Mid-Term Evaluation of the UNEP/GEF Project Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam

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List of Abbreviations

CFL	Compact Fluorescent Lamp
DTIE	Division of Technology, Industry and Economics
EE&C	Energy Efficiency and Conservation
ERAV	Electricity Regulatory Authority of Vietnam
ESL	Energy Saving Lamp
EVN	Electricity of Vietnam
GDP	Gross Domestic Product
GEF	Global Environment Facility
GELC	Global Efficient Lighting Centre
GHG	Greenhouse gas
GoV	Government of Vietnam
GW	Gigawatt
GWh	Gigawatt-hour
ICA	Internal Cooperation Agreement
IL	Incandescent Lamp
IPCC	Intergovernmental Panel on Climate Change
ISPONRE	Institute of Strategy, Policy on Natural Resources and Environment
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light Emitting Diode
LEP 2005	Law on Environmental Protection 2005
Logframe	Logical Framework
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MOST	Ministry of Science and Technology
MTE	Mid-Term Evaluation
MW	Megawatt
MWh	Megawatt-hour
NPD	National Project Director
NSEP	National Strategy for Environmental Protection
OVI	Objectively Verifiable Indicators
PCA	Project Cooperation Agreement
PIR	Project Implementation Report
PMU	Project Management Unit
ProDoc	Project Document
PSC	Project Steering Committee
QA/QC	Quality Assurance/Quality Control
ROtI	Review of Outcomes to Impacts
STAMEQ	Standards, Measurement and Quality
ToC	Theory of Change
TWG	Technical Working Group
TWh	Terawatt-hour
UNEP	United Nations Environment Programme
VEELP	Vietnam Energy Efficiency in Public Lighting Programme
VLN	Vietnam Lighting Association
VSQI	Vietnam Standards and Quality Institute

1. PROJECT SUMMARY

Table 1. Project summary table

GEF project ID:	3755	**IMIS number:**	GFL/2328-2720-4B65 PMS: 4020-10-12
Focal Area(s):	Climate Change	**GEF OP #:**	GEF4-SP1
GEF Strategic Priority/Objective:	CC-SP1 Building EE	**GEF approval date:**	September 8, 2010
UNEP approval date:	October 10, 2011 (date of PCA between UNEP & ISPONRE)	**First disbursement:**	December 15, 2010
Actual start date:	March 27, 2012	**Planned duration:**	48 months
Intended completion date:	October 2014 (December 2014[1])	**Actual or Expected completion date:**	December 2015
Project type:	FSP Umbrella project 'Global Market Transformation for Efficient Lighting.	**GEF allocation:**	USD 2,940,000
PDF GEF cost:	USD 50,000	**PDF co-financing:**	USD 50,000
Expected MSP/FSP Co-financing:	USD 22,212,000	**Total cost:**	USD 25,152,000
Mid-term review/eval. (planned date):	June 2014	**Terminal evaluation (actual date):**	
Mid-term review/eval. (actual date):	June – October 2014	**No. of revisions:**	2
Date of last Steering Committee meeting:	March 14, 2013	**Date of last revision:**	September 27, 2013
Disbursement as of 31 December:	Umbrella- USD 243,958.28 Sub-project- USD 724,487.44	**Date of financial closure:**	Not financially closed
Total co-financing realized as of 31 December 2013:	USD 2,194,743	**Actual expenditures reported as of 31 December 2013:**	Umbrella- USD 243,958.28 Sub project- USD 310,437.91

[1] According to Decision No. 791 /QD - BTNMT dated May 4, 2011 of the Minister of Natural Resources and Environment on THE approval of the Project, the Project's duration was from 2011 to 2014.

2. EXECUTIVE SUMMARY

1. The **"Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam**" Project is funded by the Global Environment Facility (GEF) as part of the global *en.lighten initiative.* The Project is implemented by the United Nations Environment Programme (UNEP) and is being executed jointly by its Division of Technology, Industry and Economics (DTIE) and the Vietnamese Institute of Strategy, Policy on Natural Resources and Environment (ISPONRE).

2. The Mid-Term Evaluation (MTE) of the Project was undertaken to assess whether the Project is on-track, what problems or challenges it is encountering, and what corrective actions are required. The MTE assessed project performance (in terms of relevance, effectiveness and efficiency), and determined outcomes and impacts (actual and potential) stemming from the Project, including their sustainability half-way through the Project implementation period.

3. The MTE had two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF and their executing partners.

4. The MTE was conducted by two independent consultants under the overall responsibility and management of the UNEP Evaluation Office (Nairobi), in consultation with the UNEP GEF Coordination Office (Nairobi), and the UNEP Task Manager at UNEP/DTIE.

Project Objective, Components and Budget

5. The overall aim of the Project is to phase out the production and sale of Incandescent Lamps (ILs) and poor quality Compact Fluorescent Lamps (CFLs) in Vietnam, which will accelerate commercialization and sustainable market transformation of Energy Saving Lamps (ESLs), which include CFLs and Light Emitting Diodes (LEDs). This will be achieved through the transformation of Vietnam's lighting products market and the promotion of high quality ESLs, especially LEDs. Ultimately, the Project aims at reducing greenhouse gas (GHG) emissions through energy consumption savings.

6. To meet the above-mentioned goal, the Project is structured around four components, namely:

- Component 1: Local Lighting Industry Capacity Enhancement Program
- Component 2: Improved QA/QC Framework
- Component 3: ESL Market Transformation and Consumer Education and Awareness
- Component 4: National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs

7. The approved budget provided by GEF is USD 2.94 million, the same amount estimated at project design. It was further estimated that an amount of USD 22.212 million would be provided as in-kind and cash contributions by government organizations and the private sector of Vietnam. This amounts to a total project cost of USD 25.152 million.

Evaluation Findings

8. The evaluation used a participatory approach whereby key stakeholders were kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts.

9. Following the approach specified in the Terms of Reference (TOR), the findings of the evaluation were based on the following:

- A desk review of project documents and others including, but not limited to:
  - Relevant background documentation, inter alia UNEP and GEF policies, strategies and programmes pertaining to efficient lighting;
  - Project design documents; Annual Work Plans and Budgets or equivalent, revisions to the logical framework and project financing;

- Project reports such as progress and financial reports from the executing partners to the Project Management Unit (PMU) and from the PMU to UNEP; Steering Group meeting minutes; annual project Implementation Reviews and relevant correspondence;
- Documentation related to project outputs;
- Review of media articles concerning the lighting market in Vietnam.

- Interviews with:
  - The UNEP Task Manager and the Regional Technical Adviser, based in Bangkok
  - PMU personnel and key project stakeholders in Hanoi
  - Representatives of the Global Efficient Lighting Centre (GELC) in China
  - UNEP Evaluation office in Nairobi
- Country visits. Members of the evaluation team visited Vietnam for one week. Face-to-face interviews were made with a wide range of stakeholders, including the PMU staff members, the Government of Vietnam (GoV) and NGO partner agencies, local consultants and lighting manufacturers, among others.

10. The following table provides the summary of the assessment according to the given criteria and their corresponding rating.

Criterion	Summary Assessment	Rating
A. Strategic relevance	The Project is directly relevant to the objectives and implementation strategies of UNEP and GEF. The rating also reflects its high consistency with the priorities and policies of the GoV.	**Highly Satisfactory**
B. Achievement of outputs	Component 1: The planned training of, and support to, the manufacturers' technical staff have been conducted, but with some issues on satisfaction of participants. Component 2: the Project has made some strides towards achieving the expected outputs, such as the drafting and approval of two standards by working directly with VSQI and two standards with STAMEQ. These are considered significant achievements during this mid-term stage of Project implementation. Component 3: The Project has completed three demonstration projects that are considered to have created significant impact within the demonstration areas (provinces). Component 4: To date, the project has accomplished two major results from Output 4.1: the report on "Review legislations, provide suggestions/recommendations and financing mechanisms to implement a roadmap of energy labeling for ESL" and the report on "Guidelines for the implementation of the energy efficiency labeling roadmap." The accomplishment under Output 4.2 was the support provided to MONRE in preparing the proposal on "Responding to climate change; protection of natural resources and environment". However, this activity performed for Output 4.2 does not seem to have a strong direct bearing in achieving the outcome expected for this component.	**Satisfactory**
C. Effectiveness: Attainment of project objectives and results	The Project has made some progress towards achieving the planned direct outcomes. Some have been achieved outside the work of the Project. The likelihood of impact in the selected provinces for demonstration projects is quite high but not very likely on a nationwide scale. About 60%	**Satisfactory**

	has been achieved, and is on its way to reaching a significant portion of its objectives and planned results.	
D. Sustainability and replication	The Project enjoys strong ownership and support from the GoV; the collaboration with different agencies and the private sector are well entrenched to last beyond the Project duration without dependence on financial support; the environmental impacts are positive leading to a long-term GHG emission mitigation; there is concrete and measurable economic benefit that the users of ESLs could themselves experience.	**Likely**
1. Socio-political		Highly Likely
2. Financial resources		Highly Likely
3. Institutional framework		Highly Likely
4. Environmental		Highly Likely
5. Commercial		Highly Likely
6. Catalytic role and replication		Likely
E. Efficiency	There is some room for improvements such as interaction with other global stakeholders and internal procedures for hiring of consultants to make the implementation more efficient.	**Moderately Satisfactory**
F. Factors affecting project performance	The Project has used certain positive factors in its favor to leverage its activities and achieve some significant strides in producing its objectives, particularly in relation to the strong involvement of the GoV in phasing out the production of ILs. The role of ISPONRE in the Project implementation and management has been fulfilled smoothly and effectively. The relationships between the PMU and UNEP as well as among the partners and stakeholders have been smooth and productive. However, the financial reporting has been delayed and the indication of co-financing has not been provided to date. The GEF tracking tool has not been completed by the Project.	**Satisfactory**
1. Preparation and readiness		Satisfactory
2. Project implementation and management		Satisfactory
3. Stakeholder participation and public awareness		Satisfactory
4. Country ownership and driven-ness		Highly Satisfactory
5. Financial planning and management.		Moderately Satisfactory
6. UNEP supervision and backstopping		Satisfactory
7. Monitoring and evaluation		Moderately Satisfactory
Overall project rating	The Project is highly aligned with the strategic priorities of the GoV, GEF and UNEP. There is strong government support in different levels and the agencies selected to implement and participate have high degree of commitment. The private sector is actively involved in the activities of the Project, which has accelerated the market transformation of the lighting industry in Vietnam, although their feedback on the training received has not been very satisfactory. The Project lags in efficiency, particularly in hiring of consultants and promptness in delivery of reports, but is on its way to achieving significant portion of the objectives and outputs by end of Project.	**Satisfactory**

Conclusions

11. The conduct of the MTE has proceeded smoothly. The representatives of the organizations and agencies who were interviewed have been helpful and open in providing information and feedback.

12. The major strength of this Project is its strong alignment with the priorities of the GoV, particularly in the GoV's program to phase out the production and usage of ILs in Vietnam. The GoV has made significant inroads towards this target, including putting a ban on the importation, production, and circulation of ILs with capacity higher than 60 W by the Prime Minister. Benefiting from this situation and in collaboration with the Vietnam Standards and Quality Institute (VSQI), the Project has supported the drafting and approval of standards that support the production of high quality ESLs.

13. The participation of the private sector is key towards the transformation of the lighting market in Vietnam. The two manufacturers selected to participate in the Project are two of the largest in Vietnam and have considerable impacts in the market. They have been actively participating in the activities of the Project through the training of their specialists and engineers and provision of ESLs for the demonstration projects. However, they had high expectations on the technology and knowledge transfer from the experts and on the study tour to China organized by GELC. These expectations included:

- Provision of detailed processes and techniques on the aspects related to mercury reduction, heat dissipation and ESL production;
- Transfer of practical knowledge related to design and manufacturing;
- More extensive and closer exposure to production lines and equipment during the visits.

14. Such expectations, although justified from the private sector and commercial perspective, go beyond the mandate and budget of the Project. In addition, the experts who could provide such knowledge, experience and techniques would be hard to find.

15. The Project has completed three demonstration projects about switching from ILs to ESLs, one in the office building of ISPONRE and two in the rural areas targeted to the households and the agricultural sector. These demonstration projects have been considered effective in changing the attitude of the communities to switch from ILs to CFLs. This has been evidenced in the three communes in Ha Tinh province where CFLs have been promoted in the household level. Before the demonstration activity started, the penetration of CFLs was observed to be 30%-40% in the demonstration areas. By around the end of 2013, all of ILs had been replaced, attaining a penetration level of 100% CFLs. Consequently, the people in these communes now automatically buy CFLs. This phenomenon is similar in the other two provinces included in the demonstration project.

16. In the agricultural sector, the accomplishments of the demonstration projects have been equally encouraging. The farmers who participated experienced direct economic benefits, which was crucial in cementing their confidence to switch from ILs to CFLs. Participating farmers realized annual electricity savings of around 14 million Dong per hectare and replacement cost savings of approximately 9.87 million Dong per hectare. On top of this, the most important thing is that this switch has not affected the harvest of their products.

17. The switch to CFLs in the agricultural sector of the two provinces has been pronounced. It was observed that before the start of the demonstration projects, about 30% of the farmers used CFLs in their farms. Currently, the number of farmers who use CFLs in their farms has increased to about 50%.

18. Certain factors contributed to these achievements. Firstly, the Project cooperated with the local agencies responsible for providing support to the specific agricultural sectors targeted by the demonstration projects. These are the Dragon Fruit's Research and Development Center in Binh Thuan province and the Flower Association in Da Lat. These agencies have been working alongside the farmers and have been providing trusted advice on the different aspects of the plantation and production. Although the farmers have been initially reluctant to take their advice that CFLs would be suitable for their requirements and could give them economic benefits, some have finally agreed to participate due to the support provided by the Project and the agencies mentioned. In addition, the district committees have also been involved, particularly in creating awareness to the farmers. The participation of these local committees has been highly instrumental in making the farmers agree to be a part of the demonstration activities of the Project.

Lessons Learned

19. There was a long delay between GEF CEO endorsement and signing of the Project Cooperation Agreement (PCA) between UNEP and ISPONRE. It must be noted that as per UNEP's Task Manager, this is the first time that UNEP/DTIE has partnered with a local agency for the in-country execution of a GEF project. This was organized through a PCA arrangement with ISPONRE. With both parties being new to this arrangement, they had to go through certain protocols that needed time to accomplish, such as: Agreement within the GoV for ISPONRE to implement the Project, announcement in an official Gazette and opening of project account by ISPONRE in Vietnam. Having gone through the hoops, the experiences and lessons that UNEP and the GoV have learned in this Project could be applied in other projects that have similar arrangement. The lesson learned here is that contracting arrangement and corresponding

requirements of the host government vis-à-vis the potential contracting arrangement need to be investigated during the project design stage and suggestions on addressing them could be included in the ProDoc, whenever possible.

20. It was observed that several activities have been completed behind schedule. These delays were attributed by the project team mainly to the late approval of the Work Plan and Budget, and in some cases to the delay in the recruitment of experts and lack of coordination among the different experts involved in the performance of the tasks. Delays in the approval of the Work Plan and Budget were due to the fact that the Project Steering Committee (PSC) meetings to approve the Work Plan and budget were held late after the beginning of the year. This procedure has been recently revised. Starting from the Work Plan 2014, it was agreed that the Director General of ISPONRE would have the authority to approve the Work Plan. The approved Work Plan will be subsequently presented to the PSC. This procedural change could expedite the implementation of the activities of the Project, but holds the risk that the National Project Director (NPD) may be influenced by the interests of his institution rather than by what is best for achieving the Project objectives. The lesson that can be learned from this experience is that the Work Plan for the subsequent year needs to be prepared well in advance and the PSC meeting which approves the Work Plan should be scheduled as early as possible in the year. A mechanism could also be adopted whereby the draft of the Work Plan could be pre-approved by the PSC members before the PSC meeting and the final deliberation and approval could be made at the PSC meeting itself.

21. The delay in the recruitment of experts happened mainly in the beginning of the Project due to the necessity in complying with administrative procedures as dictated by UNEP's recruitment policy. In the future, this problem could be avoided by carrying out the recruitment of international experts right at the beginning after the requested activities have been approved. It was also learned at the beginning of 2013 during the recruitment of experts and conduct of initial activities that coordination and cooperation among international and local experts in technical activities are very important. Improvements could be made in the aspects of communication flows between the Project and the experts and among experts involved in the same activity, as well as in the formulation of the Terms of Reference and responsibilities of different experts.

22. The private sector, consisting of manufacturers of lighting products have been actively involved in the Project. They have sent participants for training conducted by GELC from China and on-site visits to facilities in China. They have also provided expertise in the conduct of training workshops in the demonstration areas. The technicians provided technical information as resource persons during the workshops. Moreover, the manufacturers offered discounts to the participants of the demonstration projects for the purchase of CFLs for a certain period of time to reduce the burden on the price difference between IL and CFL. This good practice of a) using the technicians from the manufacturers as resource persons in the seminars, and b) encouraging the manufacturers to offer discounts to their lighting products for those participating in demonstration projects, could be replicated in similar projects of GEF/UNEP.

23. Although the training workshops and site visits have generally been considered useful, the manufacturers have expressed lack of satisfaction on the specifics of the contents of the training and the utility of the site visits in relation to what they expect to learn. The manufacturers have expected that the experts who conducted the training would give practical techniques and solutions on the challenges they face in the manufacturing process. They also expected to get up close to the manufacturing facilities and observe more closely during the site visits. Although these requirements are understandable from the business point of view, there were certain limitations on confidentiality and budgetary constraints that the Project had to respect. It is important to learn for future project design and implementation that for projects where the private sector works on state-of-the-art technologies and the market is fast changing, it would be necessary to provide a practical and *"avant-garde"* technical assistance on one hand, but on the other hand, to let them understand clearly the nature of the support the Project could provide and the limitations of such support.

24. During the initiation of the demonstration projects, there has been some reluctance from the participating farmers to switch from ILs to CFLs. This hesitation was partly cultural/habitual in nature, and partly due to cost and theft issues. However, despite these barriers, some of the farmers finally participated and have been satisfied with the results, giving rise to increase in the use of CFLs in the demonstration areas. Certain lessons could be gleamed from this success. The cooperation with the local

agencies and local committees has been very useful in instilling confidence to the farmers that the switch from ILs to CFLs is beneficial to them. The guarantee provided by the manufacturers and the discount they provided have also contributed to their positive decision. Finally, the Project support (together with the participating Centers) consisting of free CFLs, technical and information support, and guarantee on the harvest of fruit has been a strong motivating factor for the participation of some farmers.

25. It was also learned that the impact of the demonstration projects has been so far localized in the participating provinces. Although the results have been disseminated through seminars and media campaigns, these have been on a limited scale and the impact in terms of replication has not been evident at this stage. Moreover the summary reports have been distributed only to participating agencies in the demonstration provinces. During the remaining period of the Project, the PMU should envisage a dissemination program that would reach out to a greater audience nationwide.

Recommendations

26. Based on the findings of the MTE and the conclusions derived from these findings, we recommend the following actions:

27. Recommendation 1: Due to the time lapse between the design of the Project and its actual implementation, and the fact that the GoV has been active in promoting the switch from ILs to CFLs, there have been changes in the institutional context since the Project started. This made some planned outputs and activities no longer relevant. Some have been changed as part of the previous Work Plans. For some that have not been modified, we recommend that these outputs and activities be removed or replaced. Specifically, these recommended changes consist of:

- Output 2.2 “National quality inspection system for ESLs is established” will be replaced by Output 2.2 “Local authorities and inspectors trained on ESL quality inspection system”.
- Output 3.4 “ESL procurement plan for public sector developed” will be cancelled because this output has become redundant and is no longer useful.
- Output 4.2 “Established national policy for phasing out of ILs” will be changed to Output 4.2 “National policy on the implementation of the EE law studied and recommendations formulated”.

28. Recommendation 2: The satisfaction of participants with the contents of the training and field visits organized in Component 1 “Local Lighting Industry Capacity Enhancement Programme” was mixed. In order to augment the achievements attained so far and meet the expectations at the end of the Project, it is recommended for the PMU to spend the remaining time and budget in conducting additional training on relevant issues faced and requested by the manufacturers. Certain suggestions should be considered such as longer training periods, more practical contents and clearer TORs of trainers. For future training activities GELC suggested that more resources should be put on such training in order to have more time (longer duration) with the participants. However, although GELC has indicated their willingness to support additional training, given the feedback on the satisfaction of the participants and the socio-cultural barriers between China and Vietnam, it would be useful to look at service providers other than GELC and consider participation of other sources of expertise. The language barrier needs to be addressed by including in advance the planning for the most suitable translation method. And very importantly, the requirements of the manufacturers must be clearly identified and reflected in the TOR. The manufacturers must understand that the experts would be matched with the TOR and they may not be able to improvise on the spot if the manufacturers raise certain issues beyond the scope of the TOR.

29. Recommendation 3: The success of the demonstration projects has shown that there is great merit in having a concrete example of an area or sector where switching from ILs to CFLs is applied. This gives opportunity for participating actors to observe and see first-hand the positive results, and for non-participants to benefit by replicating the success achieved in the demonstration projects. However, as described earlier, the impacts of these demonstration projects have been observed in the participating communes and in the neighboring villages, but were limited to the provinces where the demonstration projects were implemented. Hence, we recommend that some unused budget should be reallocated to expand the demonstration projects to other provinces. The merit of having additional demonstration projects is to expand the application of ESLs not only to dragon fruits and flowers but to other agricultural products as well, which other provinces that have not participated in the earlier demonstration projects are producing. Equally important as the projects themselves, we recommend a much greater effort to

advertise the demonstration projects and their positive results on a nationwide basis using available media in order to create impacts in other provinces and beyond the project sites. The success achieved using the technical and institutional approaches adopted in implementing the demonstration projects could also be used as lessons to other similar projects in Vietnam and other countries.

30. Recommendation 4: One of the major indicators for the overall objective of the Project is that ILs are phased out by the end of the Project. Since the GoV has already issued a ban on the ILs with capacity of over 60 W, the MTE recommends that the work on the policy support should focus on supporting the GoV in formulating and adopting policies that would phase out the production and utilization of all sizes of ILs altogether.

31. Recommendation 5: The ProDoc has mentioned that the Project expects to interact with other global stakeholders and parties. This has not been done yet, except for the cooperation with GELC. Furthermore, the local team wanted broader interaction with a wider range of peers. The MTE recommends that cooperation with international programs, service providers and resource persons should be pursued in order to learn from the experiences in other countries. The potential agencies and programs that could be approached for cooperation are the following:

- The Renewable Energy & Energy Efficiency Partnership (REEEP)
- The International Partnership for Energy Efficiency Cooperation
- The Alliance to Save Energy
- The Collaborative Labelling Appliance Standards Programme (CLASP)
- International and regional harmonization institutes and organisations such as IEC and the Pan-American Standards Commission (COPANT)
- Bilateral donors involved in lighting and their specific projects such as USAID for Asia and GIZ for India

32. Recommendation 6: The Project has produced good reports and accomplished significant outputs that could be disseminated before the end of the Project. The MTE recommends that the PMU communicate the results of the Project to UNEP and the stakeholders at large more effectively. The PMU should document the impacts of Project activities such as the electricity savings realized by the farmers as well as other benefits due to the switch from ILs to CFLs. Many Project outputs, including results of the demonstration projects, are valuable and could be used as lessons for eventual replication both in Vietnam and in other countries. The PMU should also polish their reports, translate them to English and disseminate the relevant information to stakeholders, including those outside Vietnam.

33. Recommendation 7: On the documentation and reporting aspect, there are some inconsistencies in the presentation of activities in the different documents (i.e., ProDoc, Work Plans, Annual Reports, PIR), for instance in designating the numbering of these activities, which could be confusing for the reader. The MTE recommends to use a consistent numbering system in all reports. Moreover, in the production of the Annual Progress Report, the MTE suggests to list down all activities, including the completed ones, and describe what has been done as well as indicate the progress/status of the activities in terms of percentage completion.

34. Recommendation 8: In view of the fact that starting from the Work Plan 2014, it was agreed that the Director General of ISPONRE would have the authority to approve the Work Plan prior to the PSC, it is recommended that transparency of the budgeting and expenditure processes be ensured. This will help quell some doubts on the risk that the National Project Director (NPD) may be influenced by the interests of his institution rather than by what is best for achieving the Project objectives.

35. Recommendation 9: According to Decision No. 791 /QD - BTNMT dated May 4, 2011 of the Minister of Natural Resources and Environment on the approval of the Project, the Project's duration was from 2011 to 2014. Since the Project had some delays in the approval and it started later than planned (March 27, 2012), we recommend the Project to complete its four (4) years of implementation in order to complete the planned activities and achieve the objectives and targets. This means that the ending of the Project should be extended up to end of December 2015.

3. INTRODUCTION

36. The Project, **"Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam**," is part of the United Nations Environment Programme (UNEP)-Global Environment Facility (GEF) *en.lighten initiative* established in 2009 to accelerate a global market transformation to environmentally sustainable, energy efficient lighting technologies, as well as to develop strategies to phase-out inefficient incandescent lamps to reduce Carbon Dioxide (CO2) emissions and the release of mercury from fossil fuel combustion[2]. In Vietnam itself GEF has supported the Vietnam Energy Efficiency in Public Lighting Programme (VEELP). This Project under Mid-term Evaluation was planned to complement the activities of VEELP by including the residential and rural market. The Implementing Agency of the Project is UNEP. It is being executed jointly by UNEP and the Vietnamese Institute of Strategy, Policy on Natural Resources and Environment (ISPONRE).

37. The overall aim of the Project is to phase out the production and sale of Incandescent Lamps (ILs) and poor quality Compact Fluorescent Lamps (CFLs) in Vietnam, which will accelerate commercialization and sustainable market transformation of Energy Saving Lamps (ESLs). This will be achieved through the transformation of Vietnam's lighting products market and the promotion of high quality ESLs, especially Light Emitting Diodes (LEDs). Ultimately, the project aims at reducing greenhouse gas (GHG) emissions through energy consumption savings.

38. The Project is structured around four components: (i) Local Lighting Industry Capacity Enhancement Program; (ii) Improved Quality Assurance (QA)/Quality Control (QC) Framework; (iii) ESL Market Transformation and Consumer Education and Awareness; and (iv) National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs.

39. The conversion from ILs to ESLs is a key element of the Government's strategy. It is estimated that approximately 60 million ILs were in use at the time of project design and annual production was 40 million units. As indicated in the Project Document (ProDoc), conversion of 75% of ILs could achieve electricity savings of around 2 TWh per year and a corresponding CO_2 emission reduction of 1.24 million tons. This may not be a significant saving compared to the country's total consumption of 133.4 TWh in 2013, but considering that 60% of Vietnam's electricity is supplied from fossil fuel, this could help in easing some burden faced by the Government of Vietnam (GoV) related to energy security.

40. The conversion of the lighting industry has begun in Vietnam but its speed and success have been hampered by a number of barriers including: lack of technical knowledge, shortage of raw materials, consumer knowledge and demand (and negative effect of low quality products on the market), ineffective control of illegal imports of low quality CFLs, low level of political engagement and poor coordination of ongoing efforts. The project has started to address these barriers systematically through training and engagement with different stakeholders.

41. The use of ILs is a major contributor to global electricity consumption and GHG emissions: every year, each incandescent bulb consumes approximately 109.5 kilowatt-hours (kWh) and emits 68 kg of CO_2. In comparison, CFL providing the same illumination as one IL consumes approximately 25.6 kWh and emits 16 kg of CO_2, while LED consumes only approximately 10.97 kWh and emits 6.8 kg of CO_2.

42. Globally, ILs are estimated to have accounted for 970 terawatt-hours (TWh) of the final electricity consumption in 2005 and resulted in about 560 million tons (Mt) of CO_2 emissions. About 61% of this demand was in the residential sector with most of the remaining demand in commercial and public buildings. If the current trends continue, ILs could use up to 1610 TWh of final electricity by 2030. In a hypothetical case where all these lamps were to be replaced by CFLs, it would save roughly 800 TWh and reduce the emissions by 470 Mt CO_2 in 2010, rising to 1200 TWh and 700 Mt CO_2 in 2030.

[2] The *en.lighten initiative* serves as a platform to build synergies among international stakeholders; identify global best practices and share this knowledge and information; create policy and regulatory frameworks; address technical and quality issues; and encourage countries to develop National and/or Regional Efficient Lighting Strategies. See: http://www.enlighten-initiative.org/About.aspx

43. Thus, the phasing out of inefficient lighting is considered as one of the most important short-term initiatives nations can take in combating climate change created by GHG emissions. Moving the lighting market on a global scale to low-energy light bulbs and other efficient lighting systems could have a dramatic impact on global warming and could cut energy bills.

4. THE EVALUATION

44. In line with the UNEP Evaluation Policy[3], the UNEP Evaluation Manual[4] and the Guidelines for GEF Agencies in Conducting Terminal Evaluations[5], the MTE of the Project was undertaken to assess whether the Project is on-track, what problems or challenges the Project is encountering, and what corrective actions are required. The MTE assessed Project performance (in terms of relevance, effectiveness and efficiency), and determined outcomes and impacts (actual and potential) stemming from the Project, including their sustainability half-way through the Project implementation period.

45. The MTE had two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF and their executing partners.

46. The MTE was conducted by two independent consultants under the overall responsibility and management of the UNEP Evaluation Office (Nairobi), in consultation with the UNEP GEF Coordination Office (Nairobi), and the UNEP Task Manager at UNEP/DTIE. The Terms of Reference (TOR) of the MTE are provided in Annex B.

47. The MTE was an in-depth evaluation using a participatory approach whereby key stakeholders were kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts. The MTE schedule and the persons interviewed for the MTE are presented in Annex C.

48. The evaluation tried to identify recommendations for enhancing project performance during its final stages of implementation and lessons of operational relevance for future project formulation and implementation. The following sets of key questions, based on the Project's intended outcomes, were used to focus the evaluation efforts:

a. To what extent have the institutional arrangement been effective in supporting project implementation?
b. Is the project on course to support successful business transformation of manufacturers of ILs to high quality ESLs produced at marketable prices?
c. Are project activities on course to bring about stronger and more harmonious quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products?
d. Have project activities on course to promote enhanced awareness of the benefits of ESLs and a change in consumption away from ILs?
e. Are project activities contributing to the development of policy and institutional systems which can support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market?
f. Is the project on to support the project conversion to ESL lighting (75%) in Vietnam?
g. Are there any course corrections needed to support the project in achieving its desired outputs and outcomes?

49. Annex D gives the expanded evaluation framework for the evaluation criteria that were used in the MTE.

50. Following the approach specified in the TOR, the findings of the evaluation were based on the following:

[3] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx
[4] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx
[5] http://www.thegef.org/gef/sites/thegef.org/files/documents/TE_guidelines7-31.pdf

- A desk review of project documents and others including, but not limited to:
  - Relevant background documentation, inter alia UNEP and GEF policies, strategies and programmes pertaining to efficient lighting;
  - Project design documents; Annual Work Plans and Budgets or equivalent, revisions to the logical framework and project financing;
  - Project reports such as progress and financial reports from the executing partners to the PMU and from the PMU to UNEP; Steering Group meeting minutes; annual project Implementation Reviews and relevant correspondence;
  - Documentation related to project outputs;
  - Review of media articles concerning the lighting market in Vietnam.
- Interviews with:
  - The UNEP Task Manager and the Regional Technical Adviser, based in Bangkok
  - PMU personnel and key project stakeholders in Hanoi
  - Representatives of the Global Efficient Lighting Centre (GELC) in China
  - UNEP Evaluation office in Nairobi
- Country visits. Members of the evaluation team visited Vietnam for one week. Face-to-face interviews were made with a wide range of stakeholders, including the PMU staff members, GoV and NGO partner agencies, local consultants and lighting manufacturers, among others.

51. The main limitation of the study is the absence of the visit to Beijing, China to discuss with the Global Efficient Lighting Centre (GELC), which is an entity that provided the experts for the training of the manufacturers and technicians of the laboratories and organized the field visits to lighting facilities in China. Due to the constraint that the Lead Consultant could not be issued a visa to China, a Skype discussion was organized between the MTE consultants and experts from the GELC.

5. THE PROJECT

5.1 Context

52. The population of Vietnam has grown from about 86 million during the project design in 2009 to an estimated 93 million in 2014, while the GDP per capita has increased from USD 1,232 in 2009 to USD 1,901 in 2013. To cater for the increased growth in the economy, energy consumption is increasing rapidly. This would in effect change the supply structure of the energy resources, and Vietnam would become a net importer of energy rather than an energy exporter as it is at present. In fact, energy export dropped from 25% in 2008 to only 8.8% in 2011.

53. Power demand has increased dramatically with an average annual growth of about 17.3% between 1996 and 2008. The power consumption reached 66 TWh in 2008, which was about 5 times the power consumption in 1996. Over the same period, the peak power demand jumped from 3,200 MW to 12,636 MW. Potential peak demand was even higher since electricity supply was cut off through load shedding during peak hours due to power shortage. There is also a trend of increasing and longer peak hours, which contributes to the increasing rate of electricity consumption. Based on the latest figures, peak demand in 2013 has increased to 19,772 MW and occurred at 10 a.m.[6], which is consistent with the projected trend.[7]

54. To meet the rapidly growing demand, Vietnam's power industry has struggled to expand and improve the power supply, transmission, and distribution system through the development of new power generation capacity, enhancement of high voltage transmission lines connecting the country's three regions (north, center and south), and reduction of transmission and distribution (T&D) losses. The investments made by the Electricity of Vietnam (EVN) (a vertically integrated power utility that is responsible for the development, management, and operation of the state's electric power industry assets) has contributed to its expansion and improvement, and so did the private capital under Build-

[6] The network peak power demand is the highest capacity of power demanded by the all the customers in the network. This happens when a high number of consumers of electricity use high-energy machinery and appliances in factories and homes. The daily peak power demand occurs during the so-called peak period. Utilities cater for these peak times by increasing investments in electricity infrastructure. In Vietnam, peak hours are applied from Monday to Saturday only. There is no peak hour on Sunday. From Monday to Saturday, peak hours are from 09.30 am to 11.30 am (2 hours) and from 17.00 pm to 20.00 pm (3 hours).

[7] The Way Forward for Smart Grid in Vietnam, Electricity Regulatory Authority of Vietnam (ERAV), 14 November 2013

Operate-Transfer (BOT) and Independent Power Producer (IPP) schemes. Also, power imports from Yunnan Province and Guangxi Autonomous Region in China have started through 110/220 kilovolt (kV) power transmission lines and T&D losses fell sharply from 21.4% in 1995 to 9.35% in 2008.

55. Vietnam has also considered introducing nuclear power. However in January 2014, Vietnam has decided to delay its construction by six years to ensure "safety and efficiency" adding more burden to the thinning reserve.[8]

56. In July 2007, the Master Plan for "National Power Development for the period 2006-2015, perspective up to 2025" was adopted. It presented the targets for increased power generation capacity to meet the projected electricity demand under the assumption of a minimum annual GDP growth rate of 8.5-9% during 2006-2010. To meet such an increase in demand two possible scenarios were developed, i.e., one based on an annual 17% increase in electricity demand (base case scenario) and one based on an annual increase of 20% (high case scenario). In addition, the GoV has proposed another scenario to cope with possibly an even more dramatic annual increase in the demand for electricity of 22% for 2006-2025.

57. The challenge for the GoV is to meet the exploding demand for electricity, relieve the shortages that currently pose significant barriers to economic development, and help reduce GHG emissions. Therefore, in response to the concern about the ongoing energy consumption in all sectors of Vietnam, the GoV took an action in order to promote Energy Efficiency and Conservation (EE&C) to maintain high economic growth. In 2003, the GoV issued a decree that was followed by the "Circular No.1/2004/TT-BCN: The Guidance of Energy Efficiency in Industrial Facilities" in 2004. Furthermore, in April 2006, the Ministry of Industry and Trade (MOIT) established the National Strategic Program on EE&C (for 2005-2015). The program consists of 11 projects including dissemination of EE&C knowledge and education; promotion of EE&C for commercial, residential, industrial and transportation sectors; EE&C for buildings; etc. Implementation of the EE&C organizational, institutional, and regulatory system and related road maps/action plans is urgently required; however, they are yet to be developed. At the same time the GoV has agreed to begin phasing out ILs through market transformation for EE lighting products in Vietnam. To support this effort, the Ministry of Natural Resources and Environment (MONRE), in collaboration with UNEP has therefore prepared the project "Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam" (this Project).

58. The Project is expected to accelerate commercialization and sustainable market transformation of energy efficient lighting technologies in Vietnam by promoting the phasing out of incandescent bulbs and poor quality CFLs. The Project undertakes activities that aim at facilitating the widespread adoption of energy-saving lighting products, improving the Vietnamese energy-efficient lighting products market, and working towards the phasing out of ILs. The expected environmental benefits of the Project are a reduction of GHG emissions from the lighting sector and also a reduction in the use of mercury in CFLs. It is estimated that by the end of the Project, 60 million ILs will have been replaced with good quality CFLs and 25 million poor quality CFLs will have been replaced with good quality CFLs, and as a result GHG emissions will have been reduced by 2.302 million tons of CO2 equivalent while the mercury content in CFLs will have been brought down in the range of 3 to 5 milligrams per CFL.

59. National and local efforts to promote EE lighting have been gathering momentum in Asia and other parts of the world. In Vietnam, the Prime Minister issued Decision No. 51/2011 on 12 September 2011, promulgating that from 1 January 2013, importation, production, and circulation of tungsten light bulbs with capacity higher than 60 W would be prohibited. From 1 January 2014, import and production of lamps that do not meet minimum energy performance standards would be prohibited. While there are delays in the implementation of the 1st order, the GoV has urged MOIT for its speedy implementation.[9] Efforts on the global scene include plans by more than forty different countries to phase out the use of ILs. Many of these efforts rely on CFLs as substitutes, which use up to 75% less energy and last up to ten times longer than the original ILs (DoE, 2008). However, one of the main factors that require a deeper understanding of the mechanism involved in the replacement of the ILs is the quality of the CFLs that will replace them. Although the term "quality" has not yet been properly defined in most of the countries, the

[8] Significant Further Delay for Vietnam's Nuclear Plans, http://www.worldnuclearreport.org/Significant-Further-Delay-for.html, Retrieved 30 May 2014

[9] Source : http://tuoitrenews.vn/business/18748/vietnam-ministry-urged-to-speed-up-progress-on-60w-bulb-ban, Retrieved 30 May 2014

expected lifetime of the CFLs is one of the most crucial factors in determining the success of any IL phase-out program. The negative impacts of poorly performing CFLs are significant. First, if CFLs do not meet performance claims, they will not meet energy savings or greenhouse gas reduction targets. Second, poor quality CFLs create dissatisfied consumers as well, jeopardizing the continuation and increased adoption of this energy-saving technology. Other energy-saving technologies may also suffer the same perception as a consequence. Third, compared to high-quality CFLs, sub-standard CFLs will burn out sooner and create more wastes for landfills – including mercury, of which small amounts occur in CFLs.

5.2 Objectives and Components

60. The goal of the Project, as indicated in the Request for CEO Endorsement and the UNEP Project Document (ProDoc), is to speed up the transformation of the market for environmentally sustainable efficient lighting technologies in the emerging markets of developing countries. The Project aims to accelerate the phasing out of incandescent bulbs by removing the market barriers to energy-efficient lighting, promote development of mercury-free technologies, thereby reducing global greenhouse gas emissions as well as mercury releases. The objective is to create locally or regionally an institutional/legal/financial/ technical environment that is in favor of energy-efficient lighting through the promotion of high-performance and environmentally sustainable new technologies such as mercury-free CFLs and the phasing out of inefficient ILs. It will also pave the way for the promotion and near term introduction of LED technology in the various sectors of the economy.

61. The Project is expected to: (i) work in close partnership with highly qualified experts specialized in energy efficiency and lighting, (ii) provide a global "open space" for exchange and communication in between all the stakeholders, and (iii) provide support to the implementation of adapted country programs, expanding in this way the market transformation mechanisms in a large majority of developing countries.

62. The GEF Implementing Agency for the Project is UNEP. In a complementary way, UNEP and other GEF agencies are developing specific efficient lighting projects at regional and national level under the guidance of the present global approach, in close partnership with the private lighting industry from OECD, emerging and developing countries, building upon the existing related activities supported not only by the GEF but also by other financing agencies. The Project was therefore planned to serve as an "umbrella" under which further national projects in various Southeast Asian countries will be undertaken.[10]

63. By building on experiences and lessons learned from various international initiatives and an initial market assessment of the targeted countries that have expressed interest in participating in the Project, the concrete objective of the Project is to support Vietnam in the development of a local EE lighting industry and business.

64. The Project will seek to achieve this concrete objective by:

a. supporting the establishment of an **enabling national policy framework** that would allow the sustainable development of a energy-efficient lighting market, including regulations, financial and/or fiscal incentives and/or voluntary or mandatory quality control, certification and labeling schemes;
b. enhancing the **awareness of decision-makers and market actors** on the benefit of EE lighting products for meeting the energy climate change challenges and on the benefits of mercury-free alternatives;
c. increasing **consumer access to information** through technical support provided to GEF or non-GEF EE lighting projects;
d. building the **capacity of the EE lighting supply chain**, including training and certification of local manufacturers and traders; and
e. facilitating **global information exchange and networking** to learn about the experiences, results, lessons learned and best practices in other countries or initiatives.

[10] This Project, by virtue of its very specific nature to the context of Vietnam and the question regarding suitability of the component related to the transfer of manufacturing techniques, the Project does not seem to be in a position to perform this function and therefore cannot achieve this goal.

65. To meet the above-mentioned overall goal, the Project is structured around four components, namely:

- Component 1: Local Lighting Industry Capacity Enhancement Program
- Component 2: Improved QA/QC Framework
- Component 3: ESL Market Transformation and Consumer Education and Awareness
- Component 4: National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs

66. These components are expected to generate outcomes that, when achieved, will realize the Project Objective. Moreover, the Project is expected to deliver certain outputs that will help to achieve the desired outcomes. The original outcomes and their corresponding outputs as indicated in the ProDoc are enumerated in Table 2 below.

Table 2. Expected outcomes and outputs from Logical Framework

Outcome	Output
1. Successful business transformation of manufacturers of ILs and improved quality of locally produced ESL at marketable prices	1.1 Market research on current status of IL and ESL markets in Vietnam. 1.2 Technical aids on conversion of IL production lines to ESL 1.3 Training courses provided on quality ESL production. 1.4 Business transformation plans agreed for 2-4 ESL products for two main enterprises. 1.5 Technical support for selected local manufacturers towards quality ESL production at marketable costs.
2. Strengthened and harmonized quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products.	2.1 Energy, environmental and quality standards for ESLs are tightened and harmonized in line with regional or international best practice 2.2 National quality inspection system for ESLs is established 2.3 Capacity of two testing labs is strengthened. 2.4 Green customs programme to reduce import/export of ILs and low quality ESLs implemented. 2.5 Capacity of civic authorities to handle and safely dispose of mercury in ESLs and to engage in recycling strengthened.
3. Enhanced awareness about benefits of ESLs and significant increase in sales of ESLs and significant reduction in sales of ILs	3.1 National social marketing campaign for rural and residential users designed and implemented. 3.2 Documented results of market study on ESL promotional campaign and roadmap/masterplan for ESL promotion. 3.3 Demonstration projects in rural areas implemented. 3.4 ESL procurement plan for public sector developed.
4. Policy and institutional systems able to support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.	4.1 Agreed national roadmaps and master plans for the phase-out of ILs and the promotion of good quality ESLs. 4.2 Established national policy for phasing out of ILs 4.3 Proposed policy measures and incentives for ESL market development and enhancement through local partners.

Source: Logical Framework, ProDoc

5.3 Target Areas/Groups

67. The broad target areas of the Project are the emerging markets of developing economies, particularly in South East Asia, where the transformation of the market for environmentally sustainable efficient lighting technologies is envisaged to speed up. The specific target area is Vietnam, where the ILs are expected to be phased out by the end of the project and good quality ESLs are promoted and sold.

68. Within Vietnam, the awareness campaign on the benefits of switching from ILs to ESLs are targeted to all electric light users nationwide, while demonstration projects are planned to be implemented in one

government agency, with farmers and rural communities but applying national criteria to make sure they are representative of the whole country.

69. The target groups in Vietnam consist of relevant government agencies that are involved in the lighting industry, climate change, energy efficiency, conservation and generation, standards and testing, etc., as well as the private sector comprising the manufacturers of lighting products. Below are the brief descriptions of the project's major target groups in Vietnam:

70. **Ministry of Natural Resources and Environment (MONRE).** MONRE is a state management agency, supporting the Government in unified management of natural resources and environment nationwide. In the field of environment, MONRE is responsible for the development of policies, strategies, standards, and plans on environment protection to submit to the Government for approval. The ministry has the mandate to manage Vietnam's Environmental Protection Fund and act as focal point of the GEF in Vietnam.

71. **Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE).** ISPONRE belongs to MONRE and is the national focal point of GEF. Its Director is designated as the National Coordinator.

72. **Ministry of Industry and Trade (MOIT).** MOIT was established in 2007 from the merging of two former ministries: the Ministry of Industry and the Ministry of Trade. MOIT approves the electricity development master plans of provinces and cities, approves master plans on hydropower, new energy and renewable energy, and provides guidelines, and implement tasks on atomic electricity, new energy and renewable energy. MOIT is responsible for defining government policies on energy efficiency, as well as proposing a legislative framework for implementing energy efficiency regulations.

73. **Ministry of Science and Technology (MOST).** MOST is a governmental agency that manages science and technology areas of the country. MOST develops EE standards for EE products. Under MOST, the Vietnam Standards and Quality Institute (VSQI) and QUATEST 1 & 3, are the agencies that are the beneficiaries of the project. The VSQI participates in the standards development process while QUATEST 1 & 3 are the laboratories used for testing lighting products.

74. **Directorate for Standard, Measurement, and Quality (STAMEQ).** STAMEQ is a subordinate organization of the MOST with function to help MOST implement state management on standards, measurement and quality. STAMEQ is the agency that develops national standards on energy efficiency and EE products. STAMEQ has also under its management the three national testing laboratories in the field of energy efficiency, i.e., QUATEST 1, QUATEST 2, and QUATEST 3.

75. **Ministry of Finance (MOF).** MOF participates in the development of financial incentive policies to promote the transformation from ILs to ESLs production. The target group under MOF is the Customs Administration, which is engaged with the Green Customs program, and the Department of Tax Policy, which is responsible for the development of incentive fiscal tools.

76. **Ministry of Education and Training (MOET).** MOET participates in awareness raising activities mainly through the education system.

77. **Electricity of Vietnam (EVN).** EVN is a state-owned enterprise and has a multi-sectoral business operation, with main business activities comprising production, trade of electricity, public communication and electrical mechanics.

78. **Rang Dong and Dien Quang companies** are the local manufacturers that participate in technology transfer activities of the project's technical support program. The two companies are the beneficiaries of training and business transformations plans aimed to transform the production of ILs into production of ESLs. Rang Dong is the biggest lighting-source producer in Vietnam. Formerly a state-owned company, it has recently been privatized and is now a joint-stock company. Its production capacity is 50 millions of ILs and 80 millions of fluorescent lamps (FL) per year. The company also produces high-pressure lamps with capacity 350,000-400,000 pieces a year. The company has a distribution network of 6,000 retailer shops nationwide and a testing laboratory that conforms to ISO 17025 standard. Dien Quang is the second largest lighting manufacturing company, located in Ho Chi Minh City. It also used to be state-owned but was privatized in 2005. The company's production lines include fluorescent lamps, compact lamps, electronic ballasts and ILs. The company has recently invested in a production line of compact lamp and is now investigating possibilities of producing LED lamps.

5.4 Project Design and Implementation Arrangements

79. The Implementing Agency for the Project is UNEP, while the Executing Agency is the Division of Technology, Industry and Economics (DTIE) within UNEP. In this capacity, UNEP has the overall responsibility for the implementation of the Project, project oversight, and co-ordination with other GEF projects. In addition, UNEP is responsible for reporting the carbon emissions reductions resulting from Project activities to national registries and/or international inventories.

80. UNEP/DTIE has partnered with ISOPONRE, an agency within MONRE for the co-execution of the project. This is the first time that UNEP/DTIE has partnered with a local agency for the in-country execution of a GEF project. Both agencies are jointly accountable to GoV and UNEP/GEF for ensuring (i) achieving the Project objectives; (ii) the substantive quality of the Project; (iii) the effective use of both international and national resources allocated to it; (iv) the timely availability of financing to support project implementation; (v) the proper coordination among all Project stakeholders; in particular national parties; and (vi) timely submission of all Project reports, including work plans and financial reports.

81. The management and implementation of the Project has been designed to consist of the following entities:

- The Project Steering Committee (PSC)
- The National Project Director (NPD)
- The Project Management Unit (PMU)
- The Technical Working Group (TWG)

82. Figure 1 below shows the Project implementation arrangement as approved by UNEP/GEF.

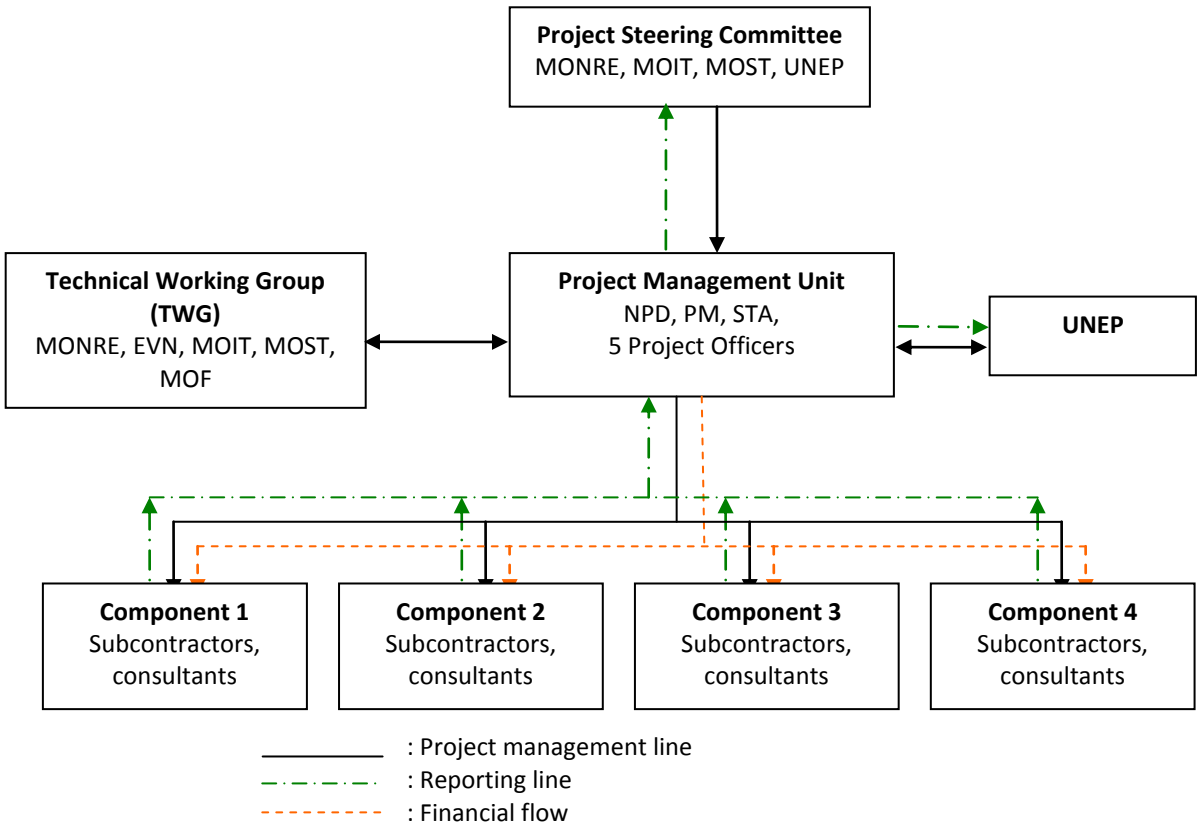

Figure 1. Project implementation arrangements

83. The PSC consists of high-level representatives from MONRE, MOST, MOIT, and UNEP. The Vice-Minister of MONRE chairs the PSC. Annex F gives the names and affiliations of the members of the PSC.

The primary roles of the PSC are: (i) to provide overall guidance to the implementation of the Project and (ii) to ensure good coordination among participating agencies, sectors and international organizations. It is planned for the PSC to meet once a year[11], to discuss the progress of the Project and provide future guidance.

84. The Director General of ISPONRE acts as the NPD of the project. The NPD's overall role is to ensure the successful execution and implementation of the Project toward achieving project results. The NPD has the overall responsibility for mobilizing all national and international project inputs in a timely manner, supporting project management and implementation, organizing Project activities in accordance with the project work plan, and reporting to MONRE and UNEP the progress and the financial status of the Project. The PMU staff members support the NPD in fulfilling these responsibilities.

85. The team supporting the NPD in operating the PMU consists of the Project Manager, Senior Technical Advisor (STA), Project Secretary, Technical Officer, Communications Officer and Project Accountant (Figure 2). Under the leadership of the NPD, the PMU's responsibility is to manage and implement the Project with the aim of achieving the objectives within the given budget and time frame. The PMU operates the day-to-day activities of the Project in accordance with the approved Work Plan of the current year. It provides oversight to the work of the consultants/experts hired by the Project. The PMU prepares quarterly progress reports that review the achievements in the previous quarter, prepares financial reports and develops work plan and budget for the next quarter. The PMU is also responsible to produce Annual Progress Reports and the Terminal Report at the end of the Project.

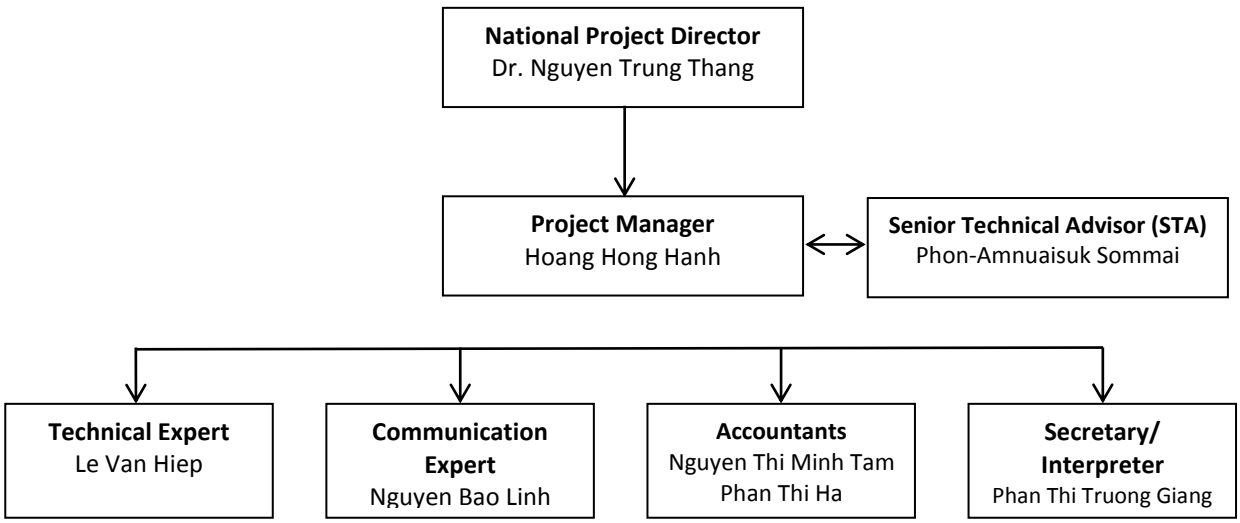

Figure 2. Organizational chart of the Project Management Unit

86. The TWG meets regularly during project implementation although members of the TWG can contact each other to follow up on issues at hand. For urgent issues where the PMU needs to have the

[11] The actual PSC meetings occurred on the following dates: First PSC: 10th January, 2012, Second PSC: 15th March 2013, Third PSC: 23rd April 2014.

opinion of the TWG, special meetings could be called. The TWG discusses and provides suggestions on key program activities that will be included in the Annual Work Plan. Members of the TWG are assigned key components and those who are assigned take the lead in proposing and implementing specific activities. The TWG is tasked to provide comments to the performance of key program activities including fund commitments and co-financing arrangements. The TWG consists of ISPONRE, senior representatives from the relevant departments of MONRE, MPI, MOST, MOIT, MOF as well as ESL production companies, lighting R&D institutions, and lighting industry associations. The list of the members of the TWG is provided in Annex G.

5.5 Project Financing

87. The approved budget provided by GEF is USD 2.94 million, the same amount estimated at project design. It was further estimated that an amount of USD 22.212 million would be provided as in-kind and cash contributions by government organizations and the private sector of Vietnam. This amounts to a total project cost of USD 25.152 million. The overall Project budget is shown in Table 3, while Table 4 gives the summary of the co-financing sources.

Table 3. Overall project budget by component

Project Components	GEF Financing (a)		Co-Financing (b)		Total (US$) (c=a+ b)
	(Million USD)	%	(Million USD)	%	
1. Local lighting industry capacity enhancement program	0.600	5	12.417	95	13.017
2. Improved QA/QC framework	0.600	8	6.500	92	7.100
3. ESL market transformation and consumer education and awareness	0.915	34	1.745	56	2.660
4. National policy and institutional support program towards phasing-out of ILs and promotion of ESLs	0.350	26	1.000	74	1.350
5. Project Performance & National Impact M&E System	0.175	25	0.150	75	0.325
6. Project management	0.300	43	0.400	57	0.700
Total project Costs	**2.940**	**12**	**22.212**	**88**	**25.152**

Source: ProDoc

Table 4. Summary of co-financing

Name of Co-financier (source)	Classification	Type	Co-financing (USD)	%
Vietnam Energy Efficiency and Conservation /MOIT	Beneficiary	In-kind	1,000,000	4.5
ISPONRE	Executing agency	In-kind	585,000	2.6
Institute of Energy	Beneficiary	In-kind	300,000	1.3
VEA	Beneficiary	In-kind	550,000	2.5
Vietnam Standard Quality Institute	Beneficiary	In-kind	600,000	2.7
QUATEST 1 (testing laboratory)	Beneficiary	Cash In-kind	30,000 580,000	0.1 2.6
QUATEST 3 (testing laboratory)	Beneficiary	In-kind	5,000,000	22.5
Vietnam Lighting Association	Beneficiary	In-kind	150,000	0.7
Rang Dong (lighting manufacturer)	Private sector	Cash In-kind	1,790,000 8,127,000	8.1 36.6

Dien Quang (lighting manufacturer)	Private sector	Cash In-kind	150,000 3,350,000	0.7 15.1
Total Co-financing			**22,212,000**	**100.0**

Source: ProDoc

88. ISPONRE manages a portion of the budget covering local personnel, subcontract of national consultants, training activities and operational costs. This amounts to a total of USD 1.548 million. The other portion consisting of subcontract of international experts and international travels amounting to USD 1.392 million is managed by UNEP. The statement of actual expenditures from both ISPONRE and UNEP and report on co-financing are provided in Annex H.

5.6 Project Partners

89. Consistent with the design of the Project, the PMU works closely with partners consisting of government agencies and the private sector. Table 5 shows the major partners and their roles in the Project.

Table 5. Project partners and their roles

Partner	Role
Ministry of Natural Resources and Environment (MONRE)	***Intended role:*** MONRE is the lead state agency responsible for the management of natural resources and the environment in Vietnam. As such, its role was designed to coordinate the necessary government support and insight. It was also expected to preside over the project Steering Committee and liaise with the Global Market Transformation for Efficient Lighting project. ***Implementation:*** MONRE plays a key role as the Chief of the PSC. It provides guidance and direction to the project and is the main link with the GoV.
Institute for Strategy and Policy on Natural Resources and Environment (ISPONRE)	***Intended role:*** ISPONRE is the executing partner for UNEP/DTIE under the project. It was designed to be responsible for management and monitoring the implementation of the project for which it would create a PMU at its premises. It was also expected to be responsible for organizing the participation of partners and stakeholders, as required. ***Implementation:*** ISPONRE performs the role of the Executing Agency of the project. It hosts the PMU and provides personnel as its contribution. It assumes the responsibility managing and operating the project.
Ministry of Industry and Trade (MOIT)	***Intended role:*** MOIT was expected to take the lead in the development of the ESL enhancing policy and roadmap/plan for phasing out ILs. It would also collaborate with MOF to develop the financial incentive policies to manufacturers to change their production to ESLs from ILs. It would partly participate in the information dissemination program, awareness raising, and study/research on CFLs and ILs in the Vietnamese market. MOIT is a member of the PSC. ***Implementation:*** MOIT is an active member of the PSC and performs the functions expected at the design stage.
Ministry of Science and Technology (MOST)	***Intended role:*** MOST was designed to participate in capacity building with regard to QA/QC of ESLs, and help strengthen relevant standards in line with regional and international standards. MOST would also participate in the development of a quality control system and the upgrade of a national laboratory testing capacity. Under MOST, VSQI and QUATEST 1 and 3 are partners and beneficiaries of the project. VSQI would directly participate in the standards development process while QUATEST 1 and 3 are the laboratories for testing lighting products. MOST is a member of the PSC. ***Implementation:*** MOST participates in capacity building with regard to QA/QC of ESLs, and helps in the establishment of relevant standards. MOST

	has supported the development of a quality control system, although the upgrading of the national laboratory testing has not been done. VSQI and QUATEST 1 and 3 have participated in the implementation as planned.
Directorate for Standards, Measurement and Quality (STAMEQ)	***Intended role:*** STAMEQ is part of MOST and is responsible for the development of EE standards for energy use and products. It also supervises the national testing laboratories and as such was designed to be involved in the project through QUATEST 1 and 3. ***Implementation:*** STAMEQ participates in the project through QUATEST 1 and 3. Although expected to spearhead the development of the National quality inspection system for ESLs it has done it within a larger inspection system before the project started.
Ministry of Finance (MOF)	***Intended role:*** MOF was designed to participate in the development of financial incentive policies to promote the transformation from the production of ILs to ESLs. Implementing partners under MOF include the Customs Administration, which is involved in the Green Customs program and the Department of Tax Policy, which is responsible for the development of incentive fiscal tools. ***Implementation:*** Participation of MOF in the project has not been evident so far as activities relevant to their participation have not been done at the time of the MTE.
Ministry of Education and Training (MOET)	***Intended role:*** MOET was expected to participate in awareness raising activities mainly through the education system. ***Implementation:*** MOET disseminates information of the project that raises awareness on the benefits of ESLs.
Electricity of Vietnam (EVN)	***Intended role:*** It was envisaged that EVN would participate in the development and implementation of the national social marketing campaign and would cooperate with MOIT and VLA in conducting the lighting market study, raising the awareness of the general population, and conducting pilot projects in the cities/provinces. ***Implementation:*** EVN has its own program of creating awareness, and at times collaborates with the project through organization of events that raise awareness of its customers on savings from using ESLs.
Rang Dong Company	***Intended role:*** Under the project the company would receive support to change its production lines from manufacturing ILs to manufacturing good quality ESLs. It would also contribute to awareness raising about the benefits of ESLs. ***Implementation:*** Rang Dong participates in the project actively through training of its technicians and site visits. It also participates in demonstration projects by providing the CFLs at discounted price for households and farmers who decided to shift from ILs. The company provides resource persons in workshops organized to create awareness and disseminate information.
Dien Quang Company	***Intended role:*** Under the project the company receives support to change its production lines from manufacturing ILs to manufacturing good quality ESLs. It also contributes to awareness raising about the benefits of ESLs. ***Implementation:*** Similar participation with Rang Dong.
Vietnam Lighting Association (VLA)	***Intended role:*** VLA would participate in the exchange of information and studies on the lighting market in Vietnam and would contribute to awareness raising about the benefits of ESLs. ***Implementation:*** VLA has participated in the conduct of market research on status of ESL and ILs markets and degree of penetration of ESLs in Vietnam.
National Television (VTV2) and NGOs	***Intended role:*** VTV2 and NGOs was expected to participate in the dissemination of information and awareness raising campaigns about the benefits of ESLs. ***Implementation:*** Media entities and NGOs provide means for the project

	to disseminate press releases and materials for awareness campaigns of the project.
Global Efficient Lighting Centre (GELC)	***Intended role:*** There was no envisaged cooperation with GELC in the design stage. ***Implementation:*** The UNEP GELC was launched in September 2011 in partnership between UNEP and the National Lighting Test Centre (NLTC). NLTC is a key partner of the UNEP/GEF en.lighten initative with a mandate to accelerate the global phase-out of inefficient incandescent lamps and encourage their replacement with energy efficient, high quality products. GELC is a non-profit organization running as an independent third party. It is a specialized and accredited facility that provides lighting testing, training, advice, quality control and capacity building support to the developing and emerging countries. It has been established to promote the rapid development of the energy efficient lighting technologies around the world. GELC, as a partner in this project, conducts training of manufacturers in Vietnam and the testing laboratories, QUATEST 1 and 3. It is also tasked with organizing site visits of Vietnamese participants to relevant facilities in China.

Source: ProDoc and Consultants' findings

5.7 Milestones/Key Dates in Project Design and Implementation

90. The design of the project was started in 2009 and the project obtained GEF CEO Endorsement in September 2010. The project kick-off took place more than one year later towards the end of 2011. The table below shows the key dates and the corresponding milestone activities of the project.

Table 6. Key dates and milestones of the project

Key Dates	Milestone Activities/Events
9 August 2010	Request for CEO endorsement/approval
8 September 2010	CEO Endorsement
15 December 2010	First disbursement from GEF
10 October 2011	UNEP approval (signing of PCA between UNEP & ISPONRE)
29 November 2011	Kick-off and Inception Workshop
27 December 2011	First Technical Working Group meeting
10 January 2012	First project Steering Committee meeting
23 March 2012	Project Management Manual approved by UNEP
27 March 2012	PSC approval of the first Annual Work Plan and Actual start date of the project
March 2013	Annual Progress Report 2012 submitted
14 March 2013	Latest project Steering Committee meeting
April 2014	Annual Progress Report 2013 submitted

5.8 Changes in Design during Implementation

91. The GoV has been very proactive in taking action towards the phasing out of ILs and promotion of ESLs. Because of this, the GoV undertook certain initiatives that were in line with the objectives and targets of the Project, independently from the Project in between the project design phase and start of implementation. Hence, when the project started, some of the baselines of the Project had changed. This prompted the PMU, in consultation with the GoV, to make some changes in the design of the Project during implementation. These changes are described hereunder.

92. **Component 1.** Business plans will be completed by two main manufacturers only, instead of two to four as stipulated in the Logical Framework (Logframe), since the market review showed that they were the ones with the highest potential for conversion from IL to ESL manufacturing.

93. The manufacturers that had agreed to participate in the Project had already added production lines to produce ESL and would no longer need the technical aids that the Project planned to produce. Hence, Output 1.2 "Technical aids on conversion of IL production lines to ESL" was no longer relevant.

94. **Component 2**. It has been decided that capacity building activities will be done for two laboratories, one in Hanoi and one in Ho Chi Minh city, since they will be doing the testing activities. Also a plan to raise mercury awareness was taken from Component 3 and placed here because it is more appropriate in this component. Furthermore, the GoV through STAMEQ, which is the agency that develops national standards on energy efficiency and EE products, has already established the National quality inspection system for ESLs within a larger inspection system. Hence Output 2.2 "National quality inspection system for ESLs is established" is no longer necessary.

95. **Component 3.** The output entitled "Awareness raised with government and public on safe handling & disposal of mercury content in ESL" has been dropped from this component since it is already included in Component 2, Output 2.5. Also an additional output (Output 3.4) was added: "Draft regulation on ESL procurement for the public sector, based on government demand". Subsequently, because the Prime Minister has already issued Decision no. 68 that mandates all public invested projects have to buy energy efficient products, this output has become redundant and has been cancelled.

96. In comparison with the PIF, GEF financing was reduced by $85,000 to enable GoV to remain within the total GEF funds allocated to Vietnam under GEF-4. However, this reduction in GEF financing was compensated by a corresponding increase in co-financing by ISPONRE for this component thus ensuring that total financing for this component remains unchanged.

97. **Component 4.** Because a national policy to ban the production and use of ILs with capacity higher than 60 W had been promulgated by the Prime Minister before the project started, Output 4.2 "Established national policy for phasing out of ILs" was changed to Output 4.2 "National policy on the implementation of the EE law studied and recommendations formulated". Also, the output (Output 4.3) "The development of financial and fiscal policies, and schemes supporting IL manufacturers' transformation" was changed to Output 4.3 "Development of proposed policy measures and incentives for ESL market development and enhancement through local partners" as requested by GoV.

98. Although this Project was slated to complete in 48 months since the time of conception, there were delays in recruiting international and local experts. Stakeholders had requested expert advice on very specific topics and identification of experts took a long time to complete. Therefore, the implementation of some activities of the Project fell behind schedule and the actual expected completion date is now December 2015 instead of October 2014.

5.9 Reconstructed Theory of Change of the Project

99. This section presents the reconstructed Theory of Change (TOC) of the Project. The ToC was reconstructed from the original LogFrame produced during the design phase and reflected in the ProDoc before most of the data collection (review of reports, in-depth interviews, observations on the ground, etc.) was done. This was needed to define which direct outcomes, drivers and assumptions of the Project needed to be assessed and measured to allow adequate data collection for the evaluation of project effectiveness, likelihood of impact and sustainability. The reconstructed ToC was then discussed with the UNEP Task Manager and the PMU and fine-tuned based on further data collection and analysis.

100. The project strategies are based on the four components designed to achieve the overall aim of the Project. The project outcomes and outputs are derived from the component outcomes and outputs summarized in Table 1 above.

101. The description of the impact is based on the objective of the Project, the related GEF objectives and key indicators as well as the overall objective of UNEP. According to the ProDoc, the overall aim of the Project is to phase out IL production and sale in Vietnam through the transformation of the lighting products market as well as the promotion of high quality ESLs, thus reducing GHG emissions. The intended impact of the Project is therefore to reduce GHG emissions in Vietnam.

102. The Project aims to serve as a pilot under which further national projects in various Southeast Asian countries will be undertaken. This is possible because the GEF implementing agency for the Project is UNEP, which is developing complementary efficient lighting projects at a regional level under the guidance of the present global approach.

103. In order to realize the above impact, the Project has been designed to produce certain outputs that, if achieved, would lead to outcomes envisaged under the different components of the Project. A review of the outputs revealed that some of them are formulated as capacity enhancements, rather than goods and services produced by the Project. Some of these capacity enhancements are even outside the control of the Project, such as establishment of certain policies. Hence, it is recommended that the formulation of these outputs be revised to better reflect the services or goods produced by the project. The suggested revisions are reflected in Table 6 below.

104. Moreover, certain situations have changed in Vietnam between the formulation of the Project and the time it started, which caused the baseline to change. Therefore some expected outputs are no longer relevant and have to be cancelled or replaced as explained under 4.8 above. These changes are as follows:

- Output 1.2 "Technical aids on conversion of IL production lines to ESL" was changed to Output 1.2 "Plan and TORs on lighting industry capacity enhancement program developed".
- Output 2.2 "National quality inspection system for ESLs is established" was replaced by Output 2.2 "Local authorities and inspectors trained on ESL quality inspection system".
- Output 3.4 "ESL procurement plan for public sector developed" was cancelled.
- Output 4.2 "Established national policy for phasing out of ILs" was changed to Output 4.2 "National policy on the implementation of the EE law studied and recommendations formulated".

105. Between the outcomes and the impact, certain intermediate results in the causal pathway are required to happen for the realization of the ultimate impact (reduced GHG emissions).

106. It is expected that the outcomes of the four components would lead to the creation of an institutional, legal, financial, and technical environment that favors EE lighting through the promotion of high-performance and environmentally sustainable lighting technologies. The long-term outcome is envisaged to be the acceleration of the transformation of the market for environmentally sustainable efficient lighting technologies in Vietnam. This transformation becomes evident when the existence of ILs is significantly reduced and the use of ESLs is significantly increased. Although the trend shows that the ILs would eventually be phased out in many countries, including Vietnam, due to pressures related to the environment and energy security, this Project is designed to accelerate the phasing out of ILs and the switch to ESLs in Vietnam.

107. When the market is transformed and the use of ESLs is sustained through market mechanisms, there will be a significant increase in energy efficiency and conservation in residential and commercial buildings and in industries. In turn, this will result in reduced energy demand, allowing the generating utility to reduce power generation relative to the no-change scenario. Other associated results include reduction of system losses[12] and power growth trend. Once these results are achieved, GHG emissions will be reduced.

108. This pathway would be achieved if certain conditions that are external to the Project happen. The drivers (the factors that the project can influence), and the assumptions (the ones that the project cannot influence), for certain results that would be affected by them are given Figure 3, which is the diagram of the reconstructed Theory of Change for this project.

[12] Because of the reduction in power supply due to the switch from ILs to ESLs, the absolute amount of technical system losses is reduced correspondingly.

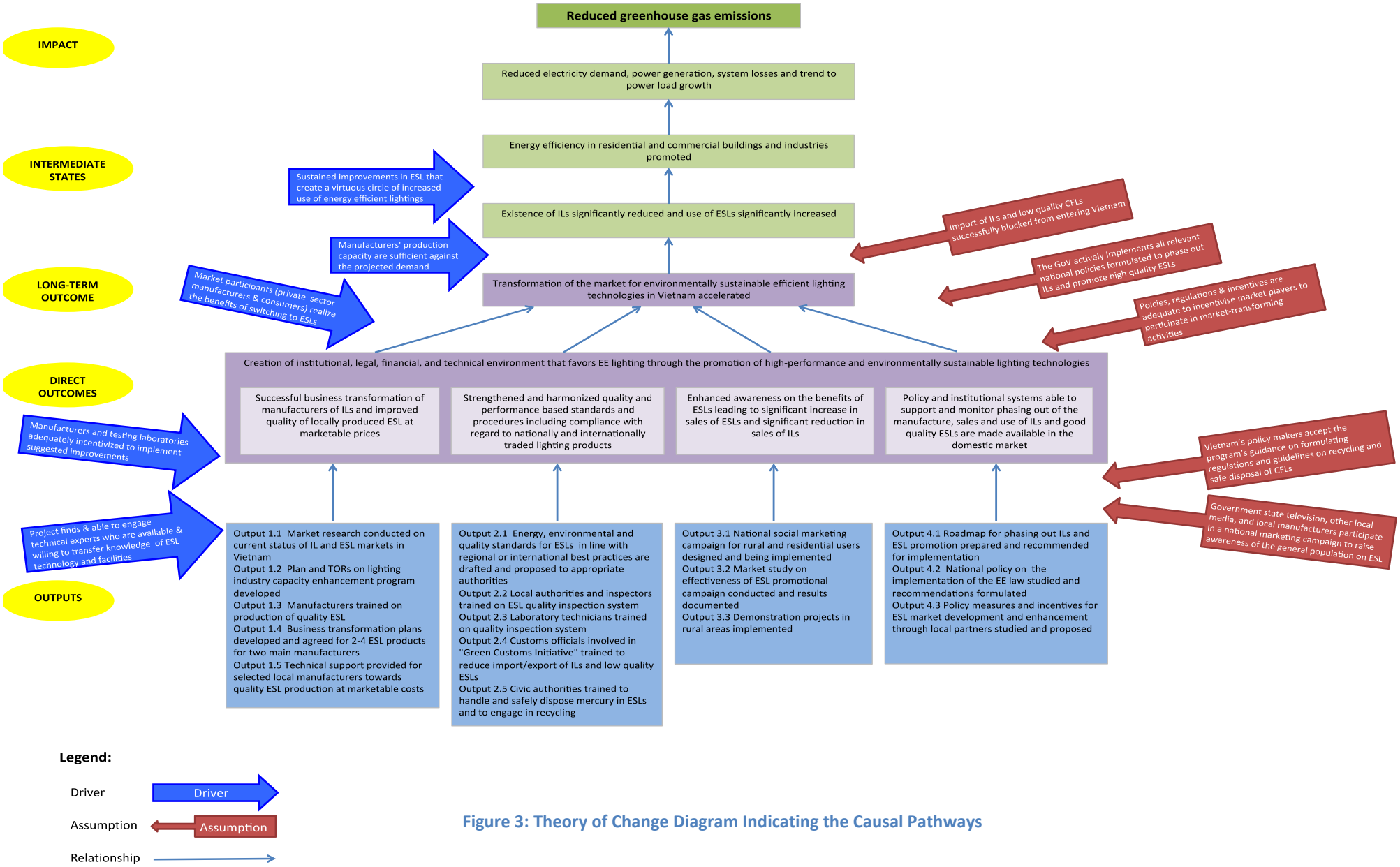

Figure 3: Theory of Change Diagram Indicating the Causal Pathways

6. EVALUATION FINDINGS

6.1 Strategic Relevance

109. This national Project, supporting a national lighting market transformation to phase out incandescent lamps, is consistent with the GEF Climate Change Strategy and its Strategic Program of Promoting Energy Efficiency in Buildings and Appliances, as lighting is a major, omnipresent electricity-consuming application in buildings and public infrastructure. The Project will achieve increased market penetration of ESL technologies, practices, and products in residential and commercial building markets as well as in the public lighting sector. The Project fits the objectives of GEF's Operational Programme #5 (Removal of Barriers to Energy Efficiency and Energy Conservation) and GEF's climate change strategic program on Promoting Energy Efficiency in Residential and Commercial Buildings (SP-1).

110. The Project is expected to contribute to the objectives of three UNEP Sub-programmes, namely, Climate Change by reducing GHG emissions, Harmful Substances and Hazardous Waste by safe disposal of mercury and recycling, and Resource Efficiency, Sustainable Consumption and Production by lighting market transformation from inefficient ILs to ESLs.

111. It supports UNEPs "Global Market Transformation for Efficient Lighting" project. In particular, it was planned that the global project would facilitate the establishment of methodologies for the development of labeling procedures and quality certification; the identification of appropriate policy options for phasing out ILs and introducing latest technology ESLs; and the development of financing mechanisms, appropriate standards, and detailed environmental safeguards under the Project.

112. On the regional level, the Project is important for the region as many Asian countries are actively promoting CFLs through market transformation under the Manila Compact.

113. A brief review of the priorities and policies of the GoV on energy efficiency and conservation programs, environmental, and electricity policy has shown that the Project is consistent with these policies, or at least no aspects have been found to contradict with these policies[13]. These include the following legal documents issued from April 2006 to October 2014:

- Decision 79/2006/QD-TTg of 14 April 2006, approving the National Strategic Program on Energy Saving and Effective Use.
- Decision 80/2006/QD-TTg of 14 April 2006, approving the 2006-2010 electricity-saving program.
- Circular 08/2006/TT-BCN of 16 November 2006, guiding the order of, procedures for energy-saving labeling for energy consumption products.
- Joint Circular No. 142/2007/TTLT/BTC-BCT of 30 November 2007, guiding the management and use of non-business funds for the implementation of the target program on economical and efficient use of energy.
- Decision 377/QD-BXD of 14 March 2008, approving the Program of Thrifty and Efficient Use of Energy and Resources in Construction Activities.
- Law No. 50/2010/QH12 of 17 June 2010 on Economical and Efficient Use of Energy.
- Decree 21/2011/ND-CP of 29 March 2011, detailing the Law on Economical and Efficient Use of Energy and Measures for its Implementation.
- Decree 73/2011/ND-CP of 24 August 2011, regulating the Penalties for Administrative Violations in Energy Efficiency and Conservation.
- Decision 51/2011/QD-TTg of 12 September 2011, promulgating the List of Devices and Equipment subject to Energy Labelling and Application of the Minimum Energy Efficiency, and the Implementation Roadmap.
- Circular 39/2011/TT-BCT of 28 October 2011 on Providing for Training, Grant of Certificates of Energy Management and Energy Auditors.

[13] The brief descriptions of these GoV decisions and policies are given in Annex I.

- Decision 68/2011/QD-TTg of 12 December 2011, promulgating the List of Devices and Equipment subject to Energy Labeling and Application of the Minimum Energy Efficiency, and the Implementation Roadmap.
- Circular 07/2012/TT-BCT of 4 April 2012, defining the Energy Labeling for Means and Equipment using Energy.
- Circular 09/2012/TT-BCT of 20 April 2012, regulating the Planning, Reporting on Implementation of Economical and Efficient Energy Use; Implementation of Energy Audit.
- Decision 1427/QD-TTg of 2 October 2012, approving the National Targeted Program on Energy Efficiency and Conservation, Phase 2012-2015.
- Decision 03/2013/QD-TTg of 14 January 2013, amending and supplementing a number of articles of the Prime Minister's Decision No. 51/2011/QD-TTg of 12 September 2011, promulgating the List of Devices and Equipment subject to Energy Labeling and Application of the Minimum Energy Efficiency, and the Implementation Roadmap.
- Decision 1559/QD-BCT of 14 March 2013 on Announcement on the Energy Labeling for Computer Monitors, Printers, Photocopiers, Air Conditioners with Frequency Converter and Television Receivers.
- Circular 19/2013/TT-BNNPTNT of 15 March 2013, guiding the Measures for Economical and Efficient Use of Energy in Agricultural Production.
- Circular 15/2013/TT-BXD of 26 September 2013, issuing the National Technical Regulation on Energy Efficiency Buildings.
- Decree 134/2013/ND-CP of 17 October 2013, regulating the Penalties for Administrative Violations in the areas of Power, Hydropower Dam Safety and Economical and Efficient Use of Energy.
- Decision 78/2013/QD-TTg of 25 December 2013, promulgating the list and roadmap of energy-consuming equipment to be removed and low-efficient power generators not to be newly constructed.
- Circular 02/2014/TT-BCT of 16 January 2014, defining the Measures for Economical and Efficient Use of Energy in Industries.

114. ***Rating:*** The MTE rating of **Highly Satisfactory** is given to the Project in view of the direct relevance of its objectives and implementation strategies with: i) Sub-regional environmental issues and needs; ii) the UNEP mandate and policies at the time of design and implementation; and iii) the GEF Climate Change focal area, strategic priorities and operational programmes. The rating also reflects its high consistency with the priorities and policies of the GoV.

6.2 Achievement of Outputs

115. The assessment of the achievements of the different outputs and activities of the Project in comparison with the Objectively Verifiable Indicators (OVI) as indicated in the Project's Logical Framework has been made using the documentation produced by the PMU and interviews with different stakeholders of the Project. The major achievements of the Project are described here.

6.2.1. Component 1

116. **Component 1** refers to "Local Lighting Industry Capacity Enhancement Program". The Lead Agency for this component is ISPONRE. This component has five planned outputs consisting of the following:

- Output 1.1: Market research conducted on current status of IL and ESL markets in Vietnam
- Output 1.2: Plan and TORs on lighting industry capacity enhancement program developed
- Output 1.3: Manufacturers trained on production of quality ESL
- Output 1.4: Business transformation plans developed and agreed for 2-4 ESL products for two main manufacturers
- Output 1.5: Technical support provided for selected local manufacturers towards quality ESL production at marketable costs

117. According to the Project's Logical Framework, the following are the Objectively Verifiable Indicators (OVI) of these outputs:

- 60 million ILs phased out by the end of the Project[14]
- IL manufacturers are trained on all aspects on conversion of IL to ESL production by the end of the Project
- Technical guidelines and handbooks developed and disseminated
- ESL manufacturers are trained in upgrading ESL production facilities and methods to production of good quality ESLs
- Trained IL manufacturers have developed and submitted business plans for conversion of IL production to production of two to four good quality ESLs
- Business plans for conversion of IL production to production of good quality ESLs are accepted
- Employees of at least two manufacturers are trained and technically capable of converting existing production lines
- At least two testing facilities of local manufacturers are supported

118. The target beneficiaries of this component are the local manufacturers who currently produce ILs and relatively low quality CFLs. The aim of this component is to support the manufacturers in switching their production lines from ILs to ESLs and build their capacities in developing and producing high quality products. This would be accomplished through training, technical assistance and field visits to appropriate facilities.

119. After a market research plan had been developed, market research was carried out with contributions from VLA, Institute of Energy (IE) and hired experts. Public consultations in local areas representing three regions were conducted to get stakeholders' comments on the draft report. According to the findings of the research, the total volume of the market in Vietnam at that time was 384 million of lamps of all kinds. Out of these, the total number of incandescent lamps was 34.5 million. 60% of families were using incandescent lamps with an average number of approximately 2-3 bulbs per family. Completion of the market research reportedly encountered some delays due to lack of coordination among local consultants.

120. The project engaged the GELC based in China and local consultants to provide training to the two manufacturers, Rang Dong Company and Dien Quang Company. Before the training activities were done, a planning mission was conducted to assess the needs of the manufacturers. The mission team proposed detailed plans on lighting industry capacity enhancement program for two manufacturers, Rang Dong Company and Dien Quang Company.

121. The training was organized separately for each manufacturer and consisted of three days for each company. The training, which was conducted in January 2014, covered several aspects, namely:

- Training of Rang Dong and Dien Quang workers currently working in IL production Lines to transfer to CFL and FL production lines;
- Training course on "Reduction of Mercury in CFLs" for Rang Dong and Dien Quang;
- Training course on "Heat Dissipation of LED" for Rang Dong;
- Training course on "Mass production of LED" for Dien Quang;
- In addition, the consultants supported Dien Quang in developing a R&D model.

122. The Annual Progress Report of 2013 reported that the training course conducted for Rang Dong "*partly satisfied the company's requirements of the theoretical sides, especially the training contents about CFL.*" The training program for Dien Quang "*partly helped the R&D officers have more knowledge about designing LED bulbs and the common drivers, which could help the R&D officers get more experience in choosing the designing methods.*" However, in Rang Dong's opinion, the training did not completely meet the company's requirements because the experts discussed mainly theoretical issues and lacked provision of practical knowledge regarding issues in the production lines. Similarly, Dien Quang opined that the international experts were too theoretical and lacked knowledge of specific methods to implement practical solutions to the problems they faced. Moreover, the time frame of the training program was too short to provide real benefits to the company.

123. The Director General (DG) of Rang Dong indicated that the company has gained much from the training and contribution of the experts. On the topics of CFLs and FLs, the experts were able to handle

[14] This is not an appropriate output indicator and was therefore not used to assess achievement of the outputs under component 1.

questions and address the issues. They were open to discuss different topics and seemed not to withhold their knowledge. The DG believes that this was reasonable given that the technologies to produce FLs and CFLs are quite mature. With the help of the scientists from Rang Dong's R&D Center, which the DG claims to have the best scientists in the country on lighting and materials, they were able to absorb the knowledge from the training and obtained quick results. The evidences of such results are as follows:

- On mercury reduction in CFLs:
  - Mercury level has reduced for 20 types of CFL products from 7.5 mg to 5 mg for some types and from 19.2 mg to 8.4 mg for others.
  - Export of CFLs (to Egypt, Middle East, Brazil, South Korea, Laos, Cambodia) has increased from 1,030,000 units in 2013 to 1,340,000 units for the first six months of 2014.
- On fluorescent coating:
  - The consumption of fluorescent powder has reduced.
  - The distribution of coating has become more even, i.e., the ratio of evenness (C_{ph}) has increased from 0.24 to 0.51.
  - The proportion of rejects has reduced from 14% down to 11.22%.

124. On the other hand, the DG was not so satisfied with the aspect of the training on LED. He observed that the experts could not answer the questions of his staff satisfactorily and he perceived that the experts were withholding their knowledge, especially related to new technologies and production techniques. Despite these feedbacks, the DG frankly indicated that his scientists gained some value from the training on this aspect. The training and interaction with the experts somehow led to an increase in production of LED from 677,000 units in 2013 to 532,000 units in the first five months only of 2014. Other than the benefits from the training, the DG also attributes this significant increase in production to reasons such as:

- Active R&D initiatives by the scientists in the company's R&D Center;
- Company's policy to guarantee the reliability and quality of its products;
- Company's commitment to reduce the price of its products;
- Business development strategy to increase/focus on the production of LEDs to compensate for the reduction in ILs;
- Investment in new production lines to produce LED accessories and assembly.

125. The interview with the Assistant General Director (AGD) of Dien Quang confirmed the low satisfaction of the participants on the training received as reported in the Annual Progress Report of 2013. The reasons given by the AGD for the low satisfaction are the following:

- The experts provided broad theory and general knowledge;
- The experts seemed to keep secrets on aspects related to production;
- The training lacked practical inputs specific to the design of the products;
- The training duration was too short (should be more than 2 weeks instead of 3 days).

126. Both the DG of Rang Dong and the AGD of Dien Quang were convinced that for this type of training, the experts who are still actively working for a manufacturing company are not the most suitable, although they have the appropriate knowledge. The reason for this is that these experts may be bound by confidentiality with their companies and therefore, may not be able to provide specific knowledge that would violate company secrets. It would appear that the most suitable experts would be those who have come from the manufacturing industry and have retired from their employment. However, asked if they know of any experts or source of expertise for their requirements, both of them indicated that it would be difficult to find these experts.

127. Based on interview with the GELC Project Manager and Dr. Zhang (one of the experts who provided the training), from their perspective, the training complied with the agreed TOR and was very useful and helpful to the participants. This success was due to the fact that the experts provided by GELC came from the lighting manufacturing sector. They have lots of experience and have good understanding of the issues and problems covered in the training. The GELC experts believed that the issues raised by the participants have been answered. For problems that the experts could not solve during the training, the experts explained to the participants the approaches to solve the problems. Moreover, GELC indicated that they managed to match the requirements of the manufacturers based on the needs assessment.

128. In spite of the above positive observations, GELC opined that certain factors did not work favorably in organizing an ideal training program. Firstly, because of the language barrier and the necessity for a translation, there may have been some gaps that caused some language problems. Secondly, the topic being dealt with is high technology that rapidly changes with the market. Hence, the development of the technologies involved may have been faster than anticipated. The initial problems and issues raised by the manufacturers during the needs assessment may have changed in the meantime when the training program started. Problems and issues raised by the manufacturers may have been different from the materials and preparations made by the experts. Thus, the manufacturers may have considered that the training was not adapted to their current situation. Thirdly, for this kind of training that is directly related with the practical issues in the manufacturing, the experts are normally prepared to deliver knowledge, but may have difficulty to solve problems on the spot.

129. GELC had been happy to participate in this project and would be willing to get involved in further activities that the PMU would deem appropriate.

130. To supplement the training with exposure on modern manufacturing facilities, a field trip was organized by the Project to China with GELC as the host organizer. This was conducted on 10-15 March 2014 and attended by participants from Rang Dong and Dien Quang (3 participants from each company). Visits were made to the laboratory of GELC, showroom of Chinese lighting products, the largest dedicated market of lighting products and factories producing bulbs such as Yankon and Topstar.

131. The Annual Progress Report of 2013 reported that the field trip was not effective because the time spent in the places visited was too short due to the long travel time from one place to another. This reduced the time spent in the discussions with the host facilities visited and limited the time required for taking notes on technical parameters that they considered important for learning and acquiring the knowledge on the new technologies. The executives of Rang Dong and Dien Quang perceive that the manufacturers visited withheld some information in a manner that was more than necessary. Moreover, the participants were only allowed to see the production line from afar, which prevented them to learn visually at close range. They did not receive answers to their specific questions and they did not receive enough information related to production. Despite these observations, Rang Dong acknowledged that the trip was still useful and Dien Quang admitted that their participants learned some lessons in managing the facilities and observed some technological steps that they could apply to improve the quality of their CFL and LED production.

132. GELC is convinced that given the tight schedule and the baseline of the Vietnamese manufacturer's knowledge and manufacturing facilities, they have put together a program that they believed would be useful and was probably unprecedented for the two Vietnamese lighting manufacturers.

133. The MTE Consultants observed that the two manufacturers had high expectations on the technology and knowledge transfer that would come from the experts provided by GELC and on the study tour to China organized by GELC. These expectations included:

- Provision of detailed processes and techniques on the aspects related to mercury reduction, heat dissipation and ESL production,
- Transfer of practical knowledge related to design and manufacturing,
- More extensive and closer exposure to production lines and equipment during the visits.

134. Such expectations, although justified from the private sector and commercial perspective, go beyond the mandate and budget of the Project. Such kind of knowledge and technology transfer would need much more training time and would belong to the category of business-to-business (B2B) engagement. In addition, the experts who could provide such knowledge, experience and techniques are rare to find. It must be understood that for this type of technology, the situation in the market changes rapidly. The manufacturers need to react quickly to the changing market, and so during the training the issues they raised may have been different from those identified during the needs assessment. It is therefore understandable if the experts from GELC had some limitations in addressing all the issues raised and answering all the questions asked by the manufacturers.

135. Other social aspects may also have been at play in the interaction between the Chinese trainors and the Vietnamese participants. First is the language barrier. Due to the low proficiency of both parties in speaking and understanding English, a translation was required, which could have reduced the effectiveness of the communication process. Then there is the element of seeming "mistrust" between

the two nationalities due to historical reasons. Few months before the interview was conducted for this MTE, the tension between the two countries had been at a peak with the Vietnamese turning against Chinese nationals who were living in Vietnam. It is therefore not unusual if the feedback of the manufacturers towards the training conducted by the Chinese experts would be tainted by a tinge of critical bias against the experts.

136. On the business transformation / marketing plans, the Project has assisted Dien Quang to develop a marketing plan for waterproof CFL for off-season use in the dragon fruit plantation. This marketing plan was completed in April 2014, later than the expected completion date. According to the PMU, the reasons the plan was finished behind schedule were late approval of the Annual Work Plan 2013, late recruitment of the expert and poor coordination between the expert and Dien Quang. Rang Dong, on the other hand, has not requested for support in this area because they have in-house capability to prepare the marketing plan.

137. Component 1 also envisaged to provide technical support for selected local manufacturers towards quality ESL production at marketable costs. This was conducted in conjunction with the training provided by GELC. Altogether, about 40 technical staff of Rang Dong and about 30 technical staff of Dien Quang have been trained and supported. Additional training activities are planned in the remaining period of the Project.

138. ***Rating:*** The planned training of, and support to, the manufacturers' technical staff have been conducted, but with some issues on satisfaction of participants. However, the expectations from where the degree of satisfaction was based are considered outside the mandate and budget of the Project. There have also been issues related to late start and completion of training activities. With additional training and careful selection of topics and experts, the expected outputs could be attained by the end of the Project. The MTE rating for Component 1 is **Satisfactory.**

6.2.2. Component 2

139. The focus of **Component 2** is on "Improved QA/QC Framework". The Lead Agency in executing Component 2 is the MOST.

140. The expected outputs of Component 2 are as follows:

- Output 2.1: Energy, environmental and quality standards for ESLs in line with regional or international best practices are drafted and proposed to appropriate authorities
- Output 2.2: Local authorities and inspectors trained on ESL quality inspection system
- Output 2.3: Laboratory technicians trained on quality inspection system
- Output 2.4: Customs officials involved in "Green Customs Initiative" trained to reduce import/export of ILs and low quality ESLs
- Output 2.5: Civic authorities trained to handle and safely dispose mercury in ESLs and to engage in recycling

141. The attainment of these outputs carries the following OVIs as per the Project's Logical Framework:

- Lighting standards for ESLs are harmonized with regional and international best practices
- Quality supervision system is established by year 2
- Identified specific requirements and recommended course of action based on needs assessment by international consultants
- Workshop has been successfully conducted under the "Green Customs Initiative" to train customs officials in reducing import/export of ILs and low quality ESLs
- Number of seized shipments has increased
- Technical guidelines are developed
- Draft regulations on ESL recycling and disposal have been submitted
- Incentive plan for recycling ESLs has been submitted
- Plan to raise mercury awareness has been submitted

142. The target beneficiaries of this component are the national testing laboratories QUATEST 1 and QUATEST 3. QUATEST stands for the Quality Assurance and Testing Center, which is under the supervision of STAMEQ.

143. The aim of this component is to strengthen and harmonize the quality and performance of lighting products in Vietnam based on standards and procedures that comply with nationally and internationally traded lighting products. This involves drafting of standards and guidelines related to production of ESLs and their disposal and training of laboratory technicians.

144. The Project worked with the VSQI to draft and eventually secure approval of two standards; i.e. (1) Standard IEC 62554:2011 - *"Sample preparation for measurement of mercury level in fluorescent lamps",* and (2) Standard IEC 62384:2006 – *"DC or AC supplied electronic control gear for LED modules - Performance requirements".*

145. The Project also supported STAMEQ to develop and promulgate two standards consisting of the following: (i) ISO 9892: 2013 IEC 62384:2011, *"Electronic lamp control gear for fluorescent lamps - safety requirements"* and (ii) ISO 10172:2013 IEC 62554:2011, *"Preparation of samples to measure levels of mercury in fluorescent bulbs".*[15]

146. Another accomplishment within this component is the completion of a report that included a proposal on the draft *"Guiding Circular for the Decision 50/2013/QD-TTg on disposal of discarded products including lamps".*

147. After GELC and local experts conducted a survey and evaluation of the situation of QUATEST 1 and 3 in November 2013, training activities were conducted for QUATEST 1 and 3 in March 2014 on the following topics: (i) Lighting performance index, (ii) Photometrics, (iii) Colorimetry, (iv) Testing parameters, (v) Methods of testing LED and CFLs.

148. This training was done in English directly. There was no need for any translation. The feedback from QUATEST was that although the training was useful, the content was more on theory. The participants expected a more practical content through on-the-job training method.

149. The project, through GELC, organized a study trip to China in March 2014. According to the participants from QUATEST 1 and 3, the trip has not been really effective since the time spent for travel was too long which made the time for visiting/discussing the technical aspects too short. The openness of the facilities visited was also limited.

150. As part of the work plan for 2014, the Project plans to support the following:

- Review and enactment of the standard TCVN 7896:2008 "Compact fluorescent bulbs - energy efficiency" and standard TCVN 7590-2-3: "Electronic lamp control gear for fluorescent lamps - safety requirements".
- Development and enactment of the standard for LED module in common lighting - technical requirements.
- Development and enactment of guiding Circular of Decision No. 50/2013/QD-TTg on collecting and disposal of discarded products.

151. Within this component, one expected output (Output 2.2) was to establish the National quality inspection system for ESLs. However, STAMEQ has already established the National quality inspection system for ESLs within a larger inspection system before the project started. Hence, this output is suggested to be replaced by "Local authorities and inspectors trained on ESL quality inspection system" and will be conducted during the remaining period of the Project.

152. The training of Customs officials involved in "Green Customs Initiative" has not started yet and is planned during the remaining period of the Project.

153. The safe disposal of mercury in CFLs is one of the concerns in this component. For this, an Expert Group was formed consisting of one International Expert and four National Experts to undertake the tasks. First, a study on the theoretical foundation, international experience on recycling technology and safe disposal of mercury in CFL was conducted. This was largely completed but behind schedule due to the late approval of the Annual Work Plan 2013 and delayed signing of contract with the international expert. An investigation was made on the current situation on recycling and safe disposal of CFLs in Vietnam. This activity also yielded the drafting of the Guiding Circular for the Decision 50/2013/QD-TTg on disposal of

[15] These standards developed by both VSQI and STAMEQ were based on existing international standards. The local team modified and customized the original standards to consider the local context and harmonize with national protocols.

discarded products including lamps. It is planned that in the coming year the Project will support the Vietnam Environmental Administration (VEA) in the development and enactment of guiding Circular of Decision No. 50/2013/QD-TTg on collecting and disposal of discarded products.

154. ***Rating:*** In line with expectations for this component, the MTE considers that the Project has made some strides towards achieving the expected outputs. The drafting and approval of two standards by working directly with VSQI and two standards with STAMEQ are considered significant achievements during this mid-term stage of Project implementation. There are activities that are no longer necessary due to changes in the baseline. Some activities that have not been started are included in the approved 2014 Work Plan and have adequate resources to achieve them. The MTE rating for Component 2 is **Satisfactory.**

6.2.3. Component 3

155. **Component 3** covers the aspect of "ESL Market Transformation and Consumer Education and Awareness". This component's expected outputs are:

- Output 3.1: National social marketing campaign for rural and residential users designed and being implemented
- Output 3.2: Market study on effectiveness of ESL promotional campaign conducted and results documented
- Output 3.3: Demonstration projects in rural areas implemented

156. According to the project's Logical Framework, the OVIs of the outputs are:

- GoV has carried out at least one ESL awareness raising and promotion campaign for each province, produced and disseminated annual ESL promotional materials starting from 2011, and developed a roadmap/master plan for ESL promotion
- Study has been carried out to evaluate impact of ESL promotional campaigns
- A roadmap/master plan for ESL promotion has been developed
- Minimum of three demonstration projects, involving the installation of a minimum of 1,000 ESL products each, have been developed and implemented in selected rural areas

157. The target beneficiaries of this component are users of ILs and potential users of ESLs, consisting of households, commercial buildings and industries. It focuses on increasing public awareness in Vietnam, which is home to over 86 million inhabitants. This component aims to help address the barriers related to the marketing and promotion of ESLs and the phasing out of IL production and sales.

158. First, the project designed a **national social marketing campaign** for residential users in both rural and urban areas. In order to understand better the situation in the field, consultations were conducted in the provinces of Thai Binh, Nam Dinh and Nghe An. This resulted in the development of a Communication Strategy and Program on how to target the marketing of ESL for consumers in urban and rural areas. This consisted of 10 sub-activities including: (i) a series of mini-films about the phasing out of IL; (ii) creating a social webpage for networking of Project participants in Facebook; (iii) developing the webpage of the Project; (iv) Organizing of training, workshops, forum; (v) Organizing contests on writing and creating a video clip nation-wide; (vi) Organizing contests about ESL study; (vii) A program on "Distribution of free-of-change ESL"; (viii) Printing of communication products; (ix) Communication in school: electricity saving commitment; (x) Communication in school: Image reporter. The report on the design of a national social marketing campaign was completed successfully, but behind the initial schedule because of lack of coordination among experts.

159. The implementation of the strategy was done in cooperation with different partners. The Project collaborated with the Natural Resources and Environment Newspaper for the propagation and dissemination of the Resolution of the Party Central Committee on responding to climate change, natural resource management and environmental protection, focusing on energy efficiency and phasing outs of ILs. Specifically, the newspaper has published five paper journals, ten news articles and ten brief information articles that reflect the themes of the Project.

160. The Project also collaborated with the Natural and Environment Journal in carrying out research and discussions related to responding to climate change, resource management and environment

protection, focusing on energy savings and the switch of ILs to ESLs. The Journal published ten thematic write-ups, eight news articles and six photographs.

161. The Project cooperated with Light & Life Magazine in organizing a writing contest about energy savings and switching from using ILs to ESLs. This competition was opened from September 30, 2013 throughout Vietnam. The topic was on educating and raising public awareness about saving energy to protect the environment and develop the national economy and society. Of the 50 entries received, the organizers decided to offer 13 official awards and seven consolation awards.

162. Media conferences were organized on eliminating incandescent bulbs in Binh Thuan and Da Lat.

163. During the field visits, it has been observed at the early stage of the project that in some areas, consumers were already aware of the economic benefits (through monthly savings in electricity bill) of shifting from ILs to ESLs. Some had already changed their lamps to ESLs. However, they were not aware of the environmental benefits. The existence of economic benefits in addition to the environmental benefits has made it easier for the PMU to convince the consumers to make the shift to ESLs, which has been a positive driver in the Project.

164. **For the demonstration projects**, three types of activities have been completed, namely: (i) switching from ILs to ESLs in agriculture activities in the areas of Binh Thuan and Da Lat; (ii) replacing ILs in the households in the provinces of Cao Bang, Ha Tinh, Ninh Thuan; (iii) supporting new installation of LEDs in ISPONRE building. In each demonstration project, ISPONRE disseminated the results through different channels such as seminars and media campaigns[16]. Summary reports have been sent to the agencies in provinces that carried out and collaborated in the demonstrations projects. However, considering that there are important lessons and recommendations that could be derived from these experiences for replication in other areas, dissemination to a greater audience could be envisaged.

165. For the demonstration in the household level, the Project gave out 4,000 CFLs for each province of Cao Bang, Ha Tinh and Ninh Thuan, 2,000 calendars for 2,000 households and 160 CFL kits for health centers, schools and houses of culture. Training sessions were also organized for switching from ILs to ESLs in these three provinces.

166. The demonstration projects are considered effective in changing the attitude of the people in the community regarding the switch from the use of ILs to CFLs. For instance, in the three communes in Ha Tinh province where CFLs have been promoted at the household level, the penetration of CFLs before the demonstration activity started was 30%-40%. By around the end of 2013, all of ILs had been replaced, attaining a penetration level of 100% CFLs. Consequently, the people in these communes now automatically buy CFLs. This phenomenon is similar in the other two provinces.

167. Although the demonstration project, which consists of giving CFLs to households for free, was targeted to selected communes, the training workshop and awareness campaign was done at district level. Subsequently, it was observed that the penetration level of CFLs in other communes had also increased.

168. The manufacturers have been actively involved in the conduct of the training workshops. Firstly, the technicians provided technical information as resource persons during the workshops. Secondly, the manufacturers offered discounts for the purchase of CFLs for a certain period of time to reduce the burden on the price difference between IL and CFL.

169. On the switch from ILs to ESLs in the agricultural sector, the Project cooperated with the Dragon Fruit's Research and Development Center in Binh Thuan to use 3,300 anti-moisture compact light bulbs in 10 plantation farms of dragon fruit. In Da Lat, the Project collaborated with the Da Lat Flower Association to provide 2500 anti-moisture compact light bulbs to 17 households who are planting chrysanthemum. The accomplishment in the agricultural sector has been equally encouraging. In addition, the district committees have been involved. The criteria for choosing the two provinces and the individual farmers for demonstration were as follows:

- Low penetration of CFLs in the district and commune level;
- Interest and motivation of farmers to participate and use their farm for demonstration;

[16] Despite several requests, ISPONRE did not provide further detail on dissemination activities to the evaluators.

- The farmer is not a current believer in CFL.

170. As part of the preparation for the demonstration activity, the Project cooperated with the manufacturers, Rang Dong and Dien Quang, to conduct a study on the potential and suitability of CFLs in the agricultural sector. The results of this study were disseminated to the farmers.

171. At first, many of the farmers did not believe in the results of the study; i.e., that CFLs would be suitable for their requirements and could give them economic benefits. Moreover, the Project faced some barriers, such as:

- Some farmers still possess ILs in their stocks. Since these reserves have not been used, they are reluctant to dispose of them.
- Cost factor: the cost of CFLs is around four times the cost of ILs. Because the farms require about 1,000 bulbs for every hectare of plantation (for dragon fruit), changing the bulbs at one time would be a huge investment for the farmers.
- There is a concern regarding theft. The bulbs are exposed in the field, and since CFLs are expensive, the likelihood of theft is high.

172. Despite these barriers, some of the farmers participated due to the support provided by the Project, the Dragon Fruit's Research and Development Center and the manufacturers. These include:

- Provision of CFLs for free;
- Information on potential cost and energy savings;
- Guidance on safety in the use of CFLs;
- Technical support from the Center;
- Guarantee on the harvest of fruit that the use of CFLs will not reduce the harvest;
- Guarantee from the manufacturers on the quality of the CFLs.

173. The results of the demonstration activity have been significantly beneficial to the participants. Before the intervention of the project, the electricity cost for the farmers to use incandescent bulbs for the lighting of the dragon fruit plantation at night amounted to 10 million Dong per hectare per crop. After the switch to CFLs, the cost was reduced to 3 million Dong per hectare per crop. With two crops per year, this provided electricity savings of 14 million Dong per hectare per year.

174. Aside from the direct electricity savings, there is also saving in the replacement cost. Considering the replacement costs for both ILs and CFLs and their corresponding life times, the savings in replacement costs by switching to CFLs amounts to an equivalent of 9.87 million Dong per hectare per year.[17] Other benefits include the use of smaller electrical cables due to the lower voltage required and the lower failure rate of CFLs. In addition, the harvest has not been affected.

175. The PMU has indicated that before the start of the demonstration projects in the agricultural sector of the two provinces, there were about 30% of the farmers who were using CFLs in their farms. Currently, about 50% of the farmers use CFLs in their farms.

176. Finally, the Project supported ISPONRE in switching to LED lights to reduce power consumption and to contribute in raising awareness of the Institute's staff on the benefits of using ESLs. Energy savings and economic benefits were calculated based on the figures on the electricity bills issued by EVN, such as the quantity of electricity usage before and after the bulb replacement and corresponding payment charges. The results consisting of energy savings and monetary benefits were then disseminated via meetings/workshops that introduce the Project's achievements to different parties.

[17] The assumptions for this calculation per hectare of dragon fruit plantation are as follows:

No. of bulbs	1000	units
Price of IL	12,000	Dong/unit
Lifetime of IL	1,200	hours
Price of CFL after discount	33,000	Dong/unit
Lifetime of CFL	8,000	hours
Usage in the plantation	1,680	hours/yr

177. The **market study on the effectiveness of ESL promotional campaign** (Output 3.2) is planned to be conducted towards the end of the Project.

178. Other future activities within this component that are planned for the remaining period of the Project include the following:

- Promotion in the household sector to include coastal areas (from previously mountainous areas);
- More training courses;
- Support to reduce the price of CFLs for poor people;
- More communication activities to increase awareness.

179. ***Rating:*** The Project has completed the design of a national social marketing campaign, developed the Communication Program on how to target the marketing of ESLs for consumers in urban and rural areas, collaborated with newspapers and magazines to disseminate information, and organized media conferences on eliminating ILs. The Project has also completed three demonstration projects: two provinces in switching from ILs to ESLs in the agricultural sector; three provinces in switching from ILs to CFLs in households; and one commercial building in switching to LED lights. These involved the installation of 17,800 CFLs and a number of LEDs. Given these accomplishments vis-à-vis the OVIs, the MTE's rating for the achievement of outputs for Component 3 is **Highly Satisfactory**.

6.2.4. Component 4

180. The focus of **Component 4** is on "National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs". Component 4 is being coordinated by MOIT. The expected outputs of Component 4 comprise the following:

- Output 4.1 Roadmap for phasing out ILs and ESL promotion prepared and recommended for implementation
- Output 4.2 National policy on the implementation of the EE law studied and recommendations formulated
- Output 4.3 Policy measures and incentives for ESL market development and enhancement through local partners studied and proposed

181. The OVIs for Component 4 indicated in the project's Logical Framework are:

- Actual national roadmaps and master plans for the phasing out of ILs and promoting ESLs that are ready for implementation
- Recommendations have been made to GoV with regard to phasing out ILs
- Draft guidelines on the implementation of the EE law with regard to the efficient use of lighting products have been developed
- Adopted policies on phasing out, production and utilization of ILs by the end of the Project
- Implementation of incentive for ESL recycling
- Proposals of other potential incentives are made to GoV with focus on financial mechanism
- Adopted policies on the promotion of ESLs by the end of the Project

182. To date, the Project has accomplished two major results from Output 4.1 within this component. The first one was the preparation of the report on "Review legislations, provide suggestions/recommendations and financing mechanisms to implement a roadmap of energy labeling for ESL". The second accomplishment was the completion of the report on "Guidelines for the implementation of the energy efficiency labeling roadmap." These two activities have been executed behind schedule due to delays in determining the content of the activity & recruiting of local consultants and lack of cooperation issues with consultants. Although the drafts have been completed, the final reports are still being polished and the PMU has not accepted the reports provided by the consultant. Hence, the quality of these reports has not been reviewed.

183. The PMU has acknowledged that because the Government's ban on ILs with capacity over 60 W had been issued before the start of the project, the roadmap for phasing out ILs and ESL promotion (Output 4.1) to be prepared by the project should focus on the phasing out of ILs that are 60 W and less.

184. The accomplishment under Output 4.2 was the support provided to MONRE in preparing the proposal on *"Responding to climate change; protection of natural resources and environment",* which was submitted to the 7th Conference of the XI Congress of the Party Central Committee and was accepted by the 7th meeting of the Party Central Committee intake XI on June 3, 2013. In the 2014 Work Plan the activity planned was the conduct of a study on developing statistical indicators on energy use in National Statistical System. The activities leading to this output do not seem to directly help in achieving the outcome expected for this component. It must be noted that the focus of this component is the enhancement of policy and institutional support leading to the phasing-out of ILs. The activities related to the "protection of natural resources and environment" and "developing indicators on energy use in National Statistical System", useful as they seem to the agencies being supported, do not seem to have a strong direct bearing on the focus mentioned.

185. Output 4.3 has not been started yet but is included in the 2014 Work Plan.

186. ***Rating:*** The activities performed and planned for Output 4.2 do not seem to directly help in achieving the outcome expected for this component. In order to have a significant impact in achieving the expected outcome, the activities need to support the establishment of policies and institutional mechanisms that would accelerate the phasing out of ILs and promote the use of ESLs. The Prime Minister had promulgated a ban on the production of ILs of over 60 W, which had been largely instrumental in the reduction of the use of ILs from 60 million units in 2010 down to 34.5 million units in 2012. However, it must be noted that this happened before the project started in 2012. The MTE rating for Component 4 is **Moderately Satisfactory.**

187. The Overall Rating of the Project in terms of achievement of outputs is **Satisfactory.**

6.3 Effectiveness: Attainment of Objectives and Planned Results

188. The MTE has assessed the extent to which the Project's objectives were effectively achieved or are expected to be achieved. This assessment has been structured based on the achievement of direct outcomes as defined in the reconstructed ToC, and the achievement of the formal Project overall objective, overall purpose, goals and component outcomes using the Project's own results statements as presented in original Logical Framework.

189. The reconstructed TOC contains four direct outcomes. The Project's achievements in each of the outcome are summarized below.

6.3.1. Direct Outcome 1: Successful business transformation of manufacturers of ILs and improved quality of locally produced ESL at marketable prices.

190. It was expected that this outcome consisting of the business transformation of the manufacturers would show that a minimum of 35% of production lines have been changed from ILs to ESLs by mid-term; 35 million of good quality ESLs would be manufactured per year and sold in Vietnam by the end of the second year of project implementation; and a minimum of two large manufacturers would produce good CFLs for local market that comply with the local standards[18]. The achievement of these results was expected to lead to the acceleration of the transformation of the market for environmentally sustainable efficient lighting technologies in Vietnam.

191. Overall, the Project has made some reasonable accomplishments. Rang Dong has indicated that it has started to switch to ESLs and reduced the production of ILs from 50 million units in 2012 down to 40 million in 2013 and to a target of 30 million in 2014, a reduction of 40% in two years compared to the target of 35% (for the whole of Vietnam). Dien Quang, on the other hand, has started to reduce their production of ILs since 2010, achieving a reduction of 50% from 10 million units in 2010 to 5 million units in 2013. Considering that these two manufacturers have the majority of the market share, their impacts are significant in achieving the target of the Project. In terms of producing good quality ESLs, both Rang Dong and Dien Quang companies are able to produce high quality CFLs with average life of 6,000 hours. With the phasing out of ILs with capacity over 60 W, the market share for CFLs is increasing. From the

[18] Based on Objectively Verifiable Indicators in the Project's Logical Framework.

market research carried out by the Project, the number of ESLs sold at present is approximately 42 million units per year, compared to the target of 35 million units on the second year of the project implementation. There are three big companies who can produce good quality ESLs, namely: Rang Dong, Dien Quang and Philips. All of them are targeting to switch from the production of ILs to ESLs with the targeted proportion of production of ESLs of up to 50% in the next couple of years. The fact that two of these companies (Rang Dong and Dien Quang) who are participating in the Project have a combined market share of over 80% makes a big difference in the effectiveness of the Project.

192. On the other hand, the objective of phasing out of the use of ILs by the end of the Project, which was estimated at 60 million units annually at the time of project design, is not very likely to be attained. Although the use of ILs has reduced to 34.5 million units in 2012, this is largely due to the ban on the importation, production, and circulation of ILs with capacity higher than 60 W by the Prime Minister of Vietnam via Decision No. 51/2011 made on September 12, 2011. As of this MTE, there is no indication, however, that the banning of ILs of less than 60 W will happen soon, or that illegal imports of ILs from outside Vietnam would be completely stopped within the project duration.

6.3.2. Direct Outcome 2: Strengthened and harmonized quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products.

193. The activities planned to achieve this outcome were expected to result in the strengthening of the lighting standards in Vietnam so that they would be in compliance with international standards, with particular reference to minimum operating hours, minimum EE standards, and maximum mercury content. It was also expected that, by the end of the Project, a number of quality- and performance-based standards and procedures had been developed and adopted, including a new EE Law, which will allow regulations to be developed for the efficient use of lighting products.

194. Based on the indicators of this outcome, it is the MTE consultants' opinion that the Project has made some strides towards achieving its objectives. The drafting and approval of two standards by working directly with VSQI and two standards with STAMEQ are considered significant achievements during this mid-term stage of project implementation. These are also being continually updated.

195. The new EE Law, which was one of the indicators mentioned in the Logical Framework, will no longer be pursued as the GoV had already adopted it since June 17, 2010.

6.3.3. Direct Outcome 3: Enhanced public awareness about benefits of ESLs compared to ILs.

196. Through the activities supporting this outcome, it is expected that the awareness of the general population on ESL, including their qualities and advantages, will increase. The Project's target is that all stakeholders and at least 50% of consumers have become aware of the benefits of ESLs at the end of the Project. The Project expects to achieve this through two major activities: a social marketing campaign and demonstration projects.

197. The Project has worked closely with different media entities to implement the national social marketing campaign targeting rural and residential users. The demonstration projects have yielded concrete results evidenced by the shift of households and agricultural farms from ILs to CFLs. However, based on the target indicators, i.e., that all stakeholders and at least 50% of consumers have become aware of the benefits of ESLs at the end of the Project, it would seem difficult to achieve this on a nationwide basis. The promotional campaigns have been done nationwide but the demonstration projects have obviously created significant impacts mainly in the selected provinces. Towards the end of the Project, a market study will be conducted on the effectiveness of the media campaign and its results will be documented to determine if the Project has reached its target.

6.3.4. Direct Outcome 4: Policy and institutional systems able to support and monitor the phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.

198. The activities leading to this outcome aim to establish policies and institutional support mechanisms for the phasing out of ILs and use of ESLs in the domestic market of Vietnam. By the end of the Project, it was expected that appropriate policy and institutional systems for an energy efficient lighting market would be in place and operational.

199. It is important to mention here that when the Project started in 2012, the Prime Minister of Vietnam had already banned the importation, production, and circulation of ILs with capacity higher than 60 W, via Decision No. 51/2011 of September 12, 2011 entitled *"List of Mandatory labeling, equipment, MEPS and Road Map".* This has been largely instrumental in the reduction of the use of ILs from 60 million units in 2010 down to 34.5 million units in 2012. However, the Project personnel at the PMU have observed that low quality, low-priced ILs are still being illegally imported from China. Hence, in spite of the ban on production of ILs that are 60 W and over, consumers could still find ILs of those capacities in the market. It is the opinion of the MTE consultants that this outcome could be achieved if the PMU would focus for the remaining period of the Project on supporting the establishment of policies that would accelerate the prohibition of ILs that are less than 60 W and support the implementation of the ban on ILs that are 60 W and over.

200. Annex J presents a detailed assessment of the different result levels of the Project from its overall objective down to the activities.

201. ***Rating:*** The Project is on its way to reaching a significant portion of its objectives and planned results. Some of them have already been achieved, albeit with limited support from the Project itself. The awareness of stakeholders has been high in the provinces where there are demonstration projects, but the target of having all stakeholders and at least 50% of consumers become aware of the benefits of ESLs at the end of the Project would seem difficult to achieve on a nationwide basis. The MTE rating of **Satisfactory** reflects the above achievements as well as concerns.

6.4 Sustainability and Replication

6.4.1. Socio-political sustainability

202. The GoV has been very proactive in taking action that supports the objectives of this Project, i.e. towards the phasing out of ILs and promotion of ESLs. It has been mentioned earlier that one significant development that happened before the project started was the ban on the production of ILs with capacity over 60 W. This is a permanent legislation that will have a long-term and sustained influence on the expected impact that the project seeks.

203. Another initiative that the GoV had completed independently from the Project was the Decision no. 68 of the Prime Minister, which mandates all publicly financed projects to buy energy efficient products. The Project has planned to develop an ESL procurement plan for the public sector (originally Output 3.4) in order to ensure that ESLs are used in the public sector. This will no longer be necessary because of this proactive step that the GoV has taken.

204. Similarly, another proactive step that the GoV had made through STAMEQ was the establishment of the National quality inspection system for ESLs within a larger inspection system before the Project started. This system was planned as an output of the Project (originally Output 2.2), but will no longer be initiated because of its existence through the Government's initiative.

205. These initiatives are in line with the objectives and targets of the Project, and they show the level of awareness, ownership and commitment of the GoV towards the phasing out of ILs and the switch towards high quality ESLs.

206. The centralized nature of Vietnam's political structure helps a lot in the enforcement and translating these policies into socially acceptable actions. The Project has built on this by creating further awareness, and particularly justifying the economic benefits of switching from ILs to ESLs.

207. The MTE rating for socio-political sustainability is **Highly Likely**.

6.4.2. Financial resources

208. Due to the alignment with the priorities of the GoV and the policies it has established, the continuation of certain Project results and their eventual impacts will not be highly dependent on continued financial support. The two participants who are private sector manufacturers would benefit from further financial support for training activities, but in the absence of such, they are financially able to source expertise whenever required. They will not source such expertise internationally, but within the country at much lower cost, albeit with implications on the quality of expertise. Moreover, they have R&D activities through in-house scientists or in collaboration with academic institutions, for the continuing improvement of their technologies.

209. The demonstration projects are highly dependent on available financial resources from the Project. However, towards the end of the Project, the PMU could focus on communicating and disseminating the successful results of the current demonstration projects. The ESL manufacturers could enhance the impact of this activity by providing promotional pricing schemes similar to what they have already done within this Project.

210. The continuation of the coordination team, currently being handled by the PMU, is crucial. Without additional funding, the institutional memory, information archives and knowledge management aspect may significantly be lost. Since 2013, ISPONRE has started to support the salaries of key staff in the PMU, which is a positive indication of ISPONRE's sense of ownership and long-term commitment to the objectives of the Project. Subject to availability of funds from other sources, ISPONRE could carry on supporting a core team who will continue to perform this important role.

211. The MTE rating for sustainability of financial resources is **Highly Likely**.

6.4.3. Institutional framework

212. In the implementation of its activities, the Project has worked with government agencies and the private sector. These government agencies have contributed resources, expertise and their institutional clout, which is essential in Vietnam, to ensure achievement of the expected results. This is true for national institutions such as VSQI, which worked closely with the project in drafting and ensuring approval of the proposed standards, or for local associations such as the Dragon Fruit's Research and Development Center in Binh Thuan and the Da Lat Flower Association in Da Lat, which provided continuous on-the-ground support to the farmers and guarantee on the harvest when they switch from ILs to CFLs even beyond the scope of the demonstration projects. These are evidences of the robust institutional set ups and networks that were there to carry on the results deeded for sustained impact of the Project.

213. The collaboration with different agencies and the private sector are well entrenched to last beyond the project duration without dependence on financial support; thus, The MTE rating for this dimension of sustainability is **Highly Likely.**

6.4.4. Environmental sustainability

214. Environmental sustainability has a largely positive direction. As indicated in the reconstructed TOC, the direct outcomes of the Project, when achieved, would create an accelerated transformation of the market for environmentally sustainable efficient lighting technologies in Vietnam. A transformed lighting market would stimulate the replacement of a significant proportion of ILs by ESLs, which would contribute to increased energy efficiency in residential and commercial buildings and industries. This would, in turn, reduce the electricity demand, power generation, system losses and the trend to power load growth. Ultimately, this would lead to reduction of greenhouse gas emissions.

215. One environmental challenge faced by the Project is the safe disposal of the bulbs and their components when their lifetime is reached, especially CFLs containing mercury. The Project has conducted a study on the theoretical foundation and international experience on recycling technology and safe disposal of mercury in CFLs. Subsequently, a proposal has been drafted on the Guiding Circular for the

Decision 50/2013/QD-TTg on disposal of discarded products including lamps. The Project expects to support the eventual enactment of this Circular for long-term execution.

216. The environmental impacts of this Project are positive leading to a long-term GHG emission mitigation. The MTE rating for environmental sustainability is **Highly Likely**.

6.4.5. Commercial sustainability

217. The private sector participants, consisting of two of the largest lighting manufacturers in Vietnam, developed a strong sense of ownership with some aspects of the Project because of the very relevant nature of the focus of the Project to their core business and to the future of the lighting industry in Vietnam. One of the manufacturers, Rang Dong, has indicated that the company's R&D Center, which has some of the best scientists in the country in lighting and materials, will carry on with practical research and experiments that will yield to the production of high quality ESLs. The knowledge that some of the scientists and technicians have absorbed (and the additional knowledge that they will hopefully absorb, if more training is done) from the international experts hired by the Project, would be applied especially for the development of LEDs, which is a priority for the company given its strategy to focus on this technology.

218. One issue of concern for manufacturers is the redundancy of workers that is being created by the shift of production lines from ILs to CFLs. Because of the different skills required and the higher automation of newer technologies, the manufacturers are struggling to keep all the workers from the IL production lines as they convert their facilities to support the production of CFLs and LEDs.

219. An aspect that has a serious implication on the sustainability of the use of ESLs in both households and industries is whether there is enough justification for its economic benefits. It is interesting to note that during the stakeholder consultations and field surveys conducted in the rural areas, the households have indicated more awareness on the economic benefits of ESLs than on their environmental benefits. The women in the households, who normally take care of paying the bills, see the difference in their electricity expenses after they have changed their ILs to CFLs. This is being communicated to their peers who normally would feel the pressure to save as well for their families.

220. On the industrial level, it was noted earlier that the dragon fruit farmers have recorded a typical electricity cost saving of ~14 million Dong per hectare per year after switching to CFLs. Moreover, additional savings of 9.87 million Dong per hectare per year could be realized from replacement costs as mentioned earlier. This is considered a commercially sustainable investment that could justify replication on a wider scale.

221. The MTE rating for commercial sustainability dimension is **Highly Likely**.

222. ***Overall sustainability rating:*** All the dimensions of sustainability have a rating of Highly Likely. Therefore, the overall sustainability rating of the Project is **Highly Likely.**

6.4.6. Catalytic role and replication

223. The catalytic role of the Project is evidenced in at least three aspects: policy and institutional enhancements; transformation of private sector manufacturers; and awareness of consumers leading to behavioral changes though campaigns and demonstration projects.

224. Firstly, certain relevant policies of the GoV on the promotion of EE in lighting have been enhanced through standards and guidelines produced through the support of the Project. Although the direct policy on the ban of ILs with capacities over 60 W has been promulgated before the Project started, the Project is now supporting the establishment of a policy to ban the production and use of ILs of all capacities not included in the earlier ban. Through the Project, regional and national institutions that have not strongly cooperated in the past but have relevance in the EE aspects of lighting industry have been put together. They have developed synergy in their activities, such as in the implementation of demonstration projects.

225. The training and field visits organized for the two participating private sector manufacturers have opened up possibilities for these manufacturers to move to more sophisticated ESL production. Their R&D capacity and activities have been influenced positively by participating in this Project. Particularly for Rang

Dong, which is the host of the Vietnam Lighting Association and claims to be the largest lighting factory in Vietnam[19], this development is expected to create a ripple effect in the lighting industry in the country.

226. It is also significant to note that the consumers of lighting bulbs who become aware of the economic benefits, such as cost savings in their household bills due to the shift from ILs to CFLs, tell their peers and thus influence them to do the same. Capitalizing on this social behaviour, and creating more awareness in a systematic way via the national media, could increase the replication effect and uptake of ESLs in the households.

227. In the interview with the Director of the Dragon Fruit's Research and Development Center, a phenomenon that has socio-cultural implication was observed that could be a lesson in initiating the replication of the demonstration projects and promoting the use of ESLs. The participating dragon fruit farmers had observed that more flowers were produced when using ILs compared to the number of flowers produced when using CFLs. However, in the past, when they were using ILs, they had to remove some flowers due to overcrowding and to give space for the fruits to grow. The farmers believe that this practice hurt the plants, but they had no choice. With the CFLs, even if the number of flowers produced is lower, they reckon that the number of flowers is just fine and there is no need to remove any of them. These farmers have noticed that using CFLs creates a "culturally acceptable match" between the CFLs and production of the right number of flowers. This also creates other benefits such as less work for the farmers in removing the excess flowers, thereby increasing the economic reasons for switching to CFLs.

228. The positive results of these demonstration projects have been disseminated by ISPONRE though different channels that include seminars and media campaigns to government agencies, farmers and communities[20]. The agencies in the provinces that have directly participated in the execution of the demonstration projects have been briefed with the results of the demonstration projects through the summary reports that have been sent to them. For the demonstration project consisting of the replacement of ILs with ESLs on the ISPONRE building, the results including figures on energy savings and economic benefits were disseminated to different parties via meetings and workshops that introduce the project's achievements. The hope is that the important lessons that could be derived from these experiences could be replication in other areas parts of the country.

229. ***Rating:*** The MTE rating for the project's catalytic role and potential for replication is **Likely**.

6.5 Efficiency

230. The Project has intended to build synergies with relevant institutions and initiatives, but has not explicitly put in place measures for cost or time savings. The project team has chosen well the stakeholders that they needed to cooperate with, in order to accomplish the required results efficiently. This led to the accomplishment of some results, such as the drafting of standards, at the expected time.

231. However, cooperation with international programs to learn from the experiences in other countries could be enhanced. For instance, the interaction and transfer of knowledge from experts of GELC (China) encountered some losses in efficiency due to the need for translation. The field visits to facilities in China organized by GELC also faced some inefficiency issues due to logistical difficulties such as long travel distances. Moreover, in both the training and field visits, the Vietnamese participants reported that they have not fully achieved their expectations because of the reluctance of the Chinese trainers and facility owners to disclose technological innovations. This may have stemmed from commercial competition issues but also from social, historical and current political trust issues that could hamper good cooperation.

232. The stakeholders indicated that the interaction with the other stakeholders/members of the UNEP's "Global Market Transformation for Efficient Lighting" project (*en.lighten*) has not been evident. Other than GELC, the current link with *en.lighten* is with Mr. Rajiv Grag, UNEP Regional Adviser of the project who is also a part of the technology unit of the UNEP branch, which is executing the *en.lighten*

[19] According to the GoV Statistics Office the consumption of lighting in Vietnam was 165 million units in 2010 and 184 million units in 2011. Rang Dong produced 88 million units in 2010 and 96 million units in 2011, representing 53% and 52% of the market, respectively.

[20] But, as noted before, ISPONRE did not provide further detail on the dissemination efforts they made.

project. The local project team perceives however, that they could still learn more if they could have interaction with representatives from member countries/organizations. Particularly, they expect the following lessons:

- Toolkits developed in other countries
- Sharing of global experiences via seminars
- Information on activities and development being done in other countries

233. In response to the above comments from the local project team, Mr. Grag has indicated that in addition to the experiences that he imparted as part of the *en.lighten* team, he has shared materials produced by *en.lighten,* such as the "Efficient Lighting Toolkit" that this Project has translated, published and used.

234. The ProDoc has mentioned that the Project expects to interact with other global stakeholders and parties, but this remains to be done. The potential agencies and programs listed were the following:

- The Renewable Energy & Energy Efficiency Partnership (REEEP)
- The International Partnership for Energy Efficiency Cooperation
- The Alliance to Save Energy
- The Collaborative Labelling Appliance Standards Programme (CLASP)
- International and regional harmonization institutes and organisations such as IEC and the Pan-American Standards Commission (COPANT)
- Bilateral donors involved in lighting and their specific projects such as USAID for Asia and GIZ for India

235. The MTE consultants have observed that several activities have been delayed. The frequently stated reasons for this situation were late approval of the Annual Work Plan, delay in the recruitment of experts and lack of coordination among the different experts involved in the performance of the tasks. These delays have not necessarily affected the costs of the project execution, but have wasted some precious time, particularly for activities that lead to the execution of other subsequent activities.

236. Some procedures could be improved. For instance, the Work Plan for the subsequent year currently requires to be approved by the PSC. Since the PSC meets only once a year, and not necessarily in December, the approval could happen in the first or even second quarter of the year it is supposed to be implemented. This has delayed the implementation of the activities proposed in the Work Plan. Starting from the Work Plan 2014, it was agreed that the Director General of ISPONRE would have the authority to approve the Work Plan. This procedural change could expedite that implementation of the activities of the project, although such procedure could lower the safeguard mechanism assumed by the PSC.

237. The delay in the recruitment of experts happened mainly in the beginning of the Project as both the PMU and the UNEP regional office waded through administrative procedures in order to comply with the recruitment policy.

238. ***Rating:*** The rating of **Moderately Satisfactory** is given to the Project for this criterion, reflecting some necessity for improvements such as interaction with other global stakeholders and internal procedures for hiring of consultants to make the implementation more efficient.

6.6 Factors Affecting Performance

6.6.1. Preparation and readiness

239. Annex D presents a detailed assessment of the design of the project. Main points of the assessment are summarized below:

- The Project is consistent with the priorities and objectives of UNEP and GEF. It has been designed, and is most likely, to contribute to these priorities and objectives.
- Overall, the intended results and causality are well designed, but the presentation and linkages are not very clear. Objectives are realistic, except for the target that ILs will be phased out by end of Project, which seems to be too ambitious.
- As per the design the governance and supervision arrangements are clearly defined.

- Roles and responsibilities of partners are clearly described but the assessment of their capacities has not been documented.
- The Project has intended to build synergies with relevant institutions and initiatives, but has not explicitly put in place measures for cost or time savings.
- The Project has taken into account various sustainability measures in the design. Consultations were made with a large number of stakeholders in formulating this Project.
- Risks have been identified and strategies formulated, especially related to the environmental aspects producing and disposing of lamps, but not fully based on identified assumptions.

240. The MTE rating for preparation and readiness is **Satisfactory.**

6.6.2. Project implementation and management

241. The implementation of the Project was organized through an Internal Cooperation Agreement (ICA) between the UNEP Division of Global Environment Facility Coordination (D-GEF),[21] which is the Implementing Agency, and the UNEP Division of Technology, Industry and Economics (DTIE). In turn, the UNEP DTIE signed a Project Cooperation Agreement (PCA) with ISPONRE for in-country co-implementation of the Project. This joint co-implementation arrangement with a country agency is the first time to be done by UNEP for a GEF project.

242. Typically, if a project is global or regional in scope, the project is internally executed by UNEP. If a project is national in scope, the execution is done by a national agency. In the case of the Vietnam Lighting Project, the co-execution was opted for the following reasons:

1. To be more in line with the objectives of the *en.lighten* initiative, which UNEP is also executing;
2. To facilitate hiring of international consultants due to the restrictions of opening a dollar account in Vietnam by ISPONRE;
3. To keep strict control over issues such as finance, selection of consultants, quality of reports produced by the local consultants, etc.

243. It turned out that this arrangement required certain protocols/procedures to be followed, such as:

- Agreement within the GoV for ISPONRE to implement the project
- Announcement in an official Gazette
- Opening of project account by ISPONRE in Vietnam

244. These and other minor protocols needed time to accomplish, which caused delays in the start of the Project. The Project was approved by GEF in 2010 but the Agreement between UNEP and ISPONRE was signed in November 2011. The Project started with an Inception Workshop in December 2011 and the first PSC Meeting was held in January 2012. The first Work Plan (for 2012) was approved in March 2012.

245. The structure of project implementation and management followed closely the design, whereby the PMU was established within ISPONRE. This is guided by the PSC, while the operations are supported by the TWG with members coming from relevant government agencies and private sector participants. This arrangement appeared to have worked effectively in delivering the desired outputs up to the MTE.

246. Although the situation in Vietnam had changed by the time the Project started, details of which have been mentioned earlier in this MTE Report, the Project responded with flexibility to adapt the activities accordingly. Some planned changes in outputs that needed more deliberations have been discussed during the MTE and recommendations have been made in this Report. On the other hand, since the Project deals with technologies and processes, and therefore the market environment that are rapidly changing, the PMU and the project team are faced with a challenge to adapt and be flexible in their approach in order to meet the objectives using relevant approaches and decisions.

247. From the MTE Consultants' assessment, the relationships among project team members and between the PMU and partners have developed in a cooperative manner. Considering the centralized governance model in Vietnam, the PSC provided an effective supervisory role in the way the Project

[21] In 2012, this Division was dismantled and the UNEP Task Manager was moved to DTIE and located in the UNEP Regional Office for Asia and Pacific (Bangkok).

executed the activities. The role of ISPONRE in project implementation and management has been fulfilled smoothly and effectively. The relationships between the PMU and UNEP as well as among the partners and stakeholders have been smooth and productive.

248. The MTE rating for project implementation and management is **Satisfactory.**

6.6.3. Stakeholder participation and public awareness

249. The stakeholders consisting of different partner agencies have cooperated very well through the TWGs and execution of specific activities. The TWGs have met at least twice a year since the start of the Project. In addition, consultations among members of the TWG to discuss crucial issues are happening. Decisions are made on the operational level in the TWG, but important decisions that are not clearly defined in the approved Annual Work Plan are brought to the PSC for approval.

250. The Project has been successful in engaging the private sector through the participation of the Rang Dong and Dien Quang, two of the largest manufacturers of lighting products in Vietnam. Not all initiatives, though, of these manufacturers that lead to market transformation have been influenced by the Project. For instance, the manufacturers that had agreed to participate in the Project had already started to add production lines to produce ESL. It was also anticipated during the Project formulation that the shift to ESLs would mainly involve CFLs. During the start of the Project, the manufacturers have decided to expand to the production of LEDs as well.

251. The Project has cooperated with newspapers, magazines and other media and has organized media conferences to create awareness on the benefits of switching from ILs to ESLs. In some areas, it was observed during the early part of the Project that the consumers were already aware of the economic benefits (through monthly savings in electricity bill) of shifting from ILs to ESLs. Some have already changed their lamps to ESLs. However, they have not been aware of the environmental benefits. This has made it easier for the Project to convince the consumers to make the shift to ESLs, which is positive for the Project.

252. Furthermore, there is more room for making the public nationwide more aware of the positive results of the demonstration projects and the benefits of switching to ESLs.

253. The MTE rating for stakeholder participation and public awareness is **Satisfactory.**

6.6.4. Country ownership and driven-ness

254. The GoV has exhibited strong commitment to phasing out the production of ILs. The Project has used this positive factor in its favor to leverage its activities and achieve some significant strides in producing its objectives. The GoV's driven-ness and strong sense of ownership of the objectives espoused by the Project is evidenced by the following initiatives:

- On September 12, 2011 Decision No. 51/2011 was promulgated by the Prime Minister of Vietnam, stating that from January 1, 2013, importation, production, and circulation of tungsten light bulbs with capacity higher than 60 W would be prohibited. This is a major policy that the project expects to accomplish. The project team is now putting efforts on supporting the GoV in its plan to ban altogether ILs of all sizes.
- The GoV through STAMEQ has established the National quality inspection system for ESLs within a larger inspection system. It is now necessary for local authorities and inspectors to be trained on ESL quality inspection system.
- The Prime Minister has issued Decision no. 68; i.e., all public invested projects have to buy energy efficient products.

255. The national Project Manager based at ISPONRE was initially hired and paid by the Project. Since 2013, the Project Manager has been hired and paid for as a staff of ISPONRE and seconded full-time to the Project. Such initiative shows a high sense of ownership and commitment from the GoV.

256. A discussion during the MTE period with the Vice Minister of MONRE, who is also the Chair of the PSC, has confirmed that the GoV is committed to provide adequate support to the Project as it continues to achieve the desired objectives.

257. The MTE rating for country ownership and driven-ness is **Highly Satisfactory.**

6.6.5. Financial planning and management

258. On the financial arrangement and management, the allocation of the budget was split between the PMU (ISPONRE) and UNEP, with the PMU managing the portion of the budget covering local personnel, subcontract of national consultants, training activities and operational costs (amounting to USD 1.548 million) and UNEP managing the portion covering subcontracts with international experts and international travel (USD 1.392 million).

259. While this has proven to be an acceptable arrangement, the PSC has indicated that budget allocated for operational and local expenses could be increased by reallocating some of the budget designated under the authority of UNEP. For this, UNEP has emphasized that once ISPONRE has used up its budget and the approved Work Plan justifies additional budget to be spent under its responsibility, UNEP would be willing to reallocate the budget accordingly. The PMU has indicated that the process of money transfer between UNEP and ISPONRE takes a while (up to two months), which could affect the progress of some activities.

260. As of the MTE and indicated in the Statement of Expenditure in Annex H, ISPONRE has spent USD 715,195 (46 per cent) which leaves an unspent budget of USD 832,805. UNEP's Statement of Expenditure shows that up to date, it has spent a total of USD 206,477 leaving an amount of USD 1,185,523 for the remaining activities under its mandate. Overall, the disbursement rate of the Project appears to be low.

261. ISPONRE's financial reporting is done on a quarterly basis. The report follows UNEP's budget items and coding according to different components, and compares the approved budget with actual expenditures. Variances are reported. The annual financial report of ISPONRE is audited by KPMG. The quarterly expenditure reports and annual audited reports of ISPONRE are submitted to the Financial Management Officer in Nairobi. UNEP's Financial Report is prepared on a yearly basis. It reflects the allotment for the year and the actual expenditure against the allotment. Variances are reported.

262. One aspect that the MTE has noted is the low co-financing contributions those who made co-financing commitments. This is not likely to increase significantly and reach the target co-financing by the end of the Project.

263. The MTE rating for financial planning and management is **Moderately Satisfactory.**

6.6.6. UNEP supervision and backstopping

264. As the Implementing Agency, UNEP D-GEF has appointed a Task Manager to oversee Project implementation. This Task Manager was initially based in Paris. In 2012, this Division was dismantled and the UNEP Task Manager was moved to DTIE and located in the UNEP Regional Office for Asia and Pacific in Bangkok, Thailand.

265. From the executing side, DTIE as the Co-Executing Agency has appointed a Regional Technical Adviser (RTA) to support ISPONRE in the execution of the Project, particularly by providing technical inputs and advice in matters related to the Work Plan, hiring of consultants, quality of reports and preparation of standards and policies.

266. The proximity between the Task Manager and the RTA (the fact that they both stay in the DTIE office in Bangkok) may be seen as too close to have an objective supervisory role between the implementing and executing capacities. However, discussions with both officers reveal that this arrangement appears to aid positively in eliciting faster speed of response to the issues that need coordination and/or reporting between the two agencies.

267. The relationship between the UNEP and PMU, as well as among the project implementation participants at different levels, appears to have been smooth and effective. UNEP's supervisory role and international experience have been considered by the PMU to be very valuable, particularly that the co-Executing Agency, ISPONRE, did not have direct expertise on lighting. The UNEP RTA attends the PSC meetings. At other times, the RTA is being supported by the part-time Technical Adviser, Mr. Sommai Phon-Amnuaisuk, who is based in Thailand. Mr. Phon-Amnuaisuk travels to Vietnam to attend meetings

with the PMU and coordinates with consultants. He has provided valuable support as per the PMU's feedback.

268. One issue that needs attention is the delegated authority from the PSC to the NPD concerning approval of annual work plans and budgets. The NPD, as Director General of ISPONRE could have a conflict of interest in the sense that his decisions on the project work plan and budget could be driven by the interests of his institute rather than by what would be best to achieve the project objectives. It is rather surprising that UNEP, as GEF Implementing Agency of the Project and member of the PSC, has not raised any objections to this PSC decision.

269. The MTE rating for UNEP supervision and backstopping is **Satisfactory.**

6.6.7. Monitoring and evaluation

270. **M&E Design**. The ProDoc has adequately described the M&E plan for the Project. The Logframe provides specific indicators for the objectives and different outcomes according to the SMART[22] principles. However, some indicators have ambitious targets as they refer to deliverables outside the influence of the Project.

271. **M&E Budget.** Both the Mid-Term Evaluation and Terminal Evaluation have been budgeted adequately. Likewise, the conduct of meetings to monitor the implementation and progress of the Project has also adequate budgets. These are clearly indicated in Appendix 8 of the ProDoc.

272. **M&E Plan Implementation.** The Project has produced the following reports for monitoring:

- Inception Report
- Annual Reports for 2013 and 2013
- Project PIR for 2012, 2012 and 2014
- ISPONRE Quarterly Expenditure Reports up to 2014
- UNEP Annual Expenditure Reports up to 2014
- Co-financing report in 2014
- Audited Financial Statement for the year ended December 31, 2013

273. The above reports contain adequate information on the progress of project implementation and the experiences encountered that could be used to improve the Project's performance and adapt to changing needs and environment. Some reports, however, such as those related to financing, had delays in completion.

274. The Tripartite Project Review (TPR), scheduled to take place every year has not been conducted. According to the ProDoc, the TPR is the highest policy level meeting of all the parties involved in project implementation and is organized to review key documents and reports. The TPR consists of UNEP, the GoV and the PMU. However, according to ISPONRE, during project implementation the TPR has become part of the PSC meetings. Because of this, the Project did not organize separate meetings specified as TPR.

275. The GEF tracking tool has not been utilized up to now by the Project. ISPONRE was therefore requested to populate the GEF tracking tool and report on the result in the subsequent project reports.

276. The MTE rating for monitoring and evaluation is **Moderately Satisfactory.**

6.7 Complementarity with UNEP Strategies and Programmes

277. The design of the Project has considered UNEP Governing Council's decision 24/3 IV, which sets priorities for work on mercury, including the reduction of mercury supply, the reduction of mercury use and eventual storage of excess mercury. Given that the presence of mercury in CFLs can be harmful to human health and the environment, UNEP has initiated the Global Mercury Partnership which aims to reduce, and where feasible eliminate anthropogenic releases of mercury. This Project supports the

[22] The SMART principle is a quick guide for developing project indicators and is based on the acronym for Specific, Measurable, Achievable/Accurate, Relevant, Time-bound.

Council's priority and is complementary to the Global Mercury Partnership as the Project expects to reduce the demand for mercury for lighting and lamps.

278. The Project was designed to coordinate with the GEF-financed and UNEP-executed "Global Market Transformation for Efficient Lighting" project (the global lighting project). In particular, the global lighting project was to facilitate the establishment of methodologies for the development of labeling procedures and quality certification; the identification of appropriate policy options for phasing out ILs and introducing latest technology ESLs; and the development of financing mechanisms, appropriate standards, and detailed environmental safeguards under the Project.

279. The UNEP Medium Term Strategy 2010-2013 (MTS) specifies that UNEP will focus its efforts on delivering on its mandate through exercising environmental leadership on six cross-cutting thematic priorities. One of them is Climate Change. The UNEP objective related to climate change is to "Strengthen the ability of countries to integrate climate change responses into national development processes." It aims to focus its objectives and expected accomplishments on "providing environmental leadership in the four areas prominent in the international response to climate change: adaptation, mitigation, technology and finance, and their inter-linkages." In the area of mitigation, "UNEP will support countries to make a transition towards societies based on more efficient use of energy, energy conservation and utilization of cleaner energy sources…."

280. The desired results in these thematic priorities are termed "Expected Accomplishments". There are several Expected Accomplishments related to climate change, with two being directly relevant to this project, as follows:

- Countries make ***sound policy, technology, and investment choices*** that lead to a ***reduction in greenhouse gas emissions*** and potential co-benefits, with a focus on clean and renewable energy sources, ***energy efficiency*** and energy conservation.
- ***Improved technologies*** are deployed and ***obsolescent technologies phased out***, financed through ***private and public sources*** including the Clean Development Mechanism (CDM).

281. The ultimate goal of this Project is the reduction of GHG emissions. This will be accomplished through the phasing out of production and use of incandescent lamps and increased sales and use of high quality energy saving lamps in Vietnam. These results will come through enhanced policies, established standards, improved technologies and sound investments leading to the transformation of the lighting products market. Based on these, it is clear that complementarities exist between UNEP's strategies and the Project. The Project's objectives and expected outcome are directly aligned with the Expected Accomplishments articulated in the MTS.

282. Another important and recent mandate of UNEP is through the Bali Strategic Plan for Technology Support and Capacity-Building (the Bali Strategic Plan). One of the five overall, inter-related areas of the mandate of UNEP is "Strengthening technology support and capacity in line with country needs and priorities." There are 19 thematic areas, climate change being one of them. The Plan also cross-cutting issues that should be addressed. Issue Roman numeral (x) is "Facilitating access to and support for environmentally sound technologies and corresponding know-how."

283. Through the training and field visits arranged by the Project and GELC for the lighting manufacturers and the laboratory technicians of QUATEST 1 and 3, the Project has delivered know-how and facilitated access to more modern and energy efficient (hence, environmentally sound) technologies. This achievement is quite aligned to the priorities set up in the Bali Strategic Plan.

284. The Project has not explicitly designed outcomes that consider women or look into their vulnerabilities. However, there is a natural role that women play in the decision to purchase the lamps. Normally in Vietnam, although the men decide on what type of bulb to purchase for their homes, the women monitor and pay the bills. It was learned during the survey conducted by the Project that once the women become aware of the energy cost savings that other households enjoy, thanks to the shift from ILs to CFLs, they try to convince their husbands to replace their ILs into CFLs.

285. In this Project, the GELC, which is based in China, has provided training to the staff of two manufacturers and the technicians of two testing laboratories owned by the GoV. GELC also organized field visits to different facilities in China to the participants from the same manufacturers and laboratories.

Thus, knowledge transfer has occurred between China and Vietnam. This is a concrete example of South-South Cooperation with an acceptable level of success.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

286. The conduct of the MTE has proceeded smoothly. The representatives of the organizations and agencies who were interviewed have been helpful and open in providing information and feedback.

287. The major strength of this Project is its strong alignment with the priorities of the GoV, particularly in the GoV's program to phase out the production and usage of ILs in Vietnam. The GoV has made significant inroads towards this target, including putting a ban on the importation, production, and circulation of ILs with capacity higher than 60 W by the Prime Minister. Benefiting from this situation and in collaboration with MONRE's VSQI, the project has supported the drafting and approval of standards that support the production of high quality ESLs.

288. The participation of the private sector is key towards the transformation of the lighting market in Vietnam. The two manufacturers selected to participate in the project are two of the largest in Vietnam and have considerable impact in the market. They have been actively participating in the activities of the Project through the training of their specialists and engineers and provision of ESLs for the demonstration projects. However, they had high expectations on the technology and knowledge transfer from the experts and on the study tour to China organized by GELC. These expectations included:

- Provision of detailed processes and techniques on the aspects related to mercury reduction, heat dissipation and ESL production;
- Transfer of practical knowledge related to design and manufacturing;
- More extensive and closer exposure to production lines and equipment during the visits.

289. Such expectations, although justified from the private sector and commercial perspective go beyond the mandate and budget of the Project. In addition, the experts who could provide such knowledge, experience and techniques would be hard to find.

290. The Project has completed three demonstration projects about switching from ILs to ESLs, one in the office building of ISPONRE and two in the rural areas targeted to the households and the agricultural sector. These demonstration projects have been considered effective in changing the attitude of the communities to switch from ILs to CFLs. This has been evidenced in the three communes in Ha Tinh province where CFLs have been promoted in the household level. Before the demonstration activity started, the penetration of CFLs was observed to be 30%-40% in the demonstration areas. By around the end of 2013, all of ILs had been replaced, attaining a penetration level of 100% CFLs. Consequently, the people in these communes now automatically buy CFLs. This phenomenon is similar in the other two provinces included in the demonstration project.

291. In the agricultural sector, the accomplishments of the demonstration projects have been equally encouraging. The farmers who participated experienced direct economic benefits, which was crucial in cementing their confidence to switch from ILs to CFLs. Participating farmers realized annual electricity savings of around 14 million Dong per hectare and replacement cost savings of approximately 9.87 million Dong per hectare. On top of this, the most important thing is that this switch has not affected the harvest of their products.

292. The switch to CFLs in the agricultural sector of the two provinces has been pronounced. It was observed that before the start of the demonstration projects, about 30% of the farmers used CFLs in their farms. Currently, the number of farmers who use CFLs in their farms has increased to about 50%.

293. Certain factors contributed to these achievements. Firstly, the project cooperated with the local agencies responsible for providing support to the specific agricultural sectors targeted by the demonstration projects. These are the Dragon Fruit's Research and Development Center in Binh Thuan province and the Flower Association in Da Lat. These agencies have been working alongside the farmers and have been providing trusted advice on the different aspects of the plantation and production. Although the farmers have been initially reluctant to take their advice that CFLs would be suitable for their

requirements and could give them economic benefits, some have finally agreed to participate due to the support provided by the Project and the agencies mentioned. In addition, the district committees have also been involved, particularly in creating awareness to the farmers. The participation of these local committees has been highly instrumental in making the farmers agree to be a part of the demonstration activities of the Project.

294. The following table provides the summary of the assessment according to the given criteria and their corresponding rating.

Table 7: Summary of the project assessment and overall rating

Criterion	Summary Assessment	Rating
A. Strategic relevance	The Project is directly relevant to the objectives and implementation strategies of UNEP and GEF. The rating also reflects its high consistency with the priorities and policies of the GoV.	**Highly Satisfactory**
B. Achievement of outputs	Component 1: The planned training of, and support to, the manufacturers' technical staff have been conducted, but with some issues on satisfaction of participants. Component 2: the Project has made some strides towards achieving the expected outputs, such as the drafting and approval of two standards by working directly with VSQI and two standards with STAMEQ. These are considered significant achievements during this mid-term stage of Project implementation. Component 3: The Project has completed three demonstration projects that are considered to have created significant impact within the demonstration areas (provinces). Component 4: To date, the Project has accomplished two major results from Output 4.1: the report on "Review legislations, provide suggestions/recommendations and financing mechanisms to implement a roadmap of energy labeling for ESL" and the report on "Guidelines for the implementation of the energy efficiency labeling roadmap." The accomplishment under Output 4.2 was the support provided to MONRE in preparing the proposal on "Responding to climate change; protection of natural resources and environment". However, this activity performed for Output 4.2 does not seem to have a strong direct bearing in achieving the outcome expected for this component.	**Satisfactory**
C. Effectiveness: Attainment of project objectives and results	The Project has made some progress towards achieving the planned direct outcomes. Some have been achieved outside the work of the Project. The likelihood of impact in the selected provinces for demonstration projects is quite high but not very likely on a nationwide scale. About 60% has been achieved, and is on its way to reaching a significant portion of its objectives and planned results.	**Satisfactory**
D. Sustainability and replication	The Project enjoys strong ownership and support from the GoV; the collaboration with different agencies and the private sector are well entrenched to last beyond the Project duration without dependence on financial support; the environmental impacts are positive leading to a long-term GHG emission mitigation; there is concrete and	**Likely**
1. Socio-political		Highly Likely
2. Financial resources		Highly Likely
3. Institutional framework		Highly Likely
4. Environmental		Highly Likely

5. Commercial	measurable economic benefit that the users of ESLs could themselves experience.	Highly Likely
6. Catalytic role and replication		Likely
E. Efficiency	There is some room for improvements such as interaction with other global stakeholders and internal procedures for hiring of consultants to make the implementation more efficient.	**Moderately Satisfactory**
F. Factors affecting project performance	The Project has used certain positive factors in its favor to leverage its activities and achieve some significant strides in producing its objectives, particularly in relation to the strong involvement of the GoV in phasing out the production of ILs. The role of ISPONRE in the Project implementation and management has been fulfilled smoothly and effectively. The relationships between the PMU and UNEP as well as among the partners and stakeholders have been smooth and productive. However, the financial reporting has been delayed and the indication of co-financing has not been provided to date. The GEF tracking tool has not been completed by the Project.	**Satisfactory**
1. Preparation and readiness		Satisfactory
2. Project implementation and management		Satisfactory
3. Stakeholder participation and public awareness		Satisfactory
4. Country ownership and driven-ness		Highly Satisfactory
5. Financial planning and management.		Moderately Satisfactory
6. UNEP supervision and backstopping		Satisfactory
7. Monitoring and evaluation		Moderately Satisfactory
Overall project rating	The Project is highly aligned with the strategic priorities of the GoV, GEF and UNEP. There is strong government support in different levels and the agencies selected to implement and participate have high degree of commitment. The private sector is actively involved in the activities of the Project, which has accelerated the market transformation of the lighting industry in Vietnam, although their feedback on the training received has not been very satisfactory. The Project lags in efficiency, particularly in hiring of consultants and promptness in delivery of reports, but is on its way to achieving significant portion of the objectives and outputs by end of Project.	**Satisfactory**

7.2 Lessons Learned

295. There was a long delay between GEF CEO endorsement and signing of the PCA between UNEP and ISPONRE (see Table 1). It must be noted that as per UNEP's Task Manager, this is the first time that UNEP/DTIE has partnered with a local agency for the in-country execution of a GEF project. This was organized through a PCA arrangement with ISPONRE. With both parties being new to this arrangement, they had to go through certain protocols that needed time to accomplish, such as: Agreement within the GoV for ISPONRE to implement the Project, announcement in an official Gazette and opening of project account by ISPONRE in Vietnam. Having gone through the hoops, the experiences and lessons that UNEP and the GoV have learned in this Project could be applied in other projects that have similar arrangement. The lesson learned here is that contracting arrangement and corresponding requirements of the host government vis-à-vis the potential contracting arrangement need to be investigated during the project design stage and suggestions on addressing them could be included in the ProDoc, whenever possible.

296. It was observed that several activities have been completed behind schedule. These delays were attributed by the Project team mainly to the late approval of the Work Plan and Budget, and in some cases to the delay in the recruitment of experts and lack of coordination among the different experts involved in the performance of the tasks. Delays in the approval of the Work Plan and Budget were due to the fact that PSC meetings to approve the Work Plan and budget were held late after the beginning of the year. This procedure has been recently revised. Starting from the Work Plan 2014, it was agreed that the Director General of ISPONRE would have the authority to approve the Work Plan. The approved Work Plan will be subsequently presented to the PSC. This procedural change could expedite the implementation of

the activities of the Project, but holds the risk that the NPD may be influenced by the interests of his institution rather than by what is best for achieving the Project objectives. The lesson that can be learned from this experience is that the Work Plan for the subsequent year needs to be prepared well in advance and the PSC meeting which approves the Work Plan should be scheduled as early as possible in the year. A mechanism could also be adopted whereby the draft of the Work Plan could be pre-approved by the PSC members before the PSC meeting and the final deliberation and approval could be made at the PSC meeting itself.

297. The delay in the recruitment of experts happened mainly in the beginning of the Project due to the necessity in complying with administrative procedures as dictated by UNEP's recruitment policy. In the future, this problem could be avoided by carrying out the recruitment of international experts right at the beginning after the requested activities have been approved. It was also learned at the beginning of 2013 during the recruitment of experts and conduct of initial activities that coordination and cooperation among international and local experts in technical activities are very important. Improvements could be made in the aspects of communication flows between the Project and the experts and among experts involved in the same activity, as well as in the formulation of the Terms of Reference and responsibilities of different experts.

298. The private sector, consisting of manufacturers of lighting products have been actively involved in the Project. They have sent participants for training conducted by GELC from China and on-site visits to facilities in China. They have also provided expertise in the conduct of training workshops in the demonstration areas. The technicians provided technical information as resource persons during the workshops. Moreover, the manufacturers offered discounts to the participants of the demonstration projects for the purchase of CFLs for a certain period of time to reduce the burden on the price difference between IL and CFL. This good practice of a) using the technicians from the manufacturers as resource persons in the seminars, and b) encouraging the manufacturers to offer discounts to their lighting products for those participating in demonstration projects could be replicated in similar projects of GEF/UNEP.

299. Although the training workshops and site visits have generally been considered useful, the manufacturers have expressed lack of satisfaction on the specifics of the contents of the training and the utility of the site visits in relation to what they expect to learn. The manufacturers have expected that the experts who conducted the training would give practical techniques and solutions on the challenges they face in the manufacturing process. They also expected to get up close to the manufacturing facilities and observe more closely during the site visits. Although these requirements are understandable from the business point of view, there were certain limitations on confidentiality and budgetary constraints that the Project had to respect. It is important to learn for future project design and implementation that for projects where the private sector works on state-of-the-art technologies and the market is fast changing, it would be necessary to provide a practical and *"avant-garde"* technical assistance on one hand, but on the other hand, to let them understand clearly the nature of the support the Project could provide and the limitations of such support.

300. During the initiation of the demonstration projects, there has been some reluctance from the participating farmers to switch from ILs to CFLs. This hesitation was partly cultural/habitual in nature, and partly due to cost and theft issues. However, despite these barriers, some of the farmers finally participated and have been satisfied with the results, giving rise to increase in the use of CFLs in the demonstration areas. Certain lessons could be gleamed from this success. As mentioned in the Conclusion section of this MTE report, the cooperation with the local agencies and local committees has been very useful in instilling confidence to the farmers that the switch from ILs to CFLs is beneficial to them. The guarantee provided by the manufacturers and the discount they provided have also contributed to their positive decision. Finally, project support (together with the participating Centers) consisting of free CFLs, technical and information support, and guarantee on the harvest of fruit has been a strong motivating factor for the participation of some farmers.

301. It was also learned that the impact of the demonstration projects has been so far localized in the participating provinces. Although the results have been disseminated through seminars and media campaigns, these have been on a limited scale and the impact in terms of replication has not been evident at this stage. Moreover the summary reports have been distributed only to participating agencies in the

demonstration provinces. During the remaining period of the Project, the PMU should envisage a dissemination program that would reach out to a greater audience nationwide.

7.3 Recommendations

302. Based on the findings of the MTE and the conclusions derived from these findings we recommend the following actions:

303. Recommendation 1: Due to the time lapse between the design of the Project and its actual implementation, and the fact that the GoV has been active in promoting the switch from ILs to CFLs, there have been changes in the institutional context since the Project started. This made some planned outputs and activities no longer relevant. Some have been changed as part of the previous Work Plans. For some that have not been modified, we recommend that these outputs and activities be removed or replaced. This has been analyzed in detail during the Review of Outcomes to Impacts and elaborated in Section 3.9. Specifically, these recommended changes consist of:

- Output 2.2 "National quality inspection system for ESLs is established" will be replaced by Output 2.2 "Local authorities and inspectors trained on ESL quality inspection system".
- Output 3.4 "ESL procurement plan for public sector developed" will be cancelled because this output has become redundant and is no longer useful.
- Output 4.2 "Established national policy for phasing out of ILs" will be changed to Output 4.2 "National policy on the implementation of the EE law studied and recommendations formulated".

304. Recommendation 2: The satisfaction of participants with the contents of the training and field visits organized in Component 1 "Local Lighting Industry Capacity Enhancement Programme" was mixed. In order to augment the achievements attained so far and meet the expectations at the end of the Project, it is recommended for the PMU to spend the remaining time and budget in conducting additional training on relevant issues faced and requested by the manufacturers. Certain suggestions should be considered such as longer training periods, more practical contents and clearer TORs of trainers. For future training activities GELC suggested that more resources should be put on such training in order to have more time (longer duration) with the participants. However, although GELC has indicated their willingness to support additional training, given the feedback on the satisfaction of the participants and the socio-cultural barriers between China and Vietnam, it would be useful to look at service providers other than GELC and consider participation of other sources of expertise. The language barrier needs to be addressed by including in advance the planning for the most suitable translation method. And very importantly, the requirements of the manufacturers must be clearly identified and reflected in the TOR. The manufacturers must understand that the experts would be matched with the TOR and they may not be able to improvise on the spot if the manufacturers raise certain issues beyond the scope of the TOR.

305. Recommendation 3: The success of the demonstration projects has shown that there is great merit in having a concrete example of an area or sector where switching from ILs to CFLs is applied. This gives opportunity for participating actors to observe and see first-hand the positive results, and for non-participants to benefit by replicating the success achieved in the demonstration projects. However, as described earlier, the impacts of these demonstration projects have been observed in the participating communes and in the neighboring villages, but were limited to the provinces where the demonstration projects were implemented. Hence, we recommend that some unused budget should be reallocated to expand the demonstration projects to other provinces. The merit of having additional demonstration projects is to expand the application of ESLs not only to dragon fruits and flowers but to other agricultural products as well, which other provinces that have not participated in the earlier demonstration projects are producing. Equally important as the projects themselves, we recommend a much greater effort to advertise the demonstration projects and their positive results on a nationwide basis using available media in order to create impacts in other provinces and beyond the project sites. The success achieved using the technical and institutional approaches adopted in implementing the demonstration projects could also be used as lessons to other similar projects in Vietnam and other countries.

306. Recommendation 4: One of the major indicators for the overall objective of the Project is that ILs are phased out by the end of the Project. Since the GoV has already issued a ban on the ILs with capacity of over 60 W, the MTE recommends that the work on the policy support should focus on supporting the

GoV in formulating and adopting policies that would phase out the production and utilization of all sizes of ILs altogether.

307. Recommendation 5: The ProDoc has mentioned that the Project expects to interact with other global stakeholders and parties. This has not been done yet, except for the cooperation with GELC. Furthermore, the local team wanted broader interaction with a wider range of peers. The MTE recommends that cooperation with international programs, service providers and resource persons should be pursued in order to learn from the experiences in other countries. The potential agencies and programs that could be approached for cooperation are the following:

- The Renewable Energy & Energy Efficiency Partnership (REEEP)
- The International Partnership for Energy Efficiency Cooperation
- The Alliance to Save Energy
- The Collaborative Labelling Appliance Standards Programme (CLASP)
- International and regional harmonization institutes and organisations such as IEC and the Pan-American Standards Commission (COPANT)
- Bilateral donors involved in lighting and their specific projects such as USAID for Asia and GIZ for India

308. Recommendation 6: The Project has produced good reports and accomplished significant outputs that could be disseminated before the end of the Project. The MTE recommends that the PMU communicate the results of the Project to UNEP and the stakeholders at large more effectively. The PMU should document the impacts of project activities such as the electricity savings realized by the farmers as well as other benefits due to the switch from ILs to CFLs. Many project outputs, including results of the demonstration projects, are valuable and could be used as lessons for eventual replication both in Vietnam and in other countries. The PMU should also polish their reports, translate them to English and disseminate the relevant information to stakeholders, including those outside Vietnam.

309. Recommendation 7: On the documentation and reporting aspect, there are some inconsistencies in the presentation of activities in the different documents (i.e., ProDoc, Work Plans, Annual Reports, PIR), for instance in designating the numbering of these activities, which could be confusing for the reader. The MTE recommends to use a consistent numbering system in all reports. Moreover, in the production of the Annual Progress Report, the MTE suggests to list down all activities, including the completed ones, and describe what has been done as well as indicate the progress/status of the activities in terms of percentage completion.

310. Recommendation 8: In view of the fact that starting from the Work Plan 2014, it was agreed that the Director General of ISPONRE would have the authority to approve the Work Plan prior to the PSC, it is recommended that transparency of the budgeting and expenditure processes be ensured. This will help quell some doubts on the risk that the National Project Director (NPD) may be influenced by the interests of his institution rather than by what is best for achieving the project objectives.

311. Recommendation 9: According to Decision No. 791 /QD - BTNMT dated May 4, 2011 of the Minister of Natural Resources and Environment on the approval of the Project, the Project's duration was from 2011 to 2014. Since the Project had some delays in the approval and the project started later than planned (March 27, 2012), we recommend the Project to complete its four (4) years of implementation in order to complete the planned activities and achieve the objectives and targets. This means that the ending of the Project should be extended up to the end of December 2015.

8. ANNEXES

ANNEX A: MTE Terms of Reference

TERMS OF REFERENCE[23]

Mid Term Evaluation of the UNEP/GEF project
Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam.

Abbreviations and Acronyms

CFL	compact fluorescent lamp
DTIE	Division of Trade, Industry, and Economics
EE	energy efficient
EE&C	energy efficiency and conservation
ELI	Efficient Lighting Initiative (EU)
ESL	energy saving lamp
EVN	Electricity of Vietnam
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GoV	Government of Vietnam
GTZ	German Agency for Technical Cooperation
GWh	gigawatt-hour
IEA	International Energy Agency
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
ILs	incandescent lamps
ISPONRE	Institute for Strategy and Policy on Natural Resources and Environment
kV	kilovolt
kWh	kilowatt-hour
LED	light emitting diode
M&E	monitoring and evaluation
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MOST	Ministry of Science and Technology
NPD	National project Director
PIR	project Implementation Review
PMU	project Management Unit
PoA	Program of Activities
QA	quality assurance
QC	quality control

[23] TOR version of Sep-13

QUATEST	Quality Assurance and Testing Center
STAMEQ	Directorate for Standard, Measurement, and Quality
toe	ton of oil equivalent
TWh	terawatt-hour
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VLA	Vietnam Lighting Association
VND	Vietnam Dong
VSQI	Vietnam Standards and Quality Institute
VTV2	National Television
WB	World Bank

I. PROJECT BACKGROUND AND OVERVIEW

1. Project General Information[24]

Table 1. Project summary

GEF Project ID:	3755	**IMIS number:**	GFL/2328-2720-4B65 PMS:4020-10-12
Focal Area(s):	Climate Change	**GEF OP #:**	GEF4-SP1
GEF Strategic Priority/Objective:	CC-SP1 Building EE	**GEF approval date:**	8th September 2010
UNEP approval date:	October 10, 2011 (date of PCA between UNEP & ISPONRE)	**First Disbursement:**	15th December 2010
Actual start date:	March 27 2012	**Planned duration:**	48 months
Intended completion date:	October 2014	**Actual or Expected completion date:**	December 2015
Project Type:	FSP Umbrella project 'Global Market Transformation for Efficient Lighting.	**GEF Allocation:**	$2,940,000
PDF GEF cost:	50,000	**PDF co-financing:**	50,000
Expected MSP/FSP Co-financing:	$ 22,212,000	**Total Cost:**	$25,152,000
Mid-Term review/eval. (planned date):	June 2014	**Terminal Evaluation (actual date):**	
Mid-Term review/eval. (actual date):	April – June 2014	**No. of revisions:**	2
Date of last Steering	March 14 2013	**Date of last Revision:**	27th September 2013

Committee Meeting:			
Disbursement as of 31 December:	Umbrella-243,958.28 Sub-project-724,487.44	**Date of financial closure:**	Not financially closed
Date of Completion:	Planned completion date is December 2015	**Actual expenditures reported as of 31 December 2013:**	Umbrella-243,958.28 Sub project- 310,437.91
Total co-financing realized as of 31 December 2013:	*Awaiting co-finance reports*	**Actual expenditures entered in IMIS as of 31 December 2013:**	Umbrella-243,958.28 Sub project- 310,437.91
Leveraged financing:	*Awaiting co-finance reports.*		

2. Project rationale[25]

1. The rapid growth of the Vietnamese economy coupled with a highly successful rural electrification programme, which had enabled 94% of rural households to be electrified by 2008, has put enormous strains on Vietnam's energy production. It is expected that energy consumption will continue to grow, increasing seven fold over the next twenty years.

2. In order to reduce electricity consumption and greenhouse gas emissions the Vietnamese Government (GoV) has made efforts to promote energy efficient lighting. It now has a fairly comprehensive policy framework on energy efficiency and saving.

3. The conversion from IL to Energy saving lights (ESLs) is a key element of the government's strategy. It is estimated that approximately 60 million ILs were in use at the time of project design. Conversion of 75% of these could achieve an electricity saving of around 2 TWh per year and a corresponding CO2 emission reduction of 1.24 million tons. Globally this action is considered to be one of the most important short term initiatives that nations can take to combat climate change created by GHG emissions.

4. The conversion of the lighting industry has begun in Vietnam but its speed and success have been hampered by a number of barriers including: lack of technical knowledge, shortage of raw materials, consumer knowledge and demand (and negative effect of low quality products on the market), control of illegal imports of low quality CFLs, low level of political engagement and poor coordination of ongoing efforts.

5. The project comes under the umbrella of the Global Market Transformation for Efficient lighting programme. Experiences from other countries who have implemented this project have been extremely positive.

[25] From project document.

6. In Vietnam itself UNDP and GEF have supported the Vietnam Energy Efficiency in Public Lighting Programme. This project planned to complement the activities of VEELP by including the residential and rural market.

3. Project Objectives and components

7. The project's goal is to speed up the transformation of the market for environmentally sustainable efficient lighting technologies in Vietnam in order to reduce electricity demand and the associated greenhouse gas (GHG) emissions from electricity production.

8. To meet the above-mentioned overall goal, the project is structured around four components, which include:
(i) Local Lighting Industry Capacity Enhancement Program,
(ii) Improved QA/QC Framework,
(iii) ESL Market Transformation and Consumer Education and Awareness, and
(iv) National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs.

9. Each component has a related outcome and outputs. These are summarised in the table below.

Table 2 Expected outcomes and outputs from log frame (see Log frame in Annex 8)

Outcome	Output
5. Successful business transformation of manufacturers of ILs and improved quality of locally produced ESL at marketable prices	1.6 Market research on current status of IL and ESL markets in Vietnam. 1.7 Technical aids on conversion of IL production lines to ESL 1.8 Training courses provided on quality ESL production. 1.9 Business transformation plans agreed for 2-4 ESL products for two main enterprises. 1.10 Technical support for selected local manufacturers towards q quality ESL production at marketable costs.
6. Strengthened and harmonized quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products.	2.6 Energy, environmental and quality standards for ESLs are tightened and harmonized in line with regional or international best practice 2.7 National quality inspection system for ESLs is established 2.8 Capacity of two testing labs is strengthened. 2.9 Green customs programme to reduce import/export of ILs and low quality ESLs implemented.

	2.10 Capacity of civic authorities to handle and safely dispose of mercury in ESLs and to engage in recycling strengthened.
7. Enhanced awareness about benefits of ESLs and significant increase in sales of ESLs and significant reduction in sales of ILs	3.1 National social marketing campaign for rural and residential users designed and implemented. 3.2 Documented results of market study on ESL promotional campaign and roadmap/masterplan for ESL promotion. 3.3 Demonstration projects in rural areas implemented. 3.4ESL procurement plan for public sector developed.
8. Policy and institutional systems able to support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.	4.1 Agreed national roadmaps and master plans for the phase-out of ILs and the promotion of good quality ESLs. 4.2 Established national policy for phase out of ILs 4.3 Proposed policy measures and incentives for ESL market development and enhancement through local partners.

4. Executing Arrangements

312. The ***Implementing and executing agency*** for the project was the United Nations Environment Programme (UNEP), Division of Technology, Industry and Economics (DTIE). In this capacity, UNEP had overall responsibility for the implementation of the project, project oversight, and co-ordination with other GEF projects. In addition, UNEP was responsible for reporting the carbon emissions reductions resulting from project activities to national registries and/or international inventories.

313. In country execution was carried out by ISOPONRE supported by UNEP/DTIE and the official executing agent. UNEP/DTIE in cooperation with ISOPONRE will be accountable to GoV and UNEP/GEF for ensuring
(i) achieving the project objectives;
(ii) the substantive quality of the project;
(iii) the effective use of both international and national resources allocated to it;
(iv) the timely availability of financing to support project implementation;
(v) the proper coordination among all project stakeholders; in particular national parties; and
(vi) timely submission of all project reports, including work plans and financial reports.

314. The project management arrangement consisted of the following:

- The project Steering Committee (PSC)

- The National project Director (NPD)
- The project Management Office (PMO)
- The Technical Working Group (TWG)

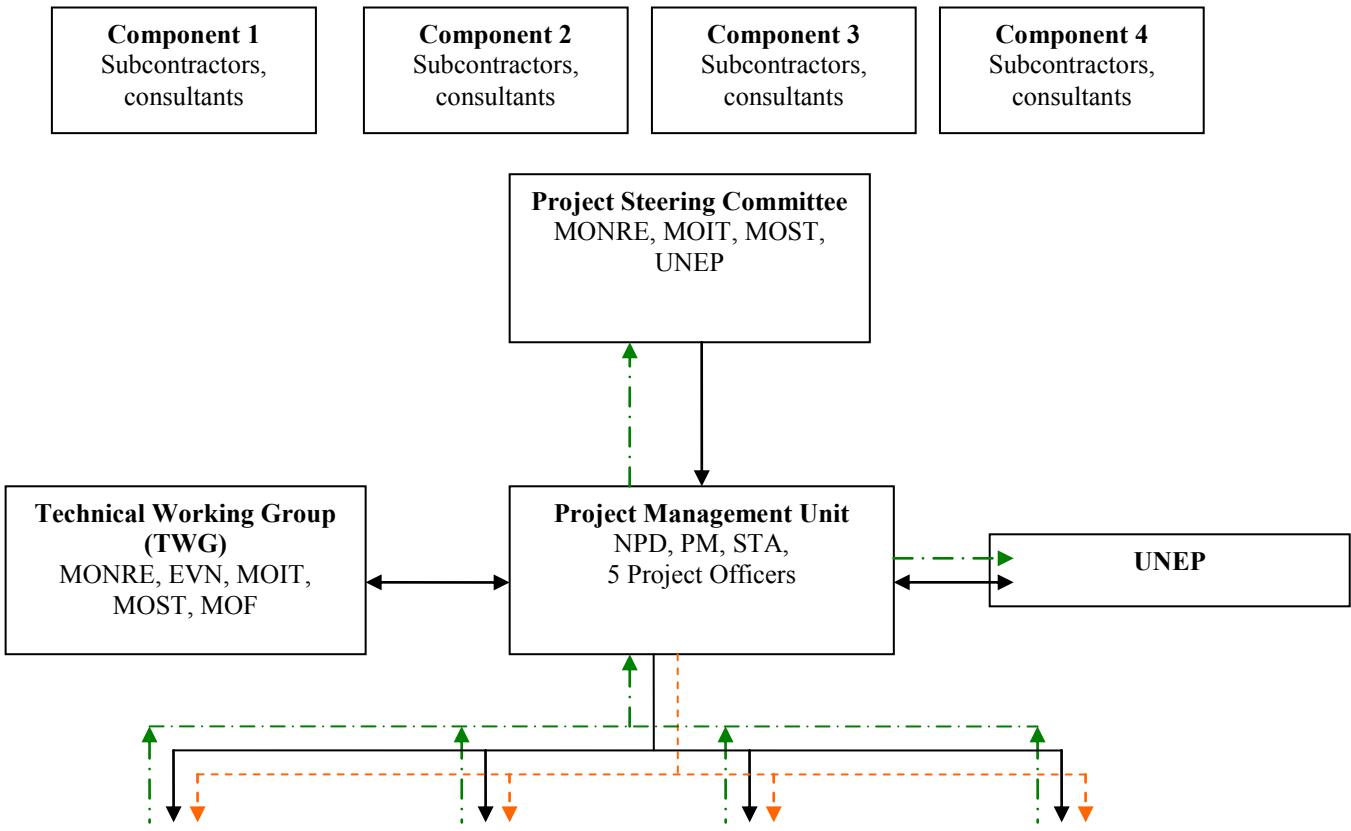

Figure 1: project Implementation Arrangement

Steering Committee

315. The project Steering Committee (PSC) consisted of high level representatives from MONRE, MOST, MOIT, and UNEP. It will be chaired by the Vice-Minister of MONRE. The primary roles of the PSC are: (i) to provide overall guidance to the implementation of the project, (ii) to ensure good coordination among participating agencies, sectors and international organizations. The PSC meets at least once a year, to discuss the progress of the project and provide future guidance.

National project Director

316. The Director General of ISPONRE was to be the National project Director (NPD). The NPD's overall role would be to ensure the successful execution and implementation of the project toward achieving project results. The NPD would represent MONRE and be accountable to the Government and UNEP for the substantive quality of the project and for the proper use of project resources. The NPD would be responsible for mobilizing all national and international project inputs in a timely manner, supporting project management and implementation, organizing project activities in accordance with the project work plan, and reporting to MONRE and UNEP the progress and the financial status of the project. The Vice Minister of the MONRE was to be the Chair of the Steering committee.

Project Management Unit (PMU)

317. The team in this office consisted of a National project Director, project Manager, senior technical advisor (STA), project secretary, technical officer, communication officer and project accountant

318. The role of the PMU was to prepare quarterly progress reports to review achievement in the previous quarter, prepare financial report and develop work plan and budget for next quarter. All such documents would be endorsed by the UNEP Task Manager. The PMU would also hold quarterly meetings with the UNEP/DTIE (part-time) coordinator[26] during visits to Vietnam to discuss the quarterly progress report, a quarterly work plan, a quarterly budget and any other relevant issues. It would also produce annual progress reports. At the end of the project, the PMU would produce the terminal report.

Technical Working Group

319. A Technical Working Group (TWG) was to be established to provide overall comments of key program activities including fund commitments and co-financing arrangements. The TWG would consist of ISPONRE, senior representatives from the relevant departments of MONRE, MPI, MOST, MOIT, MOF as well as ESL production companies, lighting R&D institutions, and lighting industry associations. The TWG would meet regularly during the project implementation.

320. At the national level the project would be implemented together with following stakeholders :-

[26] The UNEP/DTIE part-time coordinator will be based in UNEP's Regional Office for Asia and the Pacific in Bangkok, Thailand.

Table 3 – project Stakeholders

Stakeholders	Roles
Ministry of Natural Resources and Environment (MONRE)	MONRE is the lead state agency responsible for the management of natural resources and the environment in Vietnam. As such, its role was to coordinate the necessary government support and insight. It would also preside over the project Steering Committee (PSC) and would liaise with the Global Market Transformation for Efficient Lighting project.
Institute for Strategy and Policy on Natural Resources and Environment (ISPONRE).	ISOPONRE was the executing partner for UNEP/DTIE under the project. It was be responsible for management and monitoring the implementation of the project for which it would create a PMU at its premises. It would be responsible for organizing stakeholder participation, as required.
Ministry of Industry and Trade (MOIT)	MOIT would take the lead in the development of the ESL enhancing policy and roadmap/plan for phasing out ILs. It would also collaborate with MOF to develop the financial incentive policies to manufacturers to change their production to ESLs from ILs. It would partly participate in the information dissemination program, awareness raising, and study/research on CFLs and ILs in the Vietnamese market. It would also participate in the PSC meetings.
Ministry of Science and Technology (MOST)	MOST would participate in capacity building with regard to QA/QC of ESLs, and help strengthen relevant standards in line with regional and international standards. MOST would also participate in the development of a quality control system and the upgrade of a national laboratory testing capacity. Under MOST, VSQI and QUATEST 1 and 3 would be partners and beneficiaries of the project. VSQI would directly participate in the standards development process while QUATEST 1 and 3 would be the laboratories for testing lighting products. MOST would also participate in PSC meetings.
Directorate for Standards, Measurement and Quality (STAMEQ)	STAMEQ is part of MOST and is responsible for the development of EE standards for energy use and products. It also supervises the national testing laboratories and as such would be involved in the project through QUATEST 1 and 3.
Ministry of Finance (MOF)	MOF was to participate in the development of financial incentive policies to promote the transformation from the production of ILs to ESLs. Implementing partners under MOF include the Customs Administration, which would be involved in the Green Customs program and the Department of Tax Policy, which would be responsible for the development of incentive fiscal tools.
Ministry of Education and	MOET would participate in awareness raising activities mainly

Training (MOET)	through the education system.
Electricity of Vietnam (EVN)	EVN would participate in the development and implementation of the national social marketing campaign and cooperate with MOIT and VLA in conducting the lighting market study, raising the awareness of the general population, and conducting pilot projects in the cities/provinces.
Rang Dong Company	Under the project the company would receive support to change its production lines from manufacturing ILs to manufacturing good quality ESLs. It would also contribute to awareness raising about the benefits of ESLs.
Dien Quang Company	Under the project the company would receive support to change its production lines from manufacturing ILs to manufacturing good quality ESLs. It would also contribute to awareness raising about the benefits of ESLs.
Vietnam Lighting association (VLA)	VLA would participate in the exchange of information and studies on the lighting market in Vietnam and contribute to awareness raising about the benefits of ESLs.
National Television (VTV2) and NGOs	VTV2 and NGOs would participate in the dissemination of information and awareness raising campaigns about the benefits of ESLs.

Several of these stakeholders also pledged co-financing to the project (see section 5 below).

321. Other major stakeholders identified for the successful implementation of the proposed project included: (i) professional associations like the Association of Architects, the Association of Professional Engineers and the Regional Chamber of Agriculture, (ii) Non-Governmental Organizations (NGOs) particularly those working on environmental protection and natural resources conservation and (iii) the civil society associations for dissemination of information materials on the best operation and maintenance practices for electricity consuming household equipment.

322. At a global level the project was also expected to interact with the following stakeholders and parties.

- UNEP (UNEP/DTIE, UNEP Global Mercury Partnership, Secretariat of the Basel Convention, “Global Market Transformation for Efficient Lighting” project)
- UNDP
- World Bank
- International Energy Association
- National lighting associations operating in the various geographic zones
- The Renewable Energy & Energy Efficiency Partnership's (REEEP)
- The International Partnership for Energy Efficiency Cooperation

- The Alliance to Save Energy
- The Collaborative Labelling Appliance Standards Programme (CLASP)
- International and regional harmonization institutes and organisations such as IEC and the Pan-American Standards Commission (COPANT)
- Bilateral donors involved in lighting and their specific projects such as USAID for Asia and GTZ for India.

5. Project Cost and Financing

323. The total cost of the project is US$ 25.152 million of which US$ 2.94 million was provided by the GEF with the remainder of US$ 22.212 million being provided as in-kind and cash contribution by government organizations and the private sector. The overall project budget is shown in table 4 below.

Table 4: Overall project Budget by Component

project Components	GEF Financing (a)		Co-Financing (b)		Total (US$) (c=a+ b)
	(Million US$)	%	(Million US$)	%	
1. Local lighting industry capacity enhancement program	0.600	5	12.417	95	13.017
2. Improved QA/QC framework	0.600	8	6.500	92	7.100
3. ESL market transformation and consumer education and awareness	0.915	34	1.745	56	2.660
4. National policy and institutional support pro-gram towards phasing-out of ILs and promotion of ESLs	0.350	26	1.000	74	1.350
5. project Performance & National Impact M&E System	0.175	25	0.150	75	0.325
6. project management	0.300	43	0.400	57	0.700
Total project Costs	2.940	12	22.212	88	25.152

Project Co-financing

324. The co-financing sources as well as the contributions are summarized in table 7 below. See appendix 2 for detailed information about the co-financing in accordance with the UNEP budget line format.

Table 5: Summary of Co-financing

Name of Co-financier (source)	Classification	Type	Project (US$)	%
Vietnam Energy Efficiency and Conservation /MOIT	Beneficiary	In-kind	1,000,000	4.5

ISPONRE	Executing agency	In-kind	585,000	2.6
Institute of Energy	Beneficiary	In-kind	300,000	1.3
VEA	Beneficiary	In-kind	550,000	2.5
Vietnam Standard Quality Institute	Beneficiary	In-kind	600,000	2.7
QUATEST 1 (testing laboratory)	Beneficiary	Cash In-kind	30,000 580,000	0.1 2.6
QUATEST 3 (testing laboratory)	Beneficiary	In-kind	5,000,000	22.5
Vietnam Lighting Association	Beneficiary	In-kind	150,000	0.7
Rang Dong (lighting manufacturer)	Private sector	Cash In-kind	1,790,000 8,127,000	8.1 36.6
Dien Quang (lighting manufacturer)	Private sector	Cash In-kind	150,000 3,350,000	0.7 15.1
Total Co-financing			22,212,000	100.0

6. Implementation Issues

325. The first PSC meeting was held in January 2012. At this meeting it was decided to adjust some of the planned activities to reflect the current situation in the country :-

(i) Activity 1.2 "Supporting technology in ESL and exchanging IL product line to a high quality ESL one" was changed to to 1.2. "Planning to strengthen capacity of local lamp manufacturers"; (ii) Activity 4.1 "Developing and implementing the national roadmap and overall plan to phase out ILs as well as promote high quality ESL consumption" was changed to to "Implement national roadmap and overall plan to phase out ILs as well as promote high quality ESL consumption".

The implementation of some activities of the project fell behind schedule because of the delay in recruiting international and local experts. Stakeholders had requested expert advice on very specific topics and identification of experts took a long time. There have also been issues of difficulties in coordination and conflict between local experts and delays in production of inputs by local experts.

II. TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

326. In line with the UNEP Evaluation Policy[27], the UNEP Evaluation Manual[28] and the Guidelines for GEF Agencies in Conducting Terminal Evaluations[29], the Mid term Evaluation of the project "**Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam.**" is undertaken after completion of the project to assess

[27] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx
[28] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx
[29] http://www.thegef.org/gef/sites/thegef.org/files/documents/TE_guidelines7-31.pdf

project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes:

(i) to provide evidence of results to meet accountability requirements, and

(ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF and their executing partners.

Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation. It will focus on the following sets of **key questions**, based on the project's intended outcomes, which may be expanded by the consultants as deemed appropriate:

a. To what extent have the institutional arrangement been effective in supporting project implementation?
b. Is the project on course to support successful business transformation of manufacturers of ILs to high quality ESLs produced at marketable prices?
c. Are project activities on course to bring about stronger and more harmonious quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products.
d. Have project activities on course to promote enhanced awareness of the benefits of ESLs and a change in consumption away from ILs?
e. Are project activities contributing to the development of policy and institutional systems which can support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.
f. Is the project on to support the project conversion to ESL lighting (75%) in Vietnam.
g. Are there any course corrections needed to support the project in achieving its desired outputs and outcomes?

2. Overall Approach and Methods

327. The Mid term Evaluation of the project "**Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam.**" will be conducted by independent consultants under the overall responsibility and management of the UNEP Evaluation Office (Nairobi), in consultation with the UNEP GEF Coordination Office (Nairobi), and the UNEP Task Manager at UNEP/DTIE.

328. It will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used to determine project achievements against the expected outputs, outcomes and impacts.

329. The findings of the evaluation will be based on the following:

a. **A desk review** of project documents and others including, but not limited to:
- Relevant background documentation, inter alia UNEP and GEF policies, strategies and programmes pertaining to efficient lighting;

- project design documents; Annual Work Plans and Budgets or equivalent, revisions to the logical framework and project financing;
- project reports such as progress and financial reports from the executing partners to the project Management Unit (PMU) and from the PMU to UNEP; Steering Group meeting minutes; annual project Implementation Reviews and relevant correspondence;
- Documentation related to project outputs;
- Review of media articles over the last 3-4 years concerning the lighting market in Vietnam.

b. Interviews with:

- The task manager, UNEP project manager and technical adviser, based in Bangkok
- Fund Management Officer , Faith Karuga
- Key project stakeholders (see table) in Hanoi
- Relevant staff of GEF Secretariat; and
- Representatives of The Efficient Lighting project (Paris) – Global Efficient Lighting project (en.lighten)
- Representatives of the Global Efficient Lighting Centre (China).
- Mark RADKA, Head of the Energy Branch, DTIE, Paris.
- Geordie Colville, Senior Portfolio Manager, GEF CCM projects.
- DTIE Nairobi.
- GEF coordination office in Nairobi.

c. **Country visits.** Members of the evaluation team will visit Vietnam and Beijing to interview key stakeholders.

3. Key Evaluation principles

330. Evaluation findings and judgements should be based on **sound evidence and analysis**, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) to the extent possible, and when verification was not possible, the single source will be mentioned. Analysis leading to evaluative judgements should always be clearly spelled out.

331. The evaluation will assess the project with respect to **a minimum set of evaluation criteria** grouped in four categories:

(1) Attainment of objectives and planned results, which comprises the assessment of outputs achieved, relevance, effectiveness and efficiency and the review of outcomes towards impacts;

(2) Sustainability and catalytic role, which focuses on financial, socio-political, institutional and ecological factors conditioning sustainability of project outcomes, and also assesses efforts and achievements in terms of replication and up-scaling of project lessons and good practices;

(3) Processes affecting attainment of project results, which covers project preparation and readiness, implementation approach and management, stakeholder participation

and public awareness, country ownership/driven-ness, project finance, UNEP supervision and backstopping, and project monitoring and evaluation systems; and

(4) Complementarity with the UNEP strategies and programmes.

The evaluation consultants can propose other evaluation criteria as deemed appropriate.

332. **Ratings.** All evaluation criteria will be rated on a six-point scale. However, complementarity of the project with the UNEP strategies and programmes is not rated. Annex 2 provides detailed guidance on how the different criteria should be rated and how ratings should be aggregated for the different evaluation criterion categories.

333. In attempting to attribute any outcomes and impacts to the project, the evaluators should consider the difference between *what has happened with and what would have happened without the project*. This implies that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. This also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluators, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

334. As this is a Mid Term evaluation, particular attention should be given to recommendations which can enhance the project's performance and ability to achieve its outputs and outcomes.

4. Evaluation criteria

1.1.1. Strategic relevance

335. The evaluation will assess, in retrospect, whether the project's objectives and implementation strategies were consistent with: i) Sub-regional environmental issues and needs; ii) the UNEP mandate and policies at the time of design and implementation; and iii) the GEF Climate Change focal area, strategic priorities and operational programme(s).

336. It will also assess whether the project objectives were realistic, given the time and budget allocated to the project, the baseline situation and the institutional context in which the project was to operate.

1.1.2. Achievement of Outputs

337. The evaluation will assess, for each component, the project's success in producing the programmed results as presented in Table 2 above, both in quantity and quality, as well as their usefulness and timeliness. Briefly explain the degree of success of the project in achieving its different outputs, cross-referencing as needed to more detailed explanations provided under Section F (which covers the processes affecting attainment of project objectives). The achievements under the regional and national demonstration projects will receive particular attention.

1.1.3. Effectiveness: Attainment of Objectives and Planned Results

338. The evaluation will assess the extent to which the project's objectives were effectively achieved or are expected to be achieved.

339. The evaluation will reconstruct the Theory of Change (ToC) of the project based on a review of project documentation and stakeholder interviews. The ToC of a project depicts the causal pathways from project outputs (goods and services delivered by the project) over outcomes (changes resulting from the use made by key stakeholders of project outputs) towards impact (changes in environmental benefits and living conditions). The ToC will also depict any intermediate changes required between project outcomes and impact, called intermediate states. The ToC further defines the external factors that influence change along the pathways, whether one result can lead to the next. These external factors are either drivers (when the project has a certain level of control) or assumptions (when the project has no control).

340. The assessment of effectiveness will be structured in three sub-sections:

a. Evaluation of the **achievement of direct outcomes as defined in the reconstructed ToC**. These are the first-level outcomes expected to be achieved as an immediate result of project outputs.

d. Assessment of the **likelihood of impact** using a *Review of Outcomes to Impacts* (ROtI) approach as summarized in Annex 6 of the TORs. Appreciate to what extent the project has to date contributed, and is likely in the future to further contribute to changes in stakeholder behaviour as a result of the project's direct outcomes, and the likelihood of those changes in turn leading to changes in the natural resource base, benefits derived from the environment and human living conditions.

e. Evaluation of the **achievement of the formal project overall objective, overall purpose, goals and component outcomes** using the project's own results statements as presented in original logframe (see Table 2 above) and any later versions of the logframe. This sub-section will refer back where applicable to sub-sections (a) and (b) to avoid repetition in the report. To measure achievement, the evaluation will use as much as appropriate the indicators for achievement proposed in the Logical Framework Matrix (Logframe) of the project, adding other relevant indicators as appropriate. Briefly explain what factors affected the project's success in achieving its objectives, cross-referencing as needed to more detailed explanations provided under Section F.

341. There are some effectiveness questions of specific interest which the evaluation should certainly consider:

a) The country situation has changed significantly since the time the project was formulated. The evaluation team should assess the validity or need to update the project baseline, objectives and outcomes.

1.1.4. Sustainability and replication

342. Sustainability is understood as the probability of continued long-term project-derived results and impacts after the external project funding and assistance ends. The

evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of benefits. Some of these factors might be direct results of the project while others will include contextual circumstances or developments that are not under control of the project but that may condition sustainability of benefits. The evaluation should ascertain to what extent follow-up work has been initiated and how project results will be sustained and enhanced over time. The reconstructed ToC will assist in the evaluation of sustainability.

343. Four aspects of sustainability will be addressed:

a. *Socio-political sustainability.* Are there any social or political factors that may influence positively or negatively the sustenance of project results and progress towards impacts? Is the level of ownership by the main national and regional stakeholders sufficient to allow for the project results to be sustained? Are there sufficient government and stakeholder awareness, interests, commitment and incentives to execute, enforce and pursue the programmes, plans, agreements, monitoring systems etc. prepared and agreed upon under the project?

b. *Financial resources.* To what extent are the continuation of project results and the eventual impact of the project dependent on continued financial support? What is the likelihood that adequate financial resources[30] will be or will become available to implement the programmes, plans, agreements, monitoring systems etc. prepared and agreed upon under the project? Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?

c. *Institutional framework.* To what extent is the sustenance of the results and onward progress towards impact dependent on issues relating to institutional frameworks and governance? How robust are the institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. required to sustaining project results and to lead those to impact on human behaviour and environmental resources?

d. *Environmental sustainability.* Are there any environmental factors, positive or negative, that can influence the future flow of project benefits? Are there any project outputs or higher level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits? Are there any foreseeable negative environmental impacts that may occur as the project results are being up-scaled?

e. Commercial sustainability
What is the status of local manufacturing, market sustainability and potential for expansion. The evaluators should look at the issue of technology transfer and proprietary rights[31].

[30] Those resources can be from multiple sources, such as the public and private sectors, income generating activities, other development projects etc.

[31] Vietnamese partners are interested to learn more about Chinese products and the possibility of manufacturing them in Vietnam.

344. **Catalytic role and replication**. The *catalytic role* of GEF-funded interventions is embodied in their approach of supporting the creation of an enabling environment and of investing in pilot activities which are innovative and showing how new approaches can work. UNEP and the GEF also aim to support activities that upscale new approaches to a national, regional or global level, with a view to achieve sustainable global environmental benefits. The evaluation will assess the catalytic role played by this project, namely to what extent the project has:

a. *catalyzed behavioural changes* in terms of use and application by the relevant stakeholders of: i) technologies and approaches show-cased by the demonstration projects; ii) strategic programmes and plans developed; and iii) assessment, monitoring and management systems;
b. provided *incentives* (social, economic, market based, competencies etc.) to contribute to catalyzing changes in stakeholder behaviour;
c. contributed to *institutional changes.* An important aspect of the catalytic role of the project is its contribution to institutional uptake or mainstreaming of project-piloted approaches in the regional and national demonstration projects;
d. contributed to *policy changes* (on paper and in implementation of policy);
e. contributed to sustained follow-on financing (*catalytic financing*) from Governments, the GEF or other donors;
f. created opportunities for particular individuals or institutions ("*champions*") to catalyze change (without which the project would not have achieved all of its results).

345. *Replication*, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated (experiences are repeated and lessons applied in different geographic areas) or scaled up (experiences are repeated and lessons applied in the same geographic area but on a much larger scale and funded by other sources). The evaluation will assess the approach adopted by the project to promote replication effects and appreciate to what extent actual replication has already occurred or is likely to occur in the near future. What are the factors that may influence replication and scaling up of project experiences and lessons?

1.1.5. Efficiency

346. The evaluation will assess the cost-effectiveness and timeliness of project execution. It will describe any cost- or time-saving measures put in place in attempting to bring the project as far as possible in achieving its results within its programmed budget and (extended) time. It will also analyse how delays, if any, have affected project execution, costs and effectiveness. Wherever possible, costs and time over results ratios of the project will be compared with that of other similar interventions. The evaluation will give special attention to efforts by the project teams to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency all within the context of project execution in Vietnam.

1.1.6. Factors and processes affecting project performance

347. **Preparation and readiness**. This criterion focusses on the quality of project design and preparation. Were project stakeholders[32] adequately identified? Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing agencies properly considered when the project was designed? Was the project document clear and realistic to enable effective and efficient implementation? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities) and enabling legislation assured? Were adequate project management arrangements in place? Were lessons from other relevant projects properly incorporated in the project design? What factors influenced the quality-at-entry of the project design, choice of partners, allocation of financial resources etc.? Were GEF environmental and social safeguards considered when the project was designed[33]?

348. **project implementation and management**. This includes an analysis of implementation approaches used by the project, its management framework, the project's adaptation to changing conditions (adaptive management), the performance of the implementation arrangements and partnerships, relevance of changes in project design, and overall performance of project management. The evaluation will:

a. Ascertain to what extent the project implementation mechanisms outlined in the project document have been followed and are proving effective in delivering project outputs and outcomes. Have pertinent adaptations been made to the approaches originally proposed?
b. Evaluate the effectiveness and efficiency of project management by ISPONRE and UNEP and how well the management was able to adapt to changes during the life of the project.
c. Assess the role and performance of the units and committees established and the project execution arrangements at all levels.
d. Assess the extent to which the project management, and other key stakeholders involved in implementation, have responded to direction and guidance provided by the Steering Committee and UNEP supervision recommendations.
e. Identify operational and political / institutional problems and constraints that influenced the effective implementation of the project, and how the project partners tried to overcome these problems. How has the relationship between the project management team and other stakeholders involved in implementation developed?
f. Assess the extent to which the project implementation meets GEF environmental and social safeguards requirements.
g. Assess the support provided by the global lighting program; GELC, execution/support from Paris, support from Nairobi, execution from Bangkok.

[32] Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the project. The term also applies to those potentially adversely affected by the project.
[33] http://www.thegef.org/gef/node/4562

h. The evaluation team will assess whether the current institutional arrangements are appropriate given the changing context since project design.

349. **Stakeholder participation and public awareness**. The term stakeholder should be considered in the broadest sense, encompassing project partners, government institutions, private interest groups, local communities etc. The TOC analysis should assist the evaluators in identifying the key stakeholders and their respective roles, capabilities and motivations in each step of the causal pathway from activities to achievement of outputs and outcomes to impact. The assessment will look at three related and often overlapping processes: (1) information dissemination between stakeholders, (2) consultation between stakeholders, and (3) active engagement of stakeholders in project decision making and activities. The evaluation will specifically assess:

a. the approach(es) used to identify and engage stakeholders in project design and implementation. What were the strengths and weaknesses of these approaches with respect to the project's objectives and the stakeholders' motivations and capacities? What was the achieved degree and effectiveness of collaboration and interactions between the various project partners and stakeholders during design and implementation of the project?
b. the degree and effectiveness of any public awareness activities that have been undertaken during the course of implementation of the project; or that are built into the assessment methods so that public awareness can be raised at the time the assessments will be conducted;
c. how the results of the project (strategic programmes and plans, monitoring and management systems, sub-regional agreements etc.) promote participation of stakeholders, including users.
d. The evaluators should look particularly at the project's success in engaging with the private sector.

350. **Country ownership and driven-ness.** The evaluation will assess the performance of government agencies involved in the project:

a. In how far has the Government assumed responsibility for the project and provided adequate support to project execution, including the degree of cooperation received from the various public institutions involved in the project and the timeliness of provision of counter-part funding to project activities?
b. To what extent has the political and institutional framework of Vietnam been conducive to project performance?
c. To what extent have the public entities promoted the participation of lighting manufacturers and relevant non-governmental organisations in the project?
d. How responsive were the government partners to ISPONRE coordination and guidance, and to UNEP supervision?
e. How does the current country policy environment impact on project activities?

351. **Financial planning and management**. Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources by the project to date. The assessment will look at actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The evaluation will:

a. Verify the application of proper standards (clarity, transparency, audit etc.) and timeliness of financial planning, management and reporting to ensure that sufficient and timely financial resources has been available to the project and its partners;
b. Appreciate other administrative processes such as recruitment of staff, procurement of goods and services (including consultants), preparation and negotiation of cooperation agreements etc. to the extent that these may influence project performance;
c. Present to what extent co-financing has materialized as expected at project approval (see Table 1). Report country co-financing to the project overall, and to support project activities at the national level in particular. The evaluation will provide a breakdown of final actual costs and co-financing for the different project components to date (see tables in Annex 3).
d. Describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective. Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector.

352. Analyse the effects on project performance of any irregularities in procurement, use of financial resources and human resource management, and the measures taken by the PMU or UNEP to prevent such irregularities in the future. Appreciate whether the measures taken were adequate.

353. **UNEP supervision and backstopping.** The purpose of supervision is to verify the quality and timeliness of project execution in terms of finances, administration and achievement of outputs and outcomes, in order to identify and recommend ways to deal with problems which arise during project execution. Such problems may be related to project management but may also involve technical/institutional substantive issues in which UNEP has a major contribution to make. The evaluators should assess the effectiveness of supervision and administrative and financial support provided by UNEP including:

a. The adequacy of project supervision plans, inputs and processes;
b. The emphasis given to outcome monitoring (results-based project management);
c. The realism and candour of project reporting and ratings (i.e. are PIR ratings an accurate reflection of the project realities and risks);
d. The quality of documentation of project supervision activities; and
e. Financial, administrative and other fiduciary aspects of project implementation supervision.

f. Coordination/complementarity between the implementing and executing function in project support. Are current arrangements working?

354. **Monitoring and evaluation**. The evaluation will include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The evaluation will appreciate how information generated by the M&E system during project implementation is being used to adapt and improve project execution, achievement of outcomes and ensuring sustainability. M&E is assessed on three levels:

a. *M&E Design*. projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified. The evaluators should use the following questions to help assess the M&E design aspects:

- Quality of the project logframe (original and possible updates) as a planning and monitoring instrument; analyse, compare and verify correspondence between the original logframe in the project Document, possible revised logframes and the logframe used in project Implementation Review reports to report progress towards achieving project objectives;
- SMART-ness of indicators: Are there specific indicators in the logframe for each of the project objectives? Are the indicators measurable, attainable (realistic) and relevant to the objectives? Are the indicators time-bound?
- Adequacy of baseline information: To what extent has baseline information on performance indicators been collected and presented in a clear manner? Was the methodology for the baseline data collection explicit and reliable?
- Arrangements for monitoring: Have the responsibilities for M&E activities been clearly defined? Are the data sources and data collection instruments appropriate? Is the frequency of various monitoring activities specified and adequate? In how far are project users involved in monitoring?
- Arrangements for evaluation: Have specific targets been specified for project outputs? Has the desired level of achievement been specified for all indicators of objectives and outcomes? Were there adequate provisions in the legal instruments binding project partners to fully collaborate in evaluations?
- Budgeting and funding for M&E activities: Determine whether support for M&E has been budgeted adequately and was funded in a timely fashion during implementation.

b. *M&E Plan Implementation*. The evaluation will verify that:

- the M&E system is operational and is facilitating timely tracking of results and progress towards projects objectives throughout the project implementation period;
- annual project reports and Progress Implementation Review (PIR) reports are complete, accurate and with well justified ratings;

- the information provided by the M&E system is being used by the project to improve project performance and to adapt to changing needs.

c. *Use of GEF Tracking Tools*. These are portfolio monitoring tools intended to roll up indicators from the individual project level to the portfolio level and track overall portfolio performance in focal areas. Each focal area has developed its own tracking tool[34] to meet its unique needs. Agencies are requested to fill out at CEO Endorsement (or CEO approval for MSPs) and submit these tools again for projects at mid-term and project completion. The evaluation will verify whether UNEP has duly completed the relevant tracking tool for this project, and whether the information provided is accurate.

1.1.7. Complementarities with UNEP strategies and programmes

355. UNEP aims to undertake GEF funded projects that are aligned with its own strategies. The evaluation should present a brief narrative on the following issues:

a. *Linkage to UNEP's Expected Accomplishments and POW 2010-2011.* The UNEP MTS specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. Using the completed ToC/ROtI analysis, the evaluation should comment on whether the project makes a tangible contribution to any of the Expected Accomplishments specified in the UNEP MTS. The magnitude and extent of any contributions and the causal linkages should be fully described. Whilst it is recognised that UNEP GEF projects designed prior to the production of the UNEP Medium Term Strategy 2010-2013 (MTS)[35] would not necessarily be aligned with the Expected Accomplishments articulated in those documents, complementarities may still exist and it is still useful to know whether these projects remain aligned to the current MTS.

b. *Alignment with the Bali Strategic Plan (BSP)*[36]. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.

c. *Gender*. Ascertain to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to and the control over natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation. Appreciate whether the intervention is likely to have any lasting differential impacts on gender equality and the relationship between women and the environment. To what extent do unresolved gender inequalities affect sustainability of project benefits?

[34] http://www.thegef.org/gef/tracking_tools
[35] http://www.unep.org/PDF/FinalMTSGCSS-X-8.pdf
[36] http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf

d. *South-South Cooperation.* This is regarded as the exchange of resources, technology, and knowledge between developing countries. Briefly describe any aspects of the project that could be considered as examples of South-South Cooperation.

5. The Consultants' Team

356. For this evaluation, the evaluation team will consist of one team leader and one supporting consultant. Team members should have experience in evaluation, knowledge of the energy saving lighting sector, market development and capacity building. One of the team members should be familiar with Vietnam. The Team Leader will coordinate data collection and analysis, and the preparation of the main report for the evaluation, with substantive contributions by the supporting consultant. Both consultants will ensure together that all evaluation criteria are adequately covered

357. By undersigning the service contract with UNEP/UNON, the consultants certify that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units.

6. Evaluation Deliverables and Review Procedures

Key Milestones

Date	Activity
May 6 – 30	Process contract
May 26 – 30	Inception report/document review
June 2 – 6	Meetings with TM/PM Bangkok Phone interviews with Paris team and other key stakeholders
June 8 – 13	Hanoi
June 16 – 19	Beijing
June 23 – July 4	Prepare draft report
July 29 –August 8	EO Review of draft report.
July Aug 11 - 15	PM/TM comment on draft report
	Teleconference to discuss results.
August 18 - 22	Draft report circulated to stakeholders
August 25 - 29	Steering committee meeting . Evaluator to present results.
September 1 - 5	Response to stakeholder comments. Finalise report.

358. The evaluation team will prepare an **inception report** (see Annex 1(a) of TORs for Inception Report outline) containing a thorough review of the project context, project design quality, a draft reconstructed Theory of Change of the project, the evaluation framework and a tentative evaluation schedule.

359. The review of design quality will cover the following aspects (see Annex 7 for the detailed project design assessment matrix):

- Strategic relevance of the project
- Preparation and readiness (see paragraph 25);

- Financial planning (see paragraph 30);
- M&E design (see paragraph 33(a));
- Complementarities with UNEP strategies and programmes (see paragraph 34);
- Sustainability considerations and measures planned to promote replication and upscaling (see paragraph 23).

360. The inception report will also present a draft, desk-based reconstructed Theory of Change of the project. It is vital to reconstruct the ToC *before* the most of the data collection (review of reports, in-depth interviews, observations on the ground etc.) is done, because the ToC will define which direct outcomes, drivers and assumptions of the project need to be assessed and measured to allow adequate data collection for the evaluation of project effectiveness, likelihood of impact and sustainability.

361. The evaluation framework will present in further detail the evaluation questions under each criterion with their respective indicators and data sources. The evaluation framework should summarize the information available from project documentation against each of the main evaluation parameters. Any gaps in information should be identified and methods for additional data collection, verification and analysis should be specified.

362. The inception report will also present a tentative schedule for the overall evaluation process, including a draft programme for the country visit and tentative list of people/institutions to be interviewed.

363. The inception report will be submitted for review and approval by the Evaluation Office before the evaluation team travels to Vietnam.

364. **The main evaluation report** should be brief (no longer than 35 pages – excluding the executive summary and annexes), to the point and written in plain English. The evaluation team will deliver a high quality report in English by the end of the assignment. The report will follow the annotated Table of Contents outlined in Annex 1. It must explain the purpose of the evaluation, exactly what was evaluated and the methods used (with their limitations). The report will present evidence-based and balanced findings, consequent conclusions, lessons and recommendations, which will be cross-referenced to each other. The report should be presented in a way that makes the information accessible and comprehensible. Any dissident views in response to evaluation findings will be appended in footnote or annex as appropriate. To avoid repetitions in the report, the authors will use numbered paragraphs and make cross-references where possible.

365. **Review of the draft evaluation report**. The evaluation team will submit the zero draft report latest two weeks after the country visit has been completed to the UNEP EO and revise the draft following the comments and suggestions made by the EO. Once a draft of adequate quality has been accepted, the EO will share this first draft report with the UNEP Task Manager, who will ensure that the report does not contain any blatant factual errors. The UNEP Task Manager will then forward the first draft report to the other project stakeholders for review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. It is also very important that stakeholders provide feedback on the proposed recommendations and lessons. Comments would be expected within two weeks after the draft report has been shared. Any comments or responses to the draft

report will be sent to the UNEP EO for collation. The EO will provide the comments to the evaluation team for consideration in preparing the final draft report.

366. The evaluation team will submit the final draft report no later than 2 weeks after reception of stakeholder comments. The team will prepare a **response to comments**, listing those comments not or only partially accepted by them that could therefore not or only partially be accommodated in the final report. They will explain why those comments have not or only partially been accepted, providing evidence as required. This response to comments will be shared by the EO with the interested stakeholders to ensure full transparency.

367. Submission of the final Mid term Evaluation report. The final report shall be submitted by Email to the Head of the Evaluation Office, who will share the report with the Director, UNEP/GEF Coordination Office and the UNEP/DTIE Task Manager. The Evaluation Office will also transmit the final report to the GEF Evaluation Office.

368. **Submission of the final Terminal Evaluation report**. The final report shall be submitted by Email to:

Mike Spilsbury, Chief of Evaluation
UNEP Evaluation Office
P.O. Box 30552-00100
Nairobi, Kenya
Tel.: (+254-20) 762 3387
Email: Michael.Spilsbury@unep.org

369. The Head of Evaluation will share the report with the following persons:

Ms Brennan Van Dyke
UNEP/GEF Coordination Office
Nairobi, Kenya

Geordie Colville
Division of Trade, Industry and Economics
United Nations Environment Programme
Nairobi, Kenya
Email : geordie.colville@unep.org

Conrado Heruela
Task Manager
Regional Office for Asia and the Pacific
UN Environment Programme
UN Building
2nd Floor, Block B
Rajadarmnern Nok
Bankgkok 10200
Thailand.
Email : conrado.heruela@unep.org

370. The final evaluation report will be published on the UNEP Evaluation Office web-site www.unep.org/eou. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

371. As per usual practice, the UNEP EO will prepare a **quality assessment** of the first draft and final draft report, which is a tool for providing structured feedback to the evaluation consultants. The quality of the report will be assessed and rated against the criteria specified in Annex 4.

372. The UNEP Evaluation Office will assess the ratings in the final evaluation report based on a careful review of the evidence collated by the evaluation consultant and the internal consistency of the report. Where there are differences of opinion between the evaluator and UNEP Evaluation Office on project ratings, both viewpoints will be clearly presented in the final report. The UNEP Evaluation Office ratings are the final ratings that will be submitted to the GEF Office of Evaluation.

7. Logistical arrangement

373. This Mid Term Evaluation will be undertaken by an independent evaluation consultants contracted by the UNEP Evaluation Office. The consultants will work under the overall responsibility of the UNEP Evaluation Office and will consult with the EO on any procedural and methodological matters related to the evaluation. It is, however, the consultants' individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize field visits, and any other logistical matters related to the assignment. The UNEP Task Manager and the project Manager will, where possible, provide logistical support (introductions, meetings, transport etc.) for the country visit, allowing the consultants to conduct the evaluation as efficiently and independently as possible.

8. Schedule of the evaluation

374. Both consultants will be hired under an individual Special Service Agreement (SSA). There are two options for contract and payment: lumpsum or "fees only".

375. **Lumpsum**: The contract covers both fees and expenses such as travel, per diem (DSA) and incidental expenses which are estimated in advance. The consultants will receive an initial payment covering estimated expenses upon signature of the contract.

376. **Fee only**: The contract stipulates consultant fees only. Air tickets will be purchased by UNEP and 75% of the DSA for each authorised travel mission will be paid up front. Local in-country travel and communication costs will be reimbursed on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

377. The payment schedule for both consultants will be linked to the acceptance of the key evaluation deliverables by the Evaluation Office:

- Final inception report: 20 percent of agreed total fee
- First draft main evaluation report: 40 percent of agreed total fee
- Final main evaluation report: 40 percent of agreed total fee

378. In case the consultants are not able to provide the deliverables in accordance with these TORs, in line with the expected quality standards by the UNEP Evaluation Office,

payment may be withheld at the discretion of the Head of the Evaluation Office until the consultants have improved the deliverables to meet UNEP's quality standards.

379. If the consultants fail to submit a satisfactory final product to UNEP in a timely manner, i.e. within one month after the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultants' fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

ANNEX B: Evaluation Program and Persons Interviewed

The table below gives the schedule of the evaluation.

Schedule of the Evaluation

Date	Activity	Flights	Duration
May 6 – 30	Process contract		
May 26 – June 2	Inception report/document review		
June 2 – 6	Meetings with TM/PM Bangkok Phone interviews with Paris team and other key stakeholders		
June 9 – 12	Hanoi	Bangkok to Hanoi return	Hanoi 4 days
June 16 – 17	Beijing	Bangkok to Beijing return	Beijing 3 days
June 23 – July 18	Prepare draft report		
July 29 –August 8	EO Review of draft report.		
Aug 11 - 15	PM/TM comment on draft report		
	Teleconference to discuss results.		
August 18 - 22	Draft report circulated to stakeholders		
August 25 - 29	Steering committee meeting. Evaluator to present results.	Bangkok to Hanoi	Hanoi 2 days
September 1 - 5	Response to stakeholder comments. Finalise report.		

Persons Interviewed

Organization/Address	Contact Person/Designation/Email
Institute of Strategy and Policy on Natural Resources and Environment project "Phasing out incandescent lamps through lighting market transformation in Vietnam" Address: 479 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam	Phan Thi Ha project Accountant phan.ha.hh@gmail.com
Institute of Strategy and Policy on Natural Resources and Environment project "Phasing out incandescent lamps through lighting market transformation in Vietnam" Address: 479 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam	Nguyen Trung Thang, Ph.D. project Director ntthang@isponre.gov.vn
Institute of Strategy and Policy on Natural Resources and Environment project "Phasing out incandescent lamps through	Hoang Hong Hanh project Manager hhhanh@isponre.gov.vn

lighting market transformation in Vietnam” Address: 479 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam	
Institute of Strategy and Policy on Natural Resources and Environment project “Phasing out incandescent lamps through lighting market transformation in Vietnam” Address: 479 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam	Truong Thuy Mai project Secretary ttmai@isponre.gov.vn
Institute of Strategy and Policy on Natural Resources and Environment project “Phasing out incandescent lamps through lighting market transformation in Vietnam” Address: 479 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam	Le Van Hiep Technical Officer Hiep24682@yahoo.com
Ministry of Natural Resources and Environment, Institute of Strategy and Policy on Natural Resources and Environment Address: 1116 Hoang Quoc Viet St., Hanoi, Vietnam	Nguyen Ngoc Le Deputy Chief of ISPONRE office nnle@isponre.gov.vn
Ministry of Natural Resources and Environment, Institute of Strategy and Policy on Natural Resources and Environment Address: 1116 Hoang Quoc Viet St., Hanoi, Vietnam	Nguyen Van Tai, Ph.D. Director General nvtai@isponre.gov.vn
Ministry of Industry and Trade – MOIT Address: 54 Hai Ba rung Str., Hanoi, Vietnam	Pham Dinh Thuong Deputy Director-General thuongpd@moit.gov.vn
Ministry of Natural Resources and Environment, International Cooperation Department Address: 10 Ton That Thuyet Street, Cau Giay District, Hanoi, Vietnam	Bui Hoa Binh Official bhbinh@monre.gov.vn
Ministry of Natural Resources and Environment Address: 10 Ton That Thuyet Street, Cau Giay District, Hanoi, Vietnam	Tran Hong Ha, Ph.D. Vice Minister thha@monre.gov.vn

Ministry of Natural Resources and Environment Address: 10 Ton That Thuyet Street, Cau Giay District, Hanoi, Vietnam	Do Nam Thang, Ph.D. Deputy Director General, Department of International Cooperation dnthang@monre.gov.vn donamthang09@gmail.com
Vietnam Lighting Association (VLA) Address: 87-89 Ha Dinh Str., Thanh Xuan Dist., Hanoi, Vietnam	Nguyen Doan Thang Permanent Vice Chairman ralaco@hn.vnn.vn
Ministry of Science and Technology, Vietnam Address: 113, Tran Duy Hung Str., Hanoi, Vietnam	Nghiem Xuan Minh Director General, Department of Social & Natural Sciences nxminh@most.gov.vn nxminh24@yahoo.com
UN-REDD Vietnam Phase II Programme Address: 14, Thuy Khue Street, Tay Ho District, Hanoi, Vietnam	Tran Minh Phuong Communication Officer phuong.tran@unredd-vietnam.org.vn
Lamp Joint Stock Company Address: 125 Ham Nghi St., Dist.1, Ho Chi Minh City, Vietnam	Vo Minh Hoang General Director Assistant minhhoang@dienquang.com
Rang Dong Light Source and Vacuum Flask Joint Stock Company Address: 87-89 Ha Dinh Str., Thanh Xuan Dist., Hanoi, Vietnam	Do Thi Hong Lien Vice Director of R&D Center ttncralaco@gmail.com
Rang Dong Light Source and Vacuum Flask Joint Stock Company Address: 87-89 Ha Dinh Str., Thanh Xuan Dist., Hanoi, Vietnam	Nguyen Doan Thang Director General ralaco@hn.vnn.vn
Rang Dong Light Source and Vacuum Flask Joint Stock Company Address: 87-89 Ha Dinh Str., Thanh Xuan Dist., Hanoi, Vietnam	Nguyen Hong Thu Deputy Director, Lighting Research and Development Center thunghiadan@gmail.com
Directorate for Standards, Metrology and Quality Address: 8 Hoang Quoc Viet Str., Hanoi, Vietnam	Dang Thanh Tung Deputy Manager, Electric Electronic Testing Lab Testlab2@quatest1.com.vn
Directorate for Standards, Metrology and Quality	Doan Thi Thanh Van Head of Electrical and Electronic Division

Address: 8 Hoang Quoc Viet Str., Hanoi, Vietnam	dttvan@tcvn.gov.vn vantc2@gmail.com
Global Efficient Lighting Centre Address: No.A3, Changpocun, Dabeiyao, Chaoyang District, Beijing 100022,China	Ms. Jing Wang project Manager wangjing@gelc.com
Global Efficient Lighting Centre Address: No.A3, Changpocun, Dabeiyao, Chaoyang District, Beijing 100022,China	Dr. Zhang Wei Technical Expert zhangwei@gelc.com

ANNEX C: Assessment of the Quality of Project Design at Entry

The different criteria in the following table has been rated using a six-point scale as follows:
HS=highly satisfactory; S=satisfactory; MS=moderately satisfactory; MU=moderately unsatisfactory; US=unsatisfactory; HU=highly unsatisfactory.
Sustainability has been rated as follows:
HL=highly likely; L= likely; ML=moderately likely; MUL=moderately unlikely; UL=unlikely; HUL=highly unlikely.

Design Criteria	Rating/ Evaluation Comments	Prodoc Reference
Relevance		
Are the intended results likely to contribute to UNEPs Expected Accomplishments and programmatic objectives?	***HS*** Yes. UNEPs thematic areas of work include: Subprogramme 1 – Climate Change Subprogramme 2 – Harmful Substances and Hazardous Waste Subprogramme 3 – Resource Efficiency, Sustainable Consumption and Production The results will likely contribute to the reduction of GHG emissions, proper handling and disposal of harmful substances and hazardous waste, and energy efficiency in buildings, which will be directly related to UNEP's main activities.	Par. 2 – The project aims at accelerating global market transformation of environmentally sustainable, energy efficient lighting technologies as well as to develop a strategy to phase-out incandescent bulbs, thereby reducing global greenhouse gas emission from the lighting sector and the co-benefit of reducing mercury release from coal combustion being the main source of energy.
Does the project form a coherent part of a UNEP-approved programme framework?	***HS*** Yes. The project was designed to have direct contribution to UNEPs Sub-programmes on Climate Change by reducing GHG emissions, Harmful Substances and Hazardous Waste by safe disposal of mercury and recycling, and Resource Efficiency, Sustainable Consumption and Production by lighting market transformation from inefficient ILs to ESLs.	Same as above.
Is there complementarity with other UNEP projects, planned and ongoing, including those implemented under the GEF?	***HS*** Yes. The project has been designed to coordinate with the GEF-financed and UNEP-executed "Global Market Transformation for	Par. 94 - The project will be properly coordinated with the GEF-financed and UNEP-executed "Global Market Transformation for Efficient Lighting" project (the global lighting project).

		Efficient Lighting" project (the global lighting project).	
Are the project's objectives and implementation strategies consistent with:	i) Sub-regional environmental issues and needs?	***HS*** Yes. The countries in the Asian region consider the eradication of ILs and substandard ESLs a major challenge and the experience in this project could be shared to interested countries in the region.	Par. 127. The project is important for the region as many Asian countries are actively promoting CFLs through market transformation. In June 2008, the world's largest lighting companies signed an agreement to eliminate substandard poor quality ESLs from the Asian market. Under this agreement, which is named the Manila Compact, lighting suppliers have committed to develop common performance levels to rate the quality of CFLs sold in Asia, introduce a product marking system, and establish an on-line regional database that identifies CFLs that meet quality standards. There is now a wealth of experience with the promotion of CFLs in Asia, and there is much that can be learned through the increased sharing of experiences and best practices for the success of the phasing-out of ILs in Vietnam.
	ii) the UNEP mandate and policies at the time of design and implementation?	***HS*** Yes.	Medium-Term Strategy 2010-2013 of UNEP.
	iii) the relevant GEF focal areas, strategic priorities and operational programme(s) (if appropriate) ?	***HS*** Yes. This initiative is consistent with the GEF Climate Change Strategy and the Strategic Program of Promoting Energy Efficiency in Buildings, as lighting is major, omnipresent electricity-consuming equipment in all buildings.	Par. 94 – The project is in line with, and in support of, the renewed GEF vision: strategy, innovation, equity, accessibility, and focus. This initiative is consistent with the GEF Climate Change Strategy and the Strategic Program of Promoting Energy Efficiency in Buildings, as lighting is major, omnipresent electricity-consuming equipment in all buildings. The project will be properly coordinated with the GEF-financed and UNEP-executed "Global Market Transformation for Efficient Lighting" project (the global lighting project).
	iv) Stakeholder priorities and needs?	***HS*** Yes. End-users in Vietnam use inefficient ILs and low quality CFLs with very little knowledge on proper disposal of its mercury content. However, the GoV has gone ahead with the "EE Law of 2010"	Par. 1 and 191 Section 3.5 Consistency with National Priorities or Plans Par. 94 – In particular, the global lighting project will facilitate the establishment of methodologies for the development of labeling

		which phased out ILs above 60 W outside the project. Hence, Activity 4.1 had been revised accordingly to meet the changes from ”Agreed and adopted national roadmaps and master plans for the phase-out of ILs and promotion of good quality ESLs” to “Roadmap for phasing out ILs and ESL promotion implemented”.	procedures and quality certification; the identification of appropriate policy options for phasing out ILs and introducing latest technology ESLs; and the development of financing mechanisms, appropriate standards, and detailed environmental safeguards under the project. Vietnam will also be able to learn from the experiences and actions taken in other countries that were at a similar stage of market transformation for ESL products as Vietnam is at present.
Overall rating for Relevance		***HS*** **The project is consistent with the priorities and objectives of UNEP and GEF. It has been designed, and is most likely, to contribute to these priorities and objectives.**	
Intended Results and Causality			
Are the objectives realistic?		***S*** The main objective, which is the phasing out of ILs seems too ambitious, although the realization is being helped by improved baseline situation due to GoV’s proactive stance in taking action to phase out ILs at the start of the project. The outcomes are realistic within the given timeframe, except for Outcome 4 concerning policy, which is highly dependent on the assumption on the GoV’s commitment to adopt recommended policies and implement them.	Par. 3 – The overall aim of the project is to phase out ILs production and sale through the transformation of the lighting products market as well as the promotion of high quality ESLs in Vietnam. The phasing out of ILs will reduce GHG emissions from the lighting sector and accelerate commercialization and sustainable market transformation of energy efficient lighting technologies in Vietnam. Logframe
Are the causal pathways from project outputs [goods and services] through outcomes [changes in stakeholder behaviour] towards impacts clearly and convincingly described? Is there a clearly presented Theory of Change or intervention logic for the project?		***MS*** First of all, the hierarchy of the impacts of the project are not very clearly defined. Par. 141 of the ProDoc mentions the goal, aim and objective of the project in the same level, whereas the Logframe states the overall aim somewhat differently. The outputs are clearly defined and are linked to the four components of the project, but the causal pathways from outputs to outcomes are not clearly described. Although the outcomes are clearly presented in the Logframe, the first time	Par. 141 – The **goal** of the project is to speed up the transformation of the market for environmentally sustainable efficient lighting technologies in the emerging markets of developing countries. The program **aims** to accelerate the phase-out of incandescent bulbs by removing the market barriers to energy-efficient lighting, promote development of mercury free technologies and thereby reducing global greenhouse gas emissions as well as mercury releases. The **objective** is to create locally or regionally an institutional/legal/financial/technical environment that is in favor of energy-efficient lighting through the

	the outcomes are presented is in Appendix 3 (Incremental Cost Analysis). There is no diagram representing the Theory of Change or any tool used to come up with the intervention logic for the project.	promotion of high-performance and environmentally sustainable new technologies such as mercury free CFLs and the phase-out of inefficient, ILs. Logframe: The overall aim of the project is to phase out incandescent lamps (ILs) production and sale through the transformation of the lighting products market as well as the promotion of high quality energy saving lamps (ESLs) in Vietnam thus reducing greenhouse gas (GHG) emissions
Is the timeframe realistic? What is the likelihood that the anticipated project outcomes can be achieved within the stated duration of the project?	***HS*** Yes. The timeframe of 4 years is realistic. At the time of project design, certain trends are seen to have a positive influence in the realization of the project outcomes within the duration of the project: a) The global trend of phasing out ILs have started among developed and some developing countries; b) The demand of CFLs in Vietnam has been growing rapidly between 2005-2009, indicating that the shift from ILs to CFLs has begun; c) Due to the steady decline of CFL prices, the economic benefits of shifting to CFL can be easily demonstrated to consumers. d) The 2 manufacturers that have committed to participate are the 2 largest lighting companies in Vietnam with a combined market share of >95% of ILs. They have started reducing their production of ILs and have committed to shift production lines to ESLs (CFL & LED).	Par. 16 & 17 describe the global significance and trend of phasing out ILs and shifting to ESLs. Figure 3 shows the demand for CFLs in Vietnam. Par. 19 & Table 1 explain/illustrate the economics of ILs and CFLs and savings gained in shifting from IL to CFL. Par. 85 & 86 describe situations in Rang Dong and Dien Quang manufacturing companies.
Are the activities designed within the project likely to produce their intended results?	***S*** Yes, except for training courses for industries (under Output 1.3) where 2 workshops (duration of each not specified) may not be enough to produce significant result to implementat the technical aids for conversion of IL production lines to good quality ESL production line.	Section 3.3 describes the project components and expected results, including outputs and the corresponding activities to produce the outputs.

	Also, the activities related to Outcome 4 have been superseded by the early development of the GoV policy and institutional framework for EE lighting market.	
Are activities appropriate to produce outputs?	***S*** The ProDoc describes the activities that would be conducted to produce the outputs. However, the activities are not systematically broken down and numbered into multiple activities that are conducted at different times and with different deliverables. The activities are also listed down in the work plan and timetable (Appendix 5) but are not clearly linked to which outcomes they are meant to produce results.	The activities are described and listed in Section 3.3 & Appendix 5.
Are activities appropriate to drive change along the intended causal pathway(s)?	***HS*** Yes. These include several training activities intended to drive change. The effectiveness of these activities to drive change is ensured by the choice of appropriate partners to conduct, and participate in, such training.	Section 3.3 describes these activities and the partners involved in their implementation.
Are impact drivers, assumptions and the roles and capacities of key actors and stakeholders clearly described for each key causal pathway?	***S*** The assumptions are described but there is no distinction between the drivers and assumptions. The key actors and stakeholders that are expected to be involved in the activities are mentioned but would have been more clear if there is a table summarizing the activities that are designed to produce which outputs, the outputs that when achieved will produce the outcomes and the outcomes under which component, as well as the actors responsible for delivering the results.	Section 3.3 describes the activities and the key actors; the Logframe contains the assumptions for each output.
Overall rating for Intended Results and causality	***S*** **Overall, the intended results and causality are well designed, but the presentation and linkages are not very clear. Objectives are realistic, except for the target that ILs will be phased out by end of project, which seems to be too ambitious.**	
Efficiency		
Are any cost- or time-saving measures proposed to bring the	***MS*** No explicit or significant	

project to a successful conclusion within its programmed budget and timeframe?	measure is found in the ProDoc, although it can be noticed that local institutions and experts are expected to deliver the results of several activities, which indicates that if the quality is assured, the cost would be cheaper than using international experts.	
Does the project intend to make use of / build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency?	***HS*** Yes. There is a broad range of organizations involved in production, dissemination and usage of ESLs in Vietnam. Consultations were made with a large number of stakeholders to determine synergy, which would contribute to greater efficiency of the project. ISPONRE for instance, the executing partner, has experience in implementing projects funded by different donors such as GEF, WB, and UNDP.	Section 2.5 describes the stakeholder mapping and analysis conducted during the project design. Section 2.7 gives the linkages of the project with other GEF and non-GEF interventions.
Overall rating for Efficiency	***S*** **The project has intended to build synergies with relevant institutions and initiatives, but has not explicitly put in place measures for cost or time savings.**	
Sustainability / Replication and Catalytic effects		
Does the project design present a strategy / approach to sustaining outcomes / benefits?	***HL*** Yes. As per the project design, sustainability will be ensured by the expected market transformation brought about by greater awareness of the benefits of shifting from ILs to CFLs, substantiated cost-savings and availability of high quality ESLs at affordable prices.	Par. 183 – The program sustainability will be enhanced through phase-out policy, product quality improvement, and consumer awareness campaign. In fact, in the long term, sustainability will depend on a broad base of cost effective, trouble free customer experience with the technology. Such experience can be supported by internationally recognized and understood product standards, certification and labeling. Furthermore, consumer awareness campaigns are expected to be considered as the core national level activities supported by the project that will reinforce the project sustainability.
Does the design identify the social or political factors that may influence positively or negatively the sustenance of project results and progress towards impacts? Does the design foresee sufficient activities to promote	***HL*** Yes. The design has particularly identified policies that would have positive influence in the production of the results. Component 3, ESL Market Development and Consumer	Section 3.5 describes in details the different policies that shows that this project is in line with the GoV priorities. Logframe shows the outputs of Component 3.

government and stakeholder awareness, interests, commitment and incentives to execute, enforce and pursue the programmes, plans, agreements, monitoring systems etc. prepared and agreed upon under the project?		Education and Awareness, consists of awareness campaigns targeting government and private sector stakeholders.	
If funding is required to sustain project outcomes and benefits, does the design propose adequate measures / mechanisms to secure this funding?		***HL*** Funding will not be required because the GoV are envisaged to carry on with the implementation of policies and the private sector manufacturers are expected to continue to produce high quality ESLs.	The Logframe indicates that outcomes of the project include adoption of supportive policies by the GoV and market transformation, including business transformation of manufacturers.
Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?		***HL*** No, as funding is not envisaged to be required for sustenance of project results.	
Does the project design adequately describe the institutional frameworks, governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. required to sustain project results?		***HL*** Yes.	Section 4: Institutional Framework and Implementation Arrangements; Par 206 – Par. 214.
Does the project design identify environmental factors, positive or negative, that can influence the future flow of project benefits? Are there any project outputs or higher level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits?		***HL*** Yes. Especially on mercury handling and disposal.	3.10 Environmental and social safeguards Par 198 – Strengthen resources and institutional capability to implement Vietnam's legal framework on solid and hazardous waste management, especially for enforcement and supervision of waste management practices. In addition, Vietnam should consider relevant regulations to require CFL manufacturers to share the costs and responsibility for recycling the mercury contained in bulbs, and require users to separate broken or used CFLs from other organic domestic waste or to transport them to a hazardous waste collection center for recycling.
Does the project design foresee adequate measures to catalyze behavioural changes in terms of use and	i) technologies and approaches show-cased by the demonstration projects;	***HL*** Yes.	Section 3.2 and Logframe: Output 3.3 Demonstration projects in rural areas implemented - Demonstration project will be implemented in rural areas to promote and raise the population awareness with regard to the benefits of ESLs.
	ii) strategic programmes	***HL*** Yes.	Par. 186 – The project's replication strategy is based on the following features of the project design: (ii)

application by the relevant stakeholders of (e.g.):	and plans developed		technical assistance will be provided to the manufacturers to upgrade their production line to manufacture high quality ESLs, which will not only serve the national cause but also the region as a whole; (iv) the project aims at the adoption of internationally recognized product standards, (including decreased mercury content); and testing and quality control schemes.
	iii) assessment, monitoring and management systems established at a national and sub-regional level	***HL*** Yes.	Section 2.5 – Stakeholder mapping and analysis. Table 7 – project Performance & National Impact M&E System budgeted.
Does the project design foresee adequate measures to contribute to institutional changes? [An important aspect of the catalytic role of the project is its contribution to institutional uptake or mainstreaming of project-piloted approaches in any regional or national demonstration projects]		***HL*** Yes. This is one of the four expected outcomes namely, 4. Policy and institutional systems able to support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.	Logframe: Outcome 4: Policy and institutional systems able to support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market.
Does the project design foresee adequate measures to contribute to policy changes (on paper and in implementation of policy)?		***HL*** Yes. This is one of the strategies of this project. Policy changes are part of the outcome for Component 4.	Section 3.3: Component 4: National policy and institutional support program towards phasing-out of ILs and promotion of ESLs.
Does the project design foresee adequate measures to contribute to sustain follow-on financing (catalytic financing) from Governments, the GEF or other donors?		***HL*** Yes. Follow-on financing is not envisaged as GoV and the private sector are expected to sustain the results.	
Does the project design foresee adequate measures to create opportunities for particular individuals or institutions ("champions") to catalyze change (without which the project would not achieve all of its results)?		***HL*** Yes. The project has identified and selected the two largest lighting manufacturers to participate in transforming the market for ESLs. Together, these two manufacturers produce >95 % of the ILs and CFLs in Vietnam.	Par. 84, 85 & 86 introduce the manufacturers and their potential involvement.
Are the planned activities likely to generate the level of ownership by the main national and regional stakeholders necessary to allow for the project results to be sustained?		***HL*** Yes. The Inception Workshop plans to ensure this. Other planned activities are expected to generate the expected ownership by stakeholders.	Par. 219 explains that during the project Inception Phase a workshop will gather national institutions involved in project implementation, key stakeholders, co-financing partners, the UNEP/DTIE representatives and representatives

		from the UNEP/GEF regional coordinating unit as well as UNEP and GEF headquarters representatives to communicate key roles and ensure buy-in of stakeholders.
Overall rating for Sustainability / Replication and Catalytic effects	***HL*** **The project has taken into account various sustainability measures in the design. Consultations were made with a large number of stakeholders in formulating this project.**	
Risk identification and Social Safeguards		
Are critical risks appropriately addressed?	***S*** Some critical risks have been identified and addressed, but not all critical risks that could occur if assumptions mentioned in the Logframe do not happen (which turn them into risks).	Section 3.4 show the result of the risk analysis and risk management measures. Logframe: column on Assumptions.
Are assumptions properly specified as factors affecting achievement of project results that are beyond the control of the project?	***S*** Yes. However, certain assumptions indicated in the Logframe have not been significantly addressed in the risk mitigation strategy.	Logframe: See Assumption column. This was counterchecked with Section 3.4 Risk analysis and risk management measures.
Are potentially negative environmental, economic and social impacts of projects identified?	***HS*** Yes.	Section 3.4 Risk analysis and risk management measures, Item 7 – An environmental impact assessment (EIA) has been conducted. It includes environmental safeguards with regard to solid and hazardous waste management; in particular, the safe disposal and recycling of CFLs. The EIA recommends interventions that could promote better environmental practices in the lighting industry in Vietnam. The project will address this risk by making sure that these recommendations are strictly applied in the case of the phasing-out of ILs in Vietnam.
Overall rating for Risk identification and Social Safeguards	***S*** **Risks have been identified and strategies formulated, especially related to the environmental aspects producing and disposing of lamps, but not fully based on identified assumptions.**	
Governance and Supervision Arrangements		
Is the project governance model comprehensive, clear and appropriate?	***HS*** Yes.	Section 4: Institutional Framework and Implementation Arrangements Par. 207 - The project management arrangement is expected to consist of following: • The project Steering Committee (PSC) • The National project Director

		(NPD) • The project Management Office (PMO) • The Technical Working Group (TWG) The composition and functions of the above entities have been clearly defined.
Are roles and responsibilities clearly defined?	***HS*** Yes.	Same as above
Are supervision / oversight arrangements clear and appropriate?	***HS*** Yes.	Same as above
Overall rating for Governance and Supervision Arrangements	***HS*** **As per the design the governance and supervision arrangements are clearly defined.**	
Management, Execution and Partnership Arrangements		
Have the capacities of partners been adequately assessed?	***MS*** Partners have been identified and roles for their participation described, but the capacities have not been thoroughly assessed.	Section 2.5 Stakeholder mapping and analysis Section 5 Stakeholder participation
Are the execution arrangements clear?	***HS*** Yes.	Section 4: Institutional Framework and Implementation Arrangements
Are the roles and responsibilities of internal and external partners properly specified?	***HS*** Yes.	Section 4: Institutional Framework and Implementation Arrangements
Overall rating for Management, Execution and Partnership Arrangements	***S*** **Roles and responsibilities of partners are clearly described but the assessment of their capacities has not been documented.**	
Financial Planning / budgeting		
Are there any obvious deficiencies in the budgets / financial planning?	***HS*** No.	Section 7: project Financing and Budget Appendix 1: Reconciliation between GEF Activity Based Budget and UNEP Budget line
Is the resource utilization cost effective? Is the project viable in respect of resource mobilization potential?	***S*** Yes, however, there is a slight doubt as to the investment that would be made by the private sector within the duration of the project.	Section 7: project Financing and Budget
Are the financial and administrative arrangements including flows of funds clearly described?	***MS*** The administrative arrangements are clearly described but not the financial flows.	Section 4: Institutional Framework and Implementation Arrangements
Overall rating for Financial Planning / budgeting	***S*** **Financial flows are not clearly described.**	
Monitoring		
Does the logical framework: • capture the key elements of the Theory of Change for the project?	***S*** Yes. Logframe is complete. However, some indicators for outcomes and objectives have	Logframe

• have 'SMART' indicators for outcomes and objectives? • have appropriate 'means of verification'? • identify assumptions in an adequate manner?	ambitious targets as they refer to deliverables outside the influence of the project.	
Are the milestones and performance indicators appropriate and sufficient to foster management towards outcomes and higher level objectives?	***MS*** Target indicators specify the quantities but not the time frame.	Logframe, Target column
Is there baseline information in relation to key performance indicators?	***HS*** Yes.	Logframe, Baseline column
Has the method for the baseline data collection been explained?	***MU*** The baseline has been studied and mentioned in the project Background but data collection has not been explained clearly.	
Has the desired level of achievement (targets) been specified for indicators of outcomes and are targets based on a reasoned estimate of baseline?	***MS*** Some indicators are outside the influence of the project.	Logframe, Indicators column
Has the time frame for monitoring activities been specified?	***HS*** Yes.	Section 6: Monitoring and Evaluation Plan Table 6: Monitoring and Evaluation (M&E) Plan
Are the organisational arrangements for project level progress monitoring clearly specified?	***HS*** Yes.	Section 6: Monitoring and Evaluation Plan
Has a budget been allocated for monitoring project progress in implementation against outputs and outcomes?	***HS*** Yes.	Appendix 8: Budgeted M&E plan Appendix 1: Reconciliation between GEF Activity Based Budget and UNEP Budget line (GEF funds only US$) Appendix 2: Reconciliation between GEF Budget and Co finance Budget (Total GEF & Co Finance US$) Appendix 3: Incremental Cost Analysis
Overall, is the approach to monitoring progress and performance within the project adequate?	***S*** Yes. But monitoring of financial contributions from partners is not specified.	
Overall rating for Monitoring	***MS*** **There are gaps in terms of data collection for baseline, indicators that are outside the influence of the project and monitoring of financial contributions from partners.**	
Evaluation		
Is there an adequate plan for evaluation?	***HS*** Yes. Both Mid-Term Evaluation	Section 6: Monitoring and Evaluation Plan

	and Terminal Evaluation.	
Has the time frame for evaluation activities been specified?	***HS*** Yes.	Section 6: Monitoring and Evaluation Plan Table 6: Monitoring and Evaluation (M&E) Plan
Is there an explicit budget provision for mid-term review and terminal evaluation?	***HS*** Yes.	Appendix 8: Budgeted M&E plan GEF: • US$ 50,000 for Mid-term Evaluation • US$ 50,000 for Final Evaluation
Is the budget sufficient?	***HS*** Yes.	Appendix 8: Budgeted M&E plan GEF: • US$ 50,000 for Mid-term Evaluation • US$ 50,000 for Final Evaluation
Overall rating for Evaluation	***HS*** **Evaluation has been adequately planned and budgeted.**	

ANNEX D: List of Documents Consulted and Reviewed

LIST OF DOCUMENTS:

- project design documents
- project supervision plan, with associated budget
- Supervision mission reports
- Steering Committee meeting documents, including agendas, meeting minutes, and summary reports
- project Annual Reports
- Annual Work Plans
- Research Plans
- Annual project Implementation Reports (PIRs)
- Other documentation of supervision feedback on project outputs and processes (e.g. comments on draft progress reports, etc.)
- TORs of experts
- Reports produced by experts
- Media releases
- Key project correspondence
- Expenditure reports
- Co-financing reports
- Report of Independent Auditors

ANNEX E: List of project Steering Committee Members

No.	Full name	Office	Position in PSC
1	Mr. Tran Hong Ha	MONRE, Deputy Minister	Chief
2	Mr. Nguyen Van Tai	ISPONRE, General Director	Vice-chief
3	Mr. Nghiem Xuan Minh	MOST, Chief of Department of Social and Natural Sciences	Member
4	Mr. Phuong Hoang Kim	MOIT, Deputy-Chief of Department of Science and Technology	Member
5	Mr. Rajiv Garg	UNEP	Member
6	Mr. Nguyen Doan Thang	Rang Dong Company, General Director	Member
7	Mr. Ho Quynh Hung	Dien Quang Company, General Director	Member

ANNEX F: List of Members of the Project Technical Working Group

No.	Full name	Office	Contact Details
1	Mr. Dang Hai Dung	Department of Science and Technology, Ministry of Industry and Trade	No. 54 Hai Ba Trung str., Hoan Kien Dis., Hanoi Tel.: +84903224791
2	Mr. Vu Minh Mao	Viet Nam Lighting Association	No. 77 To Hien Thanh str., Hai Ba Trung Dis., Hanoi i Tel.: 04.39745744
3	Mr. Nguyen Le Thang	Rang Dong Company	87-89 Ha Dinh str., Thanh Xuan Dis., Hanoi Tel.: 0913.300.909
4	Mr. Nguyen Duc Song	Institute of Energy	No. 6 Ton That Tung str., Dong Da Dis., Hanoi 0963052009
5	Mr. Vo Minh Hoang	Dien Quang Company	No.125 Ham Nghi str., 1 Dis., Hochiminh city Tel.: 0909.165.154
6	Ms. Doan Thi Thanh Van	Directorate for Standards, Metrology and Quality	No. 8 Hoang Quoc Viet str., Cau Giay Dis., Hanoi. Tel.: 0902116589
7	Mr. Vu Van Hung	Department of Tax Policy, Ministry of Finance	No. 28 Tran Hung Dao str., Hoan Kien dis., Hanoi Tel.: 0913.248.676
8	Mr. Hoang Lam	Quatest 3	No. 49 Pasteur str., District 1, Hochiminh city Tel.: 08.38294274
9	Mr. Bui Anh Tuan	Quatest 1	No. 8 Hoang Quoc Viet str., Cau Giay Dis., Hanoi Tel.: 0989285117
10	Mr. Nguyen Duy Hung	Department of Waste management and Environment Promotion, Viet Nam Environment Administration, MONRE	No. 11, block 13A, Trung str., Cau Giay dis., Hanoi Tel.: 0982.584.960
11	Mr. Nguyen Huu Tri	Customs Administration	No. 162 Nguyen Van Cu str., Long Bien dis., Hanoi +844.62780444 Tel.: 0989.084.416
12	Ms. Nguyen Thi Dieu Trinh	Department for Science, Education, Natural Resources and Environment, Ministry of Planning and Investment	No. 6B Hoang Dieu str., Ba Dinh dis., Hanoi Tel.: 0904886176

ANNEX G: Co-finance Information and Statement of Project Expenditure

UNEP Statement of Expenditures (Source: UNEP)

STATUS OF ALLOTMENT REPORT

Summary by Org Unit, Source of Fund, Project, Object Class/Code

For Fiscal year 2014. Posted Accounting Period As at 201409.0.

Org. Unit 2788 Regional Office for Asia and the Pacific

Source of Fund: GFL Technical Cooperation Trust Fund for UNEP's Implementation of the Activities Funded by the Global Environment Facility

Project: 4B65 B6500FN4 GF40201012 - Phasing Out Incandescent Lamps Through Lighting Market Transformation in Vietnam.

Object Class/Code	Class/Code Name	Allotment	Pre-Encumberance	Program Support Costs	Unliquidated Obligations	Disbursement	Total Expenditure	Unencumbered Balance
1201	International expert on ESL production	20,000.00	0.00	0.00	0.00	0.00	0.00	20,000.00
1202	International testing and standards expert	20,000.00	0.00	0.00	0.00	0.00	0.00	20,000.00
1203	International environmental expert	20,000.00	0.00	0.00	0.00	1,547.68	1,547.68	18,452.32
1204	International marketing campaign expert	20,000.00	0.00	0.00	0.00	0.00	0.00	20,000.00
1214	Senior Technical Advisor _ Hanoi	42,000.00	0.00	0.00	0.00	905.58	905.58	41,094.42
1301	Programme assistant	10,000.00	0.00	0.00	0.00	0.00	0.00	10,000.00
1601	Project staff travel	10,000.00	0.00	0.00	0.00	741.87	741.87	9,258.13
441	**Total Obj. Class Other Fund Source - Project Personnel**	**142,000.00**	**0.00**	**0.00**	**0.00**	**3,195.13**	**3,195.13**	**138,804.87**
2101	SSFA with GELC	160,000.00	0.00	0.00	0.00	89,707.50	89,707.50	70,292.50
442	**Total Obj. Class Other Fund Source - Subcontracts**	**160,000.00**	**0.00**	**0.00**	**0.00**	**89,707.50**	**89,707.50**	**70,292.50**
4201	Non-expendable equipment	4,000.00	0.00	0.00	0.00	10,000.00	10,000.00	-6,000.00
444	**Total Obj. Class Other Fund Source - Equipment**	**4,000.00**	**0.00**	**0.00**	**0.00**	**10,000.00**	**10,000.00**	**-6,000.00**
5501	Monitoring & Evaluation	40,000.00	0.00	0.00	0.00	0.00	0.00	40,000.00
445	**Total Obj. Class Other Fund Source - Miscellaneous**	**40,000.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**40,000.00**
Total Project: 4B65	**B6500FN4 GF40201012 - Phasing Out Incandescent Lamps Through Lighting Market Transformation in Vietnam.**	**346,000.00**	**0.00**	**0.00**	**0.00**	**102,902.63**	**102,902.63**	**243,097.37**
Total Fund:	**GFL Technical Cooperation Trust Fund for UNEP's I**	**346,000.00**	**0.00**	**0.00**	**0.00**	**102,902.63**	**102,902.63**	**243,097.37**
Total Org Unit:	**2788 Regional Office for Asia and the Pacific**	**346,000.00**	**0.00**	**0.00**	**0.00**	**102,902.63**	**102,902.63**	**243,097.37**

ISPONRE Statement of Expenditures (Source: ISPONRE)

VIETNAM QUARTERLY EXPENDITURE STATEMENT and UNLIQUIDATED OBLIGATIONS REPORT (US$)

Project title: Phasing Out Incadescent Lamps Through Lighting Market Transformation in Vietnam
Project number: Main GFL/2328-27204B65
Sub Project: GFL/2328-2720-4C31
Project implementing agency/organization: **Institute of Strategy, Policy on Natural resouces and Environment (ISPONRE)**
Project implementation period: From: **Jan-11** To: **Dec-15**
Reporting period: From: Apr-14 To: Jun-14

UNEP Budget Line		UNEP approved budget		Actual expenditures incurred*							Cummulative unspent balance to-date
		Total project budget	Current YEAR budget	Cummulative expenditures for current YEAR	Disbursements for current QUARTER	Unliquidated obligations for current QUARTER	Total expenditures for current QUARTER	Total expenditures for current YEAR	Cummulative expenditures for previous YEARS	Total cummulative expenditures to date	
		A	B	C	D	E	F=D+E	G=C+F	H	I=G+H	J=A-I
							-	-		-	-
PERSONNEL COMPONENT							-	-	-	-	-
1101	Local Project Manager	60,000	-	-	-		-	-	18,726.62	18,726.62	41,273.38
1104	Technical Expert	48,000	13,680	2,786.44	2,129.08		2,129.08	4,915.52	23,906.18	28,821.70	19,178.30
1105	Communication Expert	48,000	13,680	2,782.81	2,126.66		2,126.66	4,909.47	25,882.67	30,792.15	17,207.85
1106	Secretariat/Translator	40,000	8,400	615.90	2,747.84		2,747.84	3,363.74	15,468.23	18,831.97	21,168.03
1107	Accountant	40,000	11,400	2,334.34	1,736.31		1,736.31	4,070.65	21,535.22	25,605.87	14,394.13
1206	Local market research expert	60,000	-	-	-		-	-	34,780.59	34,780.59	25,219.41
1207	Local business plan expert	80,000	43,039	2,981.98	19,961.62		19,961.62	22,943.60	35,236.16	58,179.75	21,820.25
1208	Local quality inspection	67,000	45,532	206.41	6,738.66		6,738.66	6,945.07	4,471.25	11,416.32	55,583.68
1209	Local environment expert	63,000	39,415	7,238.61	12,503.54		12,503.54	19,742.15	21,512.96	41,255.11	21,744.89
1210	Local marketing expert	130,000	33,000	3,619.31	2,699.11		2,699.11	6,318.42	50,587.12	56,905.54	73,094.46
1211	Local standards setting expert	32,000	17,000		-		-	-	16,006.04	16,006.04	15,993.96
1212	Local policy expert	206,000	89,800	10,518.60	-		-	10,518.60	66,027.70	76,546.30	129,453.70
1213	Consultant travel	12,000	10,117		867.27		867.27	867.27	5,992.35	6,859.62	5,140.38
1601	Project staff travel	12,000	5,000		-		-	-	10,602.28	10,602.28	1,397.72
SUB-CONTRACT COMPONENT							-	-	-	-	-
2102	National consumers awareness and marketing campaign, including pilot projects	315,000	173,920	44,393.81	25,463.01		25,463.01	69,856.82	103,009.01	172,865.83	142,134.17
TRAINING COMPONENT							-	-	-	-	-
3301	Workshops (Component 3)	80,000	15,000		-		-	-	16,067.27	16,067.27	63,932.73
3302	Workshops (Component 2)	75,000	48,127	2,757.25	8,490.60		8,490.60	11,247.85	41,942.97	53,190.82	21,809.18
3303	Workshops (Component 2)	25,000	20,000		-		-	-	-	-	25,000.00
3304	Workshops (Component 5)	15,000	2,000		1,330.15		1,330.15	1,330.15	1,105.17	2,435.32	12,564.68

EQUIPMENT AND PREMISES COMPONENT							-	-	-	-	-
4101	Office supplies	3,000	1,000		51.63		51.63	51.63	2,009.87	2,061.50	938.50
4201	Office equipment	7,000	2,000		-		-	-	5,003.36	5,003.36	1,996.64
MISCELANEOUS COMPONENT							-	-	-	-	-
5201	Technical publication	126,000	75,190	13,205.22	-		-	13,205.22	6,016.69	19,221.91	106,778.09
5202	Auditting		3,800		3,744.13		3,744.13	3,744.13	3,783.21	7,527.34	(7,527.34)
5301	Communications	4,000	1,000		-		-	-	1,492.06	1,492.06	2,507.94
GRAND TOTAL		**1,548,000**	**672,100**	**93,440.68**	**90,589.62**	**-**	**90,589.62**	**184,030.30**	**531,164.98**	**715,195.28**	**832,804.72**

The appended schedule "Explanation for expenditures reported in quarterly expenditure statement" should also be completed

EXPLANATION FOR EXPENDITURES REPORTED IN QUARTERLY EXPENDITURE STATEMENT

From:	Apr-14	Total expenditure for QUARTER	EXPLANATION
To:	Jun-14		
BL**	Budget Line description		
PERSONNEL COMPONENT			
1101	Local Project Manager	-	
1104	Technical Expert	2,129.08	Salary for Project Technical Expert for April-May 2014
1105	Communication Expert	2,126.66	Salary for Project Communication expert for April-May 2014
1106	Secretariat/Translator	2,747.84	Salary for Project Secretariat/Translator for April-May 2014
. 1107	Accountant	1,736.31	Salary for Project accountantfor for April-May 2014
1206	Local market research expert	-	
1207	Local business plan expert	19,961.62	payment for consultancy fees and travelling costs for national consultants - providing consultancy on CFL, FL production technology; training on LED production technology
1208	Local quality inspection	6,738.66	payment for consultancy fees and travelling costs for national consultants - assess capacity on ESL testing and needs of testing laboratories, provide suggestions - recommendations and develop a guideline on ESL testing to strengthen their capacity
1209	Local environment expert	12,503.54	payment for consultancy fees and travelling costs for national consultants - providing consultancy on waste collection and
1210	Local marketing expert	2,699.11	payment for consultancy fees and travelling costs for national consultants - providing consultancy on waste collection and
1211	Local standards setting expert	-	
1212	Local policy expert	-	
1213	Consultant travel	867.27	Payment for travelling cost for national consultants for activity 2.5.2
1601	Project staff travel	-	
SUB-CONTRACT COMPONENT		-	

2102	National consumers awareness and marketing campaign, including pilot projects	25,463.01	Payment for training ws and other ws in provinces; sub-contract on pilotted models in provinces and ISPONRE.
TRAINING COMPONENT		-	
3301	Workshops (Component 3)	-	
3302	Workshops (Component 2)	8,490.60	Payment for consultation and training workshops and consultancy fees for activites 2.1.2, 2.5.2, 2.5.3 and on collecting and disposal of discarded products including IFLs, mid-term evaluation meetings with different project stakeholders
3303	Workshops (Component 2)	-	
3304	Workshops (Component 5)	1,330.15	Payment for technical meetings
EQUIPMENT AND PREMISES COMPO		-	
4101	Office supplies	51.63	Payment for stationaries
4201	Office equipment	-	
MISCELANEOUS COMPONENT		-	
5201	Technical publication	-	
5202	Auditting	3,744.13	Payment for auditing cost for 2013
5301	Communications	-	
Total as per Expenditure Statement:		**90,589.62**	***equals total of column E***

Name: Nguyen Trung Thang Title: Project Director Name of Project Manager: Hoang Hong Hanh

Duly authorized official of Executing Division *Date:* *15-Jul-14* Signature: *Date:* *15-Jul-14*

Signature:

Co-Financing Report 2012 (Source: ISPONRE)

REPORT OF ACTUAL CO-FINANCE BY BUDGET LINE

project title: **"Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam"**

project number:

project executing partner: UNEP-DTIE/ROAP in collaboration with ISPONRE, Ministry of Natural Resources and Environment (MONRE)

project implementation period:

From: **Jan-12**

To: **Dec-12**

				Co-finance 1: Government/Institutes		Co-finance 2: Lighting manufacturers		Co-finance 3: Testing laboratories		Co-finance 4: Lighting associations	
UNEP Budget Line			GEF Cash	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
10	**PERSONNEL COMPONENT**										
	1100	project personnel									
	1101	Local project Managers	17,476.98		14,564		26,215		14,564		874
	1104	Technical Expert	11,989.67		24,978		22,481		8,742		2,498
	1105	Communication Expert	13,982.00		29,129		34,955		23,303		874
	1106	Secretariat/Translator	7,640.97		9,551		9,551		12,608		573
	1107	Accountant	11,640.15		14,550		26,190		22,989		582
	1199	**Sub-total**	**62,729.77**		**92,773**		**119,393**		**82,207**		**5,401**
	1200	Consultants									
	1201	International Expert on ESL production	31,551.89		36,267		18,133		20,853		453
	1204	International Marketing Campaign Expert	4,863.24		3,040		2,280		4,559		15
	1206	Local market research expert	30,193.90		17,613		50,323		161,034		1,510
	1207	Local business plan expert	16,961.60		8,481		31,803		67,846		636
	1209	Local environmental expert	8,020.89		3,310		22,917		30,556		127
	1210	Local marketing expert	39,477.79		24,294		31,886		121,470		607
	1211	Local standards setting expert	9,822.88		6,139		55,254		107,438		307
	1212	Local policy expert	28,162.74		27,342		8,203		13,671		137
	1213	Consultants travel	3,633.56		1,817		9,084		9,084		303
	1299	**Sub-total**	**172,688.49**		**88,997**		**209,469**		**511,099**		**4,095**
	1600	Travel on official business									
	1601	project staff travel	5,540.13		616		2,462		1,231		308
	1699	**Sub-total**	**5,540.13**		**616**		**2,462**		**1,231**		**308**
1999	**Component total**		**240,958.39**		**182,385**		**331,324**		**594,537**		**9,804**
30	**TRAINING COMPONENT**										
	3300	Meetings/Workshops									
	3301	Workshops (Component 3)	16,067.27		15,063		16,067		10,042		2,410
	3302	Workshops (Component2)	15,062.65		9,038		10,042		6,025		3,013
	3304	Workshop (Component 5)	3,290.45		4,387		3,290		1,097		1,097
	3399	**Sub-total**	**34,420.37**		**28,488**		**29,399**		**17,164**		**6,519**
3999	**Component total**		**34,420.37**		**28,488**		**29,399**		**17,164**		**6,519**

40	**EQUIPMENT AND PREMISES COMPONENT**										
	4100	Expendable equipment									
	4101	Office supplies	1,000.11		8,001		7,334		9,001		1,167
	4199	**Sub-total**	**1,000.11**		8,001		**7,334**		**9,001**		**1,167**
	4200	Non-expendable equipment									
	4201	Office equipment	5,003.36		64,329		40,742		14,295		-
	4299	**Sub-total**	**5,003.36**		64,329		**40,742**		**14,295**		**-**
4999	**Component total**		6,003.47		**72,330**		**48,076**		**23,296**		**-**
50	**MISCELLANEOUS COMPONENT**										
	5200	Reporting costs									
	5301	Communications	1,216.34		9,244		5,595		4,379		851
	5399	**Sub-total**	**1,216.34**		**9,244**		**5,595**		**4,379**		**851**
5999	**Component total**		1,216.34		**9,244**		**5,595**		**4,379**		**851**
99	**GRAND TOTAL**		**282,598.57**		**292,447**		**414,395**		**639,376**		**17,175**

Co-Financing Report 2013 (Source: ISPONRE)

REPORT OF ACTUAL CO-FINANCE BY BUDGET LINE

project title: **"Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam"**

project number:

project executing partner: UNEP-DTIE/ROAP in collaboration with ISPONRE, Ministry of Natural Resources and Environment (MONRE)

project implementation period:

From: **Jan-13**

To: **Dec-13**

				Co-finance 1: Government/Institutes		Co-finance 2: Lighting manufacturers		Co-finance 3: Testing laboratories		Co-finance 4: Lighting associations	
UNEP Budget Line			GEF Cash	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
10	**PERSONNEL COMPONENT**										
	1100	project personnel									
	1101	Local project Managers	1,249.64		1,041		1,874		1,041		62
	1104	Technical Expert	11,916.51		24,826		22,343		8,689		2,483
	1105	Communication Expert	11,900.67		24,793		29,752		19,834		744
	1106	Secretariat/Translator	7,827.26		9,784		9,784		12,915		587
	1107	Accountant	9,895.07		12,369		22,264		19,543		495
	1199	**Sub-total**	**42,789.15**		**72,813**		**86,018**		**62,023**		**4,371**
	1200	Consultants									
	1201	International Expert on ESL production	0.00		0		0		0		0
	1204	International Marketing Campaign Expert	0.00		0		0		0		0
	1206	Local market research expert	4,586.69		2,676		7,644		24,462		229
	1207	Local business plan expert	18,274.56		9,137		34,265		73,098		685
	1208	Local quality ínpection	4,471.25		2,002.05		6,674		24,692		200
	1209	Local environmental expert	13,492.07		5,568		38,549		51,398		214
	1210	Local marketing expert	11,109.33		6,837		8,973		34,183		171
	1211	Local standards setting expert	6,183.16		3,864		34,780		67,628		193
	1212	Local policy expert	37,864.96		36,762		11,029		18,381		184
	1213	Consultants travel	2,358.79		1,179		5,897		5,897		197
	1299	**Sub-total**	**98,340.81**		**68,026**		**147,810**		**299,740**		**2,074**
	1600	Travel on official business									
	1601	project staff travel	5,062.15		562		2,250		1,125		281
	1699	**Sub-total**	**5,062.15**		**562**		**2,250**		**1,125**		**281**
1999	**Component total**		**146,192.11**		**141,401**		**236,078**		**362,887**		**6,725**
20	**SUB-CONTRACT COMPONENT**										
	2102	National consumer awareness and marketing campaign, including pilot projects.	103,009.01		34,336		585,353				
2099	**Component total**		**103,009.01**		**34,336**		**585,353**				
30	**TRAINING COMPONENT**										
	3300	Meetings/Workshops									
	3301	Workshops (Component 3)	0.00		0		0		0		0

	3302	Workshops (Component2)	23,589.87		14,154		15,727		9,436		4,718
	3304	Workshop (Component 5)	1,105.17		1,474		1,105		368		368
	3399	**Sub-total**	**24,695.04**		**15,627**		**16,832**		**9,804**		**5,086**
3999	**Component total**		**24,695.04**		**15,627**		**16,832**		**9,804**		**5,086**
40	**EQUIPMENT AND PREMISES COMPONENT**										
	4100	Expendable equipment									
	4101	Office supplies	1,009.76		8,078		7,405		9,088		1,178
	4199	**Sub-total**	**1,009.76**		8,078		**7,405**		**9,088**		**1,178**
	4200	Non-expendable equipment									
	4201	Office equipment	0.00		0		0		0		-
	4299	**Sub-total**	**0.00**		0		**0**		**0**		**-**
4999	**Component total**		1,009.76		**8,078**		**7,405**		**9,088**		**-**
50	**MISCELLANEOUS COMPONENT**										
	5201	Technical publication	8,583.56		3769		7,091		746		1,493
	5301	Communications	1,492.06		11,340		6,863		5,371		1,044
	5399	**Sub-total**	**10,075.62**		**15,109**		**13,954**		**6,118**		**2,537**
5999	**Component total**		10,075.62		**15,109**		**13,954**		**6,118**		**2,537**
99	**GRAND TOTAL**		**284,981.54**		**214,552**		**214,552**		**387,897**		**14,349**

Summary of Co-Financing (in USD)

Source of Co-Financing	2012	2013	Total
Government/Institutes	292,447	214,552	506,999
Lighting manufacturers	414,395	214,552	628,947
Testing laboratories	639,376	387,897	1,027,273
Lighting associations	17,175	14,349	31,524
TOTAL	**1,363,393**	**831,350**	**2,194,743**

ANNEX H: Legal Documents Related to Energy Efficiency in Vietnam

(from April 2006 to October 2014)

1) Decision 79/2006/QD-TTg of 14 April 2006, approving the National Targeted Program on Energy Efficiency and Conservation.

According to the Decision, the Program will be implemented from 2006 to 2015 in two distinct phases: Phase I (2006 - 2010): Actively introduce and begin implementation of all components of the program and Phase II (2011 - 2015): Intensive and large-scale implementation of the contents of the program based on evaluation, conclusions and lessons learned from Phase I. This decision sets overall national goals and specific objectives for energy conservation and energy efficiency for years 2006 to 2015. The targets are (1) to save 3-5% of energy for the period of 2006-2010 and 5-8% for the period of 2011-2015, (2) to establish the models for energy management, (3) to populate high-efficiency equipment, (4) to implement Energy-Efficiency Building Code, and (5) to promote energy efficiency use in transport sector. The decision specifies the details of the 11 national projects and programs, which are divided into six groups: (1) Strengthen the state management of energy conservation and energy efficiency; organize the energy saving control system by implementing the first project; (2) Strengthen the information, education and communication activities; mobilize public support; raise awareness and promote the economic and efficient utilization of energy; and protect the environment with three specific projects; (3) Develop and distribute highly energy-efficient products and equipment, in the marketplace, gradually removing energy inefficient products with the following two projects; (4) Develop and promote economical and efficient utilization of energy in industrial production facilities with the following two projects; (5) Economical and efficient energy use in buildings with the following two projects; and (6) Economical and efficient energy use in transportation activities with the following project.

2) Decision 80/2006/QD-TTg of 14 April 2006, approving the 2006-2010 Electricity Saving Program.

This approved the Electricity Saving Program for Phase 1 period of 2006 – 2010. This decision describes the detailed activities of the national target program for the first five years of operation. The objectives of the program in the first five years include: (1) Raising public awareness about ways of conserving electricity and using energy efficiently in order to ensure stability as the nation develops. Promoting the habit of conserving electricity and using energy efficiently into the daily life of all households and society, (2) Ensuring a stable electricity supply for industrial and commercial sectors, as well as households, and (3) Minimizing the interruption and power outage of electricity supply. One item of the program targets energy efficiency of electric appliances. The objective is to include the establishment of mechanisms which encourage and support manufacturers and importers to market high-efficiency electric appliances and to gradually eliminate the lower-efficiency ones. It also includes the circulation of information and guides to enhance customers' awareness and motivation to select electricity savings appliances in the market. MOIT is designated as the entity responsible to preside over and to coordinate with related Ministries, bodies and organizations to implement the national program.

3) Circular 08/2006/TT-BCN of 16 November 2006, guiding the process and procedures for energy efficiency labeling for energy-consuming products.

This Circular provides guidance on the process and procedures of registration, evaluation, certification and energy efficiency labeling for energy consuming products. This circular applies to organizations or individuals who manufacture and/or import energy consuming products and relevant stakeholders. The manufacturers and/or importers of energy consuming products identified in the circular and that are targeted for the labeling program may request that MOIT proceed with the evaluation of the energy efficiency of their products, resulting in certification for

labeling, provided that they meet technical specifications regulated by MOIT. The circular also prescribes the relevant requirements for the initial performance check, for the after-certification supervision of products, and for the process applicable to suspension and revocation of the energy efficiency certificate. Such suspension or revocation will take place when manufacturers and/or the certified products cease to comply with the relevant requirements. MOIT's Department of Science and Technology was assigned as the executive agency to implement energy efficiency certification and the labeling program in Vietnam.

4) Joint Circular No. 142/2007/TTLT/BTC-BCT of 30 November 2007, guiding the management and use of non-business funds for the implementation of the targeted program on energy efficiency and conservation.

This Circular was jointly issued by the Ministry of Finance and Ministry of Industry and Trade. The circular defined ceiling financial supports to energy management models (in building, enterprise this support shall be 30% of investment but no more than 70 million VND per model), to energy audit (50% of audit fee and maximum of 50 million VND per audit) and product labeling (30% of total cost and maximum of 60 million VND per enterprise).

5) Decision 377/QD-BXD of 14 March 2008, approving the Program of Economical and Efficient Use of Energy and Resources in Construction Activities.

This Decision approved the program of economical and efficient use of energy and resources in construction activities. The Program set the targets to save 5-7% of total energy consumption in construction sector by 2020, to reduce the loss of clean water supply to less than 25% by 2010, and to reduce the loss of raw materials to less than 5% in management, production and business activities of the construction sector. The measures to be implemented were identified such as formulating and promulgating of the standards, codes, guidelines on economical and efficient use of energy, water and resources in construction activities; strengthening of the knowledge and capacity of the personnel of the construction sector; pushing-up of the research, development and transfer of new technology, new construction materials, new energy-saving and environmentally-friendly technologies; formulating and putting in operation of the models for efficient management of energy and water in the buildings; and establishing of two EE&C Centers to provide the consultancy services in design, research, transfer of technologies and training on efficient use of energy and resources.

6) Law No. 50/2010/QH12 of 17 June 2010 on Economical and Efficient Use of Energy.

The Law aims to promote the economical and efficient use of energy for meeting the increasing energy demand as well as environmental protection, reasonable energy resource exploitation, and sustainable socio-economic development. The Law applies to all large energy users across all sectors. This mainly covers the industry, construction (buildings), transport sectors and energy consuming equipments. The Law regulates all designated energy consumers to be defined by the Government. It also confirmed that the government carries out the state management on energy efficiency and conservation and the Ministry of Industry and Trade (MOIT), as its duty to government, is responsible for implementing the state management on energy efficiency and conservation. Apart from that, other related ministries such as Ministry of Science and Technology, Ministry of Construction, Ministry of Transport and the General Statistics Office, People's Committees at provincial level, etc. are responsible for coordinating with the MOIT in implementing the state management duty on energy efficiency and conservation in provinces and sectors. The Law also indicated that the energy efficiency projects could be considered for financial support from National Target Programs on Energy Efficiency and Conservation. Financial resources and budget allocation will be identified clearly in the regulations and guidelines of this Law.

7) Decree 21/2011/ND-CP of 29 March 2011, detailing the Law on Economical and Efficient Use of Energy and Measures for its Implementation.

The Decree provided the detailed guidance on implementation of the Law on Economical and Efficient Use of Energy. It confirmed and revised definition of designated units, responsibility of

stakeholders and needs of funding mechanism to promote energy efficiency and conservation that was identified in earlier decree number 102/2003/ND-CP. In accordance with this Decree, designated energy users (including designated industrial facilities) are require to apply the Energy Management System (EMS) that will be implemented as follows: (1) to announce targets, policies, solutions/measures for energy efficiency (EE) improvement, (2) to develop annual plan and five-year plan on energy efficiency and conservation (EE&C), (3) to nominate an energy manager to be in-charge of EMS implementation, (4) to carry out regular check-ups, follow-ups on energy consumption of machinery and equipment of the whole production chain, (5) to carry out energy audits to identify EE opportunities and measures, (6) to organize periodic training and coaching courses for employees on EE&C, and (7) to have a reward and penalty system to promote the EE&C in the entity. The Decree confirmed management role of MOIT in coordinating activities with other ministries and sectors. MOIT is in charge of compulsory and voluntary Energy efficiency and conservation activities in production enterprises, while Ministry of Construction is in charge of energy efficiency and conservation activities in building. Provincial Peoples committees are in charge of development and implementation of the Vietnam National Energy Efficiency Programme (VNEEP) as a part of provincial social economic development plan. The decree also identified the activities, budget and organization of VNEEP. The Decree allows for financial support for investment projects involving upgrade of production facilities or expansion with energy saving technology.

8) Decree 73/2011/ND-CP of 24 August 2011, regulating the Penalties for Administrative Violations in Energy Efficiency and Conservation.

This decree regulates administrative fines for violations in 6 areas of (1) energy audit, (2) energy efficiency and conservation in industry, building, transportation and agricultural activities, (3) designated units, (4) labelling, (5) production, import, export and usage of vehicles-to-be-eliminated, and (6) blocking official activities. A fine of 10 to 30 million VND and 20 to 30 million VND is applied for non-compliance to industry energy efficiency requirements and building code.

9) Decision 51/2011/QD-TTg of 12 September 2011, promulgating the List of Devices and Equipment subject to Energy Labelling and Application of the Minimum Energy Efficiency, and the Implementation Roadmap.

The list of devices and equipment required energy labeling and applying the minimum energy efficiency regarding to this Decision is included: (1) Household appliances, including tubular fluorescent lamps, compact fluorescent lamps, electromagnetic and electronic ballasts for fluorescent lamps, air conditioners, refrigerators, washing machines, electric cookers, electric fans and television receivers, (2) Office and commercial equipment, including photocopiers, computer monitors, printers and commercial refrigeration cabinets, (3) Industrial equipment, including distribution transformers and electric motors, and (4) Means of transport, including passenger cars of 7 seats or less.

10) Circular 39/2011/TT-BCT of 28 October 2011, regulating the Training, Grant of Certificates of Energy Management and Energy Auditors.

This Circular regulates the training of energy managers and energy auditors; the authority to grant or recognize the certificates; the procedure for granting, recognizing and revocation of the certificates. According to the Circular, people who achieve acceptable results of the examinations held by the Ministry of Industry and Trade are granted certificates with values across the country. People who have certificates of energy managers, energy auditors issued by the competent institutions of foreign countries or international organizations that have mutual recognition agreements with Vietnam shall be recognized, acknowledged in Vietnam.

11) Decision 68/2011/QD-TTg of 12 December 2011, promulgating the List of Energy Efficient Devices and Equipment equipped for Government Organizations using State Budget.

The Decision promulgated a list of 13 EE devices and equipment which are equipped and purchased for the government organizations and units using state budget. These purchased devices and equipment shall have energy labels (Vietnam Energy Star Labels or equivalent Five-star Rated Energy Labels). The list of 13 EE devices and equipment includes: (1) compact fluorescent lamps, (2) tubular fluorescent lamps, (3) ballasts for fluorescent lamps, (4) electric fans, (5) air conditioners, (6) refrigerators, (7) power distribution transformers, (8) public lighting equipment, (9) solar hot water heaters, (10) television receivers, (11) computer monitors, (12) printers, and (13) photocopiers.

12) Circular 07/2012/TT-BCT of 4 April 2012, regulating the Energy Labeling for Means and Equipment using Energy.

This Circular regulates the procedure for registration, evaluation, certification, suspension of certificates, nomination of testing entities and conducting of energy labeling for means and equipment under obligatory energy labeling list, issued by the Prime Minister or under voluntary scheme.

13) Circular 09/2012/TT-BCT of 20 April 2012, regulating the Planning and Reporting on Implementation of Economical and Efficient Energy Use Plans; Implementation of Energy Audit.

The Circular regulates: (1) the planning and reporting on the implementation of yearly and five-year plans on economic and efficient use of energy in the key energy-consuming entities (KECE), (2) the planning and reporting on annual energy use in the government organizations and units using state budget, and (3) steps and procedure of conduct of energy audit. The Circular provided with the forms for annual and five-year plans on EE&C and for reports on their implementation results. The designated organizations and entities shall register their plans on EE&C and report the implementation results in Internet through electronic portal of the National Energy Database System (NEDS). Each organization or entity has its address and ID given by NEDS to access, and work with its files. According to the Circular, there are six steps to be conducted for an energy audit: (1) identification of the scope of the energy audit, (2) establishment of an energy audit team, (3) estimation of required time and budget, (4) collection of available data, (5) conduct of onsite measurements, and (6) analysis of collected data. The report on energy audit shall be submitted to the Department of Industry and Trade (DOIT) within 30 days from the date of completion of energy audit.

14) Decision 1427/QD-TTg of 2 October 2012, approving the National Targeted Program on Energy Efficiency and Conservation, Phase 2012-2015.

The Decision approved the 2012-2015 National Targeted Program on Energy Efficiency and Conservation. The program set a target of saving 5-8% of the national energy consumption in the period of 2012-2015 compared to forecast energy demand in the National Electricity Development Plan for the period of 2011 - 2020, with consideration of to 2030 which has been approved by the Prime Minister. The program has identified four projects to be implemented during 2012-2015: (1) Strengthening the education, information dissemination, community mobilization, awareness raising, in energy efficiency and conservation, and environmental protection; (2) Development and dissemination of high-efficient, energy-saving equipment, and gradual phase out of low-efficient equipment; (3) Energy saving and efficiency in buildings; and (4) Promotion of energy efficiency in the transportation sector. Total budget of the program was estimated at 930 billion VND of which 350 billion VND is from central government budget, 300 billion VND from provincial budget, 180 billion VND from ODA of the international organizations and foreign countries, and 100 billion VND from other sources.

15) Decision 03/2013/QD-TTg of 14 January 2013, amending and supplementing a number of articles of the Prime Minister's Decision No. 51/2011/QD-TTg of 12 September 2011, promulgating the List of Devices and Equipment subject to Energy Labeling and Application of the Minimum Energy Efficiency, and the Implementation Roadmap.

The Decision delayed the time required for equipment labeling as specified in the Decision 51/2011/QD-TTg. Household electrical appliances (including tubular and compact fluorescent lamps, electromagnetic and electronic ballasts for fluorescent lamps, air conditioners, household vertical-axis washing machines, electric cookers and electric fans) and industrial equipment (including three-phase distribution transformers and electric motors) were delayed the time for energy labeling to 6 months, starting on July 1st 2013. Particularly the electronic devices (such as refrigerators, horizontal-axis washing machines and television receivers) were delayed to one year, starting energy labeling from January 1st 2014. From January 1st 2015, the production and import of home appliances that have lower energy efficiency than the minimum energy efficiency will be banned.

16) Decision 1559/QD-BCT of 14 March 2013 on Announcement on the Energy Labeling for Computer Monitors, Printers, Photocopiers, Air Conditioners with Frequency Converter and Television Receivers.

The Decision promulgated a list of Vietnamese Standards (TCVN) which shall be used in energy labeling for computer monitors (TCVN 9508:2012), printers (TCVN 9509:2012), photocopiers (TCVN 9510:2012), air conditioners with frequency converter (TCVN 7830:2012), and television receivers (TCVN 9536:2012).

17) Circular 19/2013/TT-BNNPTNT of 15 March 2013, guiding the Measures for Economical and Efficient Use of Energy in Agricultural Production.

The Circular was issued by the Ministry of Agriculture and Rural Development (MARD). It is applied to the organizations, households and individuals that are involved in agriculture, forestry, irrigation, fishery and salt production. It listed the measures to be implemented in each sector to save energy. The Agro-Forestry Processing and Salt Industry Department of the Ministry was assigned to be responsible for the state management of the circular enforcement.

18) Circular 15/2013/TT-BXD of 26 September 2013, issuing the National Technical Regulation on Energy Efficiency Buildings.

The Circular was issued by the Ministry of Construction (MOC). It promulgated the National Technical Regulation on Energy Efficiency Buildings (also called the National Technical Energy Efficiency Building Code). This Code provides mandatory technical standards to achieve energy efficiency in the design, new construction or retrofit of civil buildings (office buildings, hotels, hospitals, schools, commercial buildings,, services buildings, apartments buildings, among others), with a gross floor area of 2,500 m2 or larger. The requirements of this Code apply to: (1) The building envelope, except envelopes of non-air conditioned storage space or warehouses; and (2) Equipment and systems in the building, including: interior lighting, ventilation and air conditioning, water heating, energy management equipment, and elevators and escalators.

19) Decree 134/2013/ND-CP of 17 October 2013, regulating the Penalties for Administrative Violations in the areas of Power Activities, Hydropower Dam Safety and Economical and Efficient Use of Energy.

The Decree regulates the acts of administrative violations, the forms and rates of penalties, the remedial measures applicable to the violations, the procedures and authority to impose administrative penalties in the areas of power activities, hydropower dam safety and economical and efficient use of energy. The Decree stipulated the maximum fine in the area of power activities of 50 million VND for individuals and 100 million VND for power entities. The maximum fine in the areas of hydropower dam safety and economical and efficient use of energy is 100 million VND for individuals and 200 million VND for organizations and companies. In addition, depending on the nature and seriousness of the violation, the individuals and organizations who committed administrative violations may be subject to remedial measures such as: paying the State budget the illegal amounts of money benefitted from violations; restoring the original

condition; installing new materials and equipment to replace the damaged ones; compensating entire amount of money for repair of the damage.

20) Decision 78/2013/QD-TTg of 25 December 2013, promulgating the list and roadmap of low-efficient energy-consuming equipment and power generators to be removed or not to be newly constructed.

This Decision is applied for three groups of equipment which have low energy efficiency. They are: (1) household appliances (including fluorescent lamps, ballasts, refrigerators, washing machines, electric cookers, electric fans, water heaters), (2) industrial equipments (distribution transformers, electric motors, steam boilers), and (3) coal-fired and gas-fired power generating units in the power plants. These appliances and equipment are to be removed or not to be newly constructed from January 1, 2015 if their efficiency is lower than corresponding National Standards. Particularly for low-efficient power generating sets, their new investments are prohibited since February 10, 2014.

21) Circular 02/2014/TT-BCT of 16 January 2014, defining the Measures for Economical and Efficient Use of Energy in Industries.

This Circular regulates (1) the economical and efficient use of energy in common industrial processes, and (2) the energy management and measures of economical and efficient use of energy in chemical industry. The measures of economical and efficient use of energy were defined for fuel combustion process, heat and cooling supply systems, air conditioning and hot water supply systems, electrical system (including electrical motors), lighting system, compressed air system, etc.

ANNEX I: Assessment of the Project's Accomplishment

project Strategy/Results	Objectively Verifiable Indicators (OVI)	Accomplishments/Comments	Status (%)
Objective: The overall aim of the project is to phase out incandescent lamps (ILs) production and sale through the transformation of the lighting products market as well as the promotion of high quality energy saving lamps (ESLs) in Vietnam thus reducing greenhouse gas (GHG) emissions	ILs are phased out and GHG reduction will be estimated based on CFLs installed System and procedures for production and testing of quality ESLs are developed Quality parameters are harmonized with international requirements Guidelines of recycling and safe disposal developed	• The GoV has banned the importation, production and use of ILs with capacity over 60 W. • Support to manufacturers through training and field visit was provided on production of ESLs; support to Quatest laboratories through training and field visit was provided on testing of ESLs; STAMEQ prepared quality inspection system for ESLs before the project started. • Cooperation with VSQI yielded approval of two standards that are harmonized with international requirements. • Study conducted on policy of hazardous waste management and extended producer responsibility in retrieval and disposal of discarded products. Report included proposal on the draft Guiding Circular for the Decision 50/2013/QD-TTg on disposal of discarded products including lamps; the project will continue to support the development and enactment of this mentioned draft Circular in 2014.	**60**
Component 1: Local Lighting Industry Capacity Enhancement Program			
Outcome 1: Successful business transformation of manufacturers of ILs and improved quality of locally produced ESL at marketable prices	Good quality CFLs with average life of 6,000 hours manufactured and sold with a total volume of sold CFLs reaching 45 million Minimum of 35% of production lines have been changed from ILs to ESLs by mid-term and a minimum of 70% at project completion 35 million, 40 million, and 45 million of good quality ESLs manufactured per year and sold in Vietnam by the end of the second, third, and fourth year, respectively of project implementation A minimum of two large manufacturers will produce good CFLs for local market	• The two participating manufacturers, Rang Dong and Dien Quang companies, are able to produce high quality CFLs with average life of 6,000 hours. With the phasing out of ILs with capacity over 60 W, the market share for CFLs is increasing. From the market research carried out by the project, the number of sold ESLs at present is approximately 42 million. There are three big companies who can produce good quality ESLs, namely: Rang Dong, Dien Quang and Philips. All of them are targeting to switch from ILs production to ESLs production and the targeted proportion of production is up to 50%.	**60**

	that comply with the local standards		
Output 1.1 Market research conducted on current status of IL and ESL markets in Vietnam	Baseline data consisting of annual volume production, annual volume sales, market share of ILs and ESLs and quality details of ESLs produced	• Market research completed. See specific activities under this output.	100
Activity 1.1.1 Planning for the study on current status of the ESLs and ILs market in Vietnam		• Planning report completed in 2012 • Expert group organized face-to-face meeting with targeted government bodies	100
Activity 1.1.2 Conduct market research on status of ESL and ILs markets and degree of penetration of ESLs in Vietnam		• Market research report completed but with delay due to lack of coordination among local consultants • Activity was carried out with contribution from the Vietnam Lighting Association (VLA), Institute of Energy (IE) and experts • Public consultations were conducted to get comments of stakeholders on the draft report	100
Output 1.2 Plan and TORs on lighting industry capacity enhancement program developed	IL manufacturers are trained on all aspects on conversion of IL to ESL production by the end of the project Technical guidelines and handbooks developed and disseminated	• Planning missions and TORs completed. See specific activities under this output.	100
Activity 1.2.1 Planning mission on Lighting Industry Capacity Enhancement Program (for results of 1,3; 1,4; 1,5)		• Planning mission completed in Nov. 2013 but with delay due to the late recruitment of the international expert • The mission proposed detailed plans on lighting industry capacity enhancement program for two manufacturers, Rang Dong Company and Dien Quang Company	100
Output 1.3 Manufacturers trained on production of quality ESL	ESL manufacturers are trained in upgrading ESL production facilities and methods to production of good quality ESLs	• Manufacturers trained and will continue in 2014. • The output was completed behind the schedule because of: - Late approval of the annual Work Plan 2013 - Late recruitment of international expert	80
Activity 1.3.1 Retrain Rang Dong and Dien Quang workers currently working in IL production Lines to transfer to CFL and FL production lines		• GELC conducted training courses for technical staff of Rang Dong and Dien Quang in Jan. 2014 (together with Activity 1.5) • To continue in 2014	80
Output 1.4 Business transformation plans agreed for 2-4 ESL products for at least one manufacturer involved in the project	Trained IL manufacturers have developed and submitted business plans for conversion of IL production to production of two to four good quality	• Marketing plan for Dien Quang completed in April 2014, later than the expected due to late recruitment of expert, slow coordination between the expert and DQ, and late approval of the annual Work Plan 2013 • Rang Dong has not requested as they have in-house	90

	ESLs; Business plans for conversion of IL production to production of good quality ESLs are accepted	capability to prepare the marketing plan	
Activity 1.4.1 Support Dien Quang in preparing marketing for 2 ESL products		• Supported Dien Quang in developing a marketing plan for waterproof CFL for off-season use in the dragon fruit plantation • To continue in 2014 (complete the final report)	90
Output 1.5 Technical support provided for selected local manufacturers towards quality ESL production at marketable costs	Employees of at least two manufacturers are trained and technically capable of converting existing production lines; At least two testing facilities of local manufacturers are supported	• GELC conducted training courses to ~40 technical staff of Rang Dong and Dien Quang in Jan. 2014 (together with Activity 1.3) • PMU/GELC organized a field trip in China in Mar. 2014 • The output was conducted behind the schedule because of: - Late approval of the annual Work Plan 2013 - Late recruitment of international expert	70
Activity 1.5.1 Technical support for Rang Dang Co.		• GELC conducted training courses to ~40 technical staff of Rang Dong in Jan. 2014 • To continue in 2014	70
1.5.1.1 Support on reducing mercury level of bulb		• Training course organized on “Reduction of Mercury in CFLs” • To continue in 2014	95
1.5.1.2 Support on heating dissipation for LED		• Training course organized on “Heat Dissipation of LED” • To continue in 2014	90
1.5.1.3 Support in developing ballast and LED driver		• Work plan (WP) 2014	0
Activity 1.5.2 Technical support for Dien Quang Co.		• GELC conducted training courses to ~30 technical staff of Dien Quang in Jan. 2014 • To continue in 2014	70
1.5.2.1 Support on reducing mercury level of bulb		• Training course organized on “Reduction of Mercury in CFLs” • To continue in 2014 (completion of report)	95
1.5.2.2 Support Dien Quang on mass production of LED		• Training course organized on “Mass production of LED” • To continue in 2014 (completion of report)	90
1.5.2.3 Support on R&D development model		• Supported Dien Quang on developing the R&D model • Draft report being upgraded because it did not meet the requirements of the TOR and of DQ	95
1.5.2.4 Support on lighting designing for LED		• WP 2014	0
Component 2: Improved QA/QC Framework			
Outcome 2: Strengthened and	Lighting standards strengthened and are	• The lighting standards for ESL have been established and are	**50**

harmonized quality and performance based standards and procedures in Vietnam including compliance with regard to nationally and internationally traded lighting products.	in compliance with international standards, with particular reference to minimum operating hours, minimum energy efficiency (EE) standards, and maximum mercury content Number of quality- and performance-based standards, and procedures has been developed and adopted New EE Law has been adopted, which will allow regulations to be developed for the efficient use of lighting products	now harmonized with international standards, and are being continuously updated. The new EE Law was adopted since 17 June 2010. The facilities to test ESLs will also be continued to be supported through capacity building activities.	
Output 2.1 Energy, environmental and quality standards for ESLs in line with regional or international best practices are drafted and proposed to appropriate authorities	Lighting standards for ESLs are harmonized with regional and international best practices	• Standards supporting the production of ESLs that are harmonized with regional and international best practices have been approved. More standards are planned in 2014.	60
Activity 2.1.1 Review and recommend Energy, environmental & quality standards for ESLs in line with regional or international best practices; Propose and develop new standards		• Drafted and secured approval of two standards; i.e. (1) Standard IEC 62554:2011- *"Sample preparation for measurement of mercury level in fluorescent lamps",* and (2) Standard IEC 62384:2006 – *"DC or AC supplied electronic control gear for LED modules - Performance requirements"*	100
Activity 2.1.2 Support for issuance of drafted standards		• Supported STAMEQ to develop and promulgate two standards comprising: (i) ISO 9892: 2013 IEC 62384:2011, *"Electronic lamp control gear for fluorescent lamps - safety requirements"* and; (ii) ISO 10172:2013 IEC 62554:2011, *"Preparation of samples to measure levels of mercury in fluorescent bulbs"*	100
Activity 2.1.3 Support in review and enactment of the standard TCVN 7896:2008 compact fluorescent bulbs - energy efficiency; standard TCVN 7590-2-3: Electronic lamp control gear for fluorescent lamps - safety requirements; Support in development and enactment standard		• WP 2014	0

for LED module in common lighting - technical requirements			
Activity 2.1.4 Disseminate new standards on energy efficiency for lamps		• WP 2014	0
Output 2.2 Local authorities and inspectors trained on ESL quality inspection system	Survey on quality of lamps used in provinces using the quality inspection system conducted and local inspectors trained on conducting the inspection		0
Activity 2.2.1 Assess current situation of ESLs quality inspection system in Viet Nam and propose solutions to strengthen capacity		• WP 2014	0
Activity 2.2.2 Organize training workshops on strengthening inspection capacity on ESL quality for center and local authorities		• WP 2014	0
Output 2.3 Laboratory technicians trained on quality inspection system	Identified specific requirements and recommended course of action based on needs assessment by international consultants	• Laboratory technicians from Quatest 1 & 3 have been trained on quality inspection system and field visit to China organized; more training planned in 2014 • The output was conducted behind the schedule because of: - Late approval of the annual Work Plan 2013 - Late recruitment of international expert	50
Activity 2.3.1 Assess capacity on ESL testing and needs of testing laboratories, provide suggestions/ recommendations and develop a guideline on ESL testing to strengthen their capacity		• GELC and local experts conducted survey and evaluation of current situation of Quatest 1 & 3 in Nov. 2013 • GELC organized study trip to China in Mar. 2014 • Completed training courses for Quatest 1 and Quatest 3 in Mar. 2014 on: (i) Feature index, (ii) Photometric, (iii) Color identified tool, (iv) Main factors at testing process, (v) Main differences among methods of testing LED and CFLs. • To continue in 2014	95
Activity 2.3.2 Continue in supporting Quatest 1 in strengthening testing capacity in: testing Mecury content, Electro Magnetic Compatibility (EMC), and luminance distribution diagram		• WP 2014	0
Activity 2.3.3 Continue supporting		• WP 2014	0

Quatest 3 in strengthening capacity in: testing mercury content, Electro Magnetic Compatibility (EMC), and luminance distribution diagram			
Activity 2.3.4 Organize training workshops on strengthening capacity of testing laboratories in Viet Nam		• WP 2014	0
Output 2.4 Customs officials involved in "Green Customs Initiative" trained to reduce import/export of ILs and low quality ESLs	Workshop has been successfully conducted under the Green Customs Initiative to train customs officials in reducing import/export of ILs and low quality ESLs; Number of seized shipments has increased		0
Activity 2.4.1 Guideline on Green Customs Initiative for environmentally sensitive products including lamps		• WP 2014	0
Activity 2.4.2 Organize workshop on "Green Customs Initiative" to strengthen capacity of Customs officers		• WP 2014	0
Output 2.5 Civic authorities trained to handle and safely dispose mercury in ESLs and to engage in recycling	Technical guidelines are developed; Draft regulations on ESL recycling and disposal have been submitted; Incentive plan for recycling ESLs has been submitted; Plan to raise mercury awareness has been submitted	• Expert Group formed consisting of 1 International Expert and 4 National Experts to undertake the tasks • The output was conducted behind the schedule because of: - Late approval of the annual Work Plan 2013 - Late contract signing with international expert	60
Activity 2.5.1 Study the theoretical foundation, international experience on recycling technology and safe disposal of mercury in CFL		• Study completed • Remaining tasks: workshop; completion of report • To continue in 2014	85
Activity 2.5.2 Investigate and assess current situation on recycling and safe disposal of CFLs in Vietnam and provide		• Investigation completed • Report completed, which included proposal on the draft Guiding Circular for the Decision 50/2013/QD-TTg on disposal of discarded products including lamps	90

recommendations on regulations in the revised Law on Environmental Protection		• Remaining tasks: workshop; completion of report • To continue in 2014	
Activity 2.5.3 Support the Vietnam Environmental Administration (VEA) in development and enactment of guiding Circular of Decision No. 50/2013/QD-TTg on collecting and disposal of discarded products		• WP 2014	0
Component 3: ESL Market Transformation and Consumer Education and Awareness			
Outcome 3: Enhanced public awareness about benefits of ESLs compared to ILs	All stakeholders and at least 50% of consumers have become aware of the benefits of ESLs	• The project designed programs to increase awareness among general public about the benefits of ESLs.	**60**
Output 3.1 National social marketing campaign for rural and residential users designed and being implemented	GoV has carried out at least one ESL awareness raising and promotion campaign for each province, produced and disseminated annual ESL promotional materials starting from 2011, and developed a roadmap/master plan for ESL promotion		65
Activity 3.1.1 Design a national social marketing campaign for rural and residential users and media plan		• Report on the design of a national social marketing campaign completed • Activity completed but behind the initial schedule • Coordination among experts was not smooth • Field consultations were conducted in Thai Binh, Nam Dinh, Nghe An provinces • A Communication Program on how to target the marketing of ESL for consumers in urban and rural areas was developed	100
Activity 3.1.2 Implement the national social marketing campaign for rural and residential users and media plan		• Collaborated with Natural Resources and Environment Newspaper in the dissemination of the Resolution 24/NQ-TW of the Party Central Committee in responding to climate change, natural resource management and environmental protection, focusing on energy efficiency and phasing outs of ILs • Collaborated with the Natural Resources and Environment Magazine to conduct studies on response to climate change, natural resource management and environmental protection, focusing on energy efficiency and phasing out ILs • Collaborated with Light & Life Magazine to organize the writing contest about energy savings and switching from	50

		using ILs to CFLs. • Organized media conferences on eliminating incandescent bulbs in Binh Thuan and Da Lat • To continue in 2014	
Output 3.2 Market study on effectiveness of ESL promotional campaign conducted and results documented	Study has been carried out to evaluate impact of ESL promotional campaigns A roadmap/master plan for ESL promotion has been developed	• WP 2014	0
Activity 3.2.1 Conduct market study on the effectiveness of the media campaign and document the results			0
Output 3.3 Demonstration projects in rural areas implemented	Minimum of three demonstration projects, involving the installation of a minimum of 1,000 ESL products each, have been developed and implemented in selected rural areas	Completed 3 demonstration projects: (i) switching from ILs to ESLs in agriculture activities in the provinces of Binh Thuan (Dragon fruit) and Da Lat (chrysanthemum flower); (ii) replacing ILs in the households in the provinces of Cao Bang, Ha Tinh, NinhThuan; (iii) supporting new installation of LEDs in ISPONRE building	75
Activity 3.3.1 Planning mission: Design a workplan for implementation of piloting projects		• The criteria for selecting provinces for piloting have been identified, comprising: at least one province representing the North, Central and South of the country; the target provinces are new target areas for energy efficiency/saving projects; excellent local cooperation; currently, has high utilization rate of ILs; using lamps for agricultural activities; and are poor provinces • Based on the criteria, Cao Bang, Ha Tinh, Ninh Thuan, Binh Thuan and Lam Dong provinces were selected for piloting	100
Activity 3.3.2 Implement pilot demonstration projects in the rural areas		• Supported 2 provinces in switching from ILs to ESLs: (i) in Binh Thuan, cooperated with the Dragon Fruit's Research and Development Center to use 3,300 anti-moisture compact light bulbs in 10 plantation farms of dragon fruit; (ii) in Da Lat, collaborated with Da Lat Flower Association to provide 2500 anti-moisture compact light bulbs to 17 farmers who are planting chrysanthemum • Supported 3 provinces of Cao Bang, Ha Tinh and Ninh Thuan in switching from ILs to CFLs in households; the project gave out 4,000 CFLs for each province, 2,000 traditional calendars for 2,000 households and 160 CFL kits for health centers, schools and houses of culture • Organized training sessions for switching from ILs to ESLs in Ha Tinh, Ninh Thuan and Cao Bang provinces • Supported ISPONRE in switching to LED lights to reduce power consumption and to contribute in raising awareness of the Institute's staff on the benefits	70

		of using ESLs • To continue in 2014	
Component 4: National Policy and Institutional Support Program towards Phasing-out of Incandescent Lamps and Promotion of ESLs			
Outcome 4: Policy and institutional systems able to support and monitor phasing out of the manufacture, sales and use of ILs and availability of good quality ESLs in the domestic market	Appropriate policy and institutional systems for an EE lighting market are in place and operational	• The policy and institutional framework for an EE lighting market has been developed; however, the policy and roadmap for phasing out of ILs of < 60 W need to be developed.	**45**
Output 4.1 Study and roadmap for phasing out <60 W ILs prepared and recommended for adoption	Actual national roadmaps and master plans for the phase-out of ILs and promoting ESLs that are ready for implementation	• Report and guideline almost complete; additional work on training and study on roadmap planned in 2014.	70
Activity 4.1.1 Review legislations, provide suggestions/ recommendations and financing mechanisms to implement roadmap of energy labeling for ESL		Initial draft of report completed but not yet finalized due to: - some delays in determining the content of the activity & recruiting of local consultants - lack of cooperation from consultants • To continue in 2014 (completion of report)	90
Activity 4.1.2 Develop a Guideline for implementation of the energy efficiency labeling roadmap		• Guideline for implementation of the energy efficiency labeling roadmap completed but behind schedule • To continue in 2014 (completion of report)	95
Activity 4.1.3 Retrain and strengthen capacity for offices (Government offices, producers, testing laboratories, Department of Industry and Trade, Energy Conservation Office, etc.) to implement the energy efficiency labeling roadmap		• WP 2014	0
Activity 4.1.4 Study on roadmap of phasing out the production, import and consumption of incandescent lamp		• WP 2014	0
Output 4.2 National policy and measures on the implementation of the EE law studied and recommended	Recommendations have been made to GoV with regard to phasing out ILs; Draft guidelines on the implementation of the EE law with regard to the efficient use of lighting products have been developed; Adopted policies on	• Proposal on "Responding to climate change; protection of natural resources and environment" prepared and submitted; additional activity needed to achieve the output as per the indicator.	30

	phasing out, production and utilization of ILs by the end of the project		
Activity 4.2.1 Study on developing statistical indicators on energy use in National Statistical System		• WP 2014	0
Activity 4.2.2 Support in developing the Proposal "Responding to climate change; protection of natural resources and environment" submitted to the 7th Conference of the XI Congress of the Party Central Committee		• Supported MONRE in preparing the proposal. The scheme was accepted by the 7th meeting of the Party Central Committee intake XI on June 3, 2013	100
Output 4.3 Policy measures for ESL market development and enhancement studied and proposed	Implementation of incentive for ESL recycling; Proposals of other potential incentives are made to GoV with focus on financial mechanism; Adopted policies on the promotion of ESLs by the end of the project		0
Activity 4.3.1 Study policy to support for the phasing out of lighting equipment with energy efficiency below minimum energy efficiency			0

ANNEX J: Brief CVs of Consultants

MTE Team Leader: Alan Dale Gonzales

Alan Dale Gonzales has over 25 years of experience as an International Consultant in project development, management and financing of energy & environment projects involving funding from the WB group, ADB, GIZ, EC, USAID, UN agencies and the private sector. He is currently the Executive Director of Full Advantage (Thailand) and the Chairman of the World Alliance for Thai Decentralized Energy (WADE Thai). He was formerly the Chief Business Advisor of COGEN 3, an economic cooperation initiative between the EU and ASEAN that provided investments and advisory functions in the field of biomass, clean coal and natural gas cogeneration. He is a registered Civil Engineer and has obtained a Master of Engineering degree and an MBA at the Asian Institute Technology in Bangkok, Thailand. He is a recipient of the *2009 CTI Clean Energy Financing Award* in Singapore and the *CSR Leadership Award* at the 2013 World Marketing Summit in Malaysia.

As a project development and financial consultant with working experience in more than 30 countries, he is at the forefront of the development, evaluation, financing and implementation of RE and EE projects, having been involved in >100 clean energy projects with capacities ranging from 10 kWe to 100 MWe. He has formulated and designed donor-funded (including GEF-funded) projects, conducted numerous pre-feasibility and bankable full feasibility studies, sourced deal flows, provided advice on deal structuring and investment decisions, and sourced equity investors and debt financing for clients. He supported project developers on financial, economic, and commercial aspects of their projects, advised companies on key elements to consider in forming business partnerships, analyzed key economic parameters and identified key commercial and financial risks for projects and advised on measures to mitigate these risks. In 2005-2006, he acted as the International Area Leader for "Mobilizing Investments for Renewable Rural Electrification" component of the Vietnam-Sweden Rural Electrification (VSRE) project, where he designed a Fund and provided recommendations on financial mechanisms for the funding of off-grid renewable energy projects using international and local funding sources.

MTE Consultant: Dr. Ludovic Lacrosse

In his around 30 years of professional experience in the Energy and Environment sector, Dr. Ludovic Lacrosse has spent more than 20 years managing institutional programs in Thailand and within the ASEAN Member States (AMS), acting as policy and institutional advisor to policy makers, and facilitating businesses in the clean energy space. This has given him in-depth knowledge and understanding of the RE and EE policy, institutional and project development landscape of the South-East Asian region. His areas of expertise cover RE and EE, Climate Change and Clean Development Mechanism, institutional development, public-private partnerships, capacity building, cogeneration and rural electrification.

He is currently the Executive Chairman and Chief Technical Officer of Full Advantage, where he manages the full project development cycle of RE projects of the company and its clients, provides policy, institutional, regulatory, and strategic advice to governments

and international agencies, conducts capacity building and training activities and oversees/prepares studies and reports.

From 2010 to 2012, he acted as the Chief Technical Advisor for the Energy and Environment Partnership (EEP) in the Mekong region, where he oversaw all coordination of the EEP program activities, supervised its policy, technical, financial, and administrative experts, and provided technical and managerial advice to 33 renewable energy, energy efficiency, and waste-to-energy projects.

During 2005-2009, Dr. Lacrosse, headed the Vietnam-Sweden Rural Energy (VSRE) Program, where he managed a budget of more than 10 million dollars, led a team of 60 international and national personnel and coordinated the implementation of a rural electrification program aimed at increasing national and local capacity in policy formulation. Under his leadership, the VSRE has conducted activities to build capacity of national authorities in formulating policies on renewable energy and rural electrification; carried out renewable energy planning; prepared tools and methods for the implementation of renewable energy projects; provided recommendations on the establishment of a specific financial mechanism for the co-funding of renewable energy projects by ODA and local funding; and implemented four demonstration projects consisting of three hydropower and one solar-diesel hybrid projects.

In 1990-2005, Dr. Lacrosse acted as Deputy Co-ordinator and later as Overall Co-ordinator of the EC-ASEAN Cogen Programme, a regional economic cooperation and public-private partnership for the promotion and implementation of clean energy projects. At its completion in 2005, the Programme has supported ASEAN policy makers, implemented close to 150 MWe of clean energy projects, provided advice and supported the development of numerous projects, and leveraged financing from the private sector by more than 10 times of the funding for the Programme. In this programme, Dr. Lacrosse worked with, and provided advice, to high-level government officials, policy makers and decision makers in the private sector.

Annex K: UNEP Evaluation Quality Assessment

Evaluation Title:

Mid-term Evaluation of the UNEP-GEF Project "Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam"

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. The quality assessment is used as a tool for providing structured feedback to the evaluation consultants.

The quality of both the draft and final evaluation report is assessed and rated against the following criteria:

	UNEP EO Comments	Draft Report Rating	Final Report Rating
Substantive report quality criteria			
A. **Project context and project description**: Does the report present an up-to-date description of the socio-economical, political, institutional and environmental context of the project, including the issues that the project is trying to address, their root causes and consequences on the environment and human well-being? Are any changes since the time of project design highlighted? Is all essential information about the project clearly presented in the report (objectives, target groups, institutional arrangements, budget, changes in design since approval etc.)?	Draft report: Overall OK but: - project presentation table needs to be completed - introduction can be shortened with parts of project context presented there moved to the project context section (3.1) - Section 3.1 can be shortened as well – a lot of details here seem not really relevant to the evaluation and could be moved to annexes - repetitions in project presentation should be taken out (e.g. objectives and components are presented several times). Final report: OK – issues in draft were fixed.	4	5
B. **Strategic relevance**: Does the report present a well-reasoned, complete and evidence-based assessment of strategic relevance of the intervention?	Draft report: Seems largely copy/pasted from ProDoc and TORs – need to assess relevance to current policies in Vietnam as well, not only those at the time of project design. Final report: Improved – relevant current policies mentioned	4	5
C. **Achievement of outputs**: Does the report present a well-reasoned, complete and evidence-based assessment of outputs delivered by the intervention (including their quality)?	Draft report: Overall OK but several outputs have not been assessed, and assessment can sometimes be shortened and more to the point. Some OVIs proposed by the project are not good output indicators and should not be used by the evaluation to assess achievement of outputs. Some outputs need to be better assessed in terms of quality. Final report: Missing outputs have been assessed.	4	5

D.	**C. Presentation of Theory of Change**: Is the Theory of Change of the intervention clearly presented? Are causal pathways logical and complete (including drivers, assumptions and key actors)?	Draft report: Good, suggest to remove either the TOC table or the diagram as they contain exactly the same information. Final report: Done	5	5
E.	**D. Effectiveness - Attainment of project objectives and results**: Does the report present a well-reasoned, complete and evidence-based assessment of the achievement of the relevant outcomes and project objectives?	Draft report: Assessment of direct outcomes is OK, but assessment of likelihood of impact is missing. There is no need to follow the guidelines in the TORs on ROtI to the letter but make sure you: - present any evidence of change at the intermediate state and impact level over the intervention period, and - verify the presence of the drivers and assumptions, and the extent to which the project has enhanced the drivers and mitigated any invalid assumptions. Would also suggest to move the very lengthy table 7 to an annex. Final report: Likelihood of impact was not assessed in this MTE.	2	2
F.	**E. Sustainability and replication**: Does the report present a well-reasoned and evidence-based assessment of sustainability of outcomes and replication / catalytic effects?	Draft report: Quite good, but all dimensions of sustainability and replication & upscaling need to be rated separately. Final report: Done	3	5
G.	**F. Efficiency**: Does the report present a well-reasoned, complete and evidence-based assessment of efficiency?	Draft report: Some contradictions with the output assessment but overall OK. Please do NOT say that giving the NPD authority over the annual work plan is a good idea. The NPD has a serious conflict of interest there. Final report: Conflict of interest issue is mentioned.	4	5
H.	**G. Factors affecting project performance**: Does the report present a well-reasoned, complete and evidence-based assessment of all factors affecting project performance? In particular, does the report include the actual project costs (total and per activity) and actual co-financing used; and an assessment of the quality of the project M&E system and its use for project management?	Draft report: Each criterion under this section (as per the TORs) needs to be assessed and rated separately. Make sure to look also at the disbursement rate of the project. Final report: Done and broadly OK	2	5
I.	**H. Quality and utility of the recommendations**: Are recommendations based on explicit evaluation findings? Do	Draft report: They are broadly OK but need some more fine-tuning, mentioning also who they are targeted at and by when they should be implemented.	4	5

	recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?)'. Can they be implemented?	Final report: Recommendations have been fine-tuned		
J.	**I. Quality and utility of the lessons**: Are lessons based on explicit evaluation findings? Do they suggest prescriptive action? Do they specify in which contexts they are applicable?	Draft report: Section needs to be more explicit about what exactly the lessons are. Final report: Lessons have been made more explicit.	3	5
Report structure quality criteria				
K.	**J. Structure and clarity of the report**: Does the report structure follow EO guidelines? Are all requested Annexes included?	Draft report: Overall report structure is broadly OK but need to separate out all dimensions of sustainability, replication & up-scaling, and all factors affecting performance. Co-financing information is missing. Final report: Fixed	3	5
L.	**K. Evaluation methods and information sources**: Are evaluation methods and information sources clearly described? Are data collection methods, the triangulation / verification approach, details of stakeholder consultations provided? Are the limitations of evaluation methods and information sources described?	Draft report: Limitations of the evaluation should be described. Final report: Done briefly	4	5
M.	**L. Quality of writing**: Was the report well written? (clear English language and grammar)	Draft report: OK, some English word-choice and grammar issues (I have corrected most), Need to mention sources at the bottom of all tables. Final report: Done. Final report was also edited by the consultants.	4	5
N.	**M. Report formatting**: Does the report follow EO guidelines using headings, numbered paragraphs etc.	Draft report: Need to number paragraphs. Final report: Done	3	5
		OVERALL REPORT QUALITY RATING	3.5	4.8

The quality of the evaluation process is assessed at the end of the evaluation and rated against the following criteria:

		UNEP EO Comments		Rating
Evaluation process quality criteria				
O.	**Preparation:** Was the evaluation budget			5

	agreed and approved by the EO? Was inception report delivered and approved prior to commencing any travel?			
P.	**Timeliness:** Was a TE initiated within the period of six months before or after project completion? Was a MTE initiated within a six month period prior to the project's mid-point? Were all deadlines set in the ToR respected?	Initiation time was quite late and the MTE took much longer than anticipated due to slow responses by consultants and UNEP staff. Even with a project extension of one year, there are only 9 months left to implement the evaluation recommendations.		2
Q.	**Project's support:** Did the project make available all required documents? Was adequate support provided to the evaluator(s) in planning and conducting evaluation missions?	Yes, except details on dissemination efforts for field demos. Also, it took very long before co-financing data was provided by the project.		4
R.	**Recommendations:** Was an implementation plan for the evaluation recommendations prepared? Was the implementation plan adequately communicated to the project?			6
S.	**Quality assurance:** Was the evaluation peer-reviewed? Was the quality of the draft report checked by the evaluation manager and peer reviewer prior to dissemination to stakeholders for comments? Did EO complete an assessment of the quality of the final report?	Yes on all accounts. Final report was not checked by peer reviewer (not necessary).		5
T.	**Transparency:** Were the draft ToR and evaluation report circulated to all key stakeholders for comments? Was the draft evaluation report sent directly to EO? Were all comments to the draft evaluation report sent directly to the EO and did EO share all comments with the commentators? Did the evaluator(s) prepare a response to all comments?	Yes on all accounts.		5
U.	**Participatory approach:** Was close communication to the EO and project maintained throughout the evaluation? Were evaluation findings, lessons and recommendations adequately communicated?	Yes on all accounts. Evaluators presented the evaluation at the latest Project Steering Committee meeting.		5
V.	**Independence:** Was the final selection of the evaluator(s) made by EO? Were	Yes, but the lead consultant might have had some prior relationship with the UNEP TM.		4

possible conflicts of interest of the selected evaluator(s) appraised?			
		OVERALL PROCESS RATING	4.5

Rating system for quality of evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1

The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.