Global Project on Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury

Terminal evaluation report

GEF Project ID: 1802  
UNDP Project ID: 2596 – Atlas project ID 00058547  
Country: Global (Argentina, India, Latvia, Lebanon, Philippines, Senegal, Tanzania, Vietnam)   
Region: Global  
GEF Focal Areas: POPs  
GEF Focal Area objectives: 14, 10  
Executing Agency: UNOPS  
Implementing Agency: UNDP

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# Executive Summary

## Project Summary Table

Table 1: Project Summary Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Title | Promoting best techniques and practices for reducing health-care waste to avoid environmental releases of dioxins and mercury | | | |
| GEF Project ID | 1802 |  | At endorsement | At completion (November 2012) |
| UNDP Project ID | 2596 | GEF Financing | USD 10,326,455 |  |
| Country | Global (Argentina, Latvia, Lebanon, India, The Philippines, Senegal, Tanzania, Vietnam) | Total Co-financing | USD 12,970,494 |  |
| Region | Global | Total Project Cost | USD 24,021,897 |  |
| Focal Area | POPs | Signature of Project Document | | June 2008 |
|  |  | Operational Closing Date | Proposed:  October 2011 | Actual:  December 2012 |

## Project Description

The project “Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury” has the overall objective to *“demonstrate and promote best practices and techniques for health-care waste management in order to minimize or eliminate releases of persistent organic pollutants and mercury to the environment”.* Eight project components are envisaged by the project: 1) Establish model facilities and programs to exemplify best practices in health-care waste management; 2) Deploy and evaluate commercially-available, non-incineration health-care waste treatment technologies; 3) Develop, test, manufacture and deploy affordable, small-scale non-incineration technologies for appropriate use in small- and medium-size facilities in sub-Saharan Africa; 4) Introduce and demonstrate best practices for management of mercury waste; 5) Establish or enhance training programs to build capacity for implementation of best practices and appropriate technologies beyond the model facilities and programs; 6) Review relevant policies, and if appropriate, assist in holding a policy review conference for these purposes; 7) Distribute Project results on best techniques and practices to relevant stakeholders, 8) Make Project results on demonstrated best techniques and practices available for dissemination and scaling-up regionally and globally. In Tanzania only a specific component (component 3) is implemented, whilst all the others components are being implemented in each of the other 7 participating countries, (Argentina, India, Latvia, Lebanon, the Philippines, Senegal and Vietnam).

## Key project achievements Relevant to UNDP cumulative POPs Results

**Number of national POPs regulative instruments adopted**:

Thank to the project, in 2 countries (Latvia and Vietnam) new regulations on Health Care Waste Management which will have a positive impact in term of U-POPs reduction were drafted, approved by the Parliament , and entered into force. In these countries the new regulations will ensure the implementation of environmental safe waste management at hospital facilities and the disposal by means of BAT/BEP compliant technologies. In the Philippines, the 3rd edition of the Health Care Waste Manual, approved by DOH, and containing the methodology that the hospital have to adopt by law for the drafting and implementation of Health Care Management Plans, has been distributed to HCWM operators. In India, the guideline to reduce environment pollution through mercury use was finalized by the government on 8th March, 2010, and a draft biomedical waste management rules was prepared. The level of effectiveness on these regulatory instruments in preventing UP-POP emission is diverse, and indeed exchanges are still ongoing between GPT and the governmental partners of India and the Philippines on possible improvements.

**Number of people trained in POPs management /alternative**: Training and capacity building was one of the major efforts of the project. In addition to people who were trained within the project timeframe, it is important to remember that under the project, curricula in the field of HCWM have been established in several universities. Therefore, the training is expected to continue in the future after the project end.

Within project timeframe, the following amount of people has been trained:

|  |  |  |
| --- | --- | --- |
| Country | Training at hospital facilities | Curricular training carried out by universities |
| Argentina | Operators in 2 hospital were trained (6 workshops and 180 people trained in General Roca and 6 workshops and trained 170 people in Reconquista) | During in the second half of 2011 and the first quarter of 2012 UTN, with the technical support of the PWT, implemented the 45 hours training-of-trainers (TOT) program, accounting for a total of 17 teachers and 32 participants coming from 9 provinces and an evaluation through the presentation of elaboration of healthcare waste projects in 6 different hospitals |
| India | 66 people trained at KGMU, 68 people trained in Chennai. | A total of 66 candidates are enrolled for the 6 months Certificate Course on HCMWM at the Study Centre established under the project |
| Latvia | 900 (HCWM + non-mercury devices, not including dissemination activities) | The Training material developed by the global team was adapted to local needs, translated in Latvian, and spread for more than 75 partners. 60 people trained in short programs |
| Lebanon | Training of Trainers at 2 hospital facilities completed and assessed. | A training video that can be used by any hospital has been completed. An interactive game was also developed. A training manual on health care waste management was developed. A curriculum was prepared. |
| The Philippines | Training of the whole staff of 2 hospitals completed | 2 training sessions, using the DOH HCWM manual, completed. |
| Senegal | An overall number of 680 people (the whole staff of 2 hospitals) trained |  |
| Vietnam | 251 people trained. | 90 trainers trained in a TOT scheme |

**POPs disposed.** The project does not deal directly with the disposal of POPs, however its results, where sustainable, will ensure the reduction of the release of U-POPs (particularly PCDD/F) in the environment. This will occur by means of 2 different mechanisms:

1. a better waste management at hospital level, resulting in waste minimisation and segregation, which will result in less plastic being incinerated; this activity will be disseminated and replicated, therefore its effects will continue after project end.
2. the shifting from incineration to autoclaving followed by waste recycling and landfilling

The detailed calculation of the U-POPs release reduction is being carried out by the National Working Groups of the participating countries.

## Evaluation Rating Table

In Table 2, the rating of each evaluation component by country and project component are reported. The detailed rating worksheets are reported in Annex 9.

Table 2 Rating of evaluation components

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Global (incl. Tan-zania)** | **Argenti-na** | **India** | **Latvia** | **Leba-non** | **Senegal** | **The Philippi-nes** | **Viet-nam** | **Total rating** |
| Monitoring and evaluation | **S** | **MS** | **S** | **S** | **S** | **MS** | **MS** | **S** | **S** |
| UNDP and implementing partners implementation and execution | **HS** | **MU** | **S** | **HS** | **S** | **S** | **MU** | **S** | **S** |
| Relevance | **S** | **S** | **S** | **S** | **S** | **MS** | **MS** | **MS** | **S** |
| Effectiveness and efficiency | **S** | **MS** | **S** | **HS** | **S** | **MS** | **S** | **S** | **S** |
| Overall results / Attainment of outcomes | **S** | **MS** | **S** | **HS** | **S** | **S** | **MS** | **S** | **S** |
| Sustainability | **ML** | **ML** | **MU** | **ML** | **U** | **MU** | **MU** | **ML** | **ML** |

## Summary of conclusions, recommendations and lessons

**Monitoring / Evaluation.** Although on the average the monitoring and evaluation was satisfactory, the evaluators found some areas / countries of possible improvement of project monitoring. In Argentina, the project was not monitored on the basis of the standard monitoring forms (AWP, QPR) or at least the evaluators were not provided with those documents. In Vietnam, evaluators were provided with APRs, QPRs, AWPs and PIRs, which were however found not very informative; in Senegal, these documents were not available for the last year of implementation (2012). Both Lebanon and Latvia provided limited information on component 2 (Technology) which for these countries represents a significant amount of counterpart funds (2.5 MUSD for Latvia and 0.25 MUSD for Lebanon). Some differences in the arrangement of project activities and of component numbering among countries were reflected in the structure of the Atlas budget database sheets making difficult the evaluation of financial aspects. The complexity of the project (six to seven components with several activities for each country) created additional difficulties in the proper monitoring at national level. Accounting of counterpart funds (co-financing) was in general very limited, except for Tanzania, India, Vietnam. As the GPT “Guidance on measurement and documentation” was delivered only in the last quarter of 2012, at the time of terminal evaluation most of the countries had still to complete the terminal project reports.

**Project conceptualization / Design.** The evaluators consider that the project conceptualization and design are satisfactory. The main objective of the project is to demonstrate best practices and non-burn technologies for the management and disposal of medical waste. The procedures sought by the project for a substantial reduction of POPs release (minimisation, segregation, waste disinfection) are the very same procedures that will prevent the spreading of waste borne disease in the hospitals. Therefore, in addition to its global environmental objectives, the project produces a direct benefit on the health of patients and hospitals personnel, by improving the hygienic conditions of the facilities where it is implemented.

The evaluators consider that the holistic approach sought by the project, aimed at establishing an entire chain of healthcare waste management (from production to disposal) and at the same time supporting non-combustion technologies, is the correct approach for minimising the release of U-POP from the sector.

Most of the project components and Objectively Verifiable Indicators are Specific, Achievable, Relevant and Time Bound. Project component 3 (development and testing of a small scale innovative autoclave for the African market) may be considered as a research and development activity in a highly promising sector: The high technological risk related to Outcome 3 is compensated by the great benefit it may generate if the proposed technology is successfully produced and marketed.

The project activities and components are structured in such a way that risks are minimized, as the failure of one project activity or a component in a country would not affect the completion of the activities in the other countries; a certain level of independence of project activities also exists among components being executed within the project countries.

There are however some shortcomings that should be taken in due consideration in future in designing similar projects:

1. The project does not establish a quantitative target for the reduction of PCDD/F and mercury releases. The project document only states that *“If replicated nationally and sustained, best practices and techniques initiated during the Project’s implementation are expected to reduce the release of an estimated 187 g TEQ of dioxins and 2,910 kg of mercury to the environment each year from participating countries’ health-care sectors”* ;
2. The resource allocated for the technology components are probably too low (24% of the budget including Tanzania); this aspect represented a difficulty for several countries, which, because also of the depreciation occurred in the course of project implementation, had to reduce the number or size of equipment to be procured;
3. Finally, considering the limited budget available at country level, the project structure is probably too complex: 6 to 7 project components per country, with activities to be carried out in 3-4 hospital and 1-2 treatment facilities, represented indeed a significant administrative burden for project management and monitoring, with the result that in some cases the project monitoring at country level was low.

**Country Ownership and Drivenness**. The level of ownership was significant in almost all the countries. In all the countries except Senegal activities related to the improvement / amendment of legislation and guidance documents on healthcare waste management was carried out; in two cases (Latvia and Vietnam) new legislation was enforced thank to the project and within project timeframe; in the Philippines, with the support of the project, the country drafted the 3rd edition of the Health Care Waste Management Manual, which is a guidance document all the hospitals are required to comply with by law. In all the other cases, an analysis of legislation was carried out ad discussed among relevant stakeholders. In most countries an effective coordination of the project, by means of the National Project Steering Committees and the NWGs has been established; the commitment from the governmental stakeholders (Ministries and Departments of Health, Environment, and in some case Agriculture) is high. In Senegal the general regulation on waste management is currently under revision, but, although the Ministry of Environment committed to hold a conference on waste legislation by the end of 2011 / early 2012 that conference did not take place.

**Stakeholder involvement.** The important role of HCWH has to be recognized. HCWH contributed significantly to the project design and implementation, and indeed this is the only GEF project on POPs where a NGO is sitting in the Project Steering Committee. In addition, several consultants at both global and national level are or have been members or collaborators of this NGO. Important contribution also came from the national NGOs, like HCWH Philippine, Toxic Links (India), Salud sin Daño (Argentina), Agenda (Tanzania), and the several NGOs operating in Latvia. HCWH and the local NGOs, with their competence, enthusiasm and networking capabilities, ensured thrust to the project. In some cases, however, HCWH was not effective in addressing a certain level of conflict with the governments. Difficulties among DOH and HCWH in the Philippines and MOEF and Toxic Links in India where observed, mainly due to the different views on HCWM policies. In the Philippines the project is perceived as too much oriented by HCWH, therefore these difficulties translated in implementation and coordination issues. On the other side, the very good relationship between the government and Salud sin Daño in Argentina was not effective enough to timely understand and address the implementation problems in that country. As the project deals with healthcare waste, the beneficiaries are in most cases hospital facilities, which are under the responsibility of the ministries of health. At the same time, the management of waste is usually under the responsibility of the ministries of environment. For this reasons, these are the two key stakeholders whose participation was sought since the design stage. In all the project countries, the Ministries (or Departments) of Health and the Ministries (or Departments) of Environment are member of the NPSCs, thus ensuring a good coordination among these 2 key stakeholders.

**Implementation approach.** As already discussed in the MTE, the shift from MEX to NEX created delays and misunderstandings in the course of project implementation. That concerned mainly the initial stage of the project in the majority of the countries. At the same time it is also a fact that the NEX modality has the clear advantage over Agency Execution to enhance project ownership, the project being actually executed locally with only technical supervision from the international experts recruited by the IA.

Concerning other implementation aspects:

1. Operational relationships among project stakeholders: There are 3 main institutions at the national level, whose operational relationship represented a key factor in the project success: Ministries of Health, Ministries of Environment, UNDP COs. In general, the relationships among MOHs and MOEs were good and effective in all the project countries, but there is still a need to improve coordination in the regulatory aspects that may hinder project sustainability. Coordination among UNDP CO and governmental stakeholders was also effective, although due to the limited project size at country level, UNDP CO sometime assigned a low priority to this project.
2. A key for the project success is the availability of trained technical consultants implementing the project activities at the model facilities. In all the countries where skilled technical consultants were operating at the model facilities the improvement in HCW management at the hospital level was evident. In some countries (i.e. Senegal) the recommendation to facilitate the contribution of technical consultant was accepted and taken seriously, and the results was the rescuing of the project with achievement of good results, which otherwise would have failed.
3. All the countries experienced significant difficulties with the procurement of equipment required under component 2 of the project, namely, in drafting of technical specification, bidding, purchasing and installing of these equipment. India solved procurement issues only in the second half of 2012; Argentina has completed the bidding, however at Terminal Evaluation the equipment is still in the stage of assembling and will be not functioning (in a best case scenario) before March 2013; in addition, an agreement with the Provincial Government on the management modality of the equipment has not been reached yet; the Philippines did not solve the issue of procurement yet and currently the procurement is stopped; In Vietnam the 5 ton/day autoclave was delivered to the site and unpacked only in November 2012, and at TE was still waiting for the building of infrastructures and testing; Senegal was successful in the bidding and purchasing of autoclaves for the three model facilities, however the installation and testing of this equipment was completed only in the second half of the year 2012. It is evident that, in future projects, this kind of activities need to be carefully planned starting from project design and early stage of implementation.

**Financial planning.** Based on Atlas data (November 2012) the amount of GEF grant not disbursed yet in Argentina, the Philippines, India and Vietnam is still high. Atlas data however does not include committed disbursements. If committed disbursements are included, only Philippines and Argentina will likely be not able to allocate all the GEF funds assigned to them. Difficulties in financial management, due to bureaucratic complexities, affected significantly India and Argentina.

**Sustainability** **.** As most the benefit of the project in term of reduction of POPs and mercury release in the environment depends on the continuation and replication of the activities and of the good practices established at the model facilities, sustainability is one of the main criteria for evaluating the project success. Sustainability has been evaluated taking into account socio-economical, institutional /governmental and financial risk; whilst environmental risk has not been considered as all the project activities are all highly sustainable and are not significantly endangered by environmental parameters. Socio-political risk has been evaluated based on the World Bank classification (WB, 2011). Financial and institutional risks have been evaluated on the basis of data gathered at component and country level in the course of the evaluation. As the rule for assessing project sustainability in a country is to assign the minimum sustainability value among the three sustainability components considered, countries with high socio-political risk are penalized and may score low (high risk) even when the risk for financial and institutional sustainability is low. This situation concerns India, Lebanon, the Philippines, Vietnam. The risk for project sustainability scores Moderately Low.

**Attainment of objectives (effectiveness, efficiency, impact) by country.**

**Tanzania (project component 3):** Component 3 of the Project (Tanzania) is being executed directly by UNOPS with the objective to develop, test and disseminate affordable non-burn health-care waste treatment technologies that can be built and serviced in sub-Saharan African countries using locally available supplies and skills. Currently, the pilot activities and testing of the prototype have been completed; and the project is now in the stage of dissemination and completing the improvement of some components, as well as completing the building of additional autoclave prototypes. (Score: S)

**Argentina:** In Argentina the best results were achieved in the field of training, and in the experimentation of Fenton technologies for the disposal of cytotoxic waste. The project in Argentina however faced several difficulties, including changes in administrative arrangements, complexities in international procurement, failure in reaching an agreement with the provincial government on the management modality for the autoclave which has been procured. The autoclave and boiler have been finally procured, but discussion is still ongoing with the MOH of the Province of Santa Fe concerning whether they would finally host and manage this equipment. The project achieved only very limited results on the legislative and dissemination components **(Score: MS)**

**India** . Although – due to financial management issues – disbursement where blocked for one whole year, in India in the last year of implementation significant achievements occurred in almost all the components. The improvement in waste management obtained at the King George Medical Hospital n Uttar Pradesh compared to the baseline were outstanding; the project contributed to the improvement of one incineration facility, and in Tamil Nadu a centralized equipment consisting of an autoclave and a shredder has been procured and tested. Some activities (training, procurement of mercury devices) need to be completed. The difficulties related to the financial mechanism established in the country still affect disbursement of funds. A limited extension of project deadline would very likely allow for the successful completion of project activities **(Score: S)**

**Latvia.** All the activities were successfully completed in Latvia within the first months of the year 2012. The assistance provided by the project experts to the model facilities was continuous and very effective Thanks to the very good cooperation among all the project stakeholders, one of the outstanding results achieved in Latvia was the development and approval by the Parliament of a new regulation on medical waste. The project achieved positive results also in the other components, including an effective cooperation with a private medical waste disposal operator, which contributed to the co-financing budget, and which effectively adopted Environmentally Sound standards for HCWM. **(Score: HS)**

**Lebanon.** All the project activities were successfully completed in Lebanon. In Lebanon, the project established original modalities for training and dissemination: a training video that can be used by any hospital has been completed. An interactive game for training on healthcare waste segregation was also developed. Similarly to Latvia, an operator (Arc en Ciel) of healthcare waste disposal facilities contributed to the project activities. **(Score: S)**

**Philippines:** In the Philippines the project faced two main issues: the repeated failure of the procurement of the autoclaves for the two model facilities and the disagreement between the National Project Team and the Global Project Team on technical issues, including reference to incineration technologies in the Healthcare Waste Manual, technical specifications on non-combustion technologies to be procured, use of training materials. A significant part of the budget was shifted from the model facility component to the technology component, which however is closed to failure due to the aforementioned difficulties in procurement. It is unclear whether a limited extension of the project deadline would help in completing project activities**. (Score: MS)**

**Senegal.** The project solved most of the issues emerged at Mid Term, by ensuring proper installation and connection of the equipment already procured in the model facilities (Hopital General Du Grand Yoff, Sangalcam hospital, and Youssou Mbargane Diop Hospital), deployment of the mercury equipment, and completion of training activities. A “ribbon cutting” event was organized in September 11, 2012, which actually boosted HCWM awareness and facilitated the project completion. No significant results were achieved on the side of updating the HCWM legislation. Due to the poor financial management of the project, in its last year of implementation the project was not properly monitored. (Score: S).

**Vietnam.** The project since the end of 2011 benefited of a substantial acceleration and achieved most of its objectives; however, it is evident that due to the late start, the time for carrying out practical activities was too short, and the outcomes are not very well consolidated yet. The waste management procedures at model facilities improved significantly even in comparison with the findings reported by the international consultants after their last visit (April 2012). Almost 100% of the facilities’ staff was trained. Management of sharp waste is in place, although GPT raised concerns about its effectiveness. Hospitals confirmed that they would be able to update annually the waste management plans and implement these plans on their own budget. Delay on the side of instalment and testing of the centralized autoclave and of building of the related infrastructures could be very likely solved within February-march 2013. (Score: S)