central treatment facility (Madagascar:1; Tanzania:1; Zambia:1) and 11 hospitals/health posts with cluster treatment facility planned for serving in small areas (Ghana:3; Madagascar:2; Tanzania:4; Zambia:2). The remaining 10 pilot facilities (Ghana:2; Madagascar:3; Zambia:5) will either benefit from central/cluster facilities or their own existing non-incineration waste treatment options.    In the second phase of the project, the project board agreed to follow the recommendation of the MTR report indicating that the “Project Document states that an additional 12 rural health posts are to be supported during the second phase of the project. It is strongly recommended that the project focuses on larger hospitals in the second phase. Rural health posts may be able to properly segregate and handle their infectious waste, but the quantities of waste they generate is small and the costs of bringing this waste to an autoclave facility are prohibitive.”    Therefore, in the second phase of the project, instead of expanding the HCWM systems into rural areas, the project has included additional 6 large hospitals as pilot facilities in project countries (Ghana: 3; Madagascar: 2, Tanzania:1) accumulating in total approx. 3,500 beds.    In each regional project meetings, national action plans are reviewed and updated with agreed new sets of activities. The progress on these activities is monitored regularly through monthly progress reports. Currently most of following activities are still ongoing as part of national action plans:    1) Waste management plan and policy at facility level, including support for HCWM budgeting  2) Establish a national training infrastructure for HCWM  3) Gender inclusiveness in HCW  4) Outreach activities  5) Improved HCWM governance / legal framework  6) Advanced mercury management  7) Operation of the non-incineration waste treatment plants  8) Advanced HCWM practices  9) HCW monitoring and data collection  10) Exit strategy / replication  11) Country specific activities:  11a) Ghana: Evaluation of sharp management tools  11b) Madagascar: Autoclave maintenance video  11c) Tanzania: Operation and evaluation of the applicability of a bio-digester for pathological waste  11d) Zambia: Initialize recycling of non-infectious waste    Overall, the progress on national action plans is on track with ongoing activities in multi-components as indicated above. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 5**  **Favourable market conditions created for the growth in the African region of affordable technologies that meet BAT guidelines and international standards.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of HCWM systems and Hg free devices procured. | In the project countries, 1 non-working technology was present in Tanzania, 1 hydroclave was operational in Ghana and none in Madagascar - the status could not be assessed in Zambia (April 2014). | *(not set or not applicable)* | CWM systems and Mercury-free devices for at least 12 health posts, 8 hospitals and 4 central or cluster facilities procured. | As part of the first round of procurement, the project initiated two separate procurement tenders for (1) mercury- free devices and (2) non-incineration HCWM equipment.    As the project document centralized the procurement activity at the regional level, during the first regional project board meeting a procurement strategy was discussed and agreed on with all national stakeholders and partners. This strategy included a decision related to the arrangement for the procurement of HCWM technologies to be centrally organized by UNDP IRH (instead of UNDP Copenhagen PSO), and to allocate up to 5% of the value of the 1st procurement round (~ $1.25mln) to be administered by national components upon their request, to allow for the procurement of some equipment locally.    The project also developed a general strategy for the procurement of equipment to ensure successful installation and operation of the HCWM equipment. The assessment of pilot sites showed that facilities are lacking required infrastructure. Also, strong possible problems in the sustainable future operation of to be provided equipment, including the financing of the operation costs and the availability of maintenance services could be noticed. To overcome these challenges, a procurement strategy was developed to ensure: (1) The ownership on the equipment of the countries and the pilot facilities. (2) Accurate installation of the equipment. (3) Lowest possible follow up cost in the operation of the equipment. (4) Future maintenance of the equipment and availability of spare parts. This strategy was discussed and agreed with countries during regional project meetings and details are as follows:    (1) Ownership on the equipment of the countries and the pilot facilities  Ownership of to be provided equipment was considered as a key issue to motivate stakeholders to support the future operation of to be set up systems. To better involve the countries and the pilot healthcare facilities in the procurement process, a catalogue on HCWM equipment was developed. The catalogue included nearly one hundred different items from minor, simple equipment such as plastic bags up to complex items as turn-key treatment plants and supporting equipment (e.g. voltage stabilizers). The technical specifications for each item were prepared in cooperation with the project team in a collaborative manner, international standards were considered to ensure high quality equipment. Expected prices were provided. Based on the catalogue and the available budget, the countries and the pilot facilities could select individually the required items based on local needs.  The proposed Bill of Quantities (BoQ) of the countries were technically cross-checked by the regional expert team. If items such as needed supportive equipment were missing (e.g. booster pumps to ensure operation of the treatment equipment), these were recommended to be added by the regional team.    (2) Accurate installation of the equipment  The successful installation and operation of to be provided healthcare waste treatment equipment requires necessary infrastructure, especially sufficient housing and storage space for the internal healthcare waste treatment and logistic, adequate media supply (water, electricity, etc.) and space. The provision of this infrastructure belongs to the counterpart contribution (co-financing). To enable the countries to provide this, a three-step approach was followed:  1st step: Provision of a general design for the set-up of infrastructure  2nd step: Adaption of the general design to the selected treatment technology and local circumstances  3rd step: Cross check prior installation  The general design was provided by the regional team and discussed during the regional meeting. Based on the general design the countries started with the detailed design for each pilot facility. After the selection of the treatment technology, the countries were informed on the specific requirements to operate the systems, especially regarding water and electricity supply. The final design was discussed during on-site missions and afterwards locally tendered and constructed in pilot facilities. Based on a checklist developed in cooperation with the supplier and based on photo documentation, the “No-objection” for the delivery and installation of the equipment was provided. To ensure good communication, during the last three months prior the installation of the equipment, bi-monthly calls between the countries and the supplier were organized to ensure the site readiness and to provide a platform for discussion between supplier and receiver of the equipment.    (3) Lowest possible follow up cost in the operation of the equipment  Major concerns of the participating hospitals were the follow-up cost of the operation of the equipment, especially regarding the cost for electricity. During the preparation of the technical specification future operation cost were considered (e.g. usage of low-operation cost pumps). If possible, the hospitals were encouraged to treat also waste from other facilities to create additional sources of income (in-sourcing of services). In selected cases, the installation of photo-voltaic panels was carried out to compensate electricity consumption.    (4) Future maintenance of the equipment and availability of spare parts  To reduce the need of corrective maintenance, necessary supporting equipment such as water treatment systems and voltage stabilizers were included in the equipment supply to guarantee a problem-free operation of the main equipment. Also, items included in the procurement of the equipment were a spare-part package to cover at least 2500 operation hours, the provision of training on preventive maintenance and the provision on manuals on the carrying out of maintenance. Additionally, it was requested for the technology provider to guarantee a 10-year spare-part availability and to have a local agent for maintenance available in each country.    As part of the procurement strategy summarized above, the project developed a catalogue with all typical items used for the set-up and operation of healthcare waste management systems in order to facilitate the central procurement of required equipment for the project. Therefore, the technical specifications and cost estimates for more than 70 HCWM items were developed. The recommended items and the specifications were discussed with the countries and project partners. In the beginning of 2017, the finalized catalogue was sent to the countries to allow the development of the BoQ (bill of quantity) for the procurement. Based on the BoQ prepared by the four national components, the procurement bids for both mercury-free devices and non-incineration HCWM equipment were announced on 3rd May 2017 and 16th June 2017, respectively.    The BoQ for mercury-free devices included 4 different products; (1) mercury-free aneroid sphygmomanometers, (2) automatic sphygmomanometers, (3) digital blood pressure monitors and (4) digital thermometers. After an evaluation of the received offers from different potential suppliers, the contract was awarded in the end of June 2017 to the company Intertrade International Services SA (IIS) from Switzerland, in DDP amount of $49,944. Technical specifications and user manuals for each device (both in English and French) have already been provided to all national counter-parts.    The non-mercury containing medical devices were delivered to three countries in the period September-October 2017. The delivery to Madagascar was postponed until January 2018 due to the need of the clearance of custom regulations. During a mission in Zambia, the quantity and quality of the supplied items were controlled. The inspection showed that the supplied digital thermometers did not fulfil the offered specifications. The supplier was informed and the already delivered thermometers were replaced in 2018 by correct thermometers. With this replacement, the contract was amended and new DDP amount became, $48,909.    A validation assessment of the delivered aneroid sphygmomanometer showed that in Ghana 13 pieces (12%) did not show the correct pressure. Also, these items were replaced by the supplier. This information was provided to all other recipient countries and countries have also checked on delivered items accordingly and confirmed the required accuracy of products.    Overall for mercury free devices, the project has concluded the first procurement round for the 24 pilot facilities as 3 central, 11 cluster and 10 satellite facilities in four countries. In total, 2,301 mercury free devices (aneroid and automatic sphygmomanometers, digital blood pressure monitors and digital thermometers) were delivered to project countries in this reporting period.    Based on the carried-out analysis of the healthcare waste situation in the pilot hospitals, the countries developed the BoQs from the HCWM catalogue earlier developed. The developed BoQs were reviewed by the regional expert team and recommendations for changes provided. After agreement of the BoQs, the tender document was developed and published in June 2017. After two clarification rounds, on July 2018, 5 bids were received. The bids were evaluated as per the UNDP requirements and in October 2017 the contract was awarded to the NGO TTM from Germany, in the DDP amount of $1,539,101 (if all tax/customs exemption received and no other associate costs incurred, this amount would be down to $1,234,753). Different from the specifications, the company offered for the large autoclaves a larger equipment than requested with a chamber size of 1,300 liters (instead of 700l / 850l). As this will enable the hospitals to either treat more waste or to treat waste in a shorter time, this deviation was accepted.    In line with the budget for the first procurement, the BoQ included all necessary sets of HCWM equipment, including safety and personal protective equipment (PPE); consumables including sharp containers, waste bags; internal equipment including waste bins, needle cutters; logistic equipment including collection and transport bins; chemical storage equipment; non-incineration treatment equipment with maintenance toolboxes, voltage stabilizers and testing tools. Overall in the first procurement round of HCWM items and non-incineration technologies, the project procured 57 different products, in total of 2,553 items (including 18 autoclaves) for the 24 pilot facilities as 3 central, 11 cluster and 10 satellite facilities in four countries. | The project developed a general strategy for the procurement of equipment to ensure successful installation and operation of the HCWM equipment. The assessment of pilot sites showed that facilities are lacking required infrastructure. Also, strong possible problems in the sustainable future operation of to be provided equipment, including the financing of the operation costs and the availability of maintenance services, could be noticed. To overcome these challenges, a procurement strategy was developed to ensure: (1) The ownership on the equipment of the countries and the pilot facilities. (2) Accurate installation of the equipment. (3) Lowest possible follow-up cost in the operation of the equipment. (4) Future maintenance of the equipment and availability of spare parts.    As part of the procurement strategy summarized above, the project developed a catalogue with all typical items used for the set-up and operation of healthcare waste management systems in order to facilitate the central procurement of required equipment for the project. Therefore, the technical specifications and cost estimates for more than 70 HCWM items were developed. The recommended items and the specifications were discussed with the countries and project partners. In the beginning of 2017, the finalized catalogue was sent to the countries to allow the development of the BoQ (bill of quantity) for the procurement. Based on the BoQ prepared by the four national components, the project initiated two separate procurement tenders for (1) mercury- free devices and (2) non-incineration HCWM equipment. The procurement bids for both mercury-free devices and non-incineration HCWM equipment were announced on 3rd May 2017 and 16th June 2017, respectively.    The BoQ for mercury-free devices included 4 different products; (1) mercury-free aneroid sphygmomanometers, (2) automatic sphygmomanometers, (3) digital blood pressure monitors and (4) digital thermometers. After an evaluation of the received offers from different potential suppliers, the contract was awarded in the end of June 2017 to the company Intertrade International Services SA (IIS) from Switzerland, in DDP amount of $49,944. Technical specifications and user manuals for each device (both in English and French) have already been provided to all national counter-parts.    The non-mercury containing medical devices were delivered to three countries in the period September-October 2017. The delivery to Madagascar was postponed until January 2018 due to the need of the clearance of custom regulations. During a mission in Zambia, the quantity and quality of the supplied items were controlled. The inspection showed that the supplied digital thermometers did not fulfill the offered specifications. The supplier was informed and the already delivered thermometers were replaced in 2018 by correct thermometers. With this replacement, the contract was amended and new DDP amount became, $48,909.    A validation assessment of the delivered aneroid sphygmomanometers showed that in Ghana 13 pieces (12%) did not show the correct pressure. Also, these items were replaced by the supplier. This information was provided to all other recipient countries and countries have also checked on delivered items accordingly and confirmed the required accuracy of products.    Overall for mercury-free devices, the project has concluded the first procurement round for the 24 pilot facilities - 3 central, 11 cluster and 10 satellite facilities in four countries. In total, 2,301 mercury free devices (aneroid and automatic sphygmomanometers, digital blood pressure monitors and digital thermometers) were delivered to project countries in this reporting period.    Based on the carried-out analysis of the healthcare waste situation in the pilot hospitals, the countries developed the BoQs from the HCWM catalogue earlier prepared. The developed BoQs were reviewed by the regional expert team and recommendations for changes provided. After agreement of the BoQs, the tender document was developed and published in June 2017. After two clarification rounds, on July 2018, 5 bids were received. The bids were evaluated as per the UNDP requirements and in October 2017 the contract was awarded to the NGO TTM from Germany, in the DDP amount of $1,539,101 (after receiving of tax/customs exemption, reduced to $1,332,757). Different from the specifications, the company offered for the large autoclaves a larger equipment than requested with a chamber size of 1,300 liters (instead of 700l / 850l). As this will enable the hospitals to either treat more waste or to treat waste in a shorter time, this deviation was accepted.    In line with the budget for the first procurement, the BoQ included all necessary sets of HCWM equipment, including safety and personal protective equipment (PPE); consumables including sharp containers, waste bags; internal equipment including waste bins, needle cutters; logistic equipment including collection and transport bins; chemical storage equipment; non-incineration treatment equipment with maintenance toolboxes, voltage stabilizers and testing tools. Overall in the first procurement round of HCWM items and non-incineration technologies, the project procured 57 different products, in total of 2,553 items (including 18 autoclaves) for the 24 pilot facilities as 3 central, 11 cluster and 10 satellite facilities in four countries.    In this reporting period, following MTR scorings and technology allocation formula, 2nd-phase planning of procurement activities was agreed for each project country. With the updated procurement plan, the regional component initiated the tender process for the 2nd procurement round of HCWM equipment. Currently, the evaluation of the procurement case is ongoing through RACP (UNDP’s procurement review committee) and the contract signature with the supplier is expected in September 2019. The estimated delivery date for HCWM equipment in countries is within November 2019.    The total value of this procurement case is estimated as approx. $ 600,000. Based on the requests from countries, authorization from RACP is currently sought to increase the BoQs, which may result up to 25% increase in BoQ and increase the total value up to $ 750,000.  Overall in the second procurement round of HCWM items and non-incineration technologies, the regional component is expected to distribute 48 different products, in total of 1,822 items (including 3 autoclaves) for the 28 pilot facilities in four countries (with inclusion of 6 new large hospitals).    The second round of procurement of mercury-free devices is being organized nationally in a decentralized way through UNDP COs. Currently, procurement, delivery and exchange of mercury-free devices are ongoing in all project countries and all related activities are expected to be finalized before the end of November 2019.    In line with Project Board recommendations, the project currently supports additional local procurement cases, (currently 13 separate cases, including mercury-free devices, transport vehicles, bio-digestion plants etc. in total estimated value of $250,000) in all four project countries to ensure sustainability of HCWM operations.    1) Ghana: Procurement of mercury-free devices  2) Ghana: Procurement of interim storage for mercury waste  3) Ghana: Procurement of waste transport tricycles  4) Ghana: Construction of sharp pits  5) Madagascar: Procurement of mercury-free devices  6) Madagascar: Procurement of waste transport vehicles  7) Madagascar: Two bio-digestion plants design and constructions  8) Tanzania: Procurement of mercury-free devices  9) Tanzania: Procurement of interim storage of mercury waste  10) Tanzania: Procurement of waste compacters/balers  11) Tanzania: Bio-digestion construction contract  12) Zambia: Procurement of mercury-free devices  13) Zambia: Procurement for infrastructure readiness in Chilenje |
| Number of HCWM systems installed and Hg-free devices distributed. | In the project countries, 1 non-working technology was present in Tanzania, 1 hydroclave was operational in Ghana and none in Madagascar - the status could not be assessed in Zambia (April 2014). | *(not set or not applicable)* | Initial set of HCWM systems and Mercury-free devices given to 3 health posts, up to 2 hospitals and 1 central or cluster treatment facility per country. | The project has concluded procurement round for the mercury-free devices and delivered a total of 2,301 mercury-free devices to the 24 pilot facilities as 3 central, 11 cluster and 10 satellite facilities in four countries.    All countries received non-incineration treatment equipment but installations of HCWM systems for the same 24 pilot facilities are ongoing with country specific details summarized as follow:    Ghana:  The project distributed initial set of HCWM systems and mercury free devices to 3 cluster hospitals/health posts (Eastern Regional Hospital, Cape Coast Teaching Hospital and Tegbi Health Centre) and 2 satellite hospitals/health posts (Komfo Anokye Teaching Hospital and Winneba Trauma Specialist Hospital). As a central treatment facility, the project supports an existing private centralized treatment facility in Accra, called Zoompak Medical Waste Facility, through updated legislation and enforcement in favor of non-incineration technologies; facilitation dialogues and MoUs with public and private hospitals; provision of trainings; and networking opportunities with key stakeholders.    444 mercury free devices (digital thermometers, sphygmomanometers, digital BP monitors) were distributed to 5 pilot facilities, which will help the mercury phase out by up to 17.75kg.    HCWM items were distributed in all 5 hospitals and 3 hospitals (Eastern Regional Hospital, Cape Coast Teaching Hospital and Tegbi Health Centre) received and installed total of five autoclaves which has a total treatment capacity of 187.2 tonnes of medical waste per year, which will help to reduce/avoid UPOPs emissions by 7.5 g-TEQ/year.    Madagascar:  The project has procured/delivered but yet not fully distributed the initial set of HCWM systems and mercury-free devices to 1 central treatment facility (CHU-HJRA), 2 cluster hospitals/health posts (CHU-HJRB and CHRD Manjakandriana), and 3 satellite hospitals/health posts (CHMET Tsaralalana, CSB Manjakandriana and CSB Sambaina).    6 pilot facilities in Madagascar has received in total of 1254 mercury free devices (digital thermometers and sphygmomanometers) which will help mercury phase out by up to 24.24kg.    HCWM items for all 6 hospitals and autoclaves for 3 hospitals (CHU-HRJA, CHU-HJRB and CHRD Manjakandriana) will be delivered upon confirmation of site readiness for installations. Buildings in all three pilot facilities are ready but the cable installation for three-phase electricity is ongoing both for CHU HJRA and CHU HJRB, sites are expected to be ready by the first week of August 2018. Therefore, distribution of HCWM items and non-incineration technologies will be completed before the end of August 2018.    With the capacity of autoclaves supplied in Madagascar, 3 pilot HCFs will be able to treat approximately up to 234.0 tonnes of medical waste per year which will help to reduce/avoid UPOPs emissions by up to 9.4 g-TEQ/year.    Tanzania:  The project distributed the initial set of HCWM systems and mercury-free devices to 1 central treatment facility (Muhimbili Hospital) and 4 cluster hospitals/health posts (Mwananyamala Hospital, Mbagala Hospital, Sinza Hospital and Bugurini Anglican Health Centre).    446 mercury-free devices (digital thermometers, sphygmomanometers, digital BP monitors) were distributed to 5 pilot facilities, which will help the mercury phase-out by up to 24.64kg.    HCWM items were distributed in all 5 hospitals and all 5 hospitals (Muhimbili Hospital, Mwananyamala Hospital, Mbagala Hospital, Sinza Hospital and Bugurini Anglican Health Centre) received and installed total of five autoclaves which have a total treatment capacity of 290.2 tonnes of medical waste per year, which will help to reduce/avoid UPOPs emissions by up to 11.7 g-TEQ/year.    Zambia:  The project has procured/delivered but yet not fully distributed the initial set of HCWM systems and mercury-free devices to 1 central treatment facility (University Teaching Hospital, UTH), 2 cluster hospitals/health posts (Ndola Teaching Hospital, Kabwe General Hospital), and 5 satellite hospitals/health posts (Mukonchi Rural Health Centre, Kapiri Mposhi District Hospital, Matero Level 1 Hospital, Chilenje Level 1 Hospital, Kamuchanga District Hospital).    8 pilot facilities in Zambia has received in total of 1374 mercury-free devices (digital thermometers and sphygmomanometers) which will help mercury phase-out by up to 34.63kg.    HCWM items for all 8 hospitals and autoclaves for 3 hospitals (UTH, Ndola, Kabwe) will be delivered upon confirmation of site readiness for installations, which are expected to be fully ready by the end of July 2018. Therefore, distribution of HCWM items and non-incineration technologies will be completed by mid-August 2018.    With the capacity of autoclaves supplied in Zambia, 3 pilot HCFs will be able to treat approximately up to 337.0 tonnes of medical waste per year which will help to reduce/avoid UPOPs emissions by 13.5 g-TEQ/year. | Overall, in the first procurement round of HCWM items and non-incineration technologies, the regional component distributed 57 different products, in total of 2,553 items (including 18 autoclaves) for the 24 pilot facilities in 4 project countries.    First installation of the autoclaves was completed in Ghana (April-18) and this followed with installations in Tanzania (May-18), Zambia (July-18) and Madagascar (August-18). Installations were coupled with commissioning tests by project’s Chief Technical Expert and operation, testing and maintenance training provided by the manufacturer, MediClave (South Africa).    In earlier reporting period, the project has concluded procurement and delivery for the mercury-free devices and delivered a total of 2,301 mercury-free devices to the 24 pilot facilities in 4 project countries.    In this reporting period, additional 1,000 thermometers were procured in Madagascar until the end of June 2019, and 650 thermometers were delivered with one-to-one exchange with mercury-containing devices in more than 10 different hospitals in different regions of Madagascar. National project team reports that additional 2,500 digital thermometers were requested for an exchange, which will be considered for implementation in the project’s closure period.    Overall, through ongoing procurement efforts both at regional and national levels, the project is being expanded with additional HCWM systems and mercury-free medical devices in more facilities and regions in all four project countries. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 6**  **HCWM systems, recycling, Mercury waste management and Mercury reduction at the model facilities demonstrated and national training infrastructures established [National component]** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of project HCFs that have introduced BEP. | No BAT/BEP in place at most of the model HCFs. | *(not set or not applicable)* | BAT/BEP implemented at all (24) the model facilities. | As reported under above indicator, (Number of HCWM systems installed and Hg-free devices distributed), the project has already introduced BAT/BEP applications at some extent with the supply mercury free and non-incineration technologies at 24 pilot HCFs. As the nature and objective project, the project constantly promotes and encourages BAT/BEP practices in all pilot facilities.    Currently, the project is working closely with all 24 pilot facilities to operationalize mercury-free and non-incineration technologies. The project’s support to introduce and enhance BAT/BEP capacity in pilot hospitals is being provided through various activities including:  • Installation and testing of non-incineration technologies, and training staff in their operation and maintenance at the model facilities and the central/cluster facilities.  • Providing support to the central/cluster facility in the implementation of their plans.  • Phasing in of Mercury-free medical devices, and training staff in their use and maintenance.  • Supporting the establishment and training of local maintenance teams/technicians to ensure that maintenance of new devices/technologies can be ensured in the future.  • Supporting model HCFs in reducing their waste streams by introducing recycling activities and connecting them to buyers’ markets (e.g. for Polyethylene and Polypropylene, PP and PE).  • Supporting HCFs in improving the HCWM monitoring through enhanced capacity for data collection/management.    The progress on awareness and buy-in for BAT/BEP will be more visible and better evaluated after the full operationalization of advanced HCWM systems which are recently deployed or being deployed. Project’s midterm review (MTR) is also a key tool to evaluate the progress in terms of BAT/BEP each of 24 pilot facilities. As the MTR process will be finalized after the 2nd PIR, the findings on this indicator will be reported on in the next PIR report. | As reported under above indicator, (Number of HCWM systems installed and Hg-free devices distributed), the project has already introduced BAT/BEP applications to some extent with the supply of mercury-free and non-incineration technologies at 24 pilot HCFs. This number will be up to 30 pilot facilities after the completion of the 2nd round of procurement, therefore will exceed the targeted number of model facilities.    This component aims to integrate the non-incineration technologies into the overall HCWM system and to deploy the Mercury-free devices at the model facilities. These HCFs will both serve as the testing ground for these measures and as BAT/BEP demonstration sites. The steps taken by the project at these facilities were as follows:    • Training facility staff in the operation and maintenance of the new non-incineration HCWM system;  • Introducing mercury-free medical devices, and training staff in their use and maintenance;  • Establishment and training of local maintenance teams/ technicians;  • Introducing recycling activities to reduce the waste streams and identify buyers of recovered materials;  • Supporting HCFs in improving the HCWM monitoring; and  • To ensure long-term sustainability, each country was to establish at least one national HCWM course for medical professionals.    As confirmed by the MTR report, all the countries have undertaken these measures and the model facilities are generally operating in a satisfactory manner. In the following section, the status is provided for each country, covering the progress made to date toward meeting the end of project targets.    Ghana: The implementation is progressing well in Ghana, all project healthcare facilities have training programmes in place for new staff where all facets seem in place: Qualified trainers, support from management and good training materials. The source separation is fairly well implemented and operational with exception of the few weaknesses.    Madagascar: The project has made good progress in Madagascar, where efforts are undertaken to implement all project components.    Tanzania: Following regional ToT on HCWM, national ToT was organized at the Centre for Educational Development in Health, Arusha (CEDHA) in northern Tanzania. The national trainers have in return provided training at their hospitals. As confirmed by the MTR report, the training may well have been successful but there is still a need for capacity building within HCWM to ensure that infectious waste is properly managed at pilot facilities (especially at national hospital, Muhimbili). All new staff receives a one-week training covering policies, standard operating procedures and also HCWM in general, but there is still a need of good supervision and enforcement of HCWM best practices.    Zambia: The introduction of the non-incineration and mercury-free technologies is well under way. The introduction of sound HCWM at the UTH has been slow but is in progress and the exchange of mercury-containing medical devices is still ongoing. Further training is still required at some facilities, including for senior managers.    For detailed analysis of BAT/BEP practices in model hospitals, please refer to the MTR report attached (p42-p63). |
| Number of project HCFs that have operational BAT. | No BAT/BEP in place at most of the model HCFs. | *(not set or not applicable)* | BAT/BEP implemented at all (24) the model facilities. | Please see the input above, the progress under the indicator, “Number of project HCFs that have introduced BEP”. | Currently 14 hospitals have operational BAT of non-incineration waste treatment technologies and 24 facilities of mercury-free technologies.    To avoid repetitions on details of the progress of HCWM systems in countries, please see the input above, the progress under the indicator, “Number of project HCFs that have introduced BEP”.  With regards to the progress in mercury-free technologies implemented at 24 model facilities, the below provides a quick overview:    Ghana: The project in Ghana has successfully distributed all received mercury-free medical devices to five healthcare facilities in Ghana. For the past years, as the Ghana Health Service’s policy has already been to only purchase mercury-free equipment, it has therefore not been possible to realize a one-to-one exchange as foreseen in the project implementation strategy, as there were only small quantities of mercury- containing equipment to be found within the hospitals. At present all the collected mercury equipment is stored at three regional EPA offices.    Madagascar: The six model facilities in Madagascar are only using mercury-free devices. The national project team successfully distributed all received mercury-free medical devices, though the intended “exchange” for mercury-containing equipment failed, as it was found that the healthcare facilities owned no mercury-containing equipment, as all used devices are privately owned by the doctors, nurses or patients. In the second phase of the project, the national project team is conducting a one-to-one exchange of devices with private owners. Finally, in late 2018 the Ministry of Public Health prohibited the purchase of mercury-containing devices for the country’s healthcare facilities.    Tanzania: There is currently no mercury-containing medical devices in use within the model HCFs in Tanzania and all collected mercury-containing equipment is currently stored within the participating hospitals. Location for centralized mercury storage was identified at MoH premises in the new capital city, Dodoma. Procurement for centralized storage is ongoing.    Zambia: Although Zambia’s private hospitals seem mostly mercury-free, the phase-out of mercury in public hospitals is still on-going. There is at present no directive from the Ministry of Health to healthcare facilities to only purchase non-mercury containing devises. All hospitals received mercury-free devices and returned mercury-containing items (mostly sphygmomanometers and mercury-containing amalgam for dental work).    In Zambia, a storage site for mercury-containing waste has been installed within the Ministry of Health's compound. It is a converted 20’ container complete with shelving, lighting, a spill response kit and a containment area below its base in case of spills. It is intended to warehouse all mercury-containing waste collected within the country. The storage unit was licensed by ZEMA. |
| Number of project HCFs that have recycling programmes in place. | No recycling programmes in place at any of the HCFs. | *(not set or not applicable)* | Recycling programs started in each of the model facilities. | The project promotes and encourages pilot HCFs for the introduction of recycling activities and facilitates the communication with buyer’s market. As a first step, the project in all countries completed the mapping of recycling companies. While there are certain challenges on the market of recycling, all countries had initiated discussions on possible collaborations recycling companies and pilot HCFs.    Overall, there is currently no recycling programmes started in any of the pilot HCFs. But noticeable progress, especially in Madagascar, Tanzania and Zambia are noted as pilot facilities in Madagascar plan to have an MoU with certain recycling companies after the installation of HCWM systems. In Tanzania, three pilot HCFs (Muhimbili, Mwananyamala and Sinza Hospitals) are now in the final stage of contracting with a company, FINID, for recycling of the autoclaved plastic waste; in Zambia, an MoU has been drafted between UTH, Chilenje Level 1 Hospital and the recycling company, Waste Master Limited and is awaiting MoH approval to start for recycling programme. It should be noted that, as per the last regional project board decision (Tanzania, May-18), the project in Zambia will also aim to expand recycling activities with the local production of reusable sharp containers from the recycled materials. | The project promotes and encourages pilot HCFs for the introduction of recycling activities and facilitates the communication with buyer’s market. As a first step, the project in all countries completed the mapping of recycling companies. While there are certain challenges on the market of recycling, all countries had initiated discussions on possible collaborations between recycling companies and pilot HCFs.    Ghana: The recycling programme for plastic proposed in the Project Document has proven difficult to implement, as there is little or no market for the recovered plastic in the communities where the project facilities are situated, other cities than Accra. At present there is only a market for recyclable materials in and around Accra, for other parts of the country the transportation costs are too high for the recycling businesses to be profitable.    Madagascar: The project in Madagascar has implemented the collection of recyclable materials at all six model sites. The national technical consultant has made a thorough survey of about 25 facilities that could purchase the various fractions of recyclable materials. The survey clearly shows that recycling of infectious healthcare waste treated by the autoclave is feasible in Antananarivo. Currently discussions between recycling companies and hospitals are ongoing. In the meantime, university hospital, CHU JRB Befelatanana already initiated home-made recycling of plastics treated by autoclaves to produce pavers.    Tanzania: Tanzania has focused on the recycling of plastic that was previously infectious, rather than recovering recyclable materials from the general waste stream. All visited facilities were producing blocks of plastic and the national project team has identified a recycling facility in Mbagala that collects the plastic blocks from the HCFs and transports these to their sorting facility; the facilities currently receive 500 TSH per kg for plastic (0.22 USD/kg).    Zambia: The recycling activities are only initiated in hospitals in Lusaka, but not in Kabwe and Ndola due to non-existent market. At present there has only been initial actions at the UTH, Chilenje and Matero Level 1 Hospitals. The MoU was signed between Chilenje Level 1 Hospital and Waste Master (Z) Limited. In February 2019, 32kg of plastic waste was collected and autoclaved at UTH. Waste Master provided training to staff at Chilenje on recycling and recyclable materials in June 2019. To date Chilenje has collected substantial quantities of plastics for Waste Master, however Waste Master has not collected it, citing transport issues. UTH had set up a segregation and receiving bay of non-infectious healthcare waste. About 300kg of plastic was collected at UTH and sold to recyclers.  With regards to the lighthouse project, i.e. of a closed-loop recycling process in Zambia, the project prepared tender documents for the local production of sharp containers from recycled materials. This tender was issued in February 2019. However, the bids that were received far exceeded the budget and it was agreed that the activity was not viable and that it would be ceased.    Overall, it can be summarized that the project currently intensifies its efforts on initiating the recycling activities in pilot facilities although there are clear market challenges for pilot facilities outside of the capital cities and also other challenges due to segregation quality, type of plastics, reluctance of recycling treated waste etc. Recycling thus requires a significant effort from all stakeholders, project teams, respective ministries, model facilities and more importantly, the private sector stakeholders. Currently, only few hospitals (5-6 HCFs, approx. 20% of all model facilities) could successfully operate a recycling programme, as planned, which is the relatively slowly progressing component of the project. |
| No. of project countries that have storage sites for phase-out Hg-containing devices. | No storage sites for Mercury or Medical devices containing Mercury available in any of the project countries. | *(not set or not applicable)* | Safe storage sites for Mercury containing medical devices established for each of the project countries. | In accordance with project’s strategy, after the replacement with mercury-free devices, mercury-containing devices collected will be stored in the pilot hospitals and from there be transported to a central storage facility for longer term storage until treatment and disposal will be possible. In this reporting period, the project supported each country to establish a central interim storage facility for mercury waste of medical devices, and sites were selected in each of the project countries as following: EPA office in Cape Coast, Ghana; university hospital, CHU-HJRA in Antananarivo, Madagascar; Muhimbili Hospital, Dar es Salaam, Tanzania; Ministry of Health HQ grounds in Lusaka, Zambia.    Currently the project is working to finalize the establishment of a temporary storage facility in each of project countries. The storage facility will be either a modified 20-foot container (Ghana and Zambia) or will be done in one of the newly constructed waste houses (Madagascar and Tanzania).    The project will continue to engage with relevant environmental authorities in project countries for a long-term strategy for mercury removal and safe storage options beyond the project closure, in line with Minamata Convention recommendations. | In accordance with the project’s strategy, after the replacement with mercury-free devices, mercury-containing devices collected were first stored in the pilot hospitals and from there would be transported to a central storage facility for longer-term storage until treatment and disposal would be possible.    Currently, in Madagascar and Zambia, all collected mercury equipment are stored in central interim storage facilities established by the project, respectively at CHU-HJRA in Antananarivo and at MoH site in Lusaka. In Ghana, all the collected mercury equipment is stored at three regional EPA offices as EPA has rescinded its decision to host the central storage facility. Discussions on the location of the central interim storage is still ongoing with the project, EPA and MoH. In Tanzania, all collected mercury-containing equipment are currently stored within the participating hospitals. The MoH site in the new capital city, Dodoma, has been identified for a centralized mercury storage, the procurement process for the construction of the storage is still ongoing and expected to be finalized by November 2019.    The project will continue to engage with relevant environmental authorities in project countries for a long-term strategy for mercury removal and safe storage options beyond the project closure, in line with Minamata Convention recommendations.    In Madagascar, the project will aim to demonstrate the exportation of mercury waste for its disposal to another country where a Minamata-compliant facility exists. |
| Number of Mercury-free project HCFs. | Some project HCFs already use some Mercury-free medical devices, but none of the HCFs is Mercury-free. | *(not set or not applicable)* | Mercury-free devices used in each of the model facilities. | In this stage, there is no mercury-free project HCFs reported by national project teams. Status will be re-assessed during the next reporting period, especially after all exchange of mercury free medical devices completed and inventories updated. | The project has currently 18 mercury-free model facilities over 24 pilot facilities (75%) as follows:    Ghana (2 HCFs): Tegbi Health Center; Winneba Trauma and Specialist Hospital.    Madagascar (6 HCFs): CHU HJRB Hôpital Joseph Raseta Befelatanana; CHU HJRB Hôpital Joseph Raseta Befelatanana; CHU HJRA Hôpital Joseph Ravoahangy Andrianavalona Ampefiloha; CHU HMET Hôpital Mères et Enfants Tsaralalana; CHRD Hôpital de District Manjakandriana; CSB2 Centre de santé de base Manjakandriana, près de l'hôpital CHRD Manjakandriana; CSB2 Centre de santé de base Sambaina Manjakandriana    Tanzania (5 HCFs): Muhimbili National Hospital, Mwananyamala Regional Referral Hospital; Sinza Hospital; Mbagala Ranji Tatu Hospital; Buguruni Anglican Health Centre.    Zambia (5 HCFs): Ndola Teaching Hospital; Kabwe General Hospital Matero Level 1 Hospital; Kamuchanga District Hospital; Kapiri mposhi District Hospital. |
| Number of institutions that offer HCWM training/certificate courses. | In most project countries, training programme for waste management exist, but training programmes for HCWM need to be established/improved (see Annex I, II, III, and IV respectively). | *(not set or not applicable)* | At least one national HCWM training programme established in each of the project countries. | Currently, the number of institutions that offer HCWM training/certificate courses is only one, Accra School of Hygiene with its HCWM certificate programme.    Overall, in order to strengthen HCWM training capacity in project countries, the project has so far worked in three layers; (1) following the regional training of trainers programme (ToT), identification of national trainers and expansion of national ToTs on HCWM; (2) development/approval of short curriculums as HCWM certificate programme for existing healthcare workers; (3) supporting a national training infrastructure for HCWM by revising/incorporating HCWM content in curricula for higher learning institutions (e.g. medical faculties, nursing schools, schools of hygiene and environmental health schools) to ensure pre-service awareness and training. The status of the progress on these layers are summarized below:    (1) In its inception phase, the project has trained 19 master trainers (42% women; 58% men) from project countries. With the support of national master trainers, the project has identified approx. 70 national trainers to expand the HCWM training in national context. Currently, all project countries had established a project specific ToT programmme.    (2) In Ghana, Madagascar and Tanzania, the project has developed a training curriculum for short HCWM courses as facility level, continuing education courses targeting healthcare workers already employed.    It is worth noting one good example that the project in Madagascar developed three different curriculums, (i) for care providers (in French); (ii) for operators and support staff (in Malagasy); (iii) for national decision makers and hospital managers (in French). Furthermore, in Ghana, Accra School of Hygiene already ran its first HCWM modular course for practitioners and provided certificates to 26 trainees (45% women; 55% men).    Currently, in these 3 countries, developed programs/curriculums are awaiting final approval from respective Ministries or training institutions. The work in Zambia has slowly progressed due to budgetary concerns but will be intensified during the next reporting period with the support of UNDP in Zambia.    (3) The project also liaised with various training institutions in all project countries to include HCWM into the curricula of higher learning training institutions. Consultations are ongoing and considerable outcomes for the revision in the curricula of key higher education institutions are expected in the next reporting period.    Furthermore, last regional board (May-18) has decided to organize the production of a training video on the operation and maintenance of the autoclaves. This training video will be shot together with Chief Technical Expert and MediClave technicians during installations in Madagascar and will be subtitled both in English and French for the use of all project countries. | In order to strengthen HCWM training capacity in project countries, the project has so far worked in three layers; (1) following the regional training of trainers programme (ToT), identification of national trainers and expansion of national ToTs on HCWM; (2) development/approval of short curriculums as HCWM certificate programme for existing healthcare workers; (3) supporting a national training infrastructure for HCWM by revising/incorporating HCWM content in curricula for higher learning institutions (e.g. medical faculties, nursing schools, schools of hygiene and environmental health schools) to ensure pre-service awareness and training.    Overall, the progress on HCWM training/curriculums can be considered completed in Ghana and Madagascar with further implementation of training curriculums. Zambia is progressing well to fill the gap with the ongoing assignment to develop short courses for existing healthcare staff. The project in Tanzania has progressed very little since the last report, therefore, an ongoing national assignment currently reviews existing curriculums to incorporate HCWM issues into relevant training programmes. More detailed status on national training programmes for each country is as follows:    Ghana: Ghana has three schools of hygiene, where students receive a certificate or diploma (B.Sc.) in Hygiene. Within these courses, future Environmental Health Officers, Occupational Therapists and Occupational Health and Safety Experts must now all follow a full semester course on HCWM which consists of 3 hours of training per week over a 16-week period. The curriculum for this course was developed through the project and is now part of the national curriculum. This curriculum is now used by the West Africa Health Examination Board and is the basis for all HCWM training in West Africa.  For the Accra School of Hygiene there are three trained teachers and that is sufficient staffing. Furthermore, a one-week short course has been developed for EHOs who are already employed, the first course already took place and had 26 participants. Furthermore, the Accra School of Hygiene ran its second HCWM modular course in collaboration with the Ho School of Hygiene for practitioners, academia and private waste managers and provided certificates to 26 trainees and 9 facilitators from the Accra School of Hygiene, Ho School of Hygiene and the project.    Madagascar: In Madagascar HCWM was already part of the curriculum in the national training programmes for Environment Health Officers (EHOs), nurses and doctors, but the content was limited, so these courses were redesigned. To do this, the project in Madagascar hired the “Groupe InSPNMad” (Institut Supérieur des Paramédicaux Novateurs de Madagascar), a private teaching institution that is responsible for the national curriculum for several medical fields, including nursing, medical laboratories, midwives, kinesitherapy, anesthesia, resuscitation, and hospital quality management. The “Groupe InSPNMad” received the training materials prepared by the project. The national project team has also distributed these training materials to all six technical universities involved with training healthcare professionals. In total, about 3,000 students are trained annually using the revised course materials that cover HCWM.    Tanzania: In Tanzania there is currently little teaching pertaining to the proper procedures for healthcare waste management. Therefore, there is an ongoing project review of the curriculum.    Zambia: The national curriculum in Zambia for EHOs and Nurses both incorporate a teaching module on healthcare waste management. The classes are similar and the course content for EHOs is discussed here. EHOs have a 64-hour course on healthcare waste management, where half the course is lectures and the other half practical work during the first half of their third year of studies. This course was updated within the last five years and covers both the incineration of HCW, as well as “non-incineration treatment options": steam treatment technologies e.g. autoclaves; microwave treatment technologies. This curriculum is followed at all of the country’s health science schools (there are approximately ten). Other than EHOs and Nurses, Environmental Health Technologists and Clinical Officers (“night physicians”) are also taught comprehensively about HCWM.    It can be noted that there is no refresher course on HCWM available for EHOs. Therefore, the project recruited a national expert to develop a 3-day short course refresher training on HCWM for EHO that includes BAT/BET. The first draft of short courses was already prepared and shared with key stakeholders and a review meeting was planned for July 2019. Once completed, University of Zambia (UNZA) – Medical School under the Department of Public health will undertake the training and certify recipients of the training in HCWM.    Number of HCWM training programmes/curriculum are currently in teaching:    -University of Zambia.  -The Levy Mwanawasa Medical University (LMMU is an amalgamation of four health training and service institutions namely, Levy Mwanawasa University Teaching Hospital (LMUTH), Chainama College of Health Sciences, Dental Training School, Chainama Hills Hospital and the University itself)  -Evelyn Hone College of Applied Arts and Commerce Management Board  -Apex Medical University. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 7**  **Capacities of project countries to absorb additional technologies evaluated.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Evaluation report (including recommendations for each project country and HCF) available. | Not applicable | *(not set or not applicable)* | Evaluation conducted of all the 4 project countries and all the HCFs, which have received project support. | The midterm review (MTR) will take place after the project has been in implementation for at least two years. Therefore, MTR is planned to be conducted by the second half of 2018 and expected to be finalized by November 2018 with a joint evaluation by an independent international consultant, with missions to all 4 national components and regional component. Recruitment of the consultant and this MTR activity is being coordinated by the regional component. The vacancy for an international MTR consultant was posted and currently candidates are being evaluated as per UNDP HR requirements. | Midterm Review (MTR) missions was conducted by an independent international consultant, Peder Bisbjerg (Denmark) during October-November 2018 and final report was completed in March 2019 after series of reviews/ comments.    MTR rated the project overall as Satisfactory. MTR also had fourteen (14) recommendations in total. Management responses were provided all these recommendations and all key actions are already on track. |
| **The progress of the objective can be described as:** | | **Achieved** | | | | |
| **Outcome 8**  **Additional technologies distributed depending on evaluated capacities for absorption.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of HCWM systems and Hg free devices procured. | Not applicable | *(not set or not applicable)* | Additional HCWM systems and Mercury-free devices procured and distributed, based on the evaluation results and allocation formula. | Results can only be reported on after the second phase of the project has started implementation (which will be informed by the outcomes of the Mid-Term Review). | MTR helped to assess the capacity of each country to absorb additional technologies (Outcome 4.a.1). It was agreed during the Inception Workshop and confirmed during the subsequent Project Board Meeting, the allocation of resources for the second round of procurement would be based on aggregate national performance by each country during the first phase. Based on the MTR scoring (Ghana: 27%; Madagascar: 27%; Tanzania: 22%; and Zambia: 24%) acknowledged by the regional project board, the distribution of 2nd round procurement budget allocation per country was agreed as follows: Ghana ($275,746.14); Madagascar ($275,746.14); Tanzania ($224,682.04); and Zambia ($245,107.68).    Based on these allocations, in the second procurement round of HCWM items and non-incineration technologies, the regional component is expected to distribute 48 different products, in total of 1,822 items (including 3 autoclaves) for the 28 pilot facilities in four countries (with inclusion of 6 new large hospitals).    The second round of procurement of mercury-free devices is being organized nationally in a decentralized way through UNDP COs. Currently, procurement, delivery and exchange of mercury free devices are ongoing in all project countries and all related activities are expected to be finalized before the end of November 2019.    Final results can only be reported on after the implementation of the second phase of the project’s procurement plan. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 9**  **CWM systems expanded to other facilities in the country** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of HCFs supported in addition to the initial set of HCFs. | Not applicable | *(not set or not applicable)* | 14 additional HCFs with an average of 150 beds or a total of about 2,100 beds supported as well as an additional 12 rural health posts. | Results can only be reported on after the second phase of the project has started implementation (which will be informed by the outcomes of the Mid-Term Review). | 2nd round of the procurement is already ongoing, therefore final results will only be reported in the next reporting period. Currently, in line with MTR recommendations, the project has included only 6 hospitals (Ghana:3; Madagascar: 2; and Tanzania: 1) but these are large hospitals, to be used as model facility in the second phase of the project. The total number of beds in these additional model facilities are approx. 3,500 beds, which is above the targeted number of beds in the expansion stage (2,100 beds). |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 10**  **Country Capacity to Manage Mercury and to phase-in Mercury-free devices improved.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of Mercury-free project HCFs in addition to the initial set. | Not applicable | *(not set or not applicable)* | 14 additional HCFs with an average of 150 beds or a total of about 2,100 beds supported as well as an additional 12 rural health posts. | Results can only be reported on after the second phase of the project has started implementation (which will be informed by the outcomes of the Mid-Term Review). | 2nd round of procurement of mercury-free devices is being organized nationally in a decentralized way in order to improve national capacity for sustainable, green procurement practices. Currently, procurement, delivery and exchange of mercury-free devices are ongoing in all project countries and all related activities are expected to be finalized before the end of November 2019. Updates on number of mercury-free project HCFs in addition to the initial set will be available to report by November 2019. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 11**  **National Training Expanded.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of people trained in addition to the initial set of trained HCF personnel. | Not applicable | *(not set or not applicable)* | HCF staff of the additional HCFs trained in BEP/BAT. | Results can only be reported on after the second phase of the project has started implementation (which will be informed by the outcomes of the Mid-Term Review). | Current status on this indicator is already detailed under the indicator above: “Number of institutions that offer HCWM training/certificate courses”    Project countries, especially Ghana and Madagascar are currently expanding implementation of training curriculum and results of expansion will be reported in the next reporting period. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 12**  **Information disseminated at environment and health conferences in the region.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of national project representatives to disseminate project results at conferences in the region. | Not applicable | *(not set or not applicable)* | 8 national project representatives disseminated project results at conferences in the region. | In this reporting period, the project supported 8 national delegations (75% women, 25% men) to participate in following international trainings and conferences. In all these meetings, the project and/or its objectives were disseminated to the participants from region:  • ICAN IPC/WASH training, Cape Town, South Africa (July-17), 3 delegates;  • ICAN IPC/WASH training, Douala, Cameroon (Jan-18), 1 delegate;  • WHO Regional Workshop on Health Sector Implementation of Minamata Convention on Mercury, Johannesburg, South Africa (Apr-18), 4 delegates | In the last reporting period, the project supported 8 national delegations (75% women, 25% men) to participate in international trainings (of Infection Control Africa Network) and conferences (of WHO) in the region to disseminate the project and/or its objectives.    In this reporting period, the project participated to following events with national delegates from project countries:  • Regional consultations in preparation for the 2nd meeting of the Conference of the Parties to the Minamata Convention on Mercury, Zambia, (Oct-18), 3 delegates from Zambia;  • 11th Healthcare Congress in Tokyo Japan: 3 delegates from Madagascar.  • 2019 Global Manufacturers/ Suppliers Forum in Africa, Dar es Salaam, Tanzania (July 2019), 5 delegates from Tanzania and Ghana. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 13**  **Project’s results sustained and replicated** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Number of high quality monitoring and evaluation documents prepared during project implementation. | Not applicable | *(not set or not applicable)* | 1 annual APR/PIR submitted to UNDP each year.  1 Mid-term project review. M&E results and insights are applied to provide feedback to the project coordination process, and have informed/redirected the design and implementation of the second phase of the project.  The MTE will inform on how many additional technologies would have to be purchased and how much additional capacity building would have to be carried out in the second half of the project.  1 Final evaluation.  MTE and FE must include a lessons learned section and a strategy for dissemination of project results.  Lessons learned and best practices are accumulated, summarized and replicated at the country level. | Overall M&E plan of the project was already reported on in the previous year reporting.    The project submitted its first annual PIR timely in September 2017. Annual reports, detailed workplans and project budgets on the project implementation were submitted to regional and national project board/steering committee meetings (in this reporting period, 6 project board meetings were held as follows; regional (1): 14 May 2018; Ghana (1): 12 January 2018; Madagascar (2): 30 August 2017 and 8 December 2017; Tanzania (1): 14 December 2017; Zambia (1): 16 February 2018).    The project continued to use a regional monitoring tool to track key country activities at national level. Activities listed in the tool have been regularly updated in regional project meetings, i.e. lately in 2018 annual meeting in Zanzibar, Tanzania. The tool proved to be effective and helped to ensure that the progress of the project is in line with its planning as well as to be instrumental to inform all stakeholders on the progress of the project. Starting from October 2016, in total 20 monthly regional progress reports have been prepared and shared with project countries, partners and all other stakeholders.    At regional level, the project successfully continued to provide technical/policy expertise and assurance for project implementation through its Regional Expert Team (RET), including senior experts from the UNDP regional project team, UNDP HIV health and Development unit, HCWH and WHO. In total, 16 monthly conference calls were organized to monitor and evaluate the implementation progress. RET meeting minutes are regularly shared with all stakeholders through the annual progress report.    Additionally, in this reporting period, countries have received 6 technical missions (Ghana: 2; Madagascar: 1; Tanzania: 2; Zambia: 1) led by the Chief Technical Expert to monitor the progress on the ground and more specifically to ensure proper installation and commissioning of non-incineration HCWM equipment.    The project conducted UNDP mandatory Quality Assurance assessments for the implementation and monitoring at regional level. The assessment rated the project’s M&E as Highly Satisfactory both in 2017 and 2018.    The project has initiated the process of a joint Mid-Term Review (MTR) for all components which is currently planned to start in September 2018 and to complete latest by February 2019. The MTR is a key element for the second phase of the project to decide on the allocation of additional technologies to the project countries. The findings of MTR will be presented in the interim regional project meetings, tentatively in December 2018, as decided by the last regional project board.    With regards to lessons learned, earlier PIR reported that the first lessons learned was the emphasize on the need/importance of co-financing, as a vital for its exit strategy to enable replication and scaling up of project results. Accordingly, the importance of engaging/confirming existing co-financing commitments was re-emphasized during the 2017 regional meeting. Therefore, the project already initiated a mapping activity through which the project can link with related works in each of the project countries. The project also recently included a co-financing section to its monitoring tool to estimate the co-financing contribution mobilized by the project.    Briefly, it should be noted that national project teams had challenges; first to estimate/quantify the co-financing provided by different stakeholders as there is not much guidance on such estimations; second to fill the gap of co-financer which are no-longer interested in contributing to the project. Therefore, co-financing remains a considerable challenge on the project, but all project teams both at regional and national levels are now well aware of the context and in active consultations with different stakeholders. One of the activity which the project considers complementing in the following period is to seek support of WHO Country Offices (1) to gather information on existing projects/donors in a project country directly or indirectly contributing to HCWM agenda in line with the project’s objectives and (2) to organize and coordinate meetings with focal points of projects/donors related to HCWM issues in the project country.    Additional lessons learned were reported on the implementation at regional level during the last regional project meeting (Zanzibar, May-18). Two key points were noted as follows:    (1) The project can emphasize the importance of building capacity to allow beneficiaries to select right equipment. This was exercised throughout the project, starting from initial regional training on advanced HCWM systems (in Kenya, December 2016) and following participatory approach to agree on specifications standardized (by the catalogue developed/agreed) for all countries in line with MEAs, Stockholm Convention on POPs, Minamata Convention on Mercury. By using this approach, the project has learnt positive lessons on how to enhance ownership of the national stakeholders through the informed and participatory decision-making in the selection of the right equipment.    (2) Second key lessons learned was observed during the procurement process for mercury-free devices, which was separated from HCWM equipment. The mercury-free case was in the value of approx. $50k and the regional component decided to use this case as a test for the procurement of HCWM equipment, in the DDP value of $1.5mln. This two-phase approach (one small followed by larger procurement) was an important learning practice on logistics, specifically on tax/customs clearance of medical equipment in project countries. This experience clearly facilitated the logistic process of the larger procurement case on HCWM equipment both for regional and national project teams. | Overall M&E plan of the project was already reported on in the previous year's reporting.    The project submitted its annual PIRs timely in September 2017 and 2018. Annual reports, detailed workplans and project budgets as well as feedbacks on lessons learned, best practices summarized on the project implementation were submitted to regional and national project board/steering committee meetings.    In this reporting period, 7 project board meetings were held as follows; regional (1): 14 December 2018; Ghana (2): 5 July 2018 and 12 January 2019; Madagascar (3): 17 August 2018; 6 November 2018; and 28 June 2019; Zambia (1): 21 February 2019).    In this reporting period, the project has completed Midterm Review (MTR) missions during October-November 2018 and final MTR report in March 2019, prepared by an independent international consultant,    As indicated in earlier sections, MTR rated the project overall as Satisfactory and provided fourteen (14) recommendations in total. Recommendations are already discussed and acknowledged by the regional project board and followed with management responses with key actions which are monitored closely and currently all are on track with their progress. MTR also provided scorings to inform on how many additional technologies are to be purchased and how much additional capacity building are to be carried out in the last interim of the project.    As the project comes to end by April 2020, the project has already initiated the recruitment of independent evaluator to conduct Terminal Evaluation (TE) of the project. Currently, the selection process is ongoing, and it is expected that TE missions will be conducted in November-December 2019 and final report to be completed by February 2020.    At regional level, the project successfully continued to provide technical/policy expertise and assurance for project implementation through its Regional Expert Team (RET), including senior experts from the UNDP regional project team / RTA, UNDP HIV health and Development unit, HCWH and WHO.    The project conducted UNDP mandatory Quality Assurance assessments for the implementation and monitoring at regional level. The assessment rated the project’s M&E as Highly Satisfactory in 2017, 2018 and 2019.    In this reporting period, the project noted additional lessons learnt on sustaining HCWM systems, as follows:  o A comprehensive, integrated approach should be implemented in parallel (policy and guidelines, review of HCWM practices including sorting, training, support to installation and maintenance of equipment and economic feasibility, including through recycling) to increase the chance of success.  o Training provided to local procurement teams in Health Ministries is critical to future expansion of mercury-free and non-incineration technologies.  o The availability of new mercury-free and non-burn treatment technologies in teaching hospitals will also facilitate on-the-ground practical education in the related fields.  o The training of healthcare professionals, especially Environmental Health Officers and Nurses, should be strengthened through higher education institutions to improve the necessary skills to support expansion of such HCWM systems.    Specific technical lessons learnt on the introduction of non-mercury free technologies were as follows:  o Cuff size of Blood Pressure (BP) devices does not always fulfill the needs, especially for children and for people with bigger arms.  o Even staff prefers digital BP devices, some aneroid BP systems are still required for back up (e.g. running out of batteries, etc.).  o If aneroid BP systems are supplied, supply of stethoscopes might be needed as well.  o Supply of batteries remains a challenge, rechargeable batteries and recharger machines are required.  Based on above lessons learnt, the technical specifications for mercury- free medical devices were revised and the procurement catalogue was updated with new items accordingly.    Specific technical lessons learnt on costs for site preparation were as follows:    o The setup and operation of steam treatment technology requires the provision of housing to protect and secure the delivered equipment, the supply of high voltage (3-phase) stable power of high capacity (5 to 75 kW, depending of the size of autoclave) and the continues supply of water. The initial assessment showed that stable water supply, but especially the supply of electricity, is a challenge in the project countries and interventions were needed to ensure that these requirements are fulfilled.  o The cost for ensuring sufficient electricity supply at the pilot sites ranged typically between 1000 to 4000 US$. It went up to $25,000 in case that long distances between the main supply and the treatment site had to be bridged over. In case that the transformer capacity of the hospital is insufficient, or the transformer is not existent, the cost can even go up to $75,000 (for example, the case in Madagascar).  o The cost for water supply were in the range of $500 to $1,000 but can increase to $4,000 in case that the water supply is unstable, and the setup of a water tank is required. Cost for housing are about $10-$20,000 but might go up to $40,000 for more complex constructions. In case that existing building can be used, costs for renovation are about $10,000.  o Recommended cost estimations for budget making purposes (pre-feasibility study) would be:  - Cost for electricity: $2,000 to 4,000 depending on the electricity consumption of the autoclave. For long- distance power supply (>30 m) a case-by-case cost analysis will be needed.  - Cost for water supply: $1,000 if stable water supply can be guaranteed, $4,000 if a water tank has to be constructed.  - Cost for housing: $5,000 if an existing site can be used, $15- 25,000 for a simpler construction, depending on the size of the autoclave. More than $25.000 for more complex housing as e.g. central treatment facilities.    Specific lessons learned on maintenance of non-incineration equipment are as follows:  o The carried-out technical assessment in the four project countries showed for medical equipment, such as autoclaves, that poor operation, bad maintenance and absence of repair capacity remain the main reasons for breakdown and sub-optimal functioning of existing technologies resulting in frequent breakdowns. Additionally, the absence of maintenance teams or low capacity of such teams in terms of manpower, capacity, know-how, spare parts or the funds to undertake regular trips to service and repair technologies was noted.  o To overcome this problem, the training of staff in the operation and maintenance of autoclaves at the pilot facilities and supporting the establishment and training of local maintenance teams/technicians were considered as key measures to ensure that maintenance of new devices/technologies can be ensured in the future.    Based on this, the following key-points were included in the procurement of the equipment:  - Ensuring good media supply by including water treatment systems (filter and water softener) and voltage stabilizer  - Full service, one-year warranty  - 10-year spare part guarantee (availability of spare parts from the manufacturer)  - After-sale service team in the country (local agent of the supplier)  - Full spare-part package for 2,500 hours (to reduce waiting times for sending spare parts)  - Provision of maintenance and operation training  - The supplier provided all required services and delivered the equipment including the spare-parts. After commissioning of the autoclaves, the hospital started to use the equipment.    o During the first three-months, technical problems occurred which partly hindered the usage of the autoclaves. Main problems which occurred:  - Unclear communication strategy between pilot facilities, local agent and the supplier  - Not carrying out basic maintenance (preventive maintenance) by the user  - Replacement / shifting of trained operators by untrained operators  - Technical breakdowns, partly due to misuse of the operator  o To overcome these problems, a Standard Operation Procedure (SOP) was developed on how to communicate technical problems. Retraining of operators was done either by the local agent of the supplier or by technicians of the manufacturer.  o Briefly, the carried-out activities to ensure maintenance of the equipment proved to be valuable. To ensure the high capacity of local technicians, it is recommended to include the local technicians of the local agent of the supplier; one must own a training certificate of the manufacturer prior to the installation of the equipment. Main problem for the future will be the not-existent maintenance capacity of the pilot facilities. To solve this problem external preventive and corrective maintenance contracts or an extended warranty time is recommended. |
| Number of knowledge product on project results disseminated at national, regional and global level. | Not applicable | *(not set or not applicable)* | 20 knowledge products on project results disseminated in workshops, conferences, social media or other relevant channels. | The project’s results were shared and disseminated by the national project teams and partners through a number of international conferences and learning events.    In the earlier reporting period, the project was (re)presented in 9 international conferences/events. In this reporting, the project was disseminated in 10 international conferences/events as follows:  • GGHH Webinar Series, Reducing UPOPs and Mercury Releases from the Health Sector in Africa: A report back from Tanzania and Madagascar, Online (Jul-17)  • Keynote address at the International Workshop on Infection Prevention and Control, Arusha, Tanzania (Sep-17)  • Presentation at the Public Health Association of South Africa (PHASA) meeting during the launch of the environment and health working group, Johannesburg, South Africa (Sep-17)  • European Regional Meeting on Water and Sanitation in Health Care Facilities, Bonn, Germany (Sep-17)  • Presentation at the Asian Regional Global Green and Healthy Hospitals Conference, Taipei, Taiwan (Oct-17)  • Report on project at the International Solid Waste Association healthcare working group meeting, Oman, by WebEx (Nov-17)  • SPHS Webinar on Effective Communication, Online (Dec-17)  • First Scientific and Technical Committee Meeting on GEF financed UN Environment supported project, ChemObs Africa, Dakar, Senegal (Mar-18)  • One-day training workshop on WASH in health care facilities at the WASH Futures Conference, Brisbane (Mar-18)  • Regional inception workshop of SIDA financed UNDP-HCWH supported project, Sustainable Health in Procurement Project (SHiPP), Istanbul, Turkey (Apr-18) | The project’s results were shared and disseminated by the national project teams and partners through a number of international conferences and learning events.  In the earlier reporting periods, the project was (re)presented in total 19 international conferences/events. In this reporting, the project was disseminated in additional 6 international conferences/events as follows:  • Regional consultations in preparation for the 2nd meeting of the Conference of the Parties to the Minamata Convention on Mercury, Zambia, (Oct-18);  • WHO Quality of Care Global Network Learning Event, Ethiopia (Mar-19)  • Side event during 2019 Meetings of the conferences of the Parties (COPs) of Basel, Rotterdam and Stockholm (BRS) Conventions, “Best practices for the management of chemicals and waste in the healthcare sector: results and best practices from GEF-funded projects", co-organized by the GEF Secretariat, UNDP and UNIDO, in Geneva, Switzerland (April-19);  • 11th Healthcare Congress, Japan (May-19);  • National Health Week, Zambia (May-19);  • 2019 Global Manufacturers/ Suppliers Forum in Africa, Dar es Salaam, Tanzania (Jul-19);    In this reporting period, the project also produced different project factsheets and case studies. The following four documents were developed and distributed during the outreach activities:  o Project overall factsheet: Improved Healthcare Waste Management (attached)  o Project Factsheet: Demonstration of non-incineration waste treatment technologies in Africa (attached)  o Project Factsheet: Reducing Mercury Releases from the Health Sector in Africa (attached)  o Project Case Study: Cooperation with the private sector, ZoomPak in Ghana (attached)    The project has also been presented as one of the best practice/case studies in UNDP publication, “Sound Chemicals and Waste Management for Sustainable Development” in April 2019 (attached, p2-3) |
| **The progress of the objective can be described as:** | | **On track** | | | | |

# Implementation Progress



|  |  |
| --- | --- |
| Cumulative GL delivery against total approved amount (in prodoc): | 70.55% |
| Cumulative GL delivery against expected delivery as of this year: | 70.55% |
| Cumulative disbursement as of 30 June (note: amount to be updated in late August): | 4,552,721 |

|  |  |
| --- | --- |
| **Key Financing Amounts** | |
| PPG Amount | 200,000 |
| GEF Grant Amount | 6,453,195 |
| Co-financing | 28,936,164 |

|  |  |
| --- | --- |
| **Key Project Dates** | |
| PIF Approval Date | Jun 5, 2012 |
| CEO Endorsement Date | Sep 25, 2014 |
| Project Document Signature Date (project start date): | Dec 9, 2015 |
| Date of Inception Workshop | Sep 22, 2016 |
| Expected Date of Mid-term Review | Feb 28, 2019 |
| Actual Date of Mid-term Review | Mar 19, 2019 |
| Expected Date of Terminal Evaluation | Jan 31, 2020 |
| Original Planned Closing Date | Apr 12, 2020 |
| Revised Planned Closing Date | *(not set or not applicable)* |

|  |
| --- |
| **Dates of Project Steering Committee/Board Meetings during reporting period (30 June 2018 to 1 July 2019)** |
| 2018-08-17 |
| 2018-11-06 |
| 2019-06-28 |
| 2019-02-21 |
| 2018-12-14 |
| 2018-07-05 |
| 2019-01-12 |

# Critical Risk Management

|  |  |
| --- | --- |
| Current Types of Critical Risks | Critical risk management measures undertaken this reporting period |
| N/A | No critical risk is identified in this reporting period. |

# Adjustments

**Comments on delays in key project milestones**

|  |
| --- |
| **Project Manager: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure. If there are no delays please indicate not applicable.** |
| Currently, the project is on track with its schedule for the implementation of terminal evaluation (by January 2020) and project's operational closure (by April 2020). |

|  |
| --- |
| **Country Office: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure. If there are no delays please indicate not applicable.** |
| Not applicable, there is no delay. |

|  |
| --- |
| **UNDP-GEF Technical Adviser: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure. If there are no delays please indicate not applicable.** |
| Not applicable, there is no delay. Terminal evaluation consultant recruitment is ongoing and about to be completed. |

# Ratings and Overall Assessments

|  |  |  |
| --- | --- | --- |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Project Manager/Coordinator** | Satisfactory | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | The project is on track to meet its development objectives by project’s completion date, April 2020. The project has been rated Satisfactory with following justifications, in line with the overall project rating and evidences provided by MTR evaluation:    -The project in all involved countries has built a certain trust and ownership within national stakeholders including Ministries of Health in respective project countries. This gives a positive projection for post-project ownership along with strong buy-in of the progress on HCWM policies, regulations, awareness raising, training and other activities at model facilities.    -The regulatory and policy framework has been developed to strengthen healthcare waste management and for the phase-out of mercury containing products. These instruments are already largely in place and all components are likely to be adopted.    -24 healthcare facilities were identified as model facilities. These have all been trained and equipped, so that all waste is expected to be correctly sorted at source, safely stored and transported. 14 of these facilities have received a total of 18 autoclaves to sterilize the collected infectious waste. The recipient countries were responsible for the supply of the buildings that were to house the autoclaves, as well as utilities such as a power connection and water supply. This was successfully achieved in all four countries in a timely manner. Also, the countries have all received mercury free medical devices and these have been distributed within the four countries. All countries are well on their way to eliminate mercury containing medical devices from their hospitals.    -The training of healthcare professionals, especially Environmental Health Officers and Nurses, is well on the way to being strengthened in Schools of Hygiene and other teaching institutions in the four countries. This will greatly improve the HCWM skills of the future medical professionals, which in turn will support the future operation and expansion of the HCWM systems    In the meantime, the project has faced certain challenges against to improved operationalization of HCWM systems. These challenges are mainly related to i) low segregation quality in some of pilot facilities; ii) low preventive maintenance capacity of national stakeholders and limited availability of local agents for corrective maintenance actions; iii) reluctance to place sterilized healthcare waste on an open dumpsite. The project with its national stakeholders is currently at the stage/capacity to learn from these lessons and could implement additional activities to ease negative impacts of such challenges; like the case of including shredders/compacters in the second phase of the project.    Consideration of the project progress as satisfactory also relies on some certain outcomes of the project. Such examples from each country are as follows:    In Ghana: Continuous increases of operationalization of Zoompak medical waste treatment facility, as a best practice of private sector engagement in HCWM, with a latest update of service agreement between Zoompak and Korle Bu Teaching Hospital, national public hospital in Ghana.    In Madagascar: Official MoH decree to prohibit procurement of mercury containing medical devices was distributed to all country.    In Tanzania: Promising initial results of alternative waste treatment demonstration with bio-digestion and its replications in Tanzania and Madagascar.    In Zambia: Establishment of central storage of mercury waste and availability of additional funding for follow up HCWM interventions.    Meanwhile, the project’s current financial status is also in line to sustain the development progress. The Cumulative Disbursement reported on in this PIR indicates that cumulative GL delivery is at 71%, which will considerably increase in the last quarter of 2019, after completion of ongoing procurement cases (approx. $1,3mln in total for all components). This financial projection on cumulative budget delivery can be another indicator for the satisfactory progress of the project.    The project did not identify any of critical risks or social and environmental risks over the past year. Therefore, based on the decent progress on key objectives without a critical risk, DO progress has been rated as satisfactory in average (with below assessments from national project coordinators). Therefore, the project can be considered on track with its annual workplans and expected to fully achieve its end-of-project targets as planned, by project closure in April 2020.    --  Ghana (DO: Satisfactory):  Project implementation toward achieving project objective in the period under review has been very commendable.  Very good relationship exists between the PMU and its project partners enhancing commitment to project objectives and sustainability through continuous training, monitoring and providing onsite supporting supervision.    There has been an improvement in support to the private sector in health care waste management through advocacy both at the international and local levels. Expansion of HCWM systems and Mercury phase out activities in three additional HCFs has widened the scope of the project and reached four main agencies of the Ministry of Health namely: the Ghana Health Service, Faith Based Health care providers, Teaching Hospitals and quasi government health care facilities.    The project however has challenges with finalizing discussions on the interim storage facility and delays in the printing and dissemination of the revised national policy and guideline for health care waste management.  Nonetheless, the project through its modular course organized through the school of hygiene has reached various sections of private waste management fraternity to make HCWM very topical receiving the needed attention. Through various engagement with stakeholders in the health sector, issues of HCWM is being included in most quality of care discussions at all levels.    In the closing stage of the project, it is expected that the current huddles will be surmounted and a smart exit strategy with national leadership developed for sustainability.  --  Madagascar (DO: Satisfactory):  Strong ownership of the national parties, Ministry of Health, Ministry of Environment and the model health facilities until now will be strong asset for the sustainability of the project’s set up and objectives after the closure the project.  --  Zambia (DO: Moderately Satisfactory):  The project is on track despite some delays in the implementation of some activities. The delay has been mainly due to:    1) Delayed preparatory works for the autoclave housing at Chilenje level 1 has being due to economic challenges the hospitals have been faced with lately. No funding came through the provincial and district health offices to assist Chilenje in constructing the housing despite numerous requests made.  2) Delay in procuring services by UNDP CO also contributed to late delivery on some activities. Key among them is the procuring of the local mercury – free devices in order to facility the second phase mercury withdraw making the five partially free HCFs completely mercury free.  3) Statutory obligatory issues. Clearance of some activities required the project to follow statutory requirements. For example, ZEMA requires to clear the disposal of autoclaved waste and allow the use of landfill. This has taken took long to happen despite UTH writing (letter) requesting for permission.  4) General UNDP CO & Government bureaucracy sometimes delays some activities. For example, the lengths it takes to have letters, documentations and funds released. Has seen certain activities delayed but eventually would take place.  5) Limited funds and reliance on partner stakeholders in releasing funds to undertake activities. An example is financing of the revision of the curricula of health sciences to incorporate HCWM issues. This activity has delayed due to protracted procurement procedures to select and engage the Consultant. While the revision of the Public Health Act has a protracted procedure in the Ministry of Justice preparing the Bill to Cabinet and eventually to parliament.    Despite delays in implementing certain activities, the project can be presented as 'good practice' as these activities are being completed. All in all, the project’s progress is on track and expected to achieve its intended objectives. | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **UNDP Country Office Programme Officer** | Satisfactory | Satisfactory |
| Overall Assessment | Ghana (DO: Satisfactory; IP: Satisfactory)  The project’s progress towards the achievement of its intended development results has been remarkable. There have been systematic efforts employed to engage as many relevant stakeholders to adopt the new and best approaches to HCWM being demonstrated by the project to protect human health and the environment. This engagement has been both at the high level with national level officers and at the downstream level with health practitioners in the communities.  Financially, the project has delivered more than 50% of resources despite some operational delays in the UNDP CO when it was undergoing an OAI Audit.  These successes have largely been achieved due to sustained commitment of the Project Management Unit and support from relevant partners such as the School of Hygiene and Ministry of Health.    Similar sustained progress in other key areas (i.e. Policy finalization and dissemination, establishment of temporary storage for mercury containing devices & facilitation of partnerships for central storage system) could have been an excellent culmination of the project’s results. However, gaps in leadership, coordination and information exchange among key government institutions as well as a systematic understanding of project’s objectives has slowed down efforts in addressing these key elements of the project. In the bigger picture, same limitations have restricted the mainstreaming of the project and its activities in the systems of the lead national institution. This raises some concern with sustenance of project’s interventions, thereby requiring some additional high-level engagement before projects tangibles can be handed over to the implementing partner before closure.    In spite of these challenges at the upstream level, the project has to a large extent been successful in creating awareness and building capacity among healthcare workers and relevant stakeholders on opportunities for mainstreaming best practices in HCWM, as well as the importance of adopting mercury-free technologies in healthcare delivery.  Going into the final lap of the project’s implementation, it is encouraged to systematically create awareness on the key results achieved, lessons learnt, as well as the opportunities for replication and scale-up, to inform behavior change and policy adoption.  --    Madagascar (DO: Highly Satisfactory; IP: Highly Satisfactory)  Thanks to positive result of the project's midterm evaluation, the country will benefit one more autoclave (450L) for two hospitals CHUs in Toamasina.    --    Zambia (DO: Moderately Satisfactory; IP: Moderately Satisfactory)  Since the last reporting period much progress has been made on the most significant items of Outcome 3. Namely the finalization of the review process of the Public Health Act, which is now with the Ministry of Justice for bill drafting. Also, ZEMA has moved forward beginning the process to review the national HCWM guidelines to include BAT/BET.  Under outcome 6 the autoclaves were successfully installed at all three facilities and supporting HCWM equipment to all eight HCFs. The provision of the equipment has been reported as being very beneficial to the HCFs in supporting sound HCWM, especially as many HCFs have struggled in the period with adequate budgetary allocations for HCWM, which has meant that there has often not been adequate supply of the correct colored bin liners.    Utilization of the autoclaves was a challenge in the reporting period. Understandably the HCFs did not want to proceed without authorization from the relevant authorities, however poor communication on the matter meant that there were delays in the resolution of the matter. This under-utilization of the autoclaves means that Zambia has not started operating as cluster and or central treatment facilities.    Unfortunately, challenges remain with the site preparation works for Chilenje Level 1 hospital, the site of the new autoclave. The site preparation works will be taken on by UNDP using the resources allocated to the discontinued flagship project.    The installation of the temporary mercury storage container at MoH meant that the collection a-of MCDs and distribution of MFDs could proceed. However, despite training it was discovered that HCFs were not observing the proper protocols for the packaging and storage of MCDs. The project responded quickly to ensure that this was rectified. | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **GEF Operational Focal point** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Project Implementing Partner** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Other Partners** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **UNDP-GEF Technical Adviser** | Highly Satisfactory | Highly Satisfactory |
| Overall Assessment | This project has continued to deliver with a high level of performance, both in terms of delivery (Implementation progress) and also aiming towards its Development Objectives. It is on track to complete all activities by mid-April 2020, its planned deadline. This is a remarkable achievement for a project with 4 countries, a high number of Health Care facilities, regional and national components, complex logistical challenges for technology adoption and supporting the implementation of two Multilateral Environment Agreements. It has already accumulated a remarkable amount of lessons learnt and reference documents (training materials in particular), and opened opportunities for very promising long-term partnerships in terms of tackling the environmental impact of health care waste management in Africa. Thus, in my view, it has reached the level of highly satisfactory in terms of both Development Objectives and Implementation progress. In that sense I rate the project at a higher level than the Project Manager and the Country Office's assessments - and I aim to justify this increase rating/assessment in the paragraphs below. Though there are still additional efforts and initiatives that can be taken until the closure of the project, the absence of which could challenge these high ratings, I am confident as RTA that it will maintain this performance.  --    I tried to highlight in this assessment the new elements that were not necessarily underlined in past annual assessments, both in terms of Development Objectives and Implementation Progress, implementation of work plans and a few final pieces of advice for the final stretch of implementation. In terms of risks, I agree with the other assessors’ opinion that there is no critical risk to report at this point.  -    In terms of achievement of Development Objectives, the most impressive one has been, in my view, the capacity to test the alternate technologies in the context of Sub-Saharan Africa and its specific conditions, and to be able to draw essential lessons learnt when deploying these new non-burn technologies. I will not go into the details of the first three outcomes of the project, as these three have been essentially completed and now the focus is on the second procurement (Outcome 4) and the sharing of lessons learnt and knowledge management (Outcome 5).    After the completion of the two first procurement rounds (of mercury-free devices – thermometers and non-incineration equipment), the focus has been to support the adoption and smooth operation of the equipment. In the case of the mercury devices, the effort was also put on setting up the programmes for one-to-one exchanges.    As expected, for the non-incineration technologies (autoclaves), the two major challenges after the delivery of the equipment were related to maintenance, as well as the difficulty to document and monitor operation data for the installed equipment.    In terms of maintenance, it has appeared that the strategy that had been set up to rely on the private sector – via contracts made by the supplier of equipment with local companies/organizations (local agents), to ensure maintenance, did not work well. The maintenance crews were generally seen as not sufficiently trained and too busy to be responsive to the needs of the Health Care facilities – though this varied across countries of course. This called for a revision of the strategy for maintenance support, which has already been discussed by the various stakeholders. The revised strategy seems to aim at relying more on the ministry’s maintenance team, thus trying to ensure building a longer-term resilient capacity in the countries. This will need to be tested in the second procurement currently underway, but is promising.    A specific effort was made regarding the collection of data, so that the changes generated by the project would be objectively measured and documented. Considerable amount of training and support was provided, with the Responsible Party Health Care Without Harm taking the lead on this aspect. In spite of the collective efforts though (complemented at the regional level by the support of two interns during the last reporting period) the collection of quality data has been limited. This also has called for corrective action. It seems that both the incentives and the obligations of the operators of the new equipment have not been functioning to prompt the needed data to be collected. The operators do not see the benefits – in general – of keeping a good track of data. There is however a slight improvement noted over the last months, which may hint that the facilities are now getting more familiar and willing to provide this data. However, results are also showing some limitations in the operation of the equipment - for example the principle of preventive maintenance, i.e. the notion that some parts of the equipment have to be replaced on a regular basis, even if they still seem to be functioning, has not been picked up by the operators.    It was also noted interestingly that a strategic error of the project at its start was to not sufficiently insist with the landfill operators that the steamed (autoclaved) waste would not be shredded. This has led some of the partners to refuse this waste as if the monitoring system is not strong enough in a country, there is a risk that non-autoclaved - thus hazardous - infectious waste could be mixed up with the autoclaved non-hazardous waste. In this case, the management of this challenge has been the provision of shredders in some of the participating countries and the negotiation of specific cell areas in some landfills where the sterilized health acre waste can be received.    Another adaptive management decision has been related to the collection of thermometers and sphygmomanometers in the participating countries, and the exchange of mercury versus mercury-free items. In one of the countries (Madagascar), as described in the PIR, the first collection, which was only geared towards Health Care Facilities, ended up being very disappointing in terms of numbers – just a few thermometers could be selected. Then it was actually noted that individuals – even hospital employees – are the owners of the thermometers in the context of Madagascar. The project thus modified its strategy, advertised that the exchange would be open to all individuals and collected several thousands of these items. This is now making it one of the most successful collection efforts.    All this accumulated knowledge has been documented throughout the progress reports of the project, discussed with ministries, national teams and the regional technical experts’ team - and is being compiled. It is not anecdotal, it reflects solutions that can be applied in other countries and seems to be for me one of the key contributions towards reaching the Development objectives of the project.    Additionally, the adoption of the principle of flagship/lighthouse projects has allowed to test specific solutions to health care waste management which can respond to the particular needs in Sub-Saharan Africa – bio-digesters in Tanzania, needle end-of-life management methods in Ghana, training videos in Madagascar, for example. I look forward to seeing full documentation of these by project end.    Also, it seems that for such projects with the need for very specialised international technical expertise to support technical assistance, the model of a regional project with 4-5 countries (more may be more difficult to manage) works rather well, allowing to reach a critical mass in terms of budget, allowing for regional procurement and a regional support team to complement the work at the national level, and favoring country-to-country exchanges.    --  In terms of implementation progress, the cumulative delivery is currently satisfactory when considering the remaining procurement which will be completed in the current implementation period (second large procurement), within the 3rd quarter of 2019. The work plans have kept being thoroughly prepared, discussed and reviewed, and each project board at the regional level has seen the representation of Government officials, and provided the occasion of detailed technical and project management discussions, with country-specific sessions as well, and site visits. Thus, the national and regional levels of the project seem well interconnected.    All these analyses and assessment seemed to have been confirmed by the independent analysis of the Mid-Term review. Though delayed by a few months, the MTR did allow to bring important lessons for the second part of the project implementation, for example regarding small rural health posts or the challenges of composting within HCF areas, for example.    --  In terms of final recommendations for the last months of implementation up to April 2020:  - Continue strengthen the excellent work initiated with Exit road maps to support sustainability beyond the project closure. This was started early in the project but still requires support from the regional team to the country levels.  - Further effort to increase the use of the autoclaves where they have been installed as they have not reached yet a sufficient level of capacity use. This will maximise environmental benefits (reduced UPOPs emissions due to avoided non-SC compliant incineration/burning).  - Keep the focus on Knowledge Management and communication that has emerged strongly in the most recent implementation period. The Photo contest on ‘greening health care waste management’ was an innovative approach to engage stakeholders in the sector in a creative way. The launch of the web site as a repository of information on HCWM will be an important step and should receive the necessary attention from the teams. The good outreach story generated in Zambia should also inspire further pieces, and the fact sheets and case studies should also be supported.  - The effort at creating partnerships that will support the action after the project closure is also to be continued and strengthened. This has already led to a successful bid for a follow-up project in Zambia with a bilateral donor. Additionally, the side event in the Conference of Parties of the Basel-Rotterdam-Stockholm Conventions also led to consultations between key organizations (UNICEF, Global Fund, GAVI, and current partners of the project, WHO and HCWH) on potential strengthening of the cooperation on HCWM. Targeted operations like the support to the measles vaccination campaign by the Madagascar project facilitates such transfer of experiences to other partners and should be considered when possible in the final months of project implementation.  - South-South cooperation should continue being prioritized, in particular with invitations to the final project meeting in Zambia in March 2020. For example, this regional project has developed a training module on gender and Human rights in the context of Health Care Waste Management which could be potentially adapted in many developing countries. The training videos (on operation/maintenance of autoclaves) developed by the Madagascar team also have such potential for being used in countries beyond this project. Also, it was noted in this PIR that a training package developed in Ghana has been adopted by the whole of West Africa, which is a very telling example of such South-South cooperation potential.  - Innovative cooperation with the Private Sector (see example of Zoompak in the Partnerships section of this PIR) should continue being documented and outreached.  - Effort should be made on further documenting the progress in terms of mercury reduction quantities as well as estimating the UPOPs emission reductions as it will be essential to demonstrate the long-term impact of the project.  - Make an attempt to demonstrate the final disposal of mercury collected in one country, in an environmental manner as per the guidelines of the Minamata Convention.  - Continue the cooperation, particularly with the UNDP-Health Care Without Harm SHiPP project, aiming at improving the sustainability of procurement of health equipment - this is promising in terms of providing a complementary route to minimise the harmful components of equipment entering HCFs (https://noharm-global.org/issues/global/sustainable-health-procurement-project).    I very much look forward to the start of the Terminal Evaluation process which is imminent, and which will hopefully shed some light on other aspects of this project's implementation, and hope to see the continuation of similar focus and energy by the project teams and partners in the upcoming final months of implementation. | |

# Gender

**Progress in Advancing Gender Equality and Women's Empowerment**

This information is used in the UNDP-GEF Annual Performance Report, UNDP-GEF Annual Gender Report, reporting to the UNDP Gender Steering and Implementation Committee and for other internal and external communications and learning.  The Project Manager and/or Project Gender Officer should complete this section with support from the UNDP Country Office.

|  |
| --- |
| **Gender Analysis and Action Plan:** *not available* |
| **Please review the project's Gender Analysis and Action Plan. If the document is not attached or an updated Gender Analysis and/or Gender Action Plan is available please upload the document below or send to the Regional Programme Associate to upload in PIMS+. Please note that all projects approved since 1 July 2014 are required to carry out a gender analysis and all projects approved since 1 July 2018 are required to have a gender analysis and action plan.** |
| [Final report on Gender and human rights HCWM.pdf](https://undpgefpims.org/attachments/4865/213622/1729443/1744613/Final%20report%20on%20Gender%20and%20human%20rights%20HCWM.pdf)  [Short Training Module.pdf](https://undpgefpims.org/attachments/4865/213622/1729443/1744613/Short%20Training%20Module.pdf)  [Short Training Module.pptx](https://undpgefpims.org/attachments/4865/213622/1729443/1744613/Short%20Training%20Module.pptx) |

|  |
| --- |
| **Please indicate in which results areas the project is contributing to gender equality (you may select more than one results area, or select not applicable):** |
| Contributing to closing gender gaps in access to and control over resources: No |
| Improving the participation and decision-making of women in natural resource governance: No |
| Targeting socio-economic benefits and services for women: Yes |
| Not applicable: No |

|  |
| --- |
| **Atlas Gender Marker Rating** |
| **GEN1:** some contribution to gender equality |

|  |
| --- |
| **Please describe any experiences or linkages (direct or indirect) between project activities and gender-based violence (GBV). This information is for UNDP use only and will not be shared with GEF Secretariat.** |
| No GBV-related issue experienced in this reporting period. |

|  |
| --- |
| **Please specify results achieved this reporting period that focus on increasing gender equality and the empowerment of women.**    **Please explain how the results reported addressed the different needs of men or women, changed norms, values, and power structures, and/or contributed to transforming or challenging gender inequalities and discrimination.** |
| At regional level, the Gender Equality and Human Rights assignment has been completed by international consultant, Sabrina Regmi (Nepal), with the presentation of findings during the December 2018 regional project meeting in Ghana. The final report includes social and environmental injustice analysis over HCWM issues in the project (in Ghana component) including gender dimensions and provided a list of recommendations for the Ghana component to facilitate implementation of activities that promote gender equality and human rights.    The consultant also developed a basic/short training module on gender equality and human rights in the context of HCWM activities. The training module is advised to be tailored into national contexts and expected to be part of short HCWM courses provided in project countries as well as integrated into the national HCWM curriculums. |

|  |
| --- |
| **Please describe how work to advance gender equality and women's empowerment enhanced the project's environmental and/or resilience outcomes.** |
| Following achievements were reported in Ghana (as part of the gender equality assignment report):    • A presentation on “Gender Mainstreaming in the HCWM sector” has been made by the Assistant Programme Officer of UNDP Ghana targeting the key decision makers (e.g. managerial and policy level staff and project partners).    • Gender equality and human rights concerns have been integrated in three of the trainings provided on HCWM.    • The project is striving to have a gender balance in the meetings and is trying to increase the number of both men and women by setting a specific target.    • There is a gender balance among Project’s Focal Points at selected healthcare facilities. Among five Focal Points (each for one facility) appointed, three are women and two are men.    • The project has introduced mercury-free devices which are expected to benefit more women as those devices are mainly used by nurses who are mostly women.    At this stage, it is not easy to measure/analyze the effect and impact of such (or any) advancements for women empowerment in enhancing project’s environmental and resilience outcomes. In this regard, it should be noted that although the project doesn’t target women or girls as direct beneficiaries, it considers them as key stakeholders. As indicated in the SESP: “This GEF project emphasizes building awareness of the links between waste management and public health (including occupational exposures), with a special focus on the health implications of exposure to dioxins and mercury for vulnerable populations, such as female workers, pregnant women, and children.” In project countries, it can be assumed that the majority of healthcare workers are female. Therefore, the “nature” of the target beneficiaries instinctively lends itself to target women as key stakeholders.    In addition to reducing dioxins/furans and mercury releases (which have a specific impact on vulnerable populations such as pregnant women or children), the project also contributes to infection risk reduction, through better waste management practices. In this manner, the population of health workers (as well as informal waste pickers), in which women are present in greater proportion, will see improvement of their situation. Therefore, such awareness raising achievements listed above may be considered as an important element for enhancing project’s environmental and/or resilience outcomes contributing to the gender equality with regards to chemical safety, infection control, occupational health and overall health status of populations. |

# Social and Environmental Standards

**Social and Environmental Standards (Safeguards)**

The Project Manager and/or the project’s Safeguards Officer should complete this section of the PIR with support from the UNDP Country Office. The UNDP-GEF RTA should review to ensure it is complete and accurate.

|  |
| --- |
| **1) Have any new social and/or environmental risks been identified during project implementation?** |
| No |

|  |
| --- |
| **If any new social and/or environmental risks have been identified during project implementation please describe the new risk(s) and the response to it.** |
| N/A |

|  |
| --- |
| **2) Have any existing social and/or environmental risks been escalated during the reporting period? For example, when a low risk increased to moderate, or a moderate risk increased to high.** |
| No |

|  |
| --- |
| **If any existing social and/or environmental risks have been escalated during implementation please describe the change(s) and the response to it.** |
| N/A |

|  |
| --- |
| **SESP:** [Signed ESSP 4865 19May2014.pdf](https://undpgefpims.org/attachments/4865/213622/1673965/1674246/Signed%20ESSP%204865%2019May2014.pdf)  **Environmental and Social Management Plan/Framework:** *not available* |
| **For reference, please find below the project's safeguards screening (Social and Environmental Screening Procedure (SESP) or the old ESSP tool); management plans (if any); and its SESP categorization above. Please note that the SESP categorization might have been corrected during a centralized review.** |
| *(not set or not applicable)* |

|  |
| --- |
| **3) Have any required social and environmental assessments and/or management plans been prepared in the reporting period? For example, an updated Stakeholder Engagement Plan, Environmental and Social Impact Assessment (ESIA) or Indigenous Peoples Plan.** |
| No |

|  |
| --- |
| **If yes, please upload the document(s) above. If no, please explain when the required documents will be prepared.** |
| N/A |

|  |
| --- |
| **4) Has the project received complaints related to social and/or environmental impacts (actual or potential )?** |
| No |

|  |
| --- |
| **If yes, please describe the complaint(s) or grievance(s) in detail including the status, significance, who was involved and what action was taken.** |
| N/A |

# Communicating Impact

|  |
| --- |
| **Tell us the story of the project focusing on how the project has helped to improve people’s lives.**  **(This text will be used for UNDP corporate communications, the UNDP-GEF website, and/or other internal and external knowledge and learning efforts.)** |
| Following article recently published in Zambia can be given as an example:  https://undpinzambia.exposure.co/tackling-zambias-medical-waste-problem    Tackling Zambia’s Medical Waste Problem  A UNDP-led partnership is promoting non-incineration healthcare waste treatment technologies and supporting Zambia in phasing down mercury-containing devices from health facilities  As the furnace heats up, Friday Chola, an Incinerator Operator at the Kabwe Central Hospital methodically sorts through the medical waste, flips open the lid of the burning chamber to monitor the process of incineration.    Noticing that the last batch of waste is almost burnt to ashes, Chola rushes for a yellow bag containing an assortment of used syringes, rubber gloves and polythene waste, pours in some of the waste, mixes it with a forked rod and then replaces the lid to allow the incineration process to continue.    Dressed in protective clothing, Chola has recently become an autoclave operator - one of 20 former incinerator operators trained to operate a new healthcare technology called autoclaves that disinfect, neutralise or contain infectious medical wastes.    “I know that my job was risky, but I had no choice. I have to work to feed my family, said the 30-years old father of two.    Three months ago, the lives and health of Chola and other medical waste handlers were most endangered by improper medical waste treatment. They have had to deal with cuts and needlestick injuries regularly and were highly exposed to ashes and smoke from toxic chemicals.    Daunting challenge  Until recently, sorting and disposing of medical waste in an environmentally friendly manner had been a daunting challenge faced by the Kabwe Central Hospital (KCH), where Chola works.    KCH is the largest referral hospital in central Zambia and one of the country’s oldest healthcare facilities, which operates at 10 times its current 470-bed capacity.    Waste previously generated at the hospital was poorly managed with minimal segregation due to lack of awareness and training for staff members on the health and environmental effects of infectious waste. Poor handling and disposal of waste through the municipal waste system meant that scavenging by waste-pickers for resale and re-use was a serious problem.    The hospital, like other medical facilities across the country, also burn their medical wastes in low temperature burning chambers or traditional incinerators which produce significant environmental pollution. This, according to environmentalists, can impact the health of individuals staying or working at the facilities, as well as those living both nearby and far away.    Most cities in Zambia are barely coping with the ever-growing quantities of municipal wastes and the local government cannot organise special collection for medical waste. As a result, medical waste ends up being disposed of with the municipal waste, which can mean it ends up on the street corners and in rivers and unregulated landfills – a practice which puts thousands of lives at risk because dumping sites are often visited by people scavenging for goods.    “The amount of medical waste generated across Zambia is snowballing at alarming rates due to growth of healthcare facilities as well as the population,” says Environmental Health Technologist in the capital, Lusaka    In a 2013 survey, Zambia’s Ministry of Health estimates that the country’s healthcare facilities generated 30 tonnes of non-infectious and infectious healthcare waste per day.    Autoclaves, a game-changer  But the Kabwe Central Hospital and two other key health facilities including the country’s largest hospital, the University Teaching Hospital, now have a solution to their problems, and a way of cutting Climate Change emissions of Green House Gases: A healthcare waste treatment plant fully equipped with a highly-effective non-incineration technology known as autoclave which sterilizes infectious wastes at the facilities.    “With this medical waste treatment plant, our hospital will now be able to effectively and safely handle its healthcare waste. This is a great step forward for both the people and the environment of Kabwe,&quot; says Dr. Victor Kusweje, the Medical Superintendent of the Kabwe Central Hospital, where the first healthcare waste treatment plant was recently launched.    “The burning and incineration of all types of wastes not only inhibits people’s right to a healthy environment, but also puts public health at risk,” says Winnie Musonda, the UNDP Environmental advisor in Zambia.    The steam-based autoclaves have the capacity of handling 2,000 litres of healthcare waste per day and are expected to safely decontaminate medical wastes produced by the beneficiary hospitals and other health centres in surrounding communities.    Current Initiatives  The United Nations Development Programme (UNDP) in Zambia is responding to the country’s healthcare waste challenges through a five-year Medical Waste pilot project implemented through the Ministry of Health with funding from the Global Environment Facility (GEF) in partnership with the World Health Organization (WHO) and an international NGO, Healthcare Without Harm (HCWM).    The pilot project titled “Reducing Unintended Persistent Organic Pollutants (UPOPS) and mercury releases from the health sector in Zambia” is being implemented in three of Zambia’s 10 provinces, namely: Lusaka, Central and Copperbelt.    The overall objective of the project is to implement best environmental practices and introduce non-incineration healthcare waste treatment technologies and mercury-free medical devices which will reduce harmful releases from the health sector.    It is also supporting Zambia to develop the right regulatory framework and guidelines as well as find solutions to reduce the impact of the mercury-based equipment in healthcare facilities in the country.    Other beneficiary hospitals are the Matero & Chilenje Level 1 Hospitals in Lusaka, Kapiri Mposhi District Hospital, Mukonchi Rural Health Centre in Kapiri Mposhi District, the Ndola Teaching Hospital and Kamuchanga District Hospital in Mufulira in the Copperbelt Province. These healthcare facilities have received training on improved healthcare waste management practices and received equipment necessary to ensure improved waste management in the facilities, including personal protective equipment, needle cutters and colour coded waste bins    Because of this intervention, there are now several healthcare facilities in Zambia where safe and sustainable medical waste management is being practiced. This initiative is part of UNDP’s support towards creating model hospitals which are mercury free and have non-incineration medical waste treatment technologies to protect the environment, says Mandisa Mashologu, the UNDP Resident Representative in Zambia.    National Policy  Zambia is in the process of crafting a national policy on the treatment and management of medical waste. Even if it does, the country would need significant support to implement the policy successfully.  “With the support of international partners, the government has put in place a system to address healthcare waste and is implementing best environmental practices for phasing down mercury-containing devices from our health facilities,” says Zambia’s Health Minister Dr. Chitalu Chilufya.    Dr. Chilufya said such efforts would be backed by an enforceable legislation with penalties that have real significance for perpetrators.    Partnership  With this UNDP-led partnership being supported by the Global Environment Facility, Zambia can meet its obligations to both the Minamata and Stockholm conventions, which seek to regulate the release of Persistent Organic Pollutants (POPs) and Mercury into the environment - including support for alternative technologies. |

**Knowledge Management, Project Links and Social Media**

|  |
| --- |
| **Please describe knowledge activities / products as outlined in knowledge management approved at CEO Endorsement /Approval.**    **Please also include: project's website, project page on the UNDP website, blogs, photos stories (e.g. Exposure), Facebook, Twitter, Flickr, YouTube, as well as hyperlinks to any media coverage of the project, for example, stories written by an outside source. Please upload any supporting files, including photos, videos, stories, and other documents using the 'file lirbary' button in the top right of the PIR.** |
| The progress on knowledge management component of the project is summarized as follows:    – With regards to the project website, the project has decided to use another domain address as www.greenhealthcarewaste.org. The contract with website development company has signed at regional level and the website is currently under construction. The project expects to have an active repository website by the last quarter of 2019. Maintenance of the website after the project closes will be part of the project’s exit strategy.    – As agreed during the last regional meeting, the project started to produce different project factsheets and case studies. During the reporting time, the following documents were developed were distributed during the outreach activities:  o Project overall factsheet: Improved Healthcare Waste Management (annexed)  o Project Factsheet: Demonstration of non-incineration waste treatment technologies in Africa (annexed)  o Project Factsheet: Reducing Mercury Releases from the Health Sector in Africa (annexed)  o Project Case Study: Cooperation with the private sector, ZoomPak in Ghana (annexed)    – The project has been presented as one of the best practice/case studies in UNDP publication, “Sound Chemicals and Waste Management for Sustainable Development” in April 2019 (annexed)    – Following discussions in the last project meeting in Ghana, the project produced two technical videos in Madagascar with subtitles in English and French.  o Autoclave maintenance (31m25s) - https://youtu.be/PxEyaYUm7Vo  o Autoclave testing (25m56s) - https://youtu.be/C-AjFDgmWhI    – In Madagascar, the project also supported the vaccination campaign, by treating the HCW of measles vaccination campaign in certain areas. The video related to the project support in Madagascar was prepared and screened during the side event in BRS COP in Geneva. The link of the video can be found at: https://youtu.be/E-IRupmEPlM    – The regional component, together with Government of Madagascar (MoE and MoH) has organized an international photo contest on “Greener Healthcare Waste Management”, to raise awareness for a greener healthcare through visual and artistic medium and to promote best practices on HCWM for greener healthcare practices.    o The photo contest was held between April-July 2019. The project could outreach over 100 different stakeholders and countries. 1750 users from 119 countries visited the contest website, http://www.greenhealthcarewaste-photos.org/    o In total, 231 photos, from 44 countries, were submitted into 2 categories of the contest. The winners will be announced in late August 2019. The exhibition of selected photos is expected to be organized in the next regional project meeting in Madagascar (September 2019) and if possible, in Minamata COP3 meeting in Geneva, Switzerland (November 2019)    – With regional support, the project has also considerably increased its visibility in local media as well as in UNDP accounts of project countries. Some of the key links are shared below:  o Visit of GEF Secretariat delegation to the project sites in Madagascar:  http://www.mg.undp.org/content/madagascar/fr/home/presscenter/pressreleases/2019/une-delegation-du-fonds-pour-lenvironnement-mondial-en-mission-a.html  o Exposure publication on the project in Zambia, “Tackling Zambia’s Medical Waste Problem”  https://undpinzambia.exposure.co/tackling-zambias-medical-waste-problem    Additional updates from national components are as follows:    Ghana:  The UNDP and the project team hosted a delegation from Ministry of Health Uganda who is implementing a Global Fund project in HCWM. The study tour was published on the media platforms below:    https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Uganda-delegation-understudies-best-practices-in-Ghana-s-health-care-waste-management-system-762377  https://allafrica.com/stories/201907120414.html  http://www.ghana.gov.gh/index.php/media-center/news/5817-uganda-delegation-understudies-ghana-s-health-care-waste-management-system  https://www.peacefmonline.com/pages/local/news/201907/386742.php  https://ghananewsonline.com.gh/uganda-delegation-understudies-best-practices-ghanas-health-care-waste-management-system/  http://www.thepatrioticvanguard.com/uganda-delegation-understudies-best-practices-in-ghana  https://allafrica.com/stories/201907120414.html  https://www.africa-news.info/news/uganda/2019/07/12/ghana-uganda-delegation-understudies-ghanas-health-waste-management-system/    Zambia:  The official launch of the autoclaves by the project at Kabwe General Hospital in September 2018 as part of the Central Province Expo, by the Central Province Minister and the UN RC served as a centerpiece for communicating the importance of improved healthcare waste management. The event was covered by national press (Zambia Daily Mail,  Times of Zambia and Daily Nation) as well as TV and radio broadcasts:    Zambia Daily Mail: UN Chief Says Expo Important, 10 October 2018, pg 2  Times of Zambia: UN Launches KCH clinical waste treatment plant, 11 October 2018, pg 6.  Daily Nation: Safe Medical Waste Management Crucial to Climate Change – UNDP. 10 October 2018, pg 4.    Madagascar:  The project was introduced in a TV programme, Morning Day: Dream’in:  https://www.youtube.com/watch?v=2-rrZE9AOo8    The official ceremony of donation of the equipment provided by the UPOPs project at CHU JRA by UNDP, WHO, MOE and MOH on 3 September 2018: local TVs, local newspapers, orange Depeche webpage.    Visit of the autoclaves by the representative of GEF, on 8 March 2019:  http://www.mg.undp.org/content/madagascar/fr/home/presscenter/pressreleases/2019/une-delegation-du-fonds-pour-lenvironnement-mondial-en-mission-a.html |

# Partnerships

**Partnerships & Stakeholder Engagment**

Please select yes or no whether the project is working with any of the following partners. Please also provide an update on stakeholder engagement. This information is used by the GEF and UNDP for reporting and is therefore very important!  All sections must be completed by the Project Manager and reviewed by the CO and RTA.

|  |
| --- |
| **Does the project work with any Civil Society Organisations and/or NGOs?** |
| Yes |

|  |
| --- |
| **Does the project work with any Indigenous Peoples?** |
| No |

|  |
| --- |
| **Does the project work with the Private Sector?** |
| Yes |

|  |
| --- |
| **Does the project work with the GEF Small Grants Programme?** |
| No |

|  |
| --- |
| **Does the project work with UN Volunteers?** |
| No |

|  |
| --- |
| **Did the project support South-South Cooperation and/or Triangular Cooperation efforts in the reporting year?** |
| Yes |

|  |
| --- |
| **CEO Endorsement Request:** *not available* |
| **Provide an update on progress, challenges and outcomes related to stakeholder engagement based on the description of the Stakeholder Engagement Plan as documented at CEO endorsement/approval (see document below). If any surveys have been conducted please upload all survey documents to the PIR file library.** |
| (NGO) Health Care Without Harm:  Healthcare Without Harm (HCWH) is an international coalition of 443 organizations in 52 countries working to transform the healthcare industry so it is no longer a source of harm to people and the environment. HCWH has been partnering with both UNDP and WHO in the past in addressing key issues related to the waste impact of the health sector. UNDP and HCWH work under a results-based micro-grant agreement in the context of this project.    HCWH provides coordination and technical support to the project. HCWH provided support for the planning and implementation of the inception workshop for the regional expert team, steering committee and national working groups. HCWH reviewed the training materials for the project teams training in Nakuru, Kenya. HCWH’s participation contributed extensively to the training programme and coordinated the adult learning and development of the participants as trainers in their daily repeat demonstrations of the important content from the workshop.    HCWH provided expert guidance on the technical specifications of non-incineration technologies and mercury-free products and reviewed current national/institutional policies in project countries. HCWH supported the project outreach and provided membership for pilot facilities to the Global Green and Healthy Hospitals (GGHH) network, which will enhance exchange opportunities beyond the end of the project. Therefore, GGHH network will foster South-South cooperation and help for project sustainability in participating countries.    Another distinctive technical support from HCWH is with the piloting of a bio-digester in Mwananyamala Hospital in Dar es Salaam and using its experiences, recently initiated bio-digestion pilot cases in Tanzania and Madagascar. These pilot cases aim for safe disposal of placenta waste and other organic waste streams such as kitchen scraps, waste food, and paper with the additional benefit that produces biogas which can be used for heating. The activities are ongoing, and complete reports will be expected in the next reporting period.    (Private Sector) Zoompak Medical Waste Treatment Facility (Ghana):  This facility is a subsidiary of Zoompak and Zoomlion Ghana Limited piloting non-incineration treatment of health care waste management in Ghana. Zoompak is partnering with the project to provide non-incineration health care waste treatment services to health care facilities within the Greater Accra region which are not part of the model facilities. The Zoompak facility provides training regarding waste segregation and the appropriate logistics needed in accordance with the World Health Organization’s (WHO) regulations and treatment services to health care facilities which have subscribed to their services for a fee. As most of the beneficiaries are private facilities, the Ghana project component is supporting Zoompak to get some public hospitals to subscribe to their services.  A Project Case Study was developed on : Cooperation with the private sector, ZoomPak in Ghana (annexed in the File Library).    (Private Sector) Waste Master (Zambia):  Waste Master Zambia limited is a private company dealing in healthcare waste management in Zambia.They provide services to private hospitals by collecting, transportation and disposal of healthcare waste. The Company also works with others in the recycling of non-infectious healthcare waste. They have participated in the project activities and earmarked to provide recycling services to two healthcare facilities on the project. They have since held meetings, trainings, exhibitions and signed an MOU with the Chilenje level 1 hospital in Lusaka.    (South-South Cooperation) Ghana - Uganda:  In this reporting period, the regional component has continued to promote South-South cooperation on HCWM issues with continuous communication with stakeholders of ongoing HCWM projects (GEF or non-GEF), more specifically in Kenya, Uganda and lately Jordan, whose project representatives participated in the regional meeting in Ghana.    Additionally, in this reporting period, the Global Fund (GF) contacted the regional component of the project to support a study tour of the GF Uganda country team on healthcare waste. The Global Fund is a partnership organization designed to accelerate the end of AIDS, tuberculosis and malaria as epidemics. Within the activities of the implementing partners, healthcare waste is generated which needs to be disposed of in a safe and environmentally friendly way. The GF in cooperation with stakeholders in Uganda are considering funding the establishment of an integrated healthcare waste management system (HCWMS) and with the supply chain department to support the same mandate. Therefore, a study tour in Ghana was planned with a general objective to improve the South-South dialogue on the set up of an integrated healthcare waste management system on national level.    The GF supported a study tour of delegates from Uganda to learn lessons from the implementation of the project in Ghana, which was successfully conducted in June 2019. With regards to the study tour, more information can be found at press release/news published by UNDP Ghana and local media agencies, as follows:    http://www.gh.undp.org/content/ghana/en/home/presscenter/pressreleases/2019/uganda-delegation-understudies-best-practices-in-ghanas-health-c.html  https://www.africa-news.info/news/uganda/2019/07/12/ghana-uganda-delegation-understudies-ghanas-health-waste-management-system/ |

# Annex - Ratings Definitions

**Development Objective Progress Ratings Definitions**

(HS) Highly Satisfactory: Project is on track to exceed its end-of-project targets, and is likely to achieve transformational change by project closure. The project can be presented as 'outstanding practice'.

(S) Satisfactory: Project is on track to fully achieve its end-of-project targets by project closure. The project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Project is on track to achieve its end-of-project targets by project closure with minor shortcomings only.

(MU) Moderately Unsatisfactory: Project is off track and is expected to partially achieve its end-of-project targets by project closure with significant shortcomings. Project results might be fully achieved by project closure if adaptive management is undertaken immediately.

(U) Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets by project closure. Project results might be partially achieved by project closure if major adaptive management is undertaken immediately.

(HU) Highly Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets without major restructuring.

**Implementation Progress Ratings Definitions**

(HS) Highly Satisfactory: Implementation is exceeding expectations. Cumulative financial delivery, timing of key implementation milestones, and risk management are fully on track. The project is managed extremely efficiently and effectively. The implementation of the project can be presented as 'outstanding practice'.

(S) Satisfactory: Implementation is proceeding as planned. Cumulative financial delivery, timing of key implementation milestones, and risk management are on track. The project is managed efficiently and effectively. The implementation of the project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Implementation is proceeding as planned with minor deviations. Cumulative financial delivery and management of risks are mostly on track, with minor delays. The project is managed well.

(MU) Moderately Unsatisfactory: Implementation is not proceeding as planned and faces significant implementation issues. Implementation progress could be improved if adaptive management is undertaken immediately. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are significantly off track. The project is not fully or well supported.

(U) Unsatisfactory: Implementation is not proceeding as planned and faces major implementation issues and restructuring may be necessary. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are off track with major issues and/or concerns. The project is not fully or well supported.

(HU) Highly Unsatisfactory: Implementation is seriously under performing and major restructuring is required. Cumulative financial delivery, timing of key implementation milestones (e.g. start of activities), and management of critical risks are severely off track with severe issues and/or concerns. The project is not effectively or efficiently supported.