

Building capacity to eliminate POP pesticide stockpiles in Vietnam Terminal Evaluation Report



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1. ACRONYMS AND ABBREVIATIONS

CSM	Conceptual Site Model
DE	Destruction Efficiency
DONRE	Department of Natural Resources and Environment
DRE	Destruction and Removal Efficiency
EOI	Expression of Interest
ESM	Environmentally Sound Management
FAO	Food and Agriculture Organization
GEF	Global Environmental Facility
HPPMG	Harmonized Project and Program Management Guidelines
LFA	Logical Framework Approach
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MOF	Ministry of Finance
MOH	Ministry of Health
MOIT	Ministry of Industry and Trade
MOIT/VCC	Ministry of Industry and Trade / Vietnam Chemical Corporation
MONRE	Ministry of Natural Resources and Environment
MONRE/VEA	Ministry of Natural Resource and Environment / Vietnam Environmental Administration
MPI	Ministry of Planning and Investment
MTE	Mid Term Evaluation
NEX	National Execution
NGO	Non-Governmental Organization
NIP	National Implementation Plan of the Stockholm Convention
NPD	National Project Director
NSC	National Steering Committee
NTP-PMEI	National Target Programme on Pollution Management and Environmental Improvement
ODS	Ozone Depleting Substances
PD	Project Document
PEB	Project Executive Board
PPE	Personal Protective Equipment
PIR	Progress Implementation Report
PMU	Project Management Unit
POPs	Persistent Organic Pollutants
PPC	People Provincial Committee
PPD	Plant Protection Department
PSMS	Pesticide Stockpiles Management Systems
RACI	Responsibility, Accountability, Consultation, Information
RFP	Request For Proposal
SOPs	Standard Operating Procedures
TOR	Term of Reference
UNDP	United Nation Development Organisation
UNFCC	UN Framework Convention on Climate Change

2. EXECUTIVE SUMMARY

2.1. Project summary table

GEF Project ID	3105
UNDP PMIS ID	3578
Funding Source	GEF Trust Fund
Project Name	Building Capacity to Eliminate POP pesticides Stockpiles
Country	Vietnam
Region	Asia and the Pacific
Focal Area	POPs
Operational Program	14
Strategic Program	POPS-3; POPS-2
Pipeline Entry Date	2006-03-30
PIF Approval Date	2007-09-27
PDF-B Approval Date	2006-03-30
Approval Date	2007-11-16
CEO Endorsement Date	2008-12-15
GEF Agency Approval Date	2011-05-06
Project Status	IA Approved
Executing Agency	Ministry of Natural Resources and Environment
Description	The proposed project will provide assistance to Vietnam to eliminate POP pesticides stockpiles, and carry out pilot treatment of sites that are contaminated with POP pesticides.
PDF B Amount	350,000 USD
GEF Project Grant	4,300,800 USD
GEF Grant	4,650,800 USD
Co-financing Total	6,540,110 USD
Project Cost	11,190,900 USD
GEF Agency Fees	465,080 USD
GEF Project (CEO Endo.)	4,300,800 USD
Co-financing Total (CEO Endo.)	6,540,110 USD
Project Cost (CEO Endo.)	11,190,900 USD
GEF Agency Fees (CEO Endo.)	465,080 USD

2.2. BRIEF INTRODUCTION TO THE PROJECT

1. The Project “Building capacity to eliminate POP pesticides stockpiles in Vietnam” as originally approved has the objective “To remove barriers to the sustainable elimination of POP pesticides in Vietnam”. It consists of three operational component Outcomes: Outcome 1 - Improved capacity facilitates elimination of POP pesticides stockpiles; Outcome 2 - All known stockpiles are destroyed and impacts on human health relieved; and Outcome 3 - Improved chemicals management prevents importation and use of POP pesticides. Outcome 2 is the main Project focus in terms of GEF funding and Outputs relative to global environmental benefit with a targeted impact originally set at the elimination of 1,140 t of POPs pesticide stockpiles in five sites, and subsequently revised as 1000 t of POPs pesticide waste in 7 sites. Portions of Outcome 1 involve Outputs intended to provide the preparatory technical support for Outcome 2. Outcome 3 is mostly intended to increase capacity building and awareness in the field of Pesticide legislation and management and is a key component to ensure project sustainability.

2.3. EVALUATION RATING TABLE

The evaluating table below is based on the outcomes achieved until October 2015. The detailed description of achieved project outcomes and outputs is reported in **Table 8**.

Table 1: Project overall rating

Evaluation Ratings:			
1. Monitoring and Evaluation	rating	2. IA& EA Execution	rating
M&E design at entry	S	Quality of UNDP Implementation	HS
M&E Plan Implementation	S	Quality of Execution - Executing Agency	HS
Overall quality of M&E	S	Overall quality of Implementation / Execution	HS
3. Assessment of Outcomes	rating	4. Sustainability (Risk)	Rating
Relevance	HS	Financial resources:	L
Effectiveness	HS	Socio-political:	L
Efficiency	S	Institutional framework and governance:	L
Overall Project Outcome Rating	HS	Environmental :	M
		Overall risk for sustainability:	L

2.4. SUMMARY OF CONCLUSIONS, RECOMMENDATIONS AND LESSONS

2.5. AMOUNT OF POPS DESTROYED OR CONTAINED

The amount of POPs destroyed or the release of POPs prevented represent the main Global Environmental Benefit of any GEF project under the Stockholm, Convention. As the project was developed under the GEF 4 framework strategy, the key indicators were: 1) the amount of obsolete pesticides disposed of and 2) the reduced risk of exposure to POPs of project affected people.

In the mid-term evaluation report, a detailed assessment of the realignment of project targets in term of POPs to be disposed was carried out, together with some terminological clarification concerning POP pesticides stockpiles, POPs waste and POP pesticides.

The final target of 1000 tons of highly contaminated POPs waste/stockpiles should be considered as a progressive refinement of the original project value, which was revised once the data collection and site characterisation envisage by the project were completed.

In the original project document, the target of POPs to be destroyed was indeed set at 1140 tons of POP pesticides contained in 5 burial sites. It became however very quickly clear that:

- 1) In Vietnam there are much more than 5 pesticide storage or burial sites (indeed over 1153 POPs pesticide site were listed at MTE), and that
- 2) Although the overall amount of POPs pesticide may be much higher, very often POPs pesticide are mixed with soil or other waste material, therefore in the establishment of the target is very important to refer to "POPs containing waste" instead of pure POPs.

In the Project Review Report (COOKE, 2012), a tentative estimate of 700 tons of POPs waste to be disposed, instead of the 1140 tons of pesticide stockpile originally envisaged by the PD was set as project target. The project review suggested to change the wording of Outcome 6 as following: *"Up to 700 t of POPs pesticide waste destroyed and 10,000 m³ of POPs contaminated soil contained or under remediation at up to 5 sites"*

That amendment was considered acceptable at mid-term evaluation (Carlo Lupi, 2012). However, after mid-term evaluation, the project target in term of POPs to be destroyed was again increased as following *"At least 7 sites with 1000 tons of highly contaminated POPs waste/stockpiles will be treated, impact on human health relieved"*, whilst no target was set for the amount of POPs contaminated soil to be contained.

The reason for this second increase was that in the last year of project implementation became more and more evident that the amount of POPs pesticide waste was larger than initially expected.

Based on the terminal report (Ministry of Natural Resources And Environment, Vietnam Environment Administration. , September 2015), the amount of POP pesticides destroyed totalled to more than 900 tons, with a high cost effectiveness due to the well managed procurement of disposal services. As of today, however, more POPs pesticide stockpile are being identified. Furthermore, the estimation does not include the amount of POPs which release in the environment has been prevented by means of a number of containment interventions. Therefore, the project target in term of POPs destroyed was substantially achieved.

2.5.1. Exposure reduction

The reduction of exposure to POP pesticides – and hence risk – was another crucial objective for the project. In the original project document is indeed stated that:

"The monitoring framework of the project will also contribute to global tracking of impact through indicators such as:

- *Quantity of POP pesticides destroyed*
- *Number of people previously exposed to POPs"*

Exposure reduction to POPs was achieved in a number of ways including: removal and destruction of POPs waste and stockpiles by means of thermal destruction and reduction of the POPs release in the environment through the establishment of containment measures. Indeed, after eliminating the direct risks by disposal of pesticide stockpiles in the contaminated sites, project activities aiming at the removal of potential and latent risks by reducing impact of medium and light contamination area to human health continued, through construction of risk reduction measures (structures) and remediation of contaminated soil by non-combustion technologies. It is reported (Ministry of Natural Resources And Environment, Vietnam Environment Administration. , September 2015) that the amount of contaminated soil safely contained under the project is in the order of about 3480m² (5220m³). The reduction of exposure is a direct consequence of these activities, therefore it is reasonable to assume that the project activities allowed for a long term reduction of exposure to POP pesticides. PMU estimated that the exposure to POPs pesticide was practically zeroed thank to project activities for 1850 persons living nearby the previously contaminated areas.

2.5.2. Technology testing

The project achieved a number of important outcomes in this area. At mid-term evaluation, it was assessed that *“there is only one licensed plant with the technology capable to ensure an environmentally sound disposal of POPs contaminated soil / waste (Holcim) which consequently is asking “monopolist” fees.”* This warning was fully considered after mid-term evaluation, therefore under the project more facilities were tested to verify their capacity to dispose hazardous waste in compliance with the Stockholm Convention BAT/BEP. Bidding to select a provider of disposal services was launched. In compliance with the Vietnamese legal framework, the Project supported companies to conduct proof of performance test so they could apply for POP pesticide license, which was a requirement established in the bidding document. After the successful completion of the proof of performance tests, two companies were licensed to destroy POP pesticides, namely Holcim Vietnam (which is not anymore the Vietnamese monopolist for this type of service) and Thanh Cong Cement. The new situation, together with the fact that the bidding to select the provider of POPs disposal services was launched at international level, contributed to the decrease of the cost of POP pesticide disposal (from ~\$2500 to ~\$1100/ton). This also helped creating a reference price for waste management agencies in selection and planning of disposal/destruction of pesticide stockpiles.

Besides the testing of combustion technologies, the project also undertake testing of in-situ decontamination technologies. Three pilot technologies including Zero Valent Nano Iron (ZVNI), Soil washing – rehabilitation, and Daramend bio-remediation were tested. The soil washing technology was however dismissed before the completion of the test because it was not considered ready for pilot scale in the field yet. Except soil washing, each technology was tested on a small amount of 20 m³ of contaminated soil in Hon Tro.

2.5.3. Training and capacity building

In Vietnam, the central government, and partially also the local government (MONRE and DONREs) has mobilized a significant amount of financial resource for the monitoring and clean-up of contaminated sites. The availability of staff with specific skills in this area is however still very limited. Therefore, training represented a significant effort and an important goal for the project. Under the original project document, the following targets were set for training and capacity building:

- Output 1.2: Staff of government agencies trained in appropriate technologies and application of standards and guidelines. Target: Within 12 months of the start of project, at least 20 staff of government agencies trained in international standards for handling and destruction of POP pesticides
- Output 3.2: Line agency staff trained in management of POP pesticides. Target: By the middle of 2011 staff of all line agencies trained in management of POP pesticides

The target set for the training activities was not completely verifiable, as no indication were provided in the project document on how measuring training effectiveness. Therefore, a quality control system, based on pre

and post assessment of the knowledge of the trainees, was implemented in the training, demonstrating that in general the trainings were effective.

Based on the Training Report provided by the PMU, staffs of various environmental-related agencies, including Provincial Environmental Protection Departments, Provincial Environmental Monitoring and Analysing Centres, Waste Management and Environmental Improvement Department, Institute for Agriculture Environment were successfully trained. The percentage of women trainees ranged from 15% to 25%. The summary of training contents and participation is provided in **Table 2** below:

Table 2. Project's training courses on the management of POP-Pesticides contaminated sites (source: PMU)

Training courses	Time	Total no. participants	Local participants
Assessment of POP pesticides contaminated site, Hà Tĩnh	11/2011	38	30
Assessment of POP pesticides contaminated site, Thái Nguyên	11/2011	39	32
Environmental Management of POP-pesticides Contaminated sites, Ninh Bình	11/2013	44	36
Environmental Management of POP-pesticides Contaminated sites, Quảng Bình	09/2014	42	30
Environmental Management of POP-pesticides Contaminated sites, Nghệ An	10/2014	51	38
Environmental Management of POP-pesticides Contaminated sites, Nam Định	03/2015	41	24
Environmental Management of POP-pesticides Contaminated sites, Nghệ An	03/2015	44	29
Environmental Management of POP-pesticides Contaminated sites, Quảng Ninh	04/2015	46	24
Sampling and mapping of contaminated sites, Nam Định	05/2015	45	28
Sampling and mapping of contaminated sites, Đà Nẵng	07/2015	38	30
Sampling and mapping of contaminated sites, Bà Rịa Vũng Tàu	07/2015	34	28
Environmental Management of POP-pesticides Contaminated sites, Hòa Bình	08/2015	31	18
Total		493	347

2.6. DEVELOPMENT OF POPS RELATED REGULATION AND GUIDANCE

One of the important achievement of the project was the development and adoption of the national technical regulation on the remediation treatment threshold for persistent organic pesticides according to land use (QCVN 54:2013/BTNMT). This is the first national technical regulation of this type, and is a milestone in establishing standard rules for the remediation of contaminated sites in Vietnam. The project, and more specifically the sound cooperation between the PMU staff, national and international experts, contributed significantly to the achievement of this important result.

In addition to that, under the project, with the guidance of international experts (initially Ron Mc Dowell (Ron McDowell (prepared for FAO), November 2011) and in the second stage of project implementation Boudewijn Fokke from Tauw (TAUW, April 2015)) in strict cooperation with PMU staff, a complete set of guidelines and Standard Operating Procedures (SOPs) related to the Sustainable Management of POP-Pesticides contaminated sites was developed and applied. These guidelines cover the five phases of sustainable management of POP pesticides contaminated sites. These are: (i) The Preliminary Site Assessment; (ii) The Site Assessment; (iii) The Site Remediation Assessment; (iv) Site Remediation Management; and (v) The Site Monitoring and Aftercare.

The guidelines have been introduced into the draft circular on pollution mitigation and environment improvement, planned to be issued by the Ministry of Natural Resource and Environment in September, 2015

With reference to the development of guidance documents, FAO provided support to Vietnam for implementation of components 1 and 3 from 2012 - 2013.

The FAO activities under Component 3 comprised the following five studies:

- Pesticide life cycle management in Vietnam;
- Pesticide empty container management in Vietnam;
- Post-harvest loss management in Vietnam;
- Communication strategy promoting safe and effective use of pesticides in Vietnam;
- Pesticide management training in Vietnam.

The development of pesticide legislation in Vietnam has taken into consideration the recommendations of the FAO International Code of Conduct on the Distribution and Use of Pesticides (revised in 2013 and currently called the Code of Conduct on Pesticide Management) and the guidance provided by a set of international guidelines for the implementation of the Code of Conduct.

2.7. SUSTAINABILITY AND REPLICABILITY

One of the success story of this project may be considered the systematic approach which has been adopted, making the project not a “pure waste disposal” activity, but indeed a well-organized and integrated set of actions which had as affect the reinforcement of the country capacity to tackle the issue of POPs contaminated sites.

The project acted effectively on the side of improvement of POPs related regulation, technical capacity and development of country-tailored guidance for contaminated soil, technology assessment and testing, establishment of a competitive market for the disposal of POPs contaminated waste, knowledge transfer, establishment of data management system for POPs contaminated soil.

At project closing, it was also observed that in Vietnam there are two national programmes addressing the issue of POP pesticides: the Decision 1946/QĐ-TTg on approval of National Action Plan on treatment and prevention of POP Pesticides issued by Prime Minister on 21 October 2010, and Decision 1206/QĐ-TTg on approval of the National Target Program on Overcoming Pollution and Environment Improvement issued by Prime Minister on 02 September 2012. These policies have critical influences on the sustainability of project actions, and indeed there was a mutual influence with the project which helped creating a legal framework for activities on management, remediation and environment rehabilitation of POP pesticide contaminated sites. A state fund - an important support for the project, has been allocated for POP pesticide related activities via these policies.

In September 2015 the project completed the upgrade the existing database on contaminated sites under the management of the Department for Waste Management and Environment Improvement – Vietnam Environment Administration. The upgraded database is available online via the link <http://caithienmoitruong.vea.gov.vn>. and constitutes the web based interface used by the local and central environmental administration (MONRE and DONRE) for archiving the information on contaminated sites adopting common standards.

FAO cooperated with the Plant Protection Department in MARD to set up a Pesticide Stockpiles Management System (PSMS) to support MARD activities in October, 2012.

Therefore, currently in Vietnam the following outcomes increased the sustainability of actions on the identification and remediation of POPs contaminated sites:

- Mobilisation of funds on the specific issue of pesticide stockpile through national programs;
- New legislation on risk-based clean-up target for sites contaminated by POP pesticides;
- A set of technical guidelines and guidance which has been disseminated to local authorities and which will be integrated in the environmental regulation;
- Increased awareness of the local environmental authorities;
- Increased technical capacity on POP pesticides disposal and a reduced disposal cost;
- Establishment of an Information System for the easy reporting and archiving of data related to contaminated sites.

2.8. Follow-up of the recommendation proposed at MTE

Few recommendations were proposed at mid-term by the evaluation team. These included:

- The need to further consolidate the logical framework already revised at inception by submitting it for formal approval;
- To complete the preparation of bidding documents for site clean-up and disposal of contaminated soil;
- To ensuring that the potential bidders are compliant with bid requirement and facilitate the achievement of the necessary license by contract signature, including carrying out Proof of Performance tests;
- To secure the resources and time for completing the Environmental Management Plan, the preparation of bidding documents, and the supervision of POP tests, allocating financial resources for international consultancy if needed;
- To verify, by the end of 2012, the need for a no-cost project extension;
- To ensure that a single standard is adopted for treating the sites, no matter their clean-up is funded with GEF grant or with governmental funds.

Based on the outcome of the evaluation mission, and on the official management response report¹, it can be affirmed that all the recommendation were carefully considered and accepted.

2.9. LINKAGE WITH NEW GEF PROJECTS ON POPS

The project was effective in piloting an integrated approach, based on training, reporting system, guidelines for the risk assessment and environmental management plan of contaminated sites, coordination among central and peripheral institutions, and even coordination among implementation agencies. In the last year of implementation it became evident that this type of approach was successful: for instance, the simplified reporting system, disseminated and established under the project allowed the discovery of new contaminated sites which were unknown before. This approach need to be replicated in a more structured way, and not only limited to POP pesticides.

Vietnam submitted therefore to the GEF a new project “Vietnam POPs and Sound Harmful Chemicals Management Project”, recently endorsed by the GEF, which on the side of contaminated sites contains the following more structured approach:

1. A more wide definition of POPs baseline for ambient environment (air, water, soil) and receptors (human, biota, food) which will in the end translate in regulation and regulatory target value (outcome 2.1 of the new project)
2. The whole component 3 of the new project is dedicated to the establishment of province-wide strategy plan for the management of site contaminated by POP pesticides and other POPs in industrial areas. Two provinces have been selected for the development of strategic plans for contaminated site: the Nghe An province, where most of the POP pesticides site have been found, and the Binh Duong provinces, where a large number of industrial settings are located. The approach is more focused to a preventive approach (enhanced reporting facilitating the early discovery of contaminated site, criteria for site prioritization, risk reduction measures, safeguarding and disposal)
3. If successful, the new project will establish a fully sustainable framework for dealing with contaminated sites, making Vietnam less dependent from external technical and financial resources.

¹ <https://erc.undp.org/evaluationadmin/manageresponse/view.html?evaluationid=5740>

3. DESCRIPTION OF THE EVALUATION METHODOLOGY

According to the TOR requirements, the evaluation has been carried out both as a descriptive assessment and on the basis of a scoring system.

The evaluation required meetings with almost all relevant stakeholders involved in project implementation, review of most of the technical and administrative documents, mission reports, meeting minutes produced in the course of project activities, and visits to the POPs contaminated sites. The list of the meetings and the agenda of the Terminal Evaluation mission are reported in the Annex.

In few cases, when it was not possible to arrange meetings, the interviews were arranged by means of Skype or telephone calls.

Concerning ranking, the six level scores proposed in the Term of Reference (TOR) for project outcomes and outputs has been adopted, with the numeric values associated to each level.

Rating criteria	Associated numeric value
Highly satisfactory (HS). The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	5
Satisfactory (S). The project had minor shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	4
Moderately satisfactory (MS). The project had moderate shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	3
Moderately unsatisfactory (MU). The project had significant shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	2
Unsatisfactory (U). The project had major shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	1
Highly unsatisfactory (HU). The project had severe shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.	0

Ranking were subjectively assigned by the evaluators; however, to ensure consistence, the following criteria has been adopted:

All the project outcomes has been evaluated with three different scores with value from 0 to 5 based respectively in the criteria of relevance (R), Efficiency (Eff) and Effectiveness (Ect).

The three criteria were evaluated considering that:

1. Relevance implies close logical relationship with, and importance to, the matter under consideration. As the main objective of the project is “*to remove barriers to the sustainable elimination of POP pesticides in Vietnam*”, a high relevance score was assigned to these activities which if correctly implemented are directly related to the objective, whilst a lowest relevance score has been assigned at activities indirectly related.
2. Effectiveness is the degree to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means "doing the thing right," effectiveness means "doing the right thing". Therefore, a high value of effectiveness has been assigned to outputs/outcome which reached their original objective, whereas low value has been assigned to outputs/outcome which reached only partially their intended objective.
3. Efficiency is the comparison of what is actually produced or performed with what can be achieved with the same consumption of resources (money, time, labour, etc.). Efficiency is an important factor in determination of productivity, therefore a high value has been assigned to activities which have been carried out in due time and which are expected to be carried out without delay.

The three scores obtained with the criteria summarized above were averaged within each outputs, and then the average score was averaged within outcomes among all the outputs of each outcome. Finally, the numeric values were translated in to the nearest rating criteria.

3.1. PURPOSE AND SCOPE OF THE EVALUATION

The terminal evaluation has been performed in compliance with the objectives and requirements listed in the TOR for the Terminal Evaluation Consultant. The following evaluation activities were therefore carried out:

1. An analysis of the attainment of national environment objectives, outcomes, impacts, project objectives and delivery and completion of project outputs (based on indicators);
2. An analysis to what extent the overall global project has achieved;
3. An evaluation of project achievements according to following GEF Project Review Criteria:
 - a. Implementation approach;
 - b. Country ownership/driven;
 - c. Stakeholder participation/Public involvement;
 - d. Sustainability;
 - e. Replication approach;
 - f. Financial planning;
 - g. Cost-effectiveness;
 - h. Monitoring and evaluation.

3.2. SPECIFIC EVALUATION QUESTIONS FOR TERMINAL EVALUATION

The TOR for the evaluation specifies the following evaluation items:

- **Relevance:** How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?
- **Effectiveness:** To what extent have the expected outcomes and objectives of the project been achieved?
- **Efficiency:** Was the project implemented efficiently, in-line with international and national norms and standards?
- **Sustainability:** To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?
- **Impact:** Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?

4. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

4.1. PROJECT START AND DURATION

The GEF PMS specifies an official implementation start date of October 15, 2009, the official implementation completion date June 30, 2013 and final closing date (completion report and disbursement closure) as December 2013.

However, the project inception meeting of the project took place only in 5th April 2010. The Project Work Plan attached to the inception report therefore assumed as starting date 01 March 2010, and a closure date of the project 4 years later (March 2014).

After MTE, following the suggestion of the mid-term evaluation, the project was extended at no additional cost until December 2015

4.2. PROBLEMS THAT THE PROJECT SOUGHT TO ADDRESS

The main project objective was to eliminate all known stockpiles of POP pesticides in Vietnam. Since the drafting of the original project document, however it was clear that *“the destruction of known stockpiles is an incomplete response”* as *“there are a potentially large number of additional, as yet unknown stockpiles”*, and *there is a major continuing problem of illegal importation of pesticides which may contain substantial amounts of POPs.”*

It was clear since project inception therefore that *“as important as the destruction of known stockpiles, is the need to build capacity both to destroy additional stockpiles as they are discovered, and to eliminate continued importation of illegal POP pesticides”*

The project Results Framework identified clearly the problems to be addressed, out of which the most significant were:

- At the time of project starting, in Vietnam a country wide standard for the management and destruction of POPs and for the remediation of POPs contaminated sites was not established;
- Low allocation of national funds resulted in few stockpiles being destroyed;
- No qualified agency was available to provide excavation, re-packaging, temporary storage, transportation and sampling/testing services;
- Storage facilities for handling and store illegal pesticides were of very low capacity;
- Staff of government agencies was not trained in appropriate technologies and application of standards and guidelines;
- Custom officers have a very low awareness on how to prevent illegal import of pesticides;
- No facility was tested and licensed to destroy POPs;
- Updated inventories and management system for POPs stockpile were missing;
- No sectorial or ministerial plan existed to incorporate specific activities associated with sound management, reduction and elimination of POPs;
- Lack of communication strategies and very low awareness on the issue of POP pesticide stockpiles
- Lack of technical and managerial guidelines governing treatment of contaminated sites and the management of empty pesticide containers.

4.3. IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROJECT

The project had the immediate objective to destroy POP pesticide stockpiles and to prevent release of POP pesticides in the environment. This objective, initially set as an amount of 1,140 t of POP pesticide stockpiles to be destroyed from five sites, was initially revised at inception, and was again readjusted as a consequence of the mid-term evaluation. The consolidate project objective is as following: *“At least 7 sites with 1,000 tons of highly contaminated POP waste/stockpiles will be treated, impact on human health relieved”*. No target has been set for the amount of POPs contaminated soil to be contained.

Clearly, this objective cannot be achieved in an Environmentally Sound way, and in a sustainable manner without establishing at the same time a number of development objectives. Therefore the project established the following key development objectives:

- On the side of capacity building, the project established the objective to 1) develop Technical guidelines and managerial guidelines on POPs waste management (output 1.4); Train staff of governmental agencies in appropriate technologies and application of standard and guidelines (output 1.6.); develop communications plan including awareness raising (FAO 1.10 design phase); establish National Chemical Safety Standards (output 3.1); train line agency staff in management of POP pesticides.
- On the side of development of technologies and establishment of disposal capacity, the project facilitated the licensing of company to carry out disposal of POPs, and conducted the testing of disposal facilities (output 2.1); the project also envisages mid and long-term actions to be undertaken for the coming 10 years (output 2.4).
- On the side of development of regulation and guidance, the project envisaged the establishment of a data set with all available inventory data (output 1.2), the revision and development of legal document (output 1.7), the development of National Chemical Safety Standards (output 3.1),

4.4. BASELINE INDICATORS ESTABLISHED

The following baseline indicators were established in the original project document:

Project Objective: By the end of the project, the inventory of sites with POP pesticide stockpiles in Vietnam contains no sites posing known or potential threats to human health.

Outcome 1:

- Within 9 months of the start of project implementation, international standards have been adopted for management of pesticide stockpiles
- From 2008 onwards, government expenditure on destruction of POP pesticides is at least \$600,000 (until stockpiles destroyed).

Outcome 2:

- By the middle of 2011, all known stockpiles destroyed.

Outcome 3:

- By the end of the project, the volumes of illegal pesticides confiscated are no more than 2 tonnes per month (based on equal level of effort).

These indicators were specified with more details at inception as in **Table 3**. These indicators represented the reference for evaluating project performance and the achievement of objectives.

Table 3: List of project indicators by output

Outcome output	Description	Indicator at inception
1	Improved capacity facilitates elimination of POP pesticides stockpiles	
1.1	List of POP pesticides disposal and soil remediation companies	Existence of potentially qualified and licensed national and international companies besides Holcim; Expression of interest received from potentially qualified and licensed national and international companies
1.2	One data set with all available inventory data	Data sheets of sites and a data system for easy uploading of data, extracting information and data storage. To be used in next phase of the project and in the future to store all new and updated site data
1.3	List with priority sites in categorizes	Site data base containing data on environmental and human health risks and risks of contaminant migration; Data base with all the POP pesticides sites accessible and data stored consistently
1.4	Technical guidelines and managerial guidelines on POPs waste management	Appropriate and cost effective short, mid and long-term actions; Description of standard rehabilitation plan for each category that can be used for budgeting and time planning
1.5	Specifications of tender document including detailed Conceptual Site Model (CSM), rehabilitation plan with budget estimates of a limited number of priority sites (FAO input as de 1.1)	Complete CSM per site including pictures, drawings and analytical data including a detailed risk assessment; Completed standard rehabilitation plan supplemented with site specific rehabilitation aspects, estimated budget for each site. A contractor should be able to make a bid, and cost estimate based on standard rehabilitation plan

Outcome output	Description	Indicator at inception
1.6	Staff of government agencies is trained by experienced trainer(s) on POP pesticides site clean-up	CV details are in line with the TOR for the trainer; Staff of government agencies is trained in appropriate technologies and application of standards and guidelines for site assessment including soil survey. Project team and PM are also prepared to manage site clean-up campaigns
1.7	Legal document revision and development	Contribution to the legal document revision and development is issued and appreciated by MONRE
1.8	Monitoring plan for disposal of stockpiles	FAO guidelines are available. Adaptations made if necessary; Existence of a monitoring plan
1.9	Communications plan including awareness raising (FAO 1.10 design phase) in activity as stated in original project document confirmed in FAO results framework to GEF	A feasible and effective communication plan is made. Regular (quarterly) coverage of project events
1.10	Two EOI and Tender Documents, TORs short lists of competent companies, RFPs and Two companies are contracted	Letters of EOI of at least five companies for each contract; TORs are written and approved by PMU; Tender Documents written and approved by PMU; Profile of shortlisted companies; RFPs are sent to shortlisted companies; Two contracts fulfilling the project objectives within the project budget.
2	At least 5 sites with a minimum of 1,140tons of POP pesticide stockpiles and pits are rehabilitated, stocks are destroyed and impacts on human health relieved at these sites within budget limitations	
2.1	Selected company is licensed to handle and destruct POP pesticides	Company is performing a test for obtaining license
2.2	Acute risks are eliminated at selected priority sites on the short-term	Approved completion document in line with project document
2.3	Potential and latent risks are reduced and contained and aftercare and monitoring program is delivered for the selected priority sites	Approved completion document in line with project document
2.4	Mid and long-term actions are allocated for the coming 10 years and implemented	Transfer documents are signed and local competent staff is trained
3	Improved chemicals management prevents importation and use of POP pesticides	
3.1	National chemicals safety standards	Adoption of national chemical safety standards
3.2	Line agency staff trained in management of POP pesticides. FAO can support if required	Completion of training courses
3.3	A compendium of legal documents on POP pesticides management	Dissemination of compendium
3.4	Task forces between Vietnamese border provinces and their Chinese, Laos and Cambodian counterparts	Task forces functioning
3.5	Facilities for handling and storage of confiscated pesticides at key border sites	Volume of storage facilities at selected sites

4.5. MAIN STAKEHOLDERS

The main stakeholders of the project were the following:

- Ministry of Natural Resources and Environment and the Vietnamese Environmental Administration (MONRE/VEA);
- Ministry of Agriculture and Rural Development (MARD);
- Ministry of Health (MOH);
- Ministry of Industry and Trade (MOIT);
- Vietnam Chemical Corporation (MOIT/VCC);
- Ministry of Planning and Investment (MPI);
- Ministry of Finance (MOF);
- Ministry of Education and Training (MOET);
- People Provincial Committees (PPC) of Nghe An and Ha Tinh;
- Non-Governmental Organization, Private Sector and Community-based organizations, Farmers.

4.6. EXPECTED RESULTS

The following were the expected outcomes of the project, consolidated after inception and mid-term evaluation:

Outcome 1: Improved capacity facilitates elimination of POP pesticide stockpiles. This outcome was achieved through the delivery of the following outputs:

- List of POP pesticides disposal and soil remediation companies;
- One data set with all available inventory data;
- List with priority sites in categories;
- Technical guidelines and managerial guidelines on POPs waste management;
- Specifications of tender document including detailed CSM, rehabilitation plan with budget estimates of a limited number of priority sites;
- Staff of government agencies trained by experienced trainer(s) on POP pesticides site clean-up;
- Legal document revision and development;
- Monitoring plan for removal and disposal of POPs waste / stockpiles drafted, approved and disseminated;
- Communications plan including awareness raising (FAO 1.10 design phase) in activity as stated in original project document confirmed in FAO results framework to GEF;
- Output 1.10: Three EOI and Tender Documents, Tor's short lists of competent companies, RFPs and Three companies are contracted.

Outcome 2: At least 7 sites with 1,000 tons of highly contaminated POP waste/stockpiles will be treated, impact on human health relieved. This outcome was achieved through the delivery of following outputs:

- Selected company is licensed to handle and destruct POP pesticides;
- Acute risks are eliminated at selected priority sites on the short-term by removing POPs waste from the site. Potential and latent risks are reduced and contained and aftercare and monitoring program is delivered for the selected priority sites;
- Mid and long-term actions are allocated for the coming 10 years and implemented.

Outcome 3: Improved chemicals management prevents importation and use of POP pesticides, this outcome was achieved through the delivery of the following outputs:

- Adoption of national chemical safety standards;
- Completion of training courses;
- Dissemination of compendium;
- Task forces functioning;
- Volume of storage facilities at selected sites;

The detailed analysis of expected versus attained results is reported in **section 5.6** of this document.

5. FINDINGS

5.1. PROJECT DESIGN / FORMULATION

5.1.1. Relevance of the project, project output and indicators to the GEF strategic objectives and to the national priorities.

(1): An analysis of relevance of the project with regard to the GEF4 Strategic Objectives, the Stockholm Convention objectives and the environmental policies of the country was already carried out at mid-term evaluation (Carlo Lupi, 2012): at that time, the evaluators considered the project very relevant to national priorities and GEF strategies, even considering possible changes in context.

None of the changes introduced after mid-term evaluation altered the main objective of the project or of project components, instead these changes were aimed at a more effective and timely achievement of the project objectives. For the above reason, the relevance of the project should be considered Highly Satisfactory.

5.1.2. Analysis of LFA/Results Framework (Project logic /strategy; Indicators)

An analysis of the Logical Framework Approach (LFA)/Results Framework was already carried out during the mid-term evaluation. It has to be recalled that, compared to the original Logical Framework, changes in the project outcomes / outputs were introduced at Project Inception (MONRE - Ministry of Natural Resources and Environment, October 2010) to enhance the internal coherence of the project, the consistency of project activities with the objective to eliminate acute risk and reduce long-term risk at POP contaminated sites, and to increase project feasibility and measurability.

In general, these changes were considered reasonable and intended to simplify project management and avoid overlapping among activities.

At mid-term, the fact that there were 2 different results frameworks, one for the UNDP components and a second one for the FAO components of the project, introduced obvious complexities in the management. Therefore, it was suggested to consolidate the 2 different frameworks in a common result framework, aimed also at solving some inconsistencies related to the POPs disposal targets. The revised result framework was approved by UNDP regional office on September 20, 2013. The revised result framework is reported in **Table 8**

5.1.3. Assumptions and Risks

The project document identified a number of risks and related mitigation measures (

Table 4). Almost all the identified risk and countermeasures were reasonable and correctly anticipated the main challenges for the project and the corrective steps. At the light of the results achieved at project completion, is worth noticing for instance that one of the main project risks – the lacking of bids submitted for destruction of POP pesticides, or bids exceeding the budget – was successfully addressed by facilitating more companies in addition to Holcim in conducting the tests and obtaining a license. This resulted in the establishment of a market for disposal services which eventually reduced the disposal cost. This approach should be considered as a success story for the project, to be replicated in new projects.

The only anticipated countermeasure which proved not fully relevant was the one related to the bio-remediation technology. Indeed, a bio-remediation technology (Daramend) was tested under the project, together with a Zero-Valent Nano Iron technology. It was suggested at project drafting, to exchange information with an Indian team with experience on bio-remediation, however this was not the case or there are no available information on this exchange. The risk which was not anticipated during project drafting concerned instead the reliability of the sampling and analysis testing of in-situ technologies, which actually represented an obstacle to the successful conduction of technology tests. Uncertainties in analytical results made the assessment of

technology effectiveness difficult. This aspect may be considered as a lesson learned to be considered in the drafting of new projects.

Table 4: Risk and Mitigation Measures identified in the original Project Document.

Risk	Risk Mitigation Measure
Existing inventories have significantly under-estimated total stockpiles, and post-project funding is inadequate to eliminate newly-found stockpiles.	Both the NIP and PDF-B inventories targeted provinces known to have been the location of large POP pesticides historically. Government funding for treatment of chemical "hotspots" has been increasing in recent years
During project implementation, standards specified by the project document are not adhered to.	The project will utilize independent monitors to ensure that international standards for handling, re-packaging, transportation and destruction are adhered to
No acceptable bids are received for destruction of the POP pesticides within Viet Nam, or bids are more expensive than budgeted.	Based on previous testing, it is believed that acceptable facilities exist, and that the costs likely to be quoted fall within the budget figures used. In the event that no acceptable facility is found, options for export of the POP pesticides to a suitable hazardous wastes facility will be explored. In the event that the costs of export exceed the budget for Output 2.5, or acceptable bids quote substantially higher prices, project interventions under Outcome 3 will be down-scaled in order to move financial resources to Outcome 2. In this case, the Government of Vietnam will also be invited to reconsider its co-financing contributions.
Environmental and human health issues associated with transportation and destruction of POP pesticides	Inevitably there are risks associated with excavation, transportation and destruction of POP pesticides. These risks apply no matter what destruction technology is selected. The call for tenders following international accepted guidelines will minimize these risks, which are considered lower than the risk of future environmental and human health problems if the pesticides are left untreated.
Lack of stakeholder acceptance (local, national) for selected destruction technology	The Peoples Committee will handle the permit application officially and involve local experts and local people. They will also appoint stakeholders who must be involved in the entire process, including Central Government official and academia experts. The project will also involve the best international experts available, for technical feasibility approval, technical design criteria, supervision and reporting of the project. Output 1.9 will support a process of stakeholder communication to build support for the destruction of POP pesticides
Reputational risk to UNDP and the GEF if the project fails	Project facilitates the final step on establishing national capacities for hazardous waste destruction according to international standards. This is one of the obligations under the Basel Convention, stating that if a sovereign nation has the capacity to destroy a toxic chemical within their national borders, they are obligated to do so. By the fulfilment of international standards, the project will set new national standards for other existing facilities and create strong incentives for these facilities to achieve the same standards
Novel bio-remediation technologies prove not to be fully effective in eliminating POP pesticides.	Exchange of lessons learned with a team developing similar technologies in India will improve the quality of the novel technologies. The biochemical basis of bio-remediation is not inherently better suited to dioxins than to POP pesticides

The project documents listed the following assumptions adopted for the achievement of the project Outcomes and objectives:

- External changes do not affect the viability of selected technologies;
- Improved capacity addresses the demand-side dynamics for use of POP pesticides;
- Government maintains Decision 1946 on funding;
- Government maintains application of international standards to minimize potential impacts on human health;
- Mainstreaming POP pesticides into improved chemical management eliminates illegal importation.

In general, all these assumptions proved correct. The government continued in its policy to fund remediation of contaminated sites, mainly through the financial mechanism established under the NTP Decision 1946.

The tight relationships between PMU and the relevant ministries (MONRE and MARD) ensured proper communication and government commitment on the application of international standard. On the side of import of illegal pesticides, the improved capacity ensured through training partially reduced the illegal importation of pesticides, which however, based on recent information brought in the baseline of a new GEF /UNDP project (GEF, 2014) is not completely eliminated

5.1.4. *Lessons from other relevant projects (e.g., same focal area) incorporated into project design*

The lessons from other relevant projects incorporated into project design were limited, as at the time of project drafting few similar projects were completed. Therefore, only the ongoing Global Medical Waste program (GEF 1802) and the pipeline project on Dioxin hotspots (GEF 3032), both at preparation stage at the time, were mentioned. These two projects were implemented during the same period of this project, and the mutual exchange of experience and expertise was particularly relevant with the Dioxin hotspot project, especially on the side of assessment of disposal technology.

5.1.5. *Planned stakeholder participation*

The project envisaged the involvement of quite a significant number of stakeholders. Involvement was planned for the Ministry of Natural Resources and Environment and the Vietnamese Environmental Administration (MONRE/VEA); Ministry of Agriculture and Rural Development (MARD); Ministry of Health (MOH); Ministry of Industry and Trade; Vietnam Chemical Corporation (MOIT/VCC); Ministry of Planning and Investment (MPI); Ministry of Finance (MOF); Ministry of Education and Training (MOET); People Provincial Committees (PPC) of Ha Tinh and Nghe An; Non-Governmental Organization (NGO), Private Sector and Community-based organizations and Farmers.

The planned stakeholder participation was confirmed in the course of project implementation for the key stakeholders. MONRE/VEA and MARD, Plant Protection Departments, DONRE, were key project players in charge of implementing the UNDP and FAO project components, being at the same time the key project beneficiaries. Limited consultation with NGO was undertaken by the project. However the project established solid roots with the local communities benefitting from project activities.

5.1.6. *Replication approach*

At project design, it was optimistically stated that *“As the project will eliminate all existing stockpiles of POP pesticides in Vietnam, and associated contaminated sites, replication in Vietnam is not necessary. The efforts from the pilot programme for site-remediation however would be replicated to other sites within the country as it is expected that the benefits of the rehabilitated sites will attract other communities to emulate similar efforts”* The statement derived to the assumption – which was revised at inception – that POP pesticide stockpiles and POP pesticides contaminated sites have to be considered separately. Indeed, the project established a sound framework for replication for the remediation of POP pesticides contaminated sites and the disposal of POP pesticide stockpiles. More abandoned stockpiles and consequently POP pesticides contaminated sites were found, even in the course of the terminal evaluation mission, demonstrating the need for a sound replication approach, which indeed was pursued in the course of project implementation.

5.1.7. *UNDP and FAO comparative advantage*

Only a limited analysis of UNDP and FAO comparative advantage were included in the original project documents.

As from the GEF Council Document on “Comparative Advantages” of the GEF Agencies, *“UNDP’s comparative advantage for the GEF lies in its global network of country offices, its experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and*

community participation. UNDP assists countries in promoting, designing and implementing activities consistent with both the GEF mandate and national sustainable development plans. UNDP also has extensive inter-country programming experience.”

In the same document it was mentioned that “UNDP’s National/Sectoral policy and planning to control emissions of Ozone Depleting Substances (ODS) and POPs priority area supports international cooperation and coordination, as well as identification of cross-convention synergies, for improved chemicals management. In addition to UNDP’s core sound management of chemicals program, this priority area brings together the work of UNDP as an Implementing Agency supporting the compliance objectives of the Montreal Protocol on Substances that Deplete the Ozone Layer and the Stockholm Convention on Persistent Organic Pollutants”

Concerning FAO, the GEF Document on Comparative Advantages states that “FAO provides technical advice and support to the multilateral environmental agreements, including the Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change (UNFCCC), including the Kyoto Protocol, the UN Convention to Combat Desertification (UNCCD), and the Stockholm Convention on Persistent Organic Pollutants (POPs),

Based on updated information gathered from the GEF website (www.thegef.org) UNDP is currently managing a portfolio on POPs totalling to 122 MUSD GEF grants, including projects under implementation and projects endorsed by the GEF CEO. The agency completed projects on the POPs focal area for an overall amount of 33 MUSD.

FAO is currently managing a portfolio on POPs totalling to 18 MUSD, including projects under implementation and projects endorsed by the GEF CEO.

On the basis of the above it can be affirmed that, beside the technical aspects of the project, the competitive advantages of UNDP and FAO perfectly fit the developmental and environmental features of the project.

5.1.8. Linkages between project and other interventions within the sector

Except for the National Implementation Plan, which identifies as second priority action “Safe management, disposal and phase-out of POP pesticide stockpiles”. In the project document, linkage with other GEF intervention in the sector were not identified. Linkage were instead identified with the following activities undertaken by the Vietnamese government:

- Initiative by MARD to destroy POP pesticide stockpiles and related fund allocation (VND 5.144 billion)
- Initiatives by MONRE to destroy POPs pesticide stockpiles and remediate contaminated sites under “Decision 1946” and related fund allocation (VND 2.8 billion)

In the course of project implementation, however an important linkage was established with the GEF / UNDP project on Dioxin hotspots (GEF ID 3032). The “Dioxin Hotspots” project shared with the project under evaluation the same need to identify and test POP pesticides disposal technologies, and an exchange of experience and expertise was ensured among.

5.1.9. Management arrangements

The project management is constituted by:

- A Project Steering Committee (PSC), chaired by the NSC member representing MONRE;
- The National Project Director (NPD): MONRE appointed a senior official at directorial level of VEA to be the NPD. The NPD has been responsible before the PEB for overall management and implementation of the project;
- Project Management Unit (PMU): The PMU is be responsible for the overall organization and implementation of all project activities and will be accountable to the NPD. The Project office will be located in the main building of VEA and equipped as needed by the project.

In the course of the inception workshop, a detailed RACI matrix, (Responsibility, Accountability, Consultation, Information) was developed to better clarify the management modalities.

In June 2011 an agreement was signed between FAO and UNDP clarifying the coordination arrangements between the two agencies and providing technical specification for the activities to be carried out under the separate FAO budget (1).

In that agreement it was also specified that “the National Project Steering committee included only representatives from government with neither GEF agency being represented. The principal forum for discussion on project implementation was the Project Management Unit (PMU). It is through communication with PMU that the two GEF Agencies formally meet with government to review progress and future work plans.”

Further management arrangements, specifying coordination modalities in the preparation of the milestone reports to be submitted to GEF were defined in the FAO-UNDP agreement.

A separate agreement among FAO and MONRE, based on the FAO PD, was signed on July 2011 (30)

The different contribution coming from international experts have been properly integrated with the coordination of PMU into guidance tools which have being used during project implementation and which have been transposed into regulatory documents.

5.2. PROJECT IMPLEMENTATION

5.2.1. Adaptive management (changes to the project design and project outputs during implementation)

The adaptive management of the project is likely one of the success story of this project. At inception, it was already clear that changes were needed due to the new information gathered on the inventory of POP pesticide stockpiles, from the project inception report (MONRE - Ministry of Natural Resources and Environment, October 2010): *“The project document was submitted in 2007 and approved at the end of 2009. The project implementation was prepared early 2010. Between 2007 and 2010, more information on the actual situation concerning the number and environmental hazard of POP pesticides sites with buried pesticides was revealed, sites were (partly) cleaned-up and the legal framework changed.”*

As mentioned in the mid-term evaluation report, beneficial changes in the regulatory context occurred:

- In October 2010 government of Vietnam (Government of Vietnam, UNDP, FAO, GEF, 2009) issued the decision 1946 /QĐ-TTg, *“Approving the Plan to treat and prevent environmental pollution caused by pesticide stockpiles all over the nation”*;
- In September 2012, right before the starting of this MTE, with the decision 1206/QĐ the government approved the National Target Plan (NTP) (MONRE - Ministry of Natural Resources and Environment, 2011) and allocated 1,010 billion Vietnamese Dong (around 48,475 million USD) specifically for the purpose of the disposal of obsolete pesticides and clean-up of sites contaminated by pesticides.

Compared to the original Logical Framework, changes in the project outcomes / outputs were introduced at Project Inception (MONRE - Ministry of Natural Resources and Environment, October 2010) to enhance the internal coherence of the project, the consistency of project activities with the objective to eliminate acute risks and reduce / contain long-term risks at POP pesticides contaminated sites, and to increase project feasibility and measurability. However these changes did not completely solved some of the intrinsic complexities of the project.

Therefore, in compliance with MTE recommendations, the result framework and the project indicators were simplified and consolidated, facilitating the management of the project in its final stage; and an international consultant to assist the PMU in drafting up to date technical guidelines on site remediation was recruited after MTE.

At MTE the need of a more explicit inclusion of the issue of remediation of sites contaminated by POP pesticides, as many POP stockpiles indeed resulted in the contamination of soil and infrastructures, became clear. The MTE therefore sought for a shift from a project apparently oriented mainly at stockpile management toward a project more oriented at the Environmentally Sound Management (ESM) of POP pesticides waste and POP pesticides contaminated sites:

“...it is clear that the main scope of the project, since the very beginning and from the point of view of both substantial and legal standpoint², concerns POPs waste and POPs contaminated sites, and not POPs pesticide stockpile.”

Other important changes in the project related to the use of inventory tools. Initially, under the project, a number of tools for the inventory of stockpiles were developed, like the Blacksmith (Blacksmith Institute (prepared for FAO), 2012) System or the software developed by Hatfield. These software were installed at MARD mostly to address the issue of inventory of Stockpiles. However, MONRE felt the need to have a more user-friendly software for the collection of data related to contaminated sites, to be used by local administration (DONRE or PPC) even in the absence of complete monitoring data. That resulted in the development of a web-based

² It has to be recalled the fact that in the Vietnamese legislation, the term “pesticide stockpile” is widely used to refer to the storage of pesticide waste.

software which may be accessed by the local authorities to enter information related to their contaminated sites. The web portal is available at <http://caithienmoitruong.vea.gov.vn:9000>.

The words of the international consultant in charge of assisting PMU in the last stage of the project perfectly summarize the capacity of the project to promote and adapt to the changing context in Vietnam, whilst ensuring compliance with GEF and Stockholm Convention objectives:

“The beauty of this project is that goes hand in hand with legislation. The concept went really into the organization of the country. That’s a program-wise approach.”

Finally it is worth noticing that the project also generated relevant changes which will positively affect the implementation of future plan and programs:

- The guidelines on the five phases of the Sustainable Management of POP pesticides contaminated sites will be integrated, has been introduced into the draft circular on pollution mitigation and environment improvement and is planned to be issued by the Ministry of Natural Resource and Environment in September, 2015;
- The licensing of additional disposal plants for the destruction of POPs waste not only increased the country capacity for POPs elimination, but also had the effect to decrease disposal cost.

Therefore, the project not only adapted successfully to the need for changes emerged during project implementation, but also generated changes which will positively affect the implementation of future actions.

5.2.2. Partnership arrangements (with relevant stakeholders involved in the Country/Region)

The original institutional design of the project was as following:

- MONRE is the implementing partner of the project. However, for the components implemented by FAO, the counterpart institutions was MARD with its PPDs;
- For the GEF budget portion granted through UNDP, MONRE was responsible for financial management and applied initially the National Execution (NEX) modality for project implementation. From July 2010 to the end of project, the “Harmonized Project and Program Management Guidelines” (HPPMG) were applied;
- For the GEF budget portion granted through FAO, the FAO’s direct management modality has been applied, and FAO has been responsible for the financial management and reporting as required legally.

5.2.3. M&E: design at entry and implementation (*)

Monitoring and Evaluation (M&E) activities followed strictly the UNDP and FAO rules for project monitoring, GEF rules on project evaluation, and Donor’s and Vietnam Government’s regulations on reporting and M&E procedures.

In the original project document, a full section was dedicated to the project M&E modalities. In summary, the project document established that *“Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures, Decree 131/2006/ND-CP and Circular 04/2007/TT-BKH of the Government and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Section II, Part II provides performance and impact indicators for project implementation along with their corresponding means of verification. These will form the basis on which the project’s Monitoring and Evaluation system will be built.”*

In the FAO/UNDP agreement (FAO, June 2011) was stated that *“All project progress reporting will be carried out in accordance with the policies and procedures of the respective GEF agencies. All project progress requirements to GEF will be coordinated and supported by UNDP as principal GEF agency of the project. It was agreed during the inception phase that FAO would provide inputs during the preparation of all progress reports submitted to the GEF and that any evaluations of the project would include inputs from the FAO evaluation office for the mid-term and final evaluation that are led by UNDP GEF Resources.”*

5.2.4. Feedback from M&E activities used for adaptive management

In summary, feedback from M&E activities occurred at different stages:

1. Starting from the inception workshop, which, among others, had the objective of “*reviewing the log frame (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.*”
2. Continuously, in the course of project implementation, through the preparation of Annual Work plan, Quarterly Progress reports and/or Progress Implementation Report (PIR);
3. Through the assignment of independent experts to carry out revision of project activities (COOKE, 2012);
4. Through the mid-term evaluation (Carlo Lupi, 2012);
5. By means of the current terminal evaluation.

As already explained in this report, the feedback from all the M&E activities were crucial for this project. Relevant indications and feedback were collected from all the M&E activities as following:

1. First revision of project timeframe and result framework at inception;
2. Indication on project scope and as from the “Project Review and Adjustment Recommendations” which were fully considered at MTE;
3. Suggestion from the MTE, which were accepted and implemented

5.2.5. *Feedback from project inception*

Compared to the original Logical Framework, changes in the project outcomes / outputs were introduced at Project Inception (2) to enhance the internal coherence of the project, the consistency of project activities with the objective to eliminate acute risks and reduce long-term risks at the POP pesticides contaminated sites, and to increase project feasibility and measurability.

All these changes were reasonable and intended to simplify project management and avoid overlapping among activities. Therefore, since inception and until MTE, the result framework proposed at inception (MONRE - Ministry of Natural Resources and Environment, October 2010), the inter-agency agreement between FAO and UNDP (FAO, June 2011) and the UNDP (Government of Vietnam, UNDP, FAO, GEF, 2009) and FAO (FAO, April 2011) (FAO, July 11, 2011) project documents were the reference documents for project implementation.

5.2.6. *Project review and Adjustment Recommendation*

A detailed “Project review and Adjustment Recommendation” was prepared by Rick Cooke (COOKE, 2012) under UNDP contract, to provide an assessment of the implementation status and key issues associated with Outcome 2 of the project. Among others, the project review identified the following priorities:

- To complete the first three phases of the candidate site environmental management plans (EMPs) inclusive of cost estimates, bid books and final remediation plans;
- Reallocate urgently GEF funds to support the immediately required front end activities critical to get the project moving forward;
- To determine what POPs waste destruction technology/service provider options will be considered and what unit costs should be assumed;
- Minor adjustment to the log frame is needed;
- Ensure closer integration between the current National Target Program and the Project.

These recommendations, released before mid-term review, were generally followed by the project management and indeed contributed greatly in keeping project on track and clarifying project objectives and scope.

5.2.7. *Follow up from MTE recommendation*

At MTE, the following recommendations were proposed by the evaluation team:

1. Consolidate the logical framework revised at inception by submitting it for formal approval;
2. Focus on a number of key activities, including drafting of sound bidding documents for site clean-up, review of the bidding document for the disposal of contaminated soil, ensure that the potential bidders are compliant with bid requirement and facilitate the achievement of the necessary license by contract signature, including carrying out Proof of Performance tests;
3. Secure the fund for completing the Environmental Management Plan preparation of bidding documents, and supervision of POP tests time, allocating financial resources for international consultancy if needed;
4. Verify, by the end of 2012, the need for an extension.
5. Ensure that a single standard is adopted for treating the sites, no matter their clean-up is covered by project or governmental budgets.

Based on the outcome of the evaluation mission, and on the official management response report³, all the recommendations were carefully considered and accepted. In detail:

Recommendation 1: The project result framework was redrafted after a meeting held with counterpart to discuss about the revision of log frame proposed in Annex I of the MTE report. The proposed result framework revision was approved by UNDP regional office on September 20, 2013. The revised result framework is reported in **Table 88**.

Recommendation 2: Focus was given to above-mentioned TORs, especially TOR for the disposal of 1,000 tons POP pesticides contaminated soil, after the MTE. As already said, that lead to more companies permitted to carry out POPs disposal services.

Recommendation 3: Budget for major activities has been reviewed and reallocated until Jun 2013 and sent to GEF in Jan 2013. An international consultant to follow the project implementation after MTE was recruited.

Recommendation 4: Project extension proposal has been submitted to GEF and Government of Vietnam.

Recommendation 5: Working with VEA to institutionalize/legalize the EMP guidelines for the sustainable management of POP pesticides contaminated sites and to advocate for applying the EMP to all contaminated sites using Government budget of NTP-PMEI.

5.3. PROJECT FINANCE:

In **Table 5: Status of GEF grant expenditures in USD as of October 2015** is reported, whilst **Table 6** summarizes the GEF grant expenditures for the FAO component.

Table lists the status of co-financing achieved by sources and type.

Table 5: Status of GEF grant expenditures in USD as of October 2015

	Budget	2010	2011	2012	2013	2014	exp by 12 Oct 2015	total
Outcome 1	445,530.00	20,257.36	228,518.88	163,426.09	85,356.20	-7,517.12		490,041.41
Outcome 2	2,637,450.00	1,354.16	109,771.29	161,580.28	677,901.76	904,236.55	350,448.19	2,205,292.23
Outcome 3	562,000.00		3,850.30	60,139.47	51,051.03	84,543.78	161,653.65	361,238.23
Project management	422,600.00	60,816.08	59,028.65	69,717.45	78,673.77	54,464.09	39,307.87	362,007.91
Total	4,067,580.00	82,427.60	401,169.12	454,863.29	892,982.76	1,035,727.30	551,409.71	3,418,579.78

³ <https://erc.undp.org/evaluationadmin/manageresponse/view.html?evaluationid=5740>

Table 6: GEF grant expenditures in USD for the FAO component

Expenditure	Amount \$
Salaries Professional	26,112
Consultants	106,868
Contracts	96,682
Travel	91,918
Training	9,751
Expendable Procurement	5,066
Non Expendable Procurement	4,370
General Operating Expenses	1,060
Total Expenditure	341,826

Table 7: Co-financing budget by source and type

Co-financing source (Cash)	Amount (VND)	Amount (USD)
MONRE: Decision number 1904/QĐ-BTNMT dated 1 October 2009, the counterpart funding in cash is equivalent to	1,617,446,000	64,967
Decision number 2050/QĐ-BTNMT dated 23 September 2014 (project extension), the counterpart funding in cash was increased	1,900,000,000	76,000
MONRE counterpart funding was used for following items: <ul style="list-style-type: none"> Office expenditures (rent, utilities, phones, internet...) Expenses for experts, advisory meetings, steering committee meeting; Development of topical reports on project evaluation and management. 		
Funding for remediation of pesticides contaminated sites in provinces according to (according to National Target Program and Decision 58 and Decision 38): approximately VND 288 billion, equivalent to US\$14 million. Furthermore, provinces also provided budget and in kind support to the remediation of pesticide contaminated sites. In addition, some state funding of the Plant Protection Department spent on used pesticide containers, budget of the Ministry of Defence on research of remediation technologies, technology investment by private companies, etc.	288,000,000,000	11,520,000
Co-financing source (in kind)	Amount (VND)	Amount (USD)
According to Decision 1904/QĐ-BTNMT the in kind contribution is US\$ 62,949 which has been recorded as follows: <ul style="list-style-type: none"> o Annual funding for the implementation of Decision 1946/QĐ-TTg (2010): <ul style="list-style-type: none"> o VND 150 - 200 million for the work of Office 1946; o VND 200 million for database operation; o VND 1,092 million for science and technology funding of environmentally-sound technology of stockpile pesticides treatment (VND 250 million in 2014 and VND 200 million in 2015, will continue to 2016). 	1,442,000,000	62,949

5.4. UNDP, FAO AND IMPLEMENTING PARTNER IMPLEMENTATION / EXECUTION (*) COORDINATION, AND OPERATIONAL ISSUES

There were a number of coordination and operational issues which affected the efficiency of project implementation, particularly in the first 2 years. These were:

1. PMU faced some initial issues in understanding how to coordinate the sometime overlapping activities carried out by international experts recruited by the two agencies, with special reference to the drafting and approval of TORs for services and technical assistance;
2. There were some difficulties related to the management of two separate budgets with different reporting obligations, and the understanding of the FAO-UNDP agreement requirements was not properly communicated with the PMU staff;
3. There was the need to strengthen and clarify the official involvement of DONREs and PPDs.

The above issues however did not affect significantly the achievements of project outcomes and outputs. Meeting with the representatives of both agencies confirmed that the difficulties faced in the initial stage of the project had the result to increase the mutual understanding of FAO and UNDP implementation modalities, strengthen the relationship between the two agencies in Vietnam.

5.5. PROJECT RESULTS

5.6. OVERALL RESULTS (ATTAINMENT OF OBJECTIVES) (*)

A detailed analysis of the project results (in term of outcome and outputs) of the project is reported in the **Table 8** below. The analysis is based on both information provided by the PMU and consultation of relevant technical documents. In addition to technical reports, quarterly reports and annual reports available for the whole project duration were considered **reports of** (MONRE, 2010), (MONRE, 2011), (MONRE, Quarter 1 - 2012), (MONRE, Quarter 2 - 2012), (MONRE, Quarter 3 - 2011), (MONRE, Quarter 3 - 2012) and integrated with information provided by PMU.

Further, the analysis of project results provided by FAO (FAO, 2012) for the activities carried out under the FAO separate budget was duly considered.

Table 8. Rating of the Relevance, Efficiency and Effectiveness of Project Outcome and Outputs

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
1	Improved capacity facilitates elimination of POP pesticides stockpiles			MS	4	2	3	3	Unchanged		HS	4.9	3.8	4.6	4.4
1.1	List of POP pesticides disposal and soil remediation companies	Existence of potentially qualified and licensed national and international companies besides Holcim; Expression of interest received from potentially qualified and licensed national and international companies	The only listed licensed company was Holcim. The information as of today seems not complete or useful as it does not includes companies that may have been authorized at provincial level, or other international companies/technologies. This study should also have clearly identified permitting procedures for establishing disposal plants in the country.	MU	3	2	2	2	Unchanged	A test burn on one incinerator and one cement kiln was carried out. 2 companies were licensed for POPs disposal services. Contract for the disposal of 1,000 tons of POPs pesticide waste issued (Holcim)	HS	5	5	5	5
1.2	One data set with all available inventory data	Data sheets of sites and a data system for easy uploading of data, extracting information and data storage. To be used in next phase of the project and in the future to store all new and updated site data	In total 1,153 sites are recorded as POP pesticide sites from 4 different inventories. (see inception report, para 2.1) (11) "A clear distinction between sites with pits with pesticides and sites with stockpiles is difficult to make with the available data." Additional surveys provided information for site prioritization, and a preliminary estimate of pesticide stockpiles and waste. The sites were recorded in one single data set The site inventory carried out for the PDF-B project used hard copies of the field forms of Pesticide Stockpile Management System (PSMS), but the information on the field forms was not digitalized and uploaded into PSMS. PSMS was instead installed in MARD and people in MARD trained in its use.	S	5	4	5	4	Unchanged	On Monday 5/10/2015 a workshop to demonstrate the dataset was held. There will be a responsible for data entering within each province. The server and the gate are now integrated in the MONRE website. After project end, the dataset will be transferred to an assigned person in MONRE. An account has been sent to all DONRE managers. This represents a great progress compared to the 2010 the database which was too complicated and therefore was not used. The upgraded database follows the guidelines of the project and is in line with M&E indicators. The project established a website under MONRE. PSMS is considered more suitable for the MARD/PPD on the management of pesticide stockpile rather than for MONRE which had the task to manage contaminated sites. It has been therefore Installed at PPD.	HS	5	4	5	4.7

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
1.3	List with priority sites in categorizes	Site data base containing data on environmental and human health risks and risks of contaminant migration; Data base with all the POP pesticides sites accessible and data stored consistently	The ranking was carried out based on the information collected in the xls file (1.2) using a rapid risk assessment algorithm for Prioritization and Ranking. Reportedly the ranking was the main basis for subsequent decisions on the site: therefore it was useful and not biased by "non-scientific" considerations.	S	5	3	4	4	Unchanged	A simple scoring system based on the outcomes of site visual inspection was built. In the very early stage of the project the team tried to identify the most critical sites based on risk considerations. That was an important stage to tune up the system. The Blacksmith and the Hatfield tools were not used in that stage as they were considered unnecessarily complex. A database was established under the website caithienmoitruong.vea.gov.vn:9000	HS	5	3	5	4.3
1.4	Technical guidelines and managerial guidelines on POPs waste management	Appropriate and cost effective short, mid and long-term actions; Description of standard rehabilitation plan for each category that can be used for budgeting and time planning	A review of methodologies for Risk Assessment drafted by the Blacksmith institute under contract with FAO. Draft of the technical guideline by international and local consultants prepared with the joint effort of FAO international experts and TAUW company which drafted the guidance. (12) Technical guideline on POPs waste management. Draft guidelines are currently under review of MONRE (that would require perhaps some months). It is critical that guidelines will actually be used in a consistent way both on GEF funded site and on Govnm't co-funded sites, therefore the validation being carried out by MONRE is essential. It seems that right now few dissemination of the guidelines at provincial level has been arranged.	S	5	3	4	4	Unchanged	Started by TAUW before mid-term, The guideline was finalized in 2014 and the official document was signed by the VEA. Official documents were sent to all the DONREs. The circular for official endorsement of the guidance is under development. A further document is the Standard Operating Procedures (SOPs) for mapping and sampling. Training on SOP carried out using sampling equipment. 5 soil sampling sets delivered for the DONRE who attended the training. Strategy on empty container was developed by FAO, and piloted in 3 provinces demonstrating triple rinsing...	HS	5	4	5	4.7
1.5	Specifications of tender document including detailed CSM, rehabilitation plan with budget estimates of a limited number of priority sites (FAO input as de 1.1)	Complete CSM per site including pictures, drawings and analytical data including a detailed risk assessment; Completed standard rehabilitation plan supplemented with site specific	Delay due to larger scope of contamination, increased price for incineration, need to assess new disposal technologies. The EMPs still do not contain bill of quantities and cost estimates. It is very critical to have reliable bill of quantities and bid documents completed for a number of sites as soon as possible. Drafting of	MS	5	3	3	3	Unchanged	For each site an Environmental Management Plan has been developed. The Conceptual Site Model (CSM) is only a part of the EMP. The EMP was demonstrated in 10 sites as EMP and based on that in 6 sites a tender documents has been prepared, following the 5 stages/phases of the EMP. Bill of quantities and technical design for mid and long-term measures have been drafted	HS	5	5	5	5

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
		rehabilitation aspects, estimated budget for each site. A contractor should be able to make a bid, and cost estimate based on standard rehabilitation plan	bidding documents for site clean-up not started yet, except for the Nuicang site and related POPs waste removed which was a successful pilot (25 tons treated)							(concerning mainly structures to prevent contamination)					
1.6	Staff of government agencies is trained by experienced trainer(s) on POP pesticides site clean-up	CV details are in line with the TOR for the trainer; Staff of government agencies is trained in appropriate technologies and application of standards and guidelines for site assessment including soil survey. Project team and PM are also prepared to manage site clean-up campaigns	Regional personnel were trained in the development of site specific methodologies and their implementation at field level via an international consultant mission. Two trainings were organized in November in Ha Tinh (39 participants from 5 provinces) and in Thai Nguyen (39 participants from 10 provinces). The project, under the FAO budget, supported two government persons from WENID to participate in a training trip to Australia to visit treatment facilities and rehabilitated sites. More training on new guidelines on EMP approach is needed once these are gets approved. This task is critical for ensuring project sustainability and for the consistent application of the methodologies developed under the project.	MS	5	3	3	3	Unchanged	<ul style="list-style-type: none"> • Environmental management of POPs contaminated sites; (4 training courses totalling 160 trainees, percentage of women trainees 25%) • Sampling and mapping of contaminated sites (4 training courses totalling 116 trainees, percentage of women trainees 15%) • The training covered 15 provinces. 	HS	5	4	4	4.3
1.7	Legal document revision and development	Contribution to the legal document revision and development is issued and appreciated by MONRE	National consultant has submitted the report on Initial review of legal documents related to the POP pesticides contaminated sites. Three workshops in Nghe An, Da Nang and Ha Noi. These workshops were organized (Nghe An, Da and Hanoi). Feedbacks on the EMP have been be considered by the Tauw consultants for finalizing the EMP to be part of tender documents. The implementation plan of the national plan was approved. The	MS	5	2	3	3	Unchanged	A circular on the management of empty container was jointly issued by MARD and MONRE. The national technical regulation on the remediation target values of persistent organic pesticides according to land use (QCVN 54:2013/BTNMT) was issued. A complete guidance related to the sustainable environmental management process for POP-Pesticides contaminated sites was developed and applied.	HS	5	4	5	4.7

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
			development of technical annex containing a remediation target value for contaminated sites is ongoing. This task is very important as the current target values, not based on risk assessment concepts, are unrealistic and not enforceable.												
1.8	Monitoring plan for disposal of stockpiles	FAO guidelines are available. Adaptations made if necessary; Existence of a monitoring plan	FAO consultant developed the monitoring plan for disposal of the Thai Nguyen site (13). The plan was later reviewed by Tauw consultants and implemented at Nui Cang, Thai Nguyen site and verified with many practical details. This plan can be adapted for other sites and implemented as part of EMPs.	S	5	4	4	4	Output 1.8: Monitoring plan for removal and disposal of POPs waste / stockpiles drafted, approved and disseminated	Monitoring plan for 10 sites as a separate document which is indeed part of the EMP. (Volume 2 and 3 of the EMP guidelines) One contract for the monitoring and excavation and disposal issued.	HS	5	4	4	4.3
1.9	Communications plan including awareness raising (FAO 1.10 design phase) in activity as stated in original project document confirmed in FAO results framework to GEF	A feasible and effective communication plan is made. Regular (quarterly) coverage of project events	A FAO strategy communication document delivered (14). More communication activities await major disposal and remediation work. Communication plan developed was more on the use of pesticide than to facts related to POPs pollution. Implementation of communication plan upon PMU (ongoing)	MU	4	2	3	3	Unchanged	No major activities since MTE. A project website in Vietnamese have been developed.	S	4	2	4	3.3
1.10	Two EOI and Tender Documents, TORs short lists of competent companies, RFPs and Two companies are contracted	Letters of EOI of at least five companies for each contract; TORs are written and approved by PMU; Tender Documents written and approved by PMU; Profile of shortlisted companies; RFPs are sent to shortlisted companies; Two contracts fulfilling the project objectives	The work package for Nui Cang site in Thai Nguyen province was put in the tendering plan for 2011. By April 2011 it became clear that it would be better to have two contracts, one for transportation and incineration and the other for excavation and safe packaging. Other sites could not be quantified during surveys of 2011 because of complicated treatment methods for different grades of contamination. During those surveys it was again confirmed	MU	5	2	2	3	Output 1.10: Three EOI and Tender Documents, TORs short lists of competent companies, RFPs and Three companies are contracted	The disposal work was in the end divided into 3 packages: 1. Excavation and packaging; 2. Disposal; 3. Site rehabilitation. For each site therefore 3 contracts were signed, one for each of the items above.	S	5	3	4	4

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
		within the project budget.	that buried pesticides were no more in pure form but mixed with soils and rocks at random levels. Only few sites have pure pesticides in small quantities. EOI dropped because there was only one company qualified and licensed Bidding document for disposal of 1,000 tons already drafted under review by UNDP (4) Drafting of bidding document for excavation and transportation currently ongoing. This activity is badly late and is very critical. It should be assigned with the highest priority. Estimated UN procurement period = 6 months.												
2	At least 5 sites with a minimum of 1,140 tons of POP pesticides stockpiles and pits are rehabilitated, stocks are destroyed and impacts on human health relieved at these sites within budget limitations		Instead of 1,140 tons of POPs pesticide an equivalent goal of 1,140 tons of POPs pesticide waste should be used as relevant indicator. It is important to consider that POPs waste with a concentration greater than 50 ppm can only be disposed by means of destructive methods. The number of contaminated sites should be increased to take into account activities which are being carried out with co-financing funds.	MU	4	1	1	2	Unchanged	Based on the terminal report (3), the amount of POP pesticides destroyed totalled to more than 900 tons. As of today, however, more POP pesticide stockpiles are being identified (4) The estimation does not include the avoided release of POPs through on site containment intervention.	S	4.75	3.5	3.75	4
2.1	Selected company is licensed to handle and destruct POP pesticides	Company is performing a test for obtaining license	Presently, only Holcim has license to handle and destruct POP pesticides. Two more companies are testing and applying after test. This activity is critical	MU	4	1	1	2	Unchanged	3 technology demonstrations carried out: soil washing, Daramend and Zero Valent Nano Iron. 2 contractors granted, for excavation and packaging and the other for disposal. A first pilot performed in Tai Yuan – transportation almost 2,000 km. An international bidding for the disposal of 800 tons of POPs pesticide waste was launched. Holcim won with 1,000 USD/t Totally 900 tons were disposed of. Thanh Cong company being licensed for pesticide treatment.	HS	4	5	5	4.7

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
2.2	Acute risks are eliminated at selected priority sites on the short-term	Approved completion document in line with project document	Only one pilot site has been completed.	MU	5	2	1	2	#VALORE!	Excavation and repackaging. Demonstration of Thai Nguyen. (25 tons demonstration) The first plan developed by the project was however not considered sustainable by the PMU. There are reports on documents "Site assessment in Thanh Hoa province Nicotech". Formulators of nicotine based pesticides. They restricted the land use.	S	5	3	3	3.7
2.3	Potential and latent risks are reduced and contained and aftercare and monitoring program is delivered for the selected priority sites	Approved completion document in line with project document	Draft tender documents submitted (4).	MU	5	1	1	2	Unchanged	The situation was different from the project document therefore the organization of the activities did not fit completely the project structure. After MTE, component 2.3 was mainly dedicated to the risk management in the 6 sites. Non combustion demonstration was carried under 2.3 mainly because of budgetary consideration	S	5	3	3	3.7
2.4	Mid and long-term actions are allocated for the coming 10 years and implemented	Transfer documents are signed and local competent staff is trained	One package for mid-term remediation is being drafted. Transfer of monitoring responsibilities discussed with local governments.	MU	5	1	1	2	Unchanged	Long-term actions were mainly monitoring and aftercare, planning and capacity building like M&E, support of international cooperation, international workshop, survey capacity of the provinces, detailed surveys for 15 sites. A "Review of available remediation techniques for the remediation of POP pesticides contaminated soil, aquatic sediments and groundwater" including a Remediation technology screening tool , jointly written by national and international expert will be published by the end of the project. This will also include plan and strategies for management of pesticide contaminated site at DONRE level.	S	5	3	4	4
3	Improved chemicals management prevents importation and use of POP pesticides		By the end of the project, the volumes of illegal pesticides confiscated are no more than 2 tonnes per month (based on equal level of effort)	MS	3	2	3	2	Unchanged		S	3.6	3.5	3.75	3.6
3.1	National chemicals safety standards	Adoption of national chemical safety standards	Co-financed activity	S	4	4	4	4	Unchanged	The main output is the contribution of the law on Environmental Protection. After the law came into force the project developed a circular on pollution mitigation and environmental improvement. The circular	HS	4	5	5	4.7

Outcome output	Description	Indicator at inception	Notes at MTE	Rating at MTE	R	Eff	Ect	Tot	New description at TE	Achievements	Rating at TE	R	Eff	Ect	Tot
										includes site classification and the 5 level approach envisaged by the guidelines, and a risk based approach.					
3.2	Line agency staff trained in management of POP pesticides. FAO can support if required	Completion of training courses	Consultants selected and waiting for MONRE approval. Training on safe handling of POP pesticides (completed in July) Two training courses, totally 2 days courses Lao Cai 75 + Dong Nai 55 people trained. Security border guards people. Training report available	MS	3	3	4	3	Unchanged	The trainees under this component are mainly from the agriculture sector. Pesticide agents, farmer, PPE in 5 provinces. The training provide guidance on safety and use of PPE. Several hundred people trained. Basic training on Environmental Management Plan carried out. However, the information on this output was limited	S	4	4	4	4
3.3	A compendium of legal documents on POP pesticides management	Dissemination of compendium		MS	3	4	4	3	Unchanged	Compendium of legislation was distributed during the training	S	3	4	4	3.7
3.4	Task forces between Vietnamese border provinces and their Chinese, Laos and Cambodian counterparts	Task forces functioning	Customs agreed to put the issue in annual meetings, not make a separate meeting.	MU	4	1	1	2	Unchanged	This activity was missed as an international agreement on border control limited to pesticides was not achievable. Evaluated only for relevancy.	MS	3			3
3.5	Facilities for handling and storage of confiscated pesticides at key border sites	Volume of storage facilities at selected sites	Survey of storage and status completed. On-going negotiations with provinces on storage ownership.	MU	4	1	2	2	Unchanged	Initially it envisaged the upgrading of 5 storing facilities. 2 storages were evaluated, one in Lao Gai and another in Binh Thuan. (border with Cambodia. However the storage facilities were not upgraded	MS	4	1	2	2.3

Overall score at Mid Term Evaluation	MS	Overall score at Terminal Evaluation	HS
Score for effectiveness	MS	Score for effectiveness	HS
Score for efficiency	MU	Score for efficiency	S
Score for relevancy	S	Score for relevancy	HS

5.6.1. Relevance(*)

The high relevance of the project general objective, as well as the relevance of the specific outcomes and outputs did not change after mid-term evaluation, as all the efforts of the project team remained focused on the objectives set at inception.

At project closure, the evaluators considered the project objective still valid and relevant, and broad enough to include the limited changes in the scope of some project outcomes recommended in the mid-term evaluation report, as well as the changes introduced by the revision of the Logical Framework proposed at Project Inception.

At mid-term, the evaluators considered the project highly relevant with reference to the objective of the GEF4 focal area strategy on POPs, as well as to the objective of the GEF5 strategy. For convenience, the analysis is reported again below in table 10:

Table 9. Project relevance in the scope of the GEF4

Expected GEF4 impacts	Main GEF 4 indicators	Project relevance
GEF-supported countries have strengthened capacity for POPs management and consequently strengthened capacity for the general sound management of chemicals	Regulatory and enforcement capacity in place	Several activities related to building capacity and prevention of illegal import of pesticides carried out in Outcome 1 and 3. Activities related to building capacities in the field of POPs waste management and disposal carried out under Project Outcome 2
Dangerous obsolete pesticides that pose a threat to human health and to the environment are disposed of in an environmentally sound manner	Obsolete pesticides disposed of	The main objective of the project is to dispose POPs waste removed from the burial sites. This objective has been confirmed and strengthened at the light of new inventory data available. (Project Outcome 2)
The risk of adverse health effects from POPs is decreased for those local communities living in close proximity to POPs wastes that have been disposed of or contained	Reduced risk of exposure to POPs of project-affected people	The rearrangement of some project activities from the “re-pack and dispose” approach usually adopted for POPs stockpile, to the Sustainable management of POP pesticides contaminated sites through Environmental Management Plan for the removal of POPs waste from burial sites, remediating and containing POP pesticides contaminated soil will reduce the risk of exposure to POPs of the surrounding population. This aspect is of outstanding importance for Vietnam and highly relevant for GEF4 strategies.

By any evidence, the project is of great importance also for achieving objective listed by Objective 1 of the GEF5 Chemical strategy, as presented in table 11.

Table 30. Project relevance in the scope of the GEF5

(c) POPs releases to the environment reduced;	The removal of POPs waste from the burial sites, and the Environmental Safe Management of these sites will reduce POPs releases to the environment (Project Outcome 2)
(d) POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner; and	The main objective of the project is to dispose POPs waste removed from the burial sites. This objective is confirmed and strengthened at the light of new inventory data available. By implementing Project guidelines on Sustainable management of POP, pesticides contaminated sites, the POPs contaminated sites are managed in an environmentally sound manner (Project Outcome 2)
(e) Country capacity built to effectively phase out and reduce releases of POPs.	Several activities related to building capacity and prevention of illegal import of pesticides carried out in Outcome 1 and 3. Activities related to building capacities in the field of POPs waste management and disposal, to be done in Project Outcome 2.

None of the changes introduced after mid-term evaluation altered the main objective of the project or of project components, instead these changes were aimed at a more effective and timely achievement of the

project objectives. For the above reason, the relevance of the project should be considered Highly Satisfactory.

5.6.2. Effectiveness & Efficiency (*)

Despite a moderate delay in the completion project activities, the change introduced in the last two years of project implementation effectively solved most of the issue identified at MTE.

The following changes significantly enhanced the efficiency of the project:

- **Increase in the number of companies licensed for disposal of POPs:** At Project starting, only one company – Holcim Vietnam – had the technical and financial capability to destroy POP pesticides in compliance with the Stockholm Convention BAT and BEP. At project inception phase, the issue was noticed and potential companies willing to participate in POPs disposal activities were supported to conduct proof of performance tests to certify their compliance with SC requirements. Finally, one more company passes successfully the test and was granted with the license to conduct POPs disposal activities. As a result, Vietnam has now two companies capable and permitted to destroy POP pesticides, namely Holcim Vietnam and Thanh Cong Cement 3. This result, coupled with international bidding activity for the main contract of the Project “Disposal of 880 metric tons of POP waste” – of Outcome 2, contributed to the large reduction of disposal cost of POP pesticide by co-processing in cement kiln (from ~\$2,500 to ~\$1,100/ton). Cost reduction helped creating a reference price for management agencies in selection and planning of disposal/destruction of pesticide stockpiles.
- **International bidding.** From the financial standpoint, the efficiency of the project was also ensured through a careful and transparent procurement of activities and services (UNDP, 2013). For instance, the procurement of disposal services for 880 tons of POPs pesticide waste was carried out through an international bidding. 15 bidders from Vietnam, Germany, United Kingdom, New Zealand, Greece, Singapore, France, Saudi Arabia and Canada sent their pre-qualification application. Of these 12 were shortlisted, and 7 sent their bids. The proposals were examined by an international panel composed by UNDP staff and non-UNDP staff. The winning bidder (highest technical score and second lowest price) was awarded with a contract of 921,556 USD out of an available budget of 1,377,000 USD.
- **Development of a web-based data base for the collection of data related to POP pesticides contaminated sites and POP pesticides stockpiles.** In order to facilitate the long-term management and treatment of contaminated sites according to national plan in the Decision 1946/QĐ-TTg, the Project supported the extension and upgrade of database for stockpile contaminated sites, available at web site <http://caithienmoitruong.vea.gov.vn>. The database was completed in August 2015 and the Project organized a workshop to guide local authorities to apply it.

An increased efficiency value was therefore estimated for outputs 1.1 (List of POP pesticides disposal and soil remediation companies), 1.4 (Technical guidelines and managerial guidelines on POPs waste management), 1.5, (Specifications of tender documents) 1.6 (Staff of government agencies are trained), 1.7 (Legal document revision and development), 1.10 (Two EOI and Tender Documents, TORs short lists of competent companies, RFPs and Two companies are contracted), for all the outputs of outcome 2, and for component 3.1 (National Chemical Safety Standard). The project efficiency score therefore increased from the mid-term value of MU (Moderately Unsatisfactory) to S (Satisfactory).

As far as effectiveness is concerned, in addition to what is reported in **Table 8**, the following should be considered:

1. The project successfully achieved the disposal of 907 tons of POPs stockpile and POPs contaminated soil in compliance with BAT / BEP established under the Stockholm Convention and Basel Convention, and the containment of POP pesticides contaminated soil with a surface of around 3,480 m² and an

estimated soil volume of 5,220 m³. The disposal activity was preceded by a first pilot activity for excavation packaging, transportation and disposal of pesticide and heavily contaminated soil in Nui Cang site (Thai Nguyen province) where 25.5 tons of POP waste containing DDT and Lindane were excavated, safely packaged and transported to Holcim cement plant in Hon Chong, Kien Giang for final destruction. After that, systematic excavation and disposal work started in June and July 2013. The contractor for excavation, packaging and safe storage was Vietnam Joint Stock Company for Investment, Natural resources and Environment Technology. During the excavation and packaging, representative samples were taken and analysed to determine POP pesticides concentration by the Institute of Environmental technology belonging to Vietnam Academy of Science and Technology. An international bidding was therefore carried out for the disposal of POP pesticides, and the Holcim cement company was selected to carry out the final destruction of 880 tons of POP waste.

2. Due to the successful integration of international experts in the team, an effective technology transfer was achieved, resulting in the development of a comprehensive technical guidance document which was officially endorsed. This occurred specifically in the last 2 years of project implementation. The team worked successfully toward the definition of country-specific guidance for site remediation. Initially, the project reviewed different existing technical guidelines on the remediation of pesticides stockpiles. Under the cooperation between the project and an international consulting firm (Tauw Bv) risks-based guidelines for site management aiming at reducing risks for human health, the ecosystem and migration of contaminants were developed. The developed guidelines are articulated in five phases: (i) Preliminary site assessment; (ii) Site assessment; (iii) Site Remediation Assessment; (iv) Site remediation management; and (v) Monitoring and aftercare. The content of the technical guidelines were drafted, tested and integrated with relevant project's training courses since November – 2011. A set of Standard Operating Procedures (SOPs) was written in English and summarized in the translated version. The final technical guidelines, containing five volumes in the English version and three volumes in the Vietnamese version presenting five site management phases, were completed and published in September 2014. About 1,500 copies of the Vietnamese technical guidelines sets were printed and distributed to all the provinces in the country for application.
3. A significant achievements related to technology transfer and development of guidance document is also the works carried out by the Plant Protection Department, MARD in cooperation with FAO and project's consultants, which included the following:
 - a. Completion of the review of existing guidance and drafting a program for management of empty pesticides container, completed in the first quarter of 2013.
 - b. Conduction of the pilot program in three provinces (Hai Phong, Lam Dong and Hau Giang). Local regulations on empty pesticides container management developed
 - c. Development of the guidelines on safe management of used pesticides empty container developed, printed (2000 copies) and distributed to plant protection departments in the provinces.
4. The project completed the infrastructures for containment of POP pesticides and monitoring of Three priority sites: Hòn Trơ (completed on November. 2014), Thạch Lưu (completed on August 2014), and Mậu 2 (completed on May 2014).
5. The effective training and communication efforts pursued by the project at national and local level increased the stakeholder's participation and eventually facilitated the discovery and identification of additional POP pesticide stockpiles and disposal sites. As an example, during the site visit of the evaluator in Vietnam, a wartime storage of DDT containing an estimated amount of 40 tons of damaged DDT stockpile and 50 tons of DDT contaminated soil (Boudewijn Fokke, Đào Nhật Đình, Thanh Nguyen Quang, 2015) was found, thanks to the cooperation of local authorities.

5.7. COUNTRY OWNERSHIP AND MAINSTREAMING

The ownership of the country was found very high already at MTE. It is worth recalling that in December 2010 the government of Vietnam (4) issued the decision 1946 /QĐ-TTg, "*Approving the Plan to treat and prevent environmental pollution caused by pesticides stockpiles all over the nation*". In September 2012, right before the starting of this MTE, the National Target Plan, signed by the government with the decision

1206/QD, allocated 100 billion Vietnamese Dong (48,475 million USD) for the disposal of obsolete pesticides and clean-up of sites contaminated by pesticides.

The Guidelines for Sustainable Management of POP pesticides contaminated sites developed under the project were developed in strict coordination with MONRE and MARD, and addressed the need to identify and adopt a common methodology for all the steps of contaminated site identification, prioritization, treatment and follow-up.

The teams of expert deployed by the project – the PMU established at VEA and the FAO experts assisting MARD/PPD – worked in strict contact with the most relevant decisional authorities in charge of of planning and financing actions aimed at POPs waste management, cleaning up o contaminated site, management of chemicals

The project constituted therefore a unique opportunity to promote the necessary change in the country for a better implementation of the Country's policy on POPs waste management and disposal. In this sense, the project had a true catalytic role in ensuring the proper management of POPs waste and POPs contaminated sites, and its impact in term of technical capacity and improved regulation has been high.

Under the project, the national technical regulation on the remediation target values of persistent organic pesticides according to land use (QCVN 54:2013/BTNMT) was developed and enacted. This is the first national technical regulation on risk-based target values for the remediation of persistent organic pesticides according to different land uses purposes.

The regulation is an important reference which helps remediation tasks become more effective and realistic.

The 5-steps guidance document for site remediation had in turn introduced into the draft circular on pollution mitigation and environment improvement, planned to be issued by the Ministry of Natural Resource and Environment in September, 2015

5.8. SUSTAINABILITY (*)

Important signal of sustainability of the project achievement were already evident at mid-term evaluation, more specifically it was already considered very positive at mid-term evaluation the fact that in September 2012, right before the starting of this MTE, the National Target Program, signed by the government with the decision 1206/QD, allocated 1,010 billion Vietnamese Dong (48,475 million USD) for the disposal of obsolete pesticide and clean-up of sites contaminated by pesticides. At that time, already emerged that the government of Vietnam – at the central and provincial level – has great and urgent expectations on the guidance and outcomes envisaged by the project to implement a plan for the optimal use of the above financial resources.

The already mentioned National Target Program (Socialist Republic of Vietnam, October 2010), by allocating specific funds for the remediation of contaminated sites and areas, is one of the main pillar for the financial sustainability of project activities. At MTE, beside the allocation of funds secured through the NTP, a clear regulation on site remediation target, a common methodology for site identification and remediation, technical and disposal capacity, and a dynamic inventory system to facilitate the planning of site remediation were under way but still missing.

At MTE, it was noticed that *“Only by ensuring that the relevant technical guidance and the project know-how are disseminated and propagated among all the project beneficiaries who will have to implement the National Target Plan on pesticide contaminated sites, the impact and sustainability of the project can be secured.”*

With the activities carried out by the project in its second stage, the sustainability of actions aimed at identifying and remediating POPs contaminated sites increased for the following reasons:

- The completion, endorsement and dissemination of guidance documents on site identification, characterisation and remediation;
- Through increased awareness and technical capacity achieved through workshop and training, the local authorities are more sensitive toward the issue of contaminated sites and will more easily report information on newly found sites;

- The development, implementation, and distribution of a web-shared database will facilitate reporting from the local authorities and management and financial allocation;
- The clear rule on POPs pesticide clean-up target which have been established with the enactment of the national technical regulation (QCVN 54:2013/BTNMT) will have the effect to standardise the remediation activities

There are however further steps to be considered for improving the sustainability in the sector of POPs pesticide management and remediation of sites contaminated by POP pesticides:

- First of all, the financial resources of the local administration is generally scarce, and the provincial DONRE in most cases do not have the financial resource even to perform the monitoring in contaminated sites. This was reported during interviews conducted in the course of evaluation mission in Vietnam: the issue is serious in provinces like Nghe An where large number of contaminated sites and POP pesticide stockpiles were found, but it was also reported by other provincial DONRE visited by the evaluators (Ha Tinh and Quan Binh). It has to be remembered that as the NTP released funds upfront an equal amount of co-financing from the local administration, in the absence of provincial resources the disbursement from the central government will be also limited;
- One of the consequence of limited allocation of funds is the lacking of dedicated personnel, which was reported by all the DONRE met;
- The results of the laboratory analysis of POPs pesticides in soil was often highly uncertain or even unreliable. To ensure the correct undertaking of monitoring and remediation activities, the following is suggested. 1) the laboratory should be certified for the specific analysis requested; 2) the project staff should have direct technical knowledge on the sampling and analysis procedure and establish in agreement with the laboratory a number of check-points, usually in term of blank samples, control samples and reference standards, some of them unknown to the lab 3) Enough resources for the statistical analysis of the result should be paid by the project. The use of control laboratories performing analysis on the same samples is not recommended as in the absence of the above, it would only introduce additional uncertainty to the results.
- Effort is needed to avoid that the natural turnover of trained staff in key institutions lead to the reduction of capacity of these institution. This may be achieved by enhancing training of trainers ensuring periodical training and hand-over procedures for new staff.

6. SUCCES STORIES AND LESSONS LEARNT

6.1. CORRECTIVE ACTIONS FOR THE DESIGN, IMPLEMENTATION, MONITORING AND EVALUATION OF THE PROJECT

Although all the issues emerged at MTE were solved in the last two years of implementation of the project, the key lesson learned is that a reliable inventory of POP pesticides contaminated sites (POP pesticides stockpiles, POP pesticides waste, contaminated buildings, buried POP pesticides and contaminated soil and groundwater) is needed since the Project Preparation stage, to avoid the revision of POPs disposal target during project implementation. The general recommendation is therefore to allocate as much as possible resources at PPG stage in carrying out reliable site inventories including of POP pesticides stockpiles, POP pesticides waste, buried POP pesticides, contaminated soil and groundwater to be treated under each new project – not limited to the GEF Project Preparation Grant, but also with concrete co-financing input from the beneficiary countries.

Indeed, after some revisions, the POPs disposal target for the project did not change significantly, as it was reduced from the initial 1,140 tons of POPs stockpile in 5 sites to the final 1,000 tons of POPs waste and contaminated soil in 7 sites. Furthermore with the discovery of new stockpiles (for instance the Lam Hoa site), the amount of POP pesticides managed under the project is very close to the initial estimates.

Although in this case this issue was solved by the high commitment of GoV and local administration to solve the issue of POP pesticides contaminated sites, yet, the unreliability of POP pesticides contaminated sites inventories is possibly the highest risk for all the POP pesticides disposal projects, as in most cases the resources available for NIP drafting and update do not allow for a detailed site inventory.

Likewise, another lesson learned is how to combine the different implementation modalities, administrative procedures, traditions and missions of different UN agencies when implementing multi-agency projects. In the current case, the parallel implementation of different project components by the two agencies (FAO and UNDP) created initially some difficulties. In the end, the two agencies coordinated each one with a different reference institution for carrying out their relative activities: FAO with MARD, and UNDP with MONRE. This arrangement was eventually successful as the project was capable to deliver a more specialized support through the combination of the specific competences of the two agencies. Therefore, the lesson learned here is that multi-agency project may be recommended whenever different competencies requiring the involvement or agencies with different comparative advantages are needed under the same project – in this case, competences on disposal technologies and pesticide management. However, when more agencies are involved, sound planning, clear attribution of responsibilities, and the adoption of a single implementation modality should be sought since project drafting to avoid implementation difficulties and misunderstanding.

6.2. ACTIONS TO FOLLOW UP OR REINFORCE INITIAL BENEFITS FROM THE PROJECT

The Government of Vietnam already undertake the right steps to reinforce the initial project benefits in term of enactment of specific legislation.

The government should pay special care to the following practical aspects:

- The disbursement mechanism envisaged for site clean-up by the NTP should be possibly revised to ensure that the funds are timely effectively allocated. The co-financing rules underpinning the NTP should not represent an obstacle for low-budget provinces to receive support for their remediation activities;
- It is not recommendable to bind the NTP to a fixed list of contaminated sites, as priorities may changes each year due to new sites found. A dynamic priority list based on updated information should be maintained and linked to the NTP;
- The official endorsement of the 5-steps Guidance Documents on contaminated sites should be completed as soon as possible;
- There is the need to further strengthening laboratory capabilities on the determination of POP pesticides, by performing cross validation and inter-laboratory comparison at different sampling and

analytical stage, to understand analysis reliability and replicability, and the relative variability associated with sampling and laboratory determination;

- A guidance for conduction burn-test procedure for permitting POPs disposal facilities should be drafted and endorsed by the government. The guidance should include the determination of relevant POPs and U-POPs in all the out-stream of the facility (exhaust gas, sludge, water, fly and bottom ashes) to allow the calculation of both Destruction Efficiency (DE) and Destruction and Removal Efficiency (DRE);
- Competences on contaminated site remediation appeared fragmented among different institutions (MONRE, MARD, PPD, and MOIT). There would be good to establish a “knowledge center “ for contaminated sites, to prevent different institutions to elaborate / enact their own standard;
- There is the need to ensure that rehabilitation work carried out at sites comply with the technical specification and design, maybe by training staff from relevant authorities on remediation design and verification.

6.3. PROPOSALS FOR FUTURE DIRECTIONS UNDERLINING MAIN OBJECTIVES

To limit import of illegal pesticides, in addition to strengthen the control at the border, random inspections at market level (distribution, retailers and farmers) could help discouraging the illegal practices and eventually reduce import.

As additional POP pesticides contaminated sites will be likely discovered, there is the need to identify financial source for site remediation and clean-up beyond GEF resources.

More training of trainers should be applied to ensure sustainability of training, facilitating the participation of private operators and establishing certification schemes.

To reduce the exposure of the operators, there is the need to promote the use of adequate Personal Protective Equipment (PPE) at the same time studying how to improve tools and procedures more suitable to the local climate (hot and wet).

There is the need to ensure sustainability of the inventory tools delivered to MARD/PPD and their possible integration to the ones delivered to MONRE

6.4. BEST AND WORST PRACTICES IN ADDRESSING ISSUES RELATING TO RELEVANCE, PERFORMANCE AND SUCCESS

Through interviews and examination of documents, the following may be listed as best practices and success stories of the project:

- Development and enactment of country-specific Guidelines for Sustainable Management of POP pesticides contaminated sites;
- Drafting and enacting of regulation on POP pesticides contaminated sites, and joint circular on pesticide container management endorsed by MONRE and MARD;
- Testing of POPs disposal technologies and burn tests (although there is still the need to issue standards on technology testing);
- The tight cooperation achieved between UN agencies and government on undertaking international bidding and procurement.
- The motivation and highly collaborative environment established among PMU, international consultants and the governmental institutions;
- A good project monitoring through the periodical drafting of project reports (APR, APR, AWP, PIR).

There are no worst practices to be mentioned in the conduction of this project. The need for follow-up and proposal for future direction are listed in section **6.1 and 6.2.**

7. LIST OF PEOPLE INTERVIEWED

Name	Organisation	Address/phone
	MARD	
Huynh Tan Dat	Head of Division of Pesticide Management, Plant Protection Department, MARD	149 Ho Duc Di, Dong Da, Hanoi
Ngo Xuan Khu	Staff, Division of Pesticide Management, Plant Protection Department, MARD	149 Ho Duc Di, Dong Da, Hanoi,
Trinh Cong Toan	Head of Pesticide Inspection Division, Plant Protection Department, MARD	149 Ho Duc Di, Dong Da, Hanoi,
	UNDP & FAO	
Mr.Nguyen Song Ha	Assistant FAO Representative (Programe)	Green One UN House Building;
Ms. Truong Quynh Trang	UNDP	Green One UN House Building;
	PMU	
Mr.Boudewijn Fokke	International consultant at PMU	Dich Vong, Cau Giay, Hanoi
Mr.Hoang Thanh Vinh	Project Management Unit, Head	Dich Vong, Cau Giay, Hanoi
Mr. Nguyen Quang Thanh	Project Management Unit,	Dich Vong, Cau Giay, Hanoi
Mr.Dao Nhat Dinh	Project Management Unit,	Dich Vong, Cau Giay, Hanoi
Mr.Nguyễn Mạnh Trung.	Deputy director, Department of Finance, Environment Agency, MONRE	10 Ton That Thuyet, Cau Giay, Ha Noi
Mr.Cao Minh Tuan	Officer, Department of Finance, Environment Agency, MONRE	10 Ton That Thuyet, Cau Giay, Ha Noi
Mr.Nguyễn Anh Tuan	Stokholm Convention Focal Points, MONRE	10 Ton That Thuyet, Cau Giay, Ha Noi
Mr. Nguyen Van Duc	Hanoi Custom Office	At MONRE site
	Nghe An Province	
Mr.Hai	Farmer, Hon Trom site, Nghe An province	Nam Dan, Nghe An
Mr.Nguyen Ngoc Vo	Deputy Director, DONRE	Duy Tan, Hung Dung, Vinh city, Nghe An
Mr.Hoang Manh Chinh	Head of Division, Environment Improvement Agency, DONRE, Nghe An	Duy Tan, Hung Dung, Vinh city, Nghe An
Mr.Bach Hung Cu	Deputy Director, Environment Improvement Agency, DONRE, Nghe An	Duy Tan, Hung Dung, Vinh city, Nghe An
	Ha Tinh Province	
Mr.Nguyen Hung Manh	Deputy-Director, DONRE	Vo Liem Son, str. Ha tinh city
Mr.Dang Ba Luc	Head of Environment Improvement Agency, DONRE	Vo Liem Son, str. Ha tinh city
Mr.Pham Nguyen Duc	Head of Pollution Control Division; Environment Improvement Agency, DONRE	Vo Liem Son, str. Ha tinh city
Mr.Nguyen Manh Hung	Chairman of Thach luu Commune People Committee,	Thach Luu, Thach Ha, Ha Tinh
	Quang Binh Province	
Mr.Hao	Director, Environment Improvement Agency, DONRE Quang Binh	105 - Huu Nghi street, Dong Hoi city
Mr.Duy.	Head of Pollution control Division, Environment Improvement Agency, DONRE	105 - Huu Nghi street, Dong Hoi city

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9. ANNEXES

9.1. TERM OF REFERENCE FOR THE EVALUATION

TERMINAL EVALUATION TERMS OF REFERENCE (FOR BOTH INTERNATIONAL AND NATIONAL CONSULTANT)

INTRODUCTION

In accordance with UNDP and GEF Monitoring and Evaluation (M&E) policies and procedures, all full and medium-sized UNDP support -GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the project “Building capacity to eliminate POP Pesticides in Viet Nam” _PIM 3578

The essentials of the project to be evaluated are as follows:

PROJECT SUMMARY TABLE

Project Title:	Building Capacity to eliminate POP pesticides in Viet Nam			
GEF Project ID:	PIM 3578		<i>at endorsement</i> (Million US\$)	<i>at completion</i> (Million US\$)
UNDP Award/Project ID:	00049750/00060927	GEF financing:	4,300,800	
Country:	Vietnam	IA/EA own:	110,000	
Region:	Asia & Pacific	Government:	6,390,109	
Focal Area:	Chemicals/POPs	Other:	100,000	
FA Objectives, (OP/SP):		Total co- financing:	6,600,109	
Executing Agency:	VEA/MONRE	Total Project Cost:	10,900,909	
Other Partners involved:	FAO, MARD	ProDoc Signature (date project began): 15/10/2009		
		(Operational) Closing Date:	Proposed: December 2012	Actual: December 2015

OBJECTIVE AND SCOPE

The overall objective of this POP Pesticide project is to remove barriers to the sustainable elimination of POP pesticides in Vietnam. This project consists of the following three operational component outcomes:

- Outcome 1 - Improved capacity facilitates elimination of POP pesticides stockpiles
- Outcome 2 - All known stockpiles are destroyed and impacts on human health relieved
- Outcome 3 - Improved chemicals management prevents importation and use of POP pesticides.

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The Project, which began in April 2010 and will be completed in Dec 2015, achieved the following key results during its implementation:

1. Completion of all capacity building activities in Outcome 1; Technical Guidelines for the sustainable management of POP pesticide contaminated site have been developed & adopted in details for local use. Up to June 2015 **appx 300** Government staff (both provincial & central level) trained on the Technical Guideline Trainings also included practical field works on site inventory, soil and groundwater sampling, risk assessment and designing of contaminated site management plan. These guidelines will continue serving for the national programs on treatment of contaminated sites;
2. Up to July 2015 the GEF-UNDP-MONRE project has excavated, packaged, transported and destroyed approximately 720 tons of POP pesticide waste including stockpiles and heavily POP pesticides contaminated soil in 10 sites of Thai Nguyen, Nghe An-Ha Tinh; Additional 100 tones will be collected and treated during July-Sept 2015.
3. Appropriate risk reduction measures to isolate, control run-off, reduce erosion and implement restricted land-use have been applied to several thousand cubic meters of slightly POP pesticides contaminated soil in three sites Nghe An and Ha Tinh. The specific risk management measures include maintenance of run-off interception drains, site fencing and tree planting for long-term Containment and enhanced degradation of POP pesticides in the soil. In total approximately 5,200 m³ of low and medium contaminated soil has been contained safely;
4. On prevention of illegal importation and use of POP pesticides, the project had a number of workshops in cooperation with Customs Department and Plant Protection Department. Technical guideline on Standard Store Design for chemical & pesticides was issued. Pilot upgrading old stores for confiscated pesticides at boulder gates are also part of facility support to reduce the risks from illegal importation of chemical & pesticides. Two stores in Lao Cai and Binh Thuan provinces were repaired in line with the standard guideline;
5. 520 customs, market inspectors and local staff trained on risks of POP pesticides and pesticide empty-container management

Several on-going activities at present will contribute further to project results and sustainability at the end of the project such as: piloting non-combustion technologies (3 technologies) for treatment of contaminated soil at medium concentration interval, training on sampling and mapping contaminated sites; a database and set of M&E indicators for POP pesticides contaminated site management etc.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The main stakeholders in the evaluation process are UNDP Country Offices and relevant ministries involved in the project (Ministries of Natural Resources and Environment (MONRE)) as well as the project implementing institutions and relevant parties (MARD, FAO).

The principal objective of the evaluation is to assess the achievement of project results, and to draw lessons that can both improve the sustainability of the benefits from this project, and aid in the overall enhancement of UNDP programming.

Taking into account that a mid-term evaluation of the project was conducted in October 2012, one of the main focus of the terminal evaluation is to review the project's progress from mid to final project time and to assess whether the project have addressed and duly responded to the concerns of the mid-term evaluation accepted by the management team.

The second main focus, as a terminal evaluation is to take a final, technical and independent look at the project and its results, provide ratings in accordance with the guidelines, and provide recommendations for the project closure on ensuring sustainability and on the replication approach of the project (through a summary of what elements in the project could be replicated and shared with other countries and/or what products/lessons can be scaled-up due to their applicability and usefulness to other entities).

The results of the final/terminal evaluation will primarily be used by:

1. The UNDP CO and national project team in addressing any final steps in securing sustainability

of the project and a smooth transition for handover of the project-implemented expertise and knowledge to the national counterparts;

2. The national counterparts, to ensure that the facilities developed continue to contribute to the national goal, which is *sustainable elimination of POP pesticides and sustainable management of POP pesticides contaminated sites in Vietnam* upon completion of the project in December 2015;
3. The UNDP Unit **in charge of Stockholm Convention**, national & regional UNDP offices in dissemination of lessons learned from the project to other projects in the organizations related to POP/chemicals management and treatment under the Stockholm Convention.

The scope of evaluation includes the following principal components:

- An analysis of the attainment of national environment objectives, outcomes, impacts, project objectives and delivery and completion of project outputs (based on indicators);
- An analysis to what extent the overall global project has achieved;
- An evaluation of project achievements according to following GEF Project Review Criteria:
 - Implementation approach;
 - Country ownership/driven;
 - Stakeholder participation/Public involvement;
 - Sustainability;
 - Replication approach;
 - Financial planning;
 - Cost-effectiveness;
 - Monitoring and evaluation.

EVALUATION APPROACH AND METHOD

An overall approach and method¹ for conducting project terminal evaluations of UNDP supported -GEF financed projects have developed over time. The evaluators are required to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (annex C). The evaluators are required to amend, complete and submit this matrix as part of a draft evaluation report, and shall include it as an annex to the final report.

The evaluators shall consult with UNDP CO in the development of the methodology and evaluation approach. The methodology that will be used by the evaluators should be presented in the report in detail. It shall include detailed information on:

- Documentation review;
- Interview with related stakeholders;
- Field visits (if any);
- Questionnaires; and
- Participatory techniques and other approaches for the gathering and analysis of data.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluators are expected to follow a participatory and consultative approach ensuring close engagement with ⁵⁰ government counterparts, in particular the GEF operational focal points, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and keystoneholders.

The assessment of progress and sustainability issues also need to be looked at important project activities in the field (at least 2 sites among 10 sites) of the project and field visit is required. Travel arrangement/cost for field visits will be made/covered separately by the project.

¹ For additional information on methods, see the [Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 7, pg. 163. The evaluators will review all relevant sources of information, such as the project document, project reports

– including Annual APR/PIR, project budget revisions, mid-term review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluators considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluators for review is included in [Annex B](#) of this Terms of Reference.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the revised Project Logical Framework/Results Framework of inception report (see [Annex A](#)), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

Evaluation Ratings:			
1. Monitoring and Evaluation	<i>rating</i>	2. IA& EA Execution	<i>rating</i>
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	<i>rating</i>	4. Sustainability	<i>rating</i>
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental :	
		Overall likelihood of sustainability:	

PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluators will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US\$)		Government (mill. US\$)		Partner Agency (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants								
Loans/Concessions								
In-kind support								
Other								
Totals								

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programs. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.²

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions, recommendations and lessons learned**. Annex F gives the complete structure of the Evaluation Report that has to be written by the evaluation team. Annex G is the Evaluation Report clearance form and has to be attached to the Evaluation Report.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Vietnam. The UNDP CO will contract the evaluators (a team of 1 international and 1 national) and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Management Unit (PMU) will be responsible for liaising with the evaluators team to set up stakeholder interviews, field visit arrangement (if any), coordinate with the Government etc.

If any discrepancies have emerged between impressions and findings of the evaluation team and the above-mentioned parties, these should be explained in an annex attached to the final report.

EVALUATION TIMEFRAME

The number of working days estimated for the evaluation task is 27 days for each consultant according to the following tentative allocation:

Activity	Timing	
	Inter Const	Na. Const
Preparation (including desk review, interview questions and questionnaires if any)	5 days	5 days
Evaluation Mission + Debriefings	Appr. 10 days in Vietnam (depend on requirement of field visit)	Appr. 10 days in Vietnam (depend on requirement of field visit)
Draft Evaluation Report	5 days	2 days
Final Report (including consultation with relevant national and international stakeholders)	7 days	5 days + 5 days translating the final version to Vietnamese

The exact number of working days should be proposed in the proposed tentative work plan attached to the application/letter of interest.

² A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: [ROTI Handbook 2009](#)

Submission of first draft report is expected in **Oct 30, 2015** at the latest.

Submission of final report is expected in **Nov 30, 2015** at the latest

EVALUATION DELIVERABLES

The evaluation team is required to deliver the following:

Deliverable	Content	Indicative Timing	Responsibilities
Work plan (or Inception Report)	Evaluators provide clarifications on timing and method	-The tentative submitted as a part of application -The final work plan submitted in 2 weeks after contract signing	Evaluators submit application to UNDP CO
Presentation at debriefing	Initial Findings	End of evaluation mission in Hanoi	To UNDP CO and PMU
Draft Final Report	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	Sent to UNDP, PMU and reviewed by RTA
Final Report*	Revised report	Within 1 -2 weeks of receiving comments from UNDP & relevant parties on draft	Sent to UNDP CO, PMU and RTA for uploading.

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The final reports must be submitted to UNDP CO in electronic format, in both English and Vietnamese version. The national consultant is responsible for the quality of translation.

*When submitting the final evaluation report, the evaluators are required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

TEAM COMPOSITION

A team of one independent international and one national experts will conduct the final/terminal evaluation. Experts should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The International Consultant plays the role of a **Team Leader**, which has overall responsibility for the work and operation of the evaluation team, including the coordination of inputs from national team member. The Team Leader is responsible and overall accountable for the production of the agreed outputs. The specific duty of the international expert is described as below:

- Desk review of existing project plans, survey/ research/ evaluation reports and databases;
- Conduct fieldwork together with the national counterpart and interview stakeholders, and communities (if necessary) to generate authentic information and opinions;
- Write and compile the information and reports as needed;
- Make a presentation of key findings highlighting achievements, constraints, and make practical recommendations;
- Draft and finalize the Evaluation Report.

The Local Consultant plays the role of **Team Member**, which assists and collaborates with the Team Leader in all the tasks mentioned above including fieldwork, mission schedule/logistic arrangement in cooperation with PMU, desk-based translation, etc. and assists with interpretation in meetings/discussions during the field mission. The national consultant will be mobilized several days before the Team Leader in an effort to collect data related to the project beforehand. Specific tasks of the Team Member are as following:

- Desk review of project materials and databases in national language (Vietnamese) and process data from this documentation necessary for the purposes of the evaluation;
- Fieldwork participation together with international consultant and national counterpart. Carry out stakeholders interview and do interpretation work (if necessary);
- Write brief notes, or certain parts of the evaluation report as agreed with the Team Leader;
- Provide inputs either by written or verbally through discussions to international consultants for consolidating a presentation of key findings highlighting achievements, and constraints at debriefing;
- Contribute to draft and final Evaluation Report
- Translate the final report from English to Vietnamese

The Team Leader and Team Member must present the following qualifications:

For Team Leader:

International Consultant (Team Leader) should have following competencies and qualifications:

- Post graduate degree in development study, environmental engineering, environmental science, chemistry, bio-chemical, biology, biological science, or related fields;
- At least 10 years of working experience or technical expertise in the field of hazardous waste management, POPs waste or environmental and chemical management;
- Experience with POP contamination nature in Vietnam is desirable, knowledge on actual POP pesticides contaminated sites is strong asset;
- Knowledge of POP waste remediation technology, POPs technical issues and/or knowledge of Stockholm Convention and other related international conventions will be considered as an asset;
- Experience in project management and /or evaluation of ODA projects; Proven experience in GEF-UNDP project evaluation will be an advantage
- Proven knowledge of UNDP/GEF policies and strategies and was responsible for summarizing expert inputs and finalizing the report. Previous experience with results-based monitoring and evaluation methodologies, especially proven previous experience GEF/UNDP monitoring and evaluation policy and approaches would be preferable;
- Strong conceptual thinking and analytical skill;
- Experience as team leader of project evaluations;
- Proven proficiency in the English language, especially competent in technical English writing (through writing sample and tentative work plan provided for assessment).

For Team Member

National Consultant should have following competencies and qualifications:

- Post graduate degree in development study, environmental engineering, environmental science, chemistry, biology, biological science, or environment related fields;
- At least 5 years' experience in project implementation, management and evaluation or consultancy works for donor-funded development projects in Vietnam;
- Proven experience in the areas of environmental and chemical management. Certain knowledge or familiarity with POPs issue or hazardous waste management will be an asset; Knowledge of M&E and evaluation methodology or previous experience with results-based monitoring and evaluation methodologies. Proven past experience in conducting evaluations GEF/UNDP projects, especially environment-related projects, will be an advantage;
- Proficient English writing and communication skills, with an ability to act as translator for international counterpart and to translate written documents from/to Vietnamese are essential (*writing sample must be provided for assessment*);
- Proven team work experience through past assignments.

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the [UNEG 'Ethical Guidelines for Evaluations'](#)

PAYMENT MODALITIES AND SPECIFICATIONS

%	Milestone
20%	Final work plan agreed by UNDP CO in 2 weeks after contract signing 55
50%	Following submission of the 1 st draft terminal evaluation report with agreement of UNDP CO

30%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report
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Note: Domestic travel during field mission (if any) will be arranged and provided separately by PMU. Two separate IC contract to be issued separately for international and national consultant.

9.1. MISSION AGENDA

Oct 5, 2015 Monday	Morning: Meeting with UNDP (Ms. Trang) Afternoon: Meeting with Plant Protection Department
Oct 6, 2015 Tuesday	Morning: Meeting with Waste Management and Environment Improvement Department and. Afternoon: Travelling to Nghe An by car. Stay in Hon Tro, Dien Chau (together with Boudewin's mission).
Wednesday: 7/10/2015	Morning: Site visit at Hon Tro, meeting with local people. Afternoon: Meeting with Nghe An DONRE about project implementation
Thursday: 8/10/2015	Morning: Attend the Workshop held by Project to support Nghe An province to develop a provincial plan for pesticides environmental management. Afternoon: Meeting with Ha Tinh DONRE about project implementation Late afternoon: Travel to Lam Hoa, Tuyen Hoa dist. Quang Binh, stay there.
Friday: 9/10/2015	Morning: Site visit at a critical site (Hung Nhan cave) in Lam Hoa, Tuyen Hoa dist. Quang Binh Afternoon: Meeting with Quang Binh DONRE about project implementation and prospect for a follow up activities with the Hung Nhan cave site. (Anticipate the flight to Hanoi in the evening if possible)
Saturday 10/10/2015	Morning: Flying back to Hanoi
Monday 12/10/2015 to Thursday 14/10/2015	Stockholm Focal Point (Pollution Control Department) and working with the PMU (mr. Tuan) Meeting with the following project stakeholders (to be scheduled in detail) Meeting with FAO in Hanoi (same building of UNDP) Meeting with Custom office representatives MOF or Department of Finance in MONRE to assess co-financing aspects. NGOs involved in the project Wrap-up in UNDP including a cc with UNDP regional office in Jakarta Debriefing meeting with UNDP country representative, mr Lai and ms Trang

9.2. LIST OF QUESTIONS FOR THE INTERVIEWS.

The following list of questions was adopted as a memo for conducting interviews and for drafting the evaluation report. Not all the evaluation questions were relevant to all the interviewed persons, therefore it was upon the sensitivity and knowledge of the evaluator to select, from time to time, the questions to be asked. There are also questions that can only be addressed through qualitative or quantitative assessments of the project documents.

Section	Evaluation Question	Target stakeholders	To be assessed on documentary evidence, qualitative or quantitative assessment
Project design, planning and implementation	Was the project's design adequate to address the problems identified?	Gov, PMU	Qualitative
Project design, planning and implementation	Were the project problems to be solved in the end addressed by the project?	Gov, PMU	Quantitative
Project design, planning and implementation	Did project responses strategies and project adaptive management measures remained relevant to national priorities and GEF strategies, considering the changes occurred during project implementation?	Gov, PMU, UNDP	
Project design, planning and implementation	Are the project specific outputs and their corresponding indicators as defined in the project logical framework and design and its modification in the Inception report and after mid term evaluation still relevant in the light of the project experience?		Qualitative
Project design, planning and implementation	Did the project purposes and objectives remain valid and relevant, or are there items or outcomes in the project design that should have been reviewed and updated?		Qualitative
Project design, planning and implementation	Based on achieved results, how has been the level of coherence an inter-link between and amongst project outcomes in terms of supporting each other towards achievement of the project objectives?		Qualitative
Project design, planning and implementation	<u>Was</u> the project effective on achieving its goal of "support to sustainable development in Vietnam through the elimination of POPs from the environment"?	Gov, PMU, UNDP, beneficiaires	
Project design, planning and implementation	What were the major factors influencing the achievement/non-achievement of the project objectives/results?	Gov, PMU, UNDP, beneficiaires	
Project design, planning and implementation	Did the designed institutional arrangement for POP Pesticide Project perform effectively during the project implementation?	Gov, PMU	Qualitative
Project design, planning and implementation	Were allocated responsibilities among key stakeholders relevant and reasonable?	Gov, PMU	

Section	Evaluation Question	Target stakeholders	To be assessed on documentary evidence, qualitative or quantitative assessment
Project design, planning and implementation	Did the subjects appropriately meet the partner Government's strategies and priorities; international and country development goals and priorities; and UNDP/FAO global, regional or country programmes .	Gov, PMU, IAs	
Project performance	To what extent the project objectives have been met, taking into consideration the "achievement indicators" specified in the project document/inception report and logical framework		Quantitative
Project performance	To what extent have project results (outcomes and outputs) been achieved to date? And how have they been achieved in terms of inputs, timeliness, and cost-effectiveness?		Quantitative
Project performance	Do the outcomes/outputs complement and enhance one another, and if yes, to what extent?		Qualitative
Project performance	Did the project achieved its objectives and overall target by the end of the project?		Quantitative
Project performance	What are factors that have facilitated or deterred the achievement of project objectives;	Gov, PMU, IAs	
Project performance	How effective was the project monitoring and evaluation process to ensure the relevance and effectiveness of the activities and expected results in relation to TORs (RFP) issues, different level of work plans (AWPs an QWPs), and the required outputs? How has APR/PIR process helped in monitoring and evaluating the project implementation and achievement of results?	Gov, PMU, IAs	Qualitative
Project performance	Does the project take into consideration the likely risks in preparing AWP an QWP with the aim of mitigating negative impacts that could result from unexpected situation or change in the project environment?	Gov, PMU, IAs	Qualitative
Project performance	Was the project management arrangement appropriate to the extent of management functions, processes and procedure, in accordance with the staff capacity and reasonable workload? Is the project organization chart efficient for	Gov, PMU, IAs	Qualitative

Section	Evaluation Question	Target stakeholders	To be assessed on documentary evidence, qualitative or quantitative assessment
	conducting and managing the whole project on the technical and administrative perspective?		
Project performance	Financial accountability – extent to which the financial management has been an integral part of achieving project results, with particular reference to adequate reporting, identification of problems and adjustment of activities, budgets and inputs; and	PMU	Qualitative
Project performance	What is level of co-financing mobilized to the project till date?	PMU	Quantitative
Project impact	To determine short-term and long-term impacts of the project, including efficiency of the project and cost-effectiveness of the project on POP pesticide stockpiles elimination in Vietnam, replication and dissemination of project results within and outside project areas; awareness raised of POP pesticide among the general public and decision makers.		Qualitative
Project impact	Has the current project management strategy exploited all opportunities for strengthening collaboration and substantive partnerships with other government bodies, institutes, different associations, other donors, financial sectors with aim to maximizing achievement of projects' immediate results, and extending the project impacts in the long run beyond the end of the project timeframe?		Qualitative
Project impact	To determine how the intervention sought to mainstream gender in development efforts.		Qualitative
Project impact	To determine synergies with other similar projects, funded by the government or other donors.		Qualitative
Sustainability	Risks and assumptions that likely affect the persistence of the project outcomes, including financial, socio-political, institutional and environmental risks.		Qualitative

Section	Evaluation Question	Target stakeholders	To be assessed on documentary evidence, qualitative or quantitative assessment
Sustainability	How strong is the level of ownership of the results by the government?		Qualitative
Sustainability	Availability of financial and economic mechanism to ensure the ongoing flow of benefits once the assistance ends;	Gov, PMU, IAs	Qualitative
Sustainability	Policy and regulatory framework that will support continuation of benefits	Gov, PMU, IAs	Qualitative
Sustainability	Level of commitment from the government to ensure sustainability of the results achieved? and	Gov, PMU, IAs	Qualitative
Sustainability	How to secure changes observed in the improvement of the situation?	Gov, PMU, IAs	Qualitative
Recommendation and lesson	Success stories;	All	Qualitative
Recommendation and lesson	Problems in project implementation;	All	Qualitative
Recommendation and lesson	Lessons learnt;	All	Qualitative
Recommendation and lesson	Recommendations.	All	Qualitative