



## **United Nations Environment Programme**

### **Mid-Term Evaluation of the UNEP/GEF Project**

### **“GLOBAL SOLAR WATER HEATING MARKET TRANSFORMATION AND STRENGTHENING INITIATIVE” (GSWH PROJECT -GEF ID2939)**

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## Basic project information

**Table 1. Basic Project Information**

<b>UNEP approval date:</b>	7 May 2009	<b>Date of first Disbursement*:</b>	13 May 2009*
<b>Actual start date:</b>	May 2009	<b>Planned duration:</b>	56months (revised from 48 months)
<b>Intended completion date:</b>	April 2013*	<b>Actual or Expected completion date:</b>	December2013
<b>Project Type:</b>	Full-size Project	<b>GEF Allocation:</b>	UNEP: US\$3,750,000 Total: US\$ 12,000,000
<b>Project preparation cost (GEF):</b>	US\$ 285,000	<b>Project preparation cost (co-financing):</b>	US\$ 130,000
<b>Expected MSP/FSP Co-financing:</b>	UNEP: US\$1,970,000* Total: US\$ 24,377,000	<b>Total Cost:</b>	UNEP: US\$5,720,000* Total: US\$ 36,247,000
<b>Mid-term review/eval. (planned date):</b>	December 2012	<b>Terminal Evaluation (actual date):</b>	N.A.
<b>Mid-term review/eval. (actual date):</b>	May-September 2013	<b>No. of revisions:</b>	3
<b>Date of last Steering Committee meeting:</b>	June 2011	<b>Date of last Revision:</b>	19 September 2012*
<b>Disbursement as of May 2013:</b>	UNEP: US\$1,621,004.13*	<b>Date of financial closure:</b>	N.A.
<b>Date of Completion:</b>	N.A.	<b>Actual expenditures reported as of May 2013:</b>	UNEP: US\$1,621,004.13
<b>Total co-financing realized as of 30 April 2013:</b>	UNEP: US\$ 1,241,000*	<b>Actual expenditures entered in IMIS as of May 2013:</b>	UNEP: US\$1,621,004.13*
<b>Leveraged financing:</b>	0		

\* Data validated by UNEP FMO

## Acronyms and Abbreviations

ESCO	Energy Service Company
ESTIF	European Solar Thermal Industry Federation
GEF	Global Environment Facility
GHG	Green house Gas
ICA	International Copper Association
IIEC	International Institute of Energy Conservation
ISES	International Solar Energy Society
KM	Knowledge Management
M & E	Monitoring and Evaluation
MTE	Mid-term Evaluation
OME	Observatoire Méditerranéen de l'Energie
OLADE	Organización Latinoamericanade Energía
PIF	Project Identification Form
PIR	Project Implementation Review
PMC	Project Management Committee
Prodoc	Project Document
RCREEE	Regional Centre for Renewable Energy and Energy Efficiency
SMART	Specific Measurable Achievable Realistic and Tangible
SWH	Solar Water Heating
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program

# Executive Summary

## ***Background***

The goal of the Global Solar Water Heating Market Transformation and Strengthening Initiative (GSWH project) is to accelerate global commercialization and sustainable market transformation of solar water heating (SWH), thereby reducing the current use of electricity and fossil fuels for hot water preparation.

The GSWH project is a full-size project funded by the Global Environment Facility (GEF). UNEP and UNDP are the GEF designated co-Implementing Agencies of the project, each in charge of one component. The UNEP component of the project deals with global knowledge management and networking (Component 1). The country program component (Component 2) executed by UNDP includes five country sub-projects (in Albania, Chile, India, Lebanon and Mexico – a sixth sub-project in Algeria was cancelled).

This report summarises the findings of the Mid-Term Evaluation (MTE) of the UNEP-executed component of the GSWH project.

## ***Context and purpose of the MTE***

The purpose of the MTE was to: a) provide evidence of results to date and of the likelihood of achievement of outcomes and impact in the future; and b) identify the challenges and risks the GSWH project faces in achieving the project objectives and recommend corrective actions needed for the project to achieve maximum impact and sustainability.

The MTE assessed performance of the project in terms of relevance, effectiveness and efficiency, and determined the likelihood of the project achieving its intended outcomes and impacts, including its sustainability.

The MTE took place quite late in the project cycle, less than six month before the revised completion date of 31 December 2013, and focused on the UNEP-executed component of the project. Separate mid-term reviews of the UNDP-executed country programs have been managed by the UNDP country teams and were available to this MTE.

## ***Main findings***

**Project performance.** The project was found highly relevant to global and national priorities, the UNEP mandate and policies and the relevant GEF focal area. Good progress has been made on a number of key outputs. To ensure that the knowledge products generated under the project are effectively disseminated, the UNEP component created an online collaborative platform between industry, research institutions and NGOs (<http://solarthermalworld.org/>). The component also developed three comprehensive, practical guides and handbooks that can help in stimulating sustainable SWH market development worldwide. However, the component has made relatively slow progress or delivered incomplete results on others. For instance, a conclusive SWH market assessment at the global level, which can serve as a guide and reference for various international stakeholders to support SWH market transformation is still unavailable; the progress on finalization of the project proposals in at least 10 additional countries is slow; the website lacks a 'virtual training facility'; the compilation of the lessons learnt from the project is delayed; and the contribution of UNEP to component 2 has been less than optimal.

It was quite hard to assess project effectiveness based on the assessment of the UNEP component alone. The Mid-term Reviews conducted by UNDP at the country level do not provide reliable information on progress in the achievement of the overall project outcomes. Component 1 of the project has developed knowledge products which aim to stimulate SWH development worldwide and are available online. However, formal sharing of international experiences and lessons learnt from the GSWH project could be enhanced as well as access to technical backstopping and training. There is no evidence that Component 1 has influenced policy and regulations in participating countries, as UNEP did not receive any specific requests for support in this area. Chile and Mexico requested technical assistance from UNEP/DTIE with the design of their finance mechanisms, but the MTE could not ascertain any significant contribution of the component towards the creation of a replicable and attractive financing mechanism for end users in either country, or anywhere else. However, the component appears to be contributing significantly to awareness and capacity building of end users on SWH systems, as can be inferred from the information provided on the GSWH website, the number of visitors of the website, and stakeholder opinions collected by the MTE. The forthcoming handbook for architects and building professionals to integrate SWH systems in the building sector will also contribute to building sector professionals to integrate SWH systems. The results, experiences and lessons learnt of the overall program have not yet been compiled, analysed and disseminated, and should be a critical contribution of Component 1 to higher-level results in the last year of the project.

The achievement of impacts by the GSWH project is contingent to achievement of both component 1 and 2 outcomes. Therefore, an assessment of both components 1 and 2 will have to be done, so as to evaluate the likelihood of achievement of impacts for GSWH project. This can definitively be assessed only at the completion of the both Components 1 and 2. However, at this MTE stage and only based on the assessment of Component 1 outputs and feedback received from the participating countries, a rough estimate of the likelihood of impact was made by looking at the presence of drivers and assumptions. While most drivers were found to be in place, some key drivers that facilitate the conversion of outputs to outcomes and to impacts for transformation of the SWH market are still weak, such as the application of regional standards and cooperation with regional external agencies and private sector. In addition, while in all participating countries there is good policy support and a strong political will to accelerate and transform the WH market, the project has only succeeded to an extent in leveraging additional financing to promote SWH markets and in the creation of 'local champions' to promote SWH markets. Assessing project impact in terms of reduced GHG emissions reductions that can be attributed to the project (let alone one of its components) is practically impossible. In addition, there is no reliable baseline information available on GHG emissions in the supported countries and effects of other on-going renewable energy interventions in the countries cannot be isolated from impacts of this project.

In terms of sustainability, the GEF is likely to fund a second phase of the GSWH initiative to scale up the approach piloted in phase 1 through separate regional and country-level projects. PIF development for these projects is underway. The International Copper Association has committed to maintain the website beyond project funding, but for other outputs, based on the available information, the MTE could not identify the funding mechanisms or financial sources to sustain them beyond GEF funding. The GSWH project has so far not leveraged any significant financing for further development of SWH markets. However, component 1 of the project has created greater awareness and built the capacity of various stakeholders to facilitate the transformation of the SWH market, and political support and the institutional framework are quite strong in most participating countries. The MTE did not come across a formalized replication strategy that could clearly detail the lessons learnt from the participating countries and elaborate the activities that could scale up and replicate the success stories to other countries.

**Factors affecting performance.** The design and institutional arrangements for Component 1 of the GSWH project were found broadly adequate. However, there is a need for a better coordination amongst UNEP, UNDP and relevant stakeholders, and also for a more clear-cut division of roles and responsibilities between UNDP and UNEP. No Project Management Committee meetings have been reported beyond 2011. Considering the complementarity of project components, effective coordination and collaboration between the executing agencies is absolutely critical for achieving the intended project outcomes and impact. Interaction between other project stakeholders was also quite limited and mainly through a small number of workshops and some feedback provided on the GSWH website. The MTE has not come across any formal mechanism through which the key stakeholders would have provided feedback on the project design, implementation or any suggestions to improve its execution.

UNEP is providing dedicated technically qualified and experienced staff and adequate resources execute the component, and adequate technical competencies required at the regional and country level are being hired through SSFAs by DTIE with the regional partners. However, there are some gaps in the PIRs with regards to reporting progress on the project. The M&E system of the project is particularly weak, lacking SMART indicators to measure and monitor the outcomes of the planned outputs.

## **Recommendations**

1. Based on the assessment of progress and considering the volume of activities that remain to be completed before project-end including 'value adding new activities' proposed by stakeholders, it seems reasonable to recommend another no-cost extension to the GSWH project of 12 months until 31st December 2014. A list of remaining activities and a corresponding budget estimate provided by DTIE is presented in Annex 6.
2. There is a need to strengthen project coordination. More frequent PMC meetings need to be convened to strengthen coordination between the two components of the project and better clarify the respective roles and responsibilities between UNEP and UNDP for phase 2 countries. Country team representation in the PMC meetings should be considered.
3. It is also essential that the PMC members agree on a common Theory of Change for the project – the one reconstructed for this evaluation can provide a basis for discussion – so that the most essential, complementary outputs of both components to the projects outcomes and impact are more explicit and focused upon by both components' executing partners in a more coherent manner.
4. Progress on immediate, medium-term and longer term outcomes expected from the project needs to be monitored more closely using SMART indicators. Such indicators need to be developed and used for monitoring the last year of the project. SMART indicators should also be built into the M&E system of the second phase from the start, so that project performance can be monitored and tracked objectively.
5. For the KM website <http://solarthermalworld.org/> to play the role of a training facility, it needs to be upgraded to include SWH technical, economic and environmental assessment tools and calculation software, which will allow the visitor to undertake comparative cost and benefit analysis on various SWH technology and product options. Moreover, the website should include:
  - a) current global best practices especially on financial mechanisms used for promoting SWH use in the form of case studies and/or video

- b) case studies of countries which have successfully internalized SWH standards and certification, setting out a step-wise process to prepare the participating countries to develop and internalize SWH standards

6. Once the SWH Tech Scope Index is drafted, stakeholders' feedback should be solicited for review and validation across regions and countries before it can be applied for receiving statistically valid scores to evaluate SWH markets.

7. The project should also set up a formal mechanism through which stakeholders can provide feedback on the implementation of the project during the remaining period. Stakeholders should also be asked to provide suggestions to improve the design and implementation of the second phase of the project.

8. The project should put more efforts in the development of a regularly updated, quality controlled roster and team of international SWH experts to support national level activities. Differences of opinion among GSWH partners on criteria for inclusion of experts in the roster need to be sorted out. UNDP at many regional locations and UNIDO at their headquarters are maintaining rosters of experts in various practice areas and also regularly seek applications (through their websites and portals) for inclusion of experts in their rosters. The criteria used by UNDP and UNIDO can be studied and suitably used to create a roster of SWH experts.

9. The PIRs need to provide information that is based on validated facts and figures, clearly disaggregated per component. This will help in correctly assessing project progress and identifying the bottlenecks in achieving outcomes and impact.

10. The financial sustainability of the project outputs needs to be augmented by leveraging financing from project participating governments, climate change and green funds.

11. The Terminal Evaluation should cover both components of the project, and conducted jointly between the UNEP and UNDP evaluation offices. This will ensure a more comprehensive assessment of project performance and will ensure that lessons learned from both the global and national components are shared between UN partners and participating countries. This would also be in line with a request emanating from the GEF that all jointly implemented projects should also be jointly evaluated.



## I. Introduction

1. The goal of the Global Solar Water Heating Market Transformation and Strengthening Initiative (GSWH) project is to accelerate global commercialization and sustainable market transformation of Solar Water Heating (SWH), thereby reducing the current use of electricity and fossil fuels for hot water preparation. It proposes to build on the encouraging market development rates already achieved in some GEF program countries and seeks to further expand the market in other GEF program countries, where the potential and necessary prerequisites for market uptake seem to exist.
2. The GSWH project is funded by the Global Environment Facility (GEF). UNEP and UNDP are the GEF designated co-Implementing Agencies of the project. It is a full-size project with two components. The global knowledge management and networking component (Component 1) is executed by UNEP and the country program component (Component 2) which includes specific country programs in five countries (Albania, Chile, India, Lebanon and Mexico – a sixth country program in Algeria was cancelled) is executed by UNDP.
3. This Mid-term Evaluation (MTE) takes place quite late in the project cycle, less than six months before the revised completion date of 31 December 2013, and focuses on the UNEP-executed component of the project. Separate mid-term reviews of the UNDP-executed country programs have been managed by the UNDP country offices and were available to this MTE.

## II. The Evaluation

### 1. Objectives of MTE

4. The purpose of the MTE is to:
  - provide evidence of results to date and of the likelihood of achievement of outcomes and impact in the future; and
  - identify the challenges and risks the GSWH project faces in achieving its objectives, and recommend corrective actions needed for the project to achieve maximum impact and sustainability.
5. The MTE assesses performance of the project in terms of relevance, effectiveness and efficiency, and determines the likelihood of the project achieving its intended outcomes and impacts, including its sustainability.
6. According to the Terms of Reference (**Annex 1**), the MTE is focused only on the Global Knowledge Management (KM) and Networking component of the GSWH project – the UNEP component.

### 2. Approach and Methodology

7. The MTE of the GSWH Project was conducted from April 15<sup>th</sup> to December 15<sup>th</sup> 2013 under the overall responsibility and management of the UNEP Evaluation Office (EO, Nairobi) and following discussions with the GSWH Project Task Manager and Project Manager based at DTIE, Paris.
8. The *data collection methods* used for evaluation include:

- **Desk review** of project documents including: project design documents, annual work plans and reports and documentation available in public domain on the project-established web portal for solar thermal professionals: <http://solarthermalworld.org/>, mid-term reviews conducted by UNDP of national programs under Component 2 of the project (See Documents reviewed in Annex 2);
- **Interviews and Email questionnaires** with project management and execution support in UNEP, country lead execution partners and other key stakeholders (See Stakeholders contacted/ interviewed in Annex 3); and
- **A short visit to Paris and Nairobi**, for discussions with the UNEP project management team in Paris, and the UNEP Evaluation Office (EO) and the Fund Management Officer (FMO) in Nairobi in May 2013.

### 3. Limitations of the MTE

9. First, the present MTE is limited to one component of the project. As discussed in this report both project components are strongly interdependent for achieving the expected outcomes and impacts of the project. While a separate assessment of one of the two components could lead to some interesting findings regarding relevance, efficiency and processes and factors affecting performance (such as project design, management arrangements etc.) there are clear limitations in how this partial evaluation can assess project effectiveness, likelihood of impact and sustainability. For the latter, a more in-depth understanding of overall project performance, including of the other component, would be needed. UNDP did conduct a number of Mid-term reviews of the national programs supported by Component 2 of this project, but these are very output focused and their assessment of effectiveness, impact and sustainability is superficial. They were not very helpful to obtain a clearer picture of overall project performance to date.

10. Second, this MTE is based mostly on a desk review, a small number of face-to-face and telephone interviews and responses received to questionnaires sent over Email from a limited number and variety of stakeholders. The unit of analysis for assessment of effectiveness and impact of the GSWH project on the SWH market transformation would be the potential SWH consumer, who in turn is served in the market through a chain of facilitators (read stakeholders) including : global and local SWH manufacturers, dealers and installers, banks and financial institutions, energy service companies, maintenance service providers etc. The SWH market is also largely determined by government policies (including financial and fiscal incentives) at both the country and regional levels (policy makers being another set of stakeholders). These facilitators and government officials could not be interviewed given the limited time and budget available to this evaluation. Wider stakeholder consultations in the course of this MTE would have provided more accurate and credible information with regard to the actual contribution of the project to the intended beneficiaries and stakeholders, and would possibly have led to more comprehensive recommendations to improve the design and implementation of the project and for future SWH initiatives. Due to funding constraints on travel, potentially useful face-to-face meetings with individual stakeholders could not be undertaken and collection of data from varied stakeholders via telephone and e-mail was very difficult.

### III. Project background

#### 1. Context

11. According to the Project Document, through the 1990s and beginning of the 2000s, the global solar thermal market has undergone a favourable development with a steady annual growth. At the end of 2003, a total of 132 million square meters of collector area were installed in 35 countries studied in the International Energy Agency's Market Review for 2003. The annual collector yield of all solar thermal systems in the countries studied was estimated at 55,233 GWh and the annual avoidance of GHG emissions was 24.1 million tons of CO<sub>2</sub> (Carbon dioxide).

12. While, on one hand, very high market penetration rates of SWH in some countries seem to demonstrate what can be achieved with active promotion of SWH, on the other, the number of countries that have benefited from this technology remains modest. In a majority of countries there are still massive opportunities for expanding the use of SWH.

13. In addition to the global environmental benefits in terms of GHG emission reductions, there are also important national and local benefits stemming from the adoption of SWH such as providing energy security and reducing dependence on imported fossil fuels.

#### 2. Objectives and Components

14. The **objective of the project** is to accelerate global commercialization and sustainable market transformation of SWH, thereby reducing the current use of electricity and fossil fuels for water heating in residential, private service sector and public buildings and wherever applicable in industrial applications.

15. The project seeks to support the six (actually five – Algeria was cancelled) participating countries to build-up market demand for SWH systems and to strengthen the supply chain by supporting the establishment of enabling policy frameworks, enhancing the awareness of key stakeholders on the use of SWH systems and facilitating global information exchange and networking to learn about the experiences, results, lessons learned and best practices in other countries.

16. By building on an initial market assessment of the countries, which have expressed interest in participating in the phase 1 of the project, the **concrete targets for phase 1** have been set as follows:

- the installation of an additional 3 million square meters of SWH panels (compared to the baseline) by the end of the country programs covered under phase 1 and
- sustainable growth of the SWH markets at the minimum annual rate of 20% (total installed capacity) by completion of phase 1

17. The expected, cumulative, direct GHG reduction resulting from the installation of the additional three million m<sup>2</sup> of SWH panels by the end of the project has been estimated at 14.9 million tons of CO<sub>2</sub>(eq) over fifteen years and the cumulative, incremental GHG reduction impact including both direct and indirect post project impact at over 80 million tons of CO<sub>2</sub> (eq) by the end of 2020.

18. The project consists of two **components**:

- **Component 1: Global Knowledge Management (KM) and Networking:** Effective initiation and co-ordination of the country specific support needs and improved access of national experts

to state of the art information, technical backstopping, training, international experiences and lessons learnt. The KM component is being executed by UNEP with assistance from a network of partners to facilitate co-coordinated, timely and professional technical backstopping for country specific SWH activities.

- **Component 2: UNDP Country Programs:** The basic conditions for the development of a SWH market on both the supply and demand side are established, conducive to the overall, global market transformation goals of the GSWH project. This component focuses on overcoming the barriers and supporting the activities needed at the national level in five countries (Albania, Chile, India, Lebanon and Mexico) to stimulate sustainable SWH market development. It consists of several, parallel country programs being managed locally under the UNDP National Execution (NEX) modality, but under the overall monitoring and technical backstopping provided by the UNEP KM component.

### **3. Milestones in project design and implementation**

19. The GSWH Project is a full size GEF project, which was placed in the UNEP work program in September 2006, submitted to GEF in January 2008 (1<sup>st</sup> re-submission in April 2008 and second re-submission in June 2008) and approved by GEF in May 2009. It was planned originally for a duration of 48 months, with completion by 30 April 2013. The project was extended to 56 months until 31 December 2013, and a further 12 month extension is under discussion to complete all outputs (see also paragraph 103). This Mid-term Evaluation was planned for December 2012 but was delayed until April 2013 and took almost 8 months to complete.

20. The Ministry of Energy and Mines, executing partner of Component 2 in Algeria, requested fundamental changes to the project reorienting it from a market transformation initiative to an industrial support programme. As extended negotiations between UNDP and the government to attempt accommodating some requested changes under the existing project produced no results, it was jointly decided to cancel the Algeria sub-project.

### **4. Implementation arrangements**

21. UNEP and UNDP are jointly acting as the GEF Implementing Agencies (IAs) for respectively Component 1 (global level) and Component 2 (national level) of the project. Both agencies are responsible for supervision of their component to ensure that project objectives are met in line with GEF policies and procedures. In the case of UNEP, this supervision role is played by a Task Manager located in UNEP's Division for Technology, Industry and Economics (DTIE).

22. DTIE of UNEP is also the Executing Agency for Component 1, with responsibility for global project management, monitoring and technical assistance (including the provision of assistance on financial instruments under component 2). DTIE's role as Executing Agency is played by the Project Manager and includes administration and supervision of agreements with international / regional expert institutions and NGOs subcontracted to manage selected subcomponents of Component 1. The Project Manager is also responsible for overall monitoring and progress reporting on component 1 in respect to the set targets and indicators, including reports to the UNEP Task Manager and the Project Management Committee (PMC). The UNEP Project Manager is also responsible for assembling the annual Project Implementation Reviews of the project as a whole to the GEF Secretariat.

23. The project is being overseen and guided by a Project Management Committee (PMC) acting as a project coordinating body cum project steering committee, and which includes representatives from the International Copper Association (ICA), UNDP and UNEP (but no country level representatives).

24. The country programs (implementation of the national level activities) under component 2 are being managed at the national level by UNDP following the standard UNDP guidelines and procedures for national (Government) executed projects (NEX).

25. Component 1 was also to provide additional monitoring, technical oversight and reporting services for the national sub-projects. In particular, any financial mechanisms to be developed and initiated under the national projects were expected to benefit from substantive technical backstopping and oversight by UNEP DTIE.

## 5. Financing

26. The financing details of the UNEP Component are presented in Table 2.

**Table 2. Financing amounts per donor (Component 1)**

Item	Amount US\$	Percentage
Cost to the GEF Trust Fund (UNEP execution only)	3, 750,000	65.6
Co-financing		
International Copper Association	1, 200,000	21.0
<i>Sub-total</i>	1, 200,000	21.0
In-kind		
UNEP – DTIE	370,000	6.5
Other partners	400,000	7.0
<i>Sub-total</i>	1, 970,000	13.5
<b>Total</b>	<b>5, 720,000</b>	<b>100.0</b>

Source: Prodoc

## 6. Project Partners

27. The project’s global and regional partners play the role of knowledge hubs within a larger network where each partner institution has accepted specific tasks and responsibilities according to its capacities and comparative strengths. The project partners contribute in generating knowledge products and services, and in ensuring that these products are effectively disseminated. Small Scale Funding Agreements (SSFAs) have been signed by DTIE with each of the partners.

28. The Global Partner for the project is the International Copper Association (ICA). It manages the KM portal (website) and provides co-financing support to the GSWH project.

29. The Regional Partners of the project are:

- *Observatoire Méditerranéen de l'Energie (OME- Africa and Middle East)* : According to the agreement between DTIE and OME, the mandate given to OME includes: a) conducting a Regional Workshop for fostering SWH Markets in Mediterranean and North African countries and identifying 2 or 3 countries for Phase 2; b) formulating a national program for private sector development (follow up actions to measure impacts of business meetings); and c) developing a national program for public sector development and elaboration of PIFs (Project Identification Forms) for four countries in the region.
- *Organización Latinoamericana de Energía (OLADE - Latin America)*: According to the SSFA between DTIE and OLADE, OLADE will provide support to DTIE in conducting Regional Workshops for fostering SWH Markets and provide SWH market assessments in Latin American countries.
- *European Solar Thermal Industry Federation (ESTIF - Europe)*: The mandate of ESTIF includes: a) preparing assessment report (guidelines) for policies to support the development of SWH market and industry; b) developing guidelines for designing and implementing successful awareness raising campaigns with related case studies, examples and information materials; c) providing support for the organization of a GSWH annual workshop in 2011; d) collaboration with the online knowledge management system on SWH (solarthermalworld.org); and e) preparing a technical study report (guidelines) to provide an overview of quality assurance in the solar thermal market.
- *International Institute of Energy Conservation (IIEC - South and South East Asia)* – IIEC has already submitted a report covering Bangladesh, Sri Lanka, Philippines, Thailand and Vietnam, providing an overview of the SWH in the study countries, in-country institutional and policy frameworks for SWH (including: standards and certifications, testing facilities, promotional measures), barriers to the promotion of SWH, and recommendations to foster SWH markets in study countries.
- *Regional Centre for Renewable Energy and Energy Efficiency (RCREEE)* – is focusing on developing the first regional solar water heating certification scheme in developing countries.

## **7. Reconstructed Theory of Change of the project (Project Logic)**

30. A Theory of Change (TOC) of a project maps out the anticipated pathways of change from the projects outputs to the expected outcomes, up to the intended impact. It explains how outputs are expected to lead to outcomes, and outcomes to impact, possibly passing through other changes first (called Intermediate States). External factors affecting change along the causal pathways, over which the project can have a certain control (drivers) or no control at all (assumptions) are also an explicit part of a the TOC.

31. The Project Document does not provide an explicit TOC. This is not a GEF requirement. Therefore, it was necessary for the evaluator to reconstruct a TOC on the basis of his reading of the Logical Framework and project strategy narrative provided in the Project Document. The reconstructed TOC diagram is presented in Figure 1 on pages 8-9.

32. The proposed TOC diagram provides a schematic representation of both Component 1 (Global Knowledge Management and Networking – led by UNEP) and Component 2 (SWH market development in the five phase 1 countries – implemented through UNDP-NEX) and the linkages between the two components. The TOC diagram coupled to the TOC narrative below presents a more comprehensive understanding of the project intervention logic and factors affecting its effectiveness, impact and

sustainability compared to the Logical Framework, that only presents the outputs and outcomes of the UNEP component, without indicating how one is expected to lead to the other, and what external factors are at play.

33. Component 1 of the GSWH Project is expected to deliver the following key outputs:

- Regional SWH market assessment and analysis with the specific focus on GEF program countries
- Finalization and adoption of proposals for at least ten (10) additional countries for phase II
- A network of international and regional agencies established
- A virtual SWH information clearing house and training facility established
- Other internationally or regionally applicable public awareness raising, training and knowledge management material published (which can be used as such or as raw materials for national public awareness raising and training activities and products)
- A regional review and analysis of the existing national and regional SWH standards and draft design and a strategy for adopting more harmonized international product standards and schemes
- Regional and international thematic SWH workshops
- A regularly updated, quality controlled roster and team of international SWH experts to support national level activities
- Regular newsletters and market monitoring reports
- The results, experiences and lessons learnt of the overall program compiled, analyzed and disseminated

34. The expected “output” of Component 2 of the project, as mentioned in the UNEP Prodoc, was as follows: The SWH market development activity in the six initial countries successfully finalized, meeting the stated targets as per country specific log frames of the national country programmes.

35. The Immediate Outcomes expected from the GSWH project are expected to be delivered jointly by Component 1 and Component 2 outputs. These are:

- Access of national experts to information, technical backstopping, training, international experiences and lessons learned is improved
- Policy and regulations: An enabling institutional, legal and regulatory framework is in place
- Finance: Attractive end user financing mechanisms are in place
- Business skills: Awareness and capacity of end users to install and use SWH systems and building sector professionals to integrate SWH systems is enhanced
- Knowledge Management (Information and Technology): support institutionalized and results, experiences and lessons learned are documented and disseminated

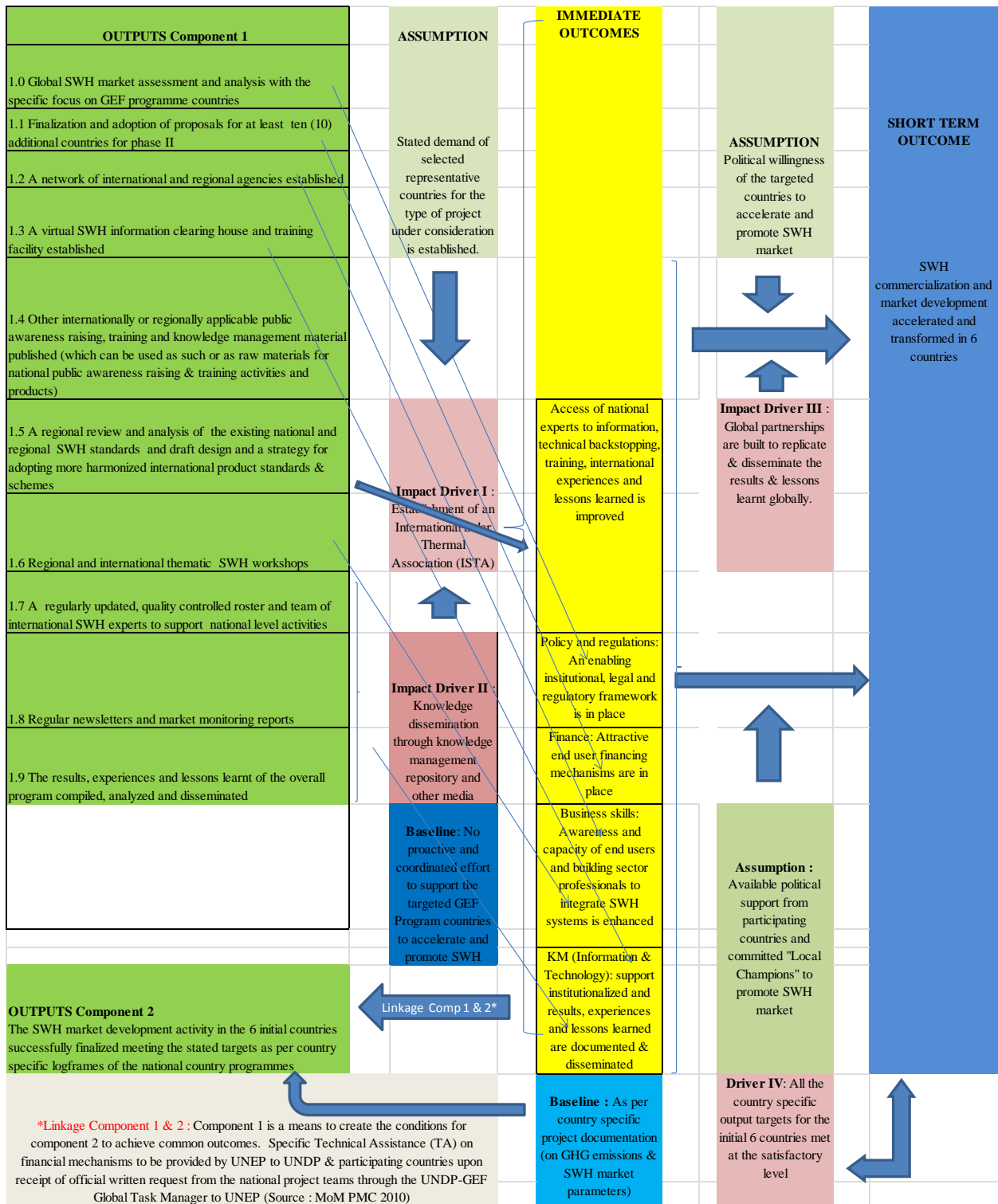


Figure 1. Theory of change diagram of the GSWH project (part 1)



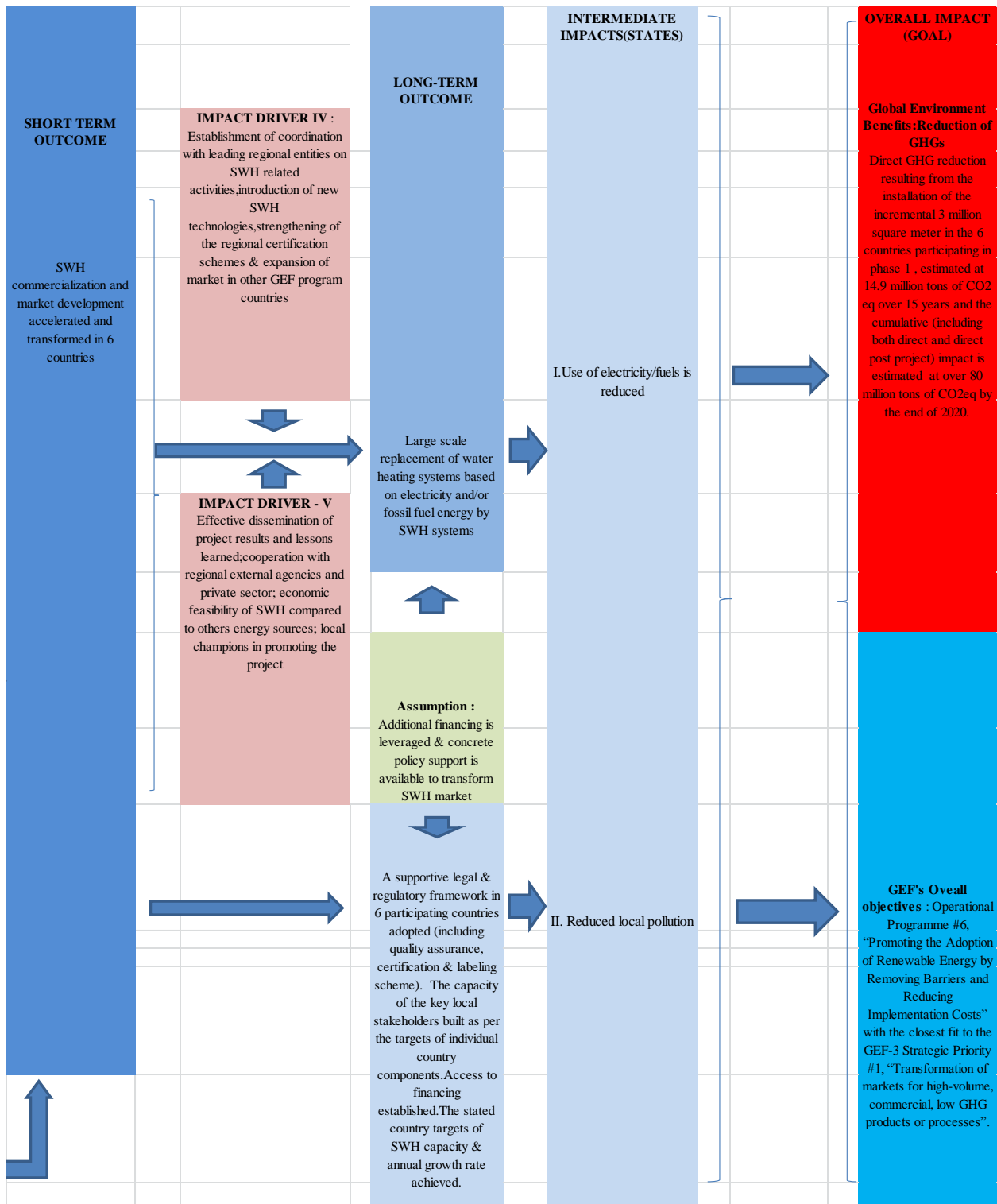


Figure 1. Theory of change diagram of the GSWH project (part 2)

36. In the medium-term, these immediate outcomes are expected to contribute to accelerated and transformed SWH commercialization and market development in six countries, allowing, in the longer-term, for large-scale replacement of water heating systems based on electricity and/or fossil fuel energy by SWH systems (the end-of-project target is the installation of an additional 3 million m<sup>2</sup> of panels for solar water heating).

37. This, in turn, is expected to lead to an “intermediate state” where the use of electricity and fuels used for water heating is significantly reduced leading to impact on two levels : i) direct reductions in greenhouse gas emissions and ii) reduced pollution from fossil fuel use for electricity production and water heating. In terms of GHG emission reductions, the project target has been estimated at 14.9 million tons of CO<sub>2</sub>(eq) over 15 years, and the cumulative impact (including both direct and indirect post-project) was estimated at over 80 million tons of CO<sub>2</sub>(eq) by the end of 2020.

38. Drivers are the external factors and necessary conditions that facilitate the conversion of outputs to outcomes and to impact, which the project can influence. The drivers for GSWH project include:

- Knowledge dissemination through knowledge management repository, International Solar Thermal Association (ISTA) and other media;
- Global partnerships are built to replicate and disseminate the results and lessons learnt globally;
- Coordination with leading regional entities on SWH related activities established;
- Regional standards are applied;
- Cooperation with regional external agencies and private sector; and
- Economic feasibility of SWH is demonstrated (compared to other energy sources).

39. From the perspective of UNEP’s intervention within the overall GSWH project, the outputs delivered by Component 2 at the pilot country level can also be considered “drivers” for the overall project outcomes and impacts to be achieved. Indeed, the outputs delivered by both components come together to achieve the immediate, medium-term and long-term outcomes, leading thus jointly to the intermediate states and impacts of the overall project. On one hand, Component 1 is expected to provide *inter alia* access to up-to-date technical information, trainings and a roster of experts to support the national programs under Component 2. On the other hand, results achieved in the pilot country programs by Component 2 are expected to provide good practices and lessons learned to feed into the global Component 1, which the latter is expected to up-scale beyond the six pilot countries directly supported by Component 2.

40. Assumptions are external factors influencing change from outputs over outcomes to impact over which the project has no control. For the GSWH project, the main assumptions include:

- There is a stated demand by the selected representative countries for the type of project under consideration. This is essential as the GSWH is driven by the needs and priorities of the participating countries;
- Existence of political will and support in the targeted countries to accelerate and promote the SWH market, including committed "Local Champions" to promote the SWH market; and
- Additional financing is leveraged and concrete policy support is available to transform the SWH market.

## IV. Evaluation findings

### 1. Strategic relevance

41. The project's objectives and implementation strategies are consistent with global and national environmental priorities in terms of reductions in GHG emissions and local pollution.

42. They are also aligned with the UNEP mandate, policies, activities and the Bali Strategic Plan, at the time of design and implementation, which include "climate change" as a main thematic area. Climate change is one of the six cross-cutting thematic priorities in UNEP's Medium Term Strategy (MTS) 2010-2013, under which UNEP helps countries make sound, informed energy supply choices with a focus on renewable energy options.

43. The project's objectives and implementation strategies are further consistent with the relevant GEF focal area, strategic priorities and the relevant operational program(s), as the project contributes to meeting the objectives of the GEF's Operational Program #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs", and has a close fit to the GEF-3 Strategic Priority #1, "Transformation of markets for high-volume, commercial, low GHG products or processes". Also, SWH as a means of conserving purchased energy in buildings is a priority in GEF-4 Strategic Program #1 "Energy Efficiency in Buildings and Appliances".

44. Considering the above the GSWH project is rated *Highly Satisfactory (HS)* on Strategic Relevance.

### 2. Achievement of outputs

45. Progress on the achievement of outputs has initially been recorded by the MTE up to 30 June 2013. However, as report drafting took longer than anticipated, it was decided to update the status of output delivery up to 15 October 2013. This takes into account preliminary comments received from DTIE by that date.

#### *A. Global SWH market assessment and analysis with the specific focus on GEF program countries*

46. According to the revised work plan and timetable (2012), the Global SWH Market assessment would continue until the third quarter of 2013. The GSWH Project has already carried out regional SWH market assessments in Latin America, South and East Mediterranean region, and South and South East Asia. The barriers identified by in the regional assessments are broadly consistent with the ones identified in the project document

47. *Regional SWH Market Assessment Report-Latin America*: The Latin American Energy Organization (OLADE) under SSFA with DTIE carried out the SWH Market assessments in Latin America. The assessment was based on secondary information gathered from 24 countries regarding climatic, economic, political, institutional, social and financial conditions that promote or discourage the demand of SWH; the status of the thermal solar panels market (information about the demand, supply and costs); and the main actors (NGO's, government institutions, fabricators, business associations, universities, etc.) that encourage the commercialization of solar thermal panels through research, projects or other methods. Six countries – Argentina, Columbia, Barbados, Brazil, Nicaragua and Peru – were selected for a more in-depth review, based on their institutional framework for renewable energy (policies, legislation and specific agencies), the specific regulations on SWH, and the availability and accessibility to information on SWH activities. Primary data for these countries has been collected from these countries using a questionnaire, which was e-mailed to the National Coordinators of OLADE who work in the Ministries or Secretaries of Energy of each country.

48. The report describes, for this sample of six countries, the state the SWH market (demand, supply, costs and economic and financial incentives), the political and institutional framework, gaps and barriers, and a set of priority actions for each country. Major barriers to promoting the SWH market in Latin American countries identified in the report include lack of laws which incentivize the penetration and commercialization of thermal solar panels for water heating, poor legal frameworks to regulate, control, and organize the SWH market, and weak economic and financial incentives and technology and knowledge transfer between countries in the region.

49. *Regional Market Assessment Report – Africa and the Middle East:* OME as a regional partner has been contracted by DTIE to provide an overview of the current status of the SWH industry in Africa and the Middle East. The report presents the solar energy applicability for water heating applications, achieved or installed capacities, and the supportive institutional and policy frameworks. The assessment is based on country fact sheets for most countries in the region, and on 11 country case studies encompassing the North Africa and Middle East, plus Albania (as requested by UNEP, being a project implementing country). The country factsheets were completed by public and private national experts and provide a synthetic overview of the regulatory framework for solar thermal, the established targets, main figures about industry and market, system costs and other relevant information. The in-depth country case studies are based on primary data collected through questionnaires, telephone interviews with public and private actors and field visits.

50. The studied countries are quite significant in terms of their contribution to global GDP, population and energy consumption. The potential for energy savings particularly in the residential, commercial and industry sector is huge and can be filled in part by solar thermal technologies. Most of these countries are also part of the Mediterranean Association of Energy Conservation Agencies, and have established targets for energy efficiency and renewable energy. As described in the assessment report, an industry value chain is established in most of the countries, but the development pace is quite unequal. Also the technology standards are different and not harmonized between countries. Though the Mediterranean market for SWH is growing, it is still facing challenges for large-scale development due to a lack of effective quality insurance of SWH systems, high initial investment cost of SWH (compared to the purchasing power of end-users) and absence of governmental laws or policies in favour of SWH technology along with subsidies for oil, gas and electricity. The market assessment report recommends training of government staff to restore confidence of consumers in the SWH systems and advocates a strong communication strategy to create awareness among the stakeholders to foster the SWH market.

51. *Regional SWH Market Assessment - South and Southeast Asia:* This market assessment was conducted by IIEC and is based mostly on secondary data taken from well-reputed sources. The assessment has sampled Bangladesh, Sri Lanka, Philippines, Thailand and Vietnam to assess the regional SWH market for South and South East Asia. The report provides an overview of the SWH in the study countries, describes the countries' institutional and policy frameworks for SWH (including: standards and certifications, testing facilities, promotional measures) and presents barriers to the promotion of SWH and recommendations to foster SWH markets.

#### ***B. Finalization and adoption of proposals for at least ten (10) additional countries for phase 2***

52. During the Project Management Committee (PMC) meeting of June 2011, it was agreed between UNEP and UNDP that both Implementing Agencies would develop 5 PIFs each for the phase 2 countries. DTIE has prepared a PIF for Panama for which GEF endorsement was obtained. According to the PIR (July 2011 to June 2012), three PIFs for national SWH projects in Ecuador, Nicaragua and Costa Rica can now be prepared in collaboration with the respective authorities from the participating countries by project end (December 2013). A model PIF document has already been prepared by DTIE based on the previous experience of the project design in the five countries to facilitate the preparation of new PIFs.

### *C. A network of international and regional agencies established*

53. DTIE has already established a network of global and regional partners: ICA at the global level and OME, ESTIF, OLADE and RCREEE at the regional levels (see paragraph 29). The deliverables and their current status under SSFAs with regional partners (as provided by DTIE) are as follows:

54. *Deliverable 1:* Engagement of new countries to join the second phase of the global project (OME, OLADE and RCREEE). *Status:* Upcoming with RCREEE (estimated to start in October 2013).

55. *Deliverable 2:* Application of a unified methodology for SWH market assessment based on the “Solar Water Heating Tech Scope Report and Toolkit” to help both policy makers and investors in assessing the SWH market within the regional member countries. The SWH Tech Scope Index provided in the toolkit is expected to provide stakeholders with a report that benchmarks and evaluates a country’s SWH policy environment, investment, business and value chain, and quality control and supporting institutions. The report will also review best practices to address the unique barriers to SWH market development in different project countries, as it will provide profiles of five project countries (Albania, Chile, Mexico, India, and Lebanon) and evaluate their experiences and best practices in establishing and growing a sustainable SWH market. *Status:* Report and toolkit are now under development and estimated completion by December 2013.

56. *Deliverable 3:* Supporting the launch of a new regional certification model for developing countries. The activities to be carried out with assistance from RCREEE include:

- Preparing promotional material for the regional solar thermal certification scheme. *Status:* Under progress: drafts exist and will be finalized by October 15, 2013.
- Carry out an analysis of the existing normative framework in each country and introduce a comprehensive certification scheme. *Status:* Under progress (will be completed by end of November 2013).
- Develop and design a preliminary assessment of the steps on procedures to obtain a SHAMCI-like certificate. *Status:* under progress (will be completed by 15th October 2013).
- Organize a workshop to different parties and stakeholders involved in the regional certification scheme. *Status:* Upcoming (estimated to start in 1<sup>st</sup> week of December 2013).
- Develop a handbook on how to develop a regional certification scheme for developing countries. *Status:* Ongoing (will be completed by end of November 2013).
- Prepare the Project Identification Form (PIF) for “Demonstration of Solar Thermal Systems Certification Scheme in the Arab Region”. *Status:* Under progress (will be completed by 15<sup>th</sup> October 2013).
- Prepare full project document “Demonstration of Solar Thermal Systems Certification Scheme in the Arab Region”. *Status:* Upcoming (estimated to start in November 2013).

57. *Deliverable 4:* Develop the Architects and Builders Guidelines (Handbook) on Solar Water Heating Systems. *Status:* Upcoming with ESTIF (estimated to start in October 2013 and finish by December 2013).

58. *Deliverable 5:* Conduct three business to business (B2B) meetings in three different regions in partnership with the regional partners. *Status:* Upcoming with OME- OLADE- RECREEE (estimated to start in December 2013 and finish in December 2014).

59. DTIE has confirmed that the project PIR for 2013 can be made available after receiving the UNDP PIR reports from the project countries, by end of September 2013. The MTE closes on

September 15, 2013 and thus records its observations on the above mentioned deliverables and their status update, based on information provided by DTIE. DTIE estimates the completion of above deliverables by end of 2014. The present completion date of the GSWH project is December 2013.

60. In addition to the on-going and upcoming deliverables from SSFAs with Regional Partners elaborated 53above, DTIE has also provided details of remaining activities of GSWH project Component 1 and 'value adding new activities', the completion of which has been estimated to extend beyond project completion in December 2013.

61. As per DTIE, following 'value adding new activities' have been recommended by stakeholders in regional workshops: a) Harmonizing the quality testing standards and certification methodologies for manufacture & installation of SWH components at national & regional levels; and b) To develop a regional solar water heating market assessment for potential countries in Africa.

#### ***D. A virtual SWH information clearing house and training facility established***

62. According to the Prodoc, the *Knowledge Management Repository (KMR)* is to be developed by using state of the art software and online technology, as well as by incorporating the best practices and lessons learnt to effectively manage such a system, thereby keeping it updated, well organized and relevant for the targeted end users. This KMR is to be a "real-time", web-based application, through which information is available on-line 24 hours a day, 7 days a week to audiences with an Internet connection.

63. The GSWH Project in collaboration with Global Solar Thermal Energy Council (GSTEC), a collaborative platform between industry, research institutions and NGOs, are contributing information and oversight to a KM website <http://solarthermalworld.org/>.

64. The website had 39,164 visitors from April 4, 2013 to August 2, 2013 (more than 250 visitors per day on average). The website provides the latest information on news and events with respect to seminars, conferences and webinars; and serves as good information clearing house and information portal on SWH. The website also includes a section on training and education that provides information on various training and capacity building activities that have taken place on SWH and where to find the information<sup>1</sup>. Furthermore, according to DTIE, the SWH Tech Scope Report and Toolkit (see paragraph 55) that will soon be finalized and made available online, can be considered an "educational tool" as it explains how to evaluate the SWH market in a particular country. This will be the only publicly available methodology that provides a high-level evaluation of a country's market development opportunities for SWH.

65. The website, however, falls short on performing the role of a virtual training facility. While it provides information on various software and tools (along with sources where details on the software and tools can be found<sup>2</sup>), for the website to play the role of a training facility, it needs to be upgraded to include SWH technical, economic and environmental assessment tools and calculation software, which can allow the visitor to undertake comparative cost and benefit analysis on various SWH technology and product options. Further, inclusion of supply side training and educational tools on the website itself would assist the SWH suppliers (equipment and technology) and trainers with a 'one stop facility' to transform SWH markets.

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<sup>1</sup> See: <http://solarthermalworld.org/taxonomy/term/74831%2C74831?module=browse>)

<sup>2</sup> See: <http://solarthermalworld.org/search/node/software> and <http://solarthermalworld.org/search/node/tool>

***E. Other internationally or regionally applicable public awareness raising, training and knowledge management materials published (which can be used as such or as raw materials for national public awareness raising and training activities and products).***

66. The following three guidelines and practical handbooks (also available on the GSWH website <http://solarthermalworld.org/>) were developed by regional partner ESTIF, under DTIE's supervision:

- *“Guide for Policy and Framework Conditions”*: The guide is essentially meant for a ‘beginner’ and does not take for granted the basic knowledge related to solar thermal, policy and standardization. The guide begins with a reminder of the benefits of the solar water heating and an overview of different systems and applications. Then it proposes an assessment of the barriers of market development and of the potential of solar thermal. Finally it provides a review of the different types of policies and frameworks.
- *“Guide for Awareness Raising Campaigns”*: The Guide outlines the principle characteristics of main solar thermal applications to the extent of their relevance for communication and marketing. It provides basics of awareness raising campaigns for solar thermal systems to strengthen the market. It provides guidance on who can be involved in awareness raising campaigns, example of deliverables for a communication plan and designing of an awareness campaign. It also provides campaign examples and templates for execution of the awareness raising campaigns.
- *“Guide for Standardization and Quality Assurance for Solar Thermal”*. The guide begins with an emphasis on the need for quality assurance, safety, durability and performance of a solar thermal system. It covers aspects from standardization to testing and certification of SWH systems in terms of the quality of systems and their installation. It provides details of the existing standards and certification for solar thermal worldwide. It also provides a section on how to set up and establish a testing facility and how a certification scheme can be introduced.

67. The above guides are comprehensive, practical guides and handbooks that can help in stimulating sustainable solar water heater market development in different countries worldwide.

***F. A regional review and analysis of the existing national and regional SWH standards and draft design and a strategy for adopting more harmonized international product standards and schemes***

68. This output is actually very similar to deliverable 3 under output C (see paragraph 56) which is well underway. In addition, the *“Guide for Standardization and Quality Assurance for Solar Thermal”*, a deliverable under Output E (see paragraph 66 last bullet), also contributes to this output by providing details of the existing national and regional standards and certification for solar thermal worldwide, and broad guidelines on how to introduce a certification scheme. The output is therefore considered “taken care of” by DTIE.

***G. Regional and international thematic SWH workshops***

69. Under the GSWH project following workshops were conducted

- ***Workshop 1***: The *global inception workshop* of the GSWH project (Tunisia, 25-26 February 2010). This was the first opportunity to bring all the project partners together to discuss project implementation arrangements at the regional and national level. The first PMC was held along with the workshop.

- **Workshop 2:** OLADE and DTIE together organized the workshop in Chile (22-23 June, 2011). The workshop carried out the following activities: Informed participants about a) the GSWH project's goals and objectives and b) the status of the GSWH project implementation in Mexico and Chile. The second PMC was held along with the workshop.
- **Workshop 3:** The regional workshop for GSWH project in North Africa and the Mediterranean was conducted in Beirut, Lebanon (18-19 April 2012). The workshop carried out the following activities: a) provided information about the GSWH project's goals and objectives and b) provided information about the status of implementation in Lebanon.
- **Workshop 4:** The regional workshop for GSWH in Balkan countries took place on 20-21 March 2013 at Tirana, Albania. More than 40 experts from twelve different countries around the Mediterranean participated in the workshop. The workshop gathered both public and private sector stakeholders; ministries, public agencies and private companies. The goal of the event was to create a platform for knowledge sharing and collaboration to transform and scale up the solar thermal heating market for both public and private sectors. The first day was dedicated to the workshop while the second day had two parallel sessions (B2B meetings and policy makers Working Group discussions).

70. After the inception workshop at Tunis, DTIE has been conducting one workshop in a new region every year. The first two meetings (Tunis and Chile) have been organized together with PMC meetings. According to evaluations carried out at the end of the workshops and the feedback received from the participants of various workshops by MTE, the participants have found the workshops to be useful and successfully meeting their objectives. However, according to stakeholders' feedback, follow-up meetings after the workshops on the progress of the project and business to business meetings (B2B) with manufacturers and installers have not happened, as was agreed during the workshops.

#### ***H. A regularly updated, quality controlled roster and team of international SWH experts to support national level activities***

71. A regularly updated, quality controlled roster and team of international SWH experts to support national level activities is essential for 'stakeholders' to know where to look for the technical and consultancy support on SWH systems. However, such an openly accessible roster of international SWH experts to support national level activities was not created. According to DTIE, there is a difference of opinion among GSWH project partners on the inclusion criteria for the SWH experts. It was found too difficult to agree on criteria for inclusion of SWH experts in a quality controlled roster, and that it would be easier to maintain internal rosters of experts with each of the regional partners.

##### ***I. Regular newsletters and market monitoring reports***

72. Regular newsletters and market reports are being published on the KM website <http://solarthermalworld.org/>. A review of newsletters published and market reports available on the website and feedback received from various SWH professionals indicate that this output is delivered in a satisfactory manner.

#### ***J. Results, experiences and lessons learnt of the overall program compiled, analysed and disseminated***

73. This output has not been initiated yet despite that the project is close to its (revised) completion date of December 2013. As per DTIE, the Solar Water Heating Tech Scope report will provide the lessons learnt and best practices and it is planned to be finished by December 2013. The



five project countries will be presented in the report with their results to date, experience and lessons learnt.

***K. UNEP contribution to Component 2: Increased demand for SWH systems by the availability of attractive end-user financing mechanisms or other delivery models***

74. The contribution of DTIE towards this output appears of little significance. In March 2010 the PMC decided that technical assistance by UNEP to UNDP and participating countries on financial mechanisms was only to be provided upon receipt of an official written request from the national project teams through the UNDP-GEF Global Task Manager to UNEP. Technical assistance to design a finance mechanism was only requested by Chile and Mexico.

75. UNEP DTIE consultants conducted workshops in both countries on financial mechanisms but it is not clear what results came out of these workshops. The countries' national programs have not yet decided what to do with the recommendations resulting from the workshops and technical assistance. The MTE did not come across evidence of any significant UNEP contribution towards the creation of a replicable and attractive financing mechanism for end users, in addition to the financing mechanisms in the participating countries that already existed before the project or that were more recently created independently from the project.

***L. Overall assessment of achievement of outputs***

76. Based on the MTE assessments of the individual outputs A) to K) above and based on the feedback received from various stakeholders, it can be concluded that good progress has been made on a number of outputs, such as the regional SWH market assessments, the establishment of global and regional networks, a website for knowledge management on SWH, and a number of high quality guides and handbooks, the project has made relatively slow progress or delivered incomplete results on others. For instance, a conclusive SWH market assessment at the global level, which can serve as a guide and reference for various international stakeholders including multilateral, bilateral and funding agencies (public and private) to support SWH market transformation, is still not available; the progress on finalization of the project proposals in at least 10 additional countries is slow; the website lacks a 'virtual training facility'; the compilation of the lessons learnt from the project is delayed; and the contribution of UNEP to component 2 has been less than optimal. Hence, the overall achievement of outputs is rated as *Moderately Satisfactory (MS)*.

### **3. Effectiveness: Attainment of project objectives and results**

77. As explained above (paragraph 9) this MTE is focused on one component of the project only, while both project components play an essential and mutually reinforcing role in achieving the expected outcomes and impacts of the project. Indeed, on one hand, Component 1 is expected to provide, among other things, access to up-to-date market and technical information, trainings and a roster of experts to support the national programs under Component 2, and, on the other, the pilot national programs are needed to generate good practices and lessons learned that can feed into the global Component 1, which is expected to reach beyond the 5 pilot countries of the project. Therefore, there are clear limitations in how this partial evaluation can assess project effectiveness, likelihood of impact and sustainability. A more in-depth understanding of overall project performance, including of the other component, would be needed.

***A. Direct (immediate) outcomes***

78. **Access of national experts to information, technical backstopping, training, international experiences and lessons learned improved.** Component 1 of the project developed knowledge products, in particular the three handbooks under output E which aim to stimulate SWH

development in different countries worldwide by providing examples and best practices. The handbooks are all available on the <http://solarthermalworld.org/> website and, according to UNEP, they received positive feedback from stakeholders when introduced during the regional workshops. The website also presents SWH initiatives being undertaken in various countries. Sharing of international experiences happened during the relatively few regional workshop conducted by the project (where international experts were invited as speakers) and through webinars organized by the project. However, according to the feedback received from national experts, more could be done in terms of sharing of international experiences and lessons learnt from the GSWH. Access to technical backstopping and training, in particular, could still significantly be improved.

79. **Policy and regulations: an enabling institutional, legal and regulatory framework in place.** Each country program – supported by UNDP – has a national policy component to develop an enabling institutional, legal and regulatory framework. The UNEP/DTIE component of the project did not receive specific requests from the project countries to assist with their national policy. It is, therefore, unlikely that Component 1 has influenced policy and regulations in the pilot countries.

80. **Finance: Attractive end user financing mechanisms in place.** Chile and Mexico requested technical assistance from UNEP/DTIE with the design of their finance mechanisms. The MTE did not come across evidence of any significant contribution of Component 1 towards the creation of a replicable and attractive financing mechanism for end users in either country, or anywhere else.

81. **Business skills: Awareness and capacity of end users and building sector professionals to integrate SWH systems enhanced.** Based on the information provided on the GSWH website, the number of visitors of the website, and responses received from stakeholders, it is likely that the project is contributing satisfactorily to awareness and capacity building of end users on SWH systems. Further, DTIE has already initiated the development of a handbook for architects and building professionals to integrate SWH systems in the building sector which should also contribute to this direct outcome.

82. **Knowledge Management (Information and Technology): support institutionalized and results, experiences and lessons learned documented and disseminated.** Newsletters and reports on the KM website <http://solarthermalworld.org/> contribute to this outcome (see Output I paragraph 72). However, the results, experiences and lessons learnt of the overall program have not yet been compiled, analysed and disseminated, despite the fact that this is a critical contribution of Component 1 to higher-level results.

83. Based on the above, the effectiveness of Component 1 of the project is assessed as Moderately Satisfactory (MS).

### ***B. Likelihood of impact***

84. According to the reconstructed TOC (see Figure 1 and paragraphs 30- 40), the GSWH project was expected to contribute to the intermediate state of reduced use of electricity and fuels, leading to the impacts of reduced GHG emissions and reduced local pollution.

85. The achievement of impacts by the GSWH project is contingent to achievement of both component 1 and 2 outcomes. Therefore, an assessment of both components 1 and 2 will have to be done, so as to evaluate the likelihood of achievement of impacts for GSWH project. This can definitively be assessed only at the completion of the both Components 1 and 2.

86. However, at the MTE stage, the likelihood of impact can be assessed by looking at the presence of drivers and assumptions (paragraphs 38-40), which are external factors influencing change from outputs to outcomes to impact, that are not part of the project's main intervention logic.

87. While most drivers are in place, some key drivers that can facilitate the conversion of outputs to outcomes and to impacts for transformation of SWH market are still weak, such as the application of stronger regional standards through certification schemes, and cooperation with regional external agencies and private sector.

88. In addition, in all the phase 1 participating countries, although the GSWH projects are in line with the national needs and priorities, and the political will to accelerate and transform the SWH market exists along with an adequate policy framework, the project has only succeeded to an extent in leveraging additional financing to promote SWH markets and in the creation of 'Local Champions' to promote SWH markets.

89. Hence, based on the above, the MTE concludes that the likelihood of GSWH project achieving its expected impact is Moderately Likely (ML).

### *C. Achievement of project goal and planned objectives*

90. The overall goal of the GSWH project was a direct reduction in GHG emissions resulting from the installation of an additional 3 million m<sup>2</sup> in the six countries participating in phase 1, estimated at 14.9 million tons of CO<sub>2</sub>(eq) over 15 years. The cumulative impact (including both direct and post-project impact) is estimated at over 80 million tons of CO<sub>2</sub>(eq) by the end of 2020. The objectives of the GSWH project corresponded to the objective of the GEF Operational Program #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs" and the GEF-3 Strategic Priority #1, "Transformation of markets for high-volume, commercial, low GHG products or processes".

91. The achievement of project goals and objectives is contingent to achievement of both Components 1 and 2, and it is impossible to isolate GHG emission reductions that can be attributed to only one of the two components. Both components need to be evaluated together.

92. But even for the project as a whole, it is very difficult to estimate its contribution to GHG emission reductions because of the absence of reliable baseline information and the presence of other initiatives on renewable energy in most participating countries. For example, while UNDP in India claims that the recently concluded GSWH national program has met its GHG emissions reduction targets, pre-project baselines on GHG emissions had to be "reconstructed" when the sub-project was already well underway, following a recommendation of the country program's Mid-term Review. There was also, in all likelihood, a major contribution to achieving GHG emission reductions in India from the financial incentives provided under the Jawaharlal Nehru National Solar Mission, an already on-going national program of the Government of India (not related to the GSWH project).

93. Further, the GSWH project document does not include an explicit "GEF Increment Analysis" for both components 1 and 2, and in its absence, it is difficult to factually assess the actual contribution of the GSWH project in terms of achieving its overall goal and planned objectives at this stage.

94. However, without attempting to attribute GHG emissions reductions to one component or even to the GSWH project alone, UNDP Mid-term Reviews in the participating countries seem to indicate moderate progress towards achieving the project goal. The UNDP reviews do estimate numbers or areas of additional SWH installations installed at the time of review, but it is very hard to prove a direct link between these additional installations and the contributions of the two project components. The achievement of project goal and planned objectives is therefore rated moderately satisfactory (MS).

95. Overall, based on the assessment of achievement of immediate outcomes, and the (early and partial) evaluation of the likelihood of impact and achievement of the project goal above, attainment of project objectives and results is rated as Moderately Satisfactory (MS).

## 4. Sustainability and replication

96. In the MTE context, sustainability is understood as the probability of continued long-term project-derived results and impacts, after the external project funding and assistance has ended. The MTE has also assessed to what extent an exit strategy for the GSWH project has been prepared and how project results will be sustained and enhanced over time. The sustainability of the GSWH project has been assessed on four dimensions:

97. **Financial resources.** The GEF is likely to fund a second phase of the GSWH initiative to scale up the approach piloted in phase 1 through separate regional and country-level projects. PIF development for these projects is underway. ICA has committed to maintain the KM website beyond project funding. However, for other outputs, based on the available information, the MTE could not identify the funding mechanisms or financial sources to sustain them beyond GEF funding. The GSWH project has so far not leveraged any significant financing for further development of SWH markets. Financial sustainability of the GSWH project is rated as Moderately Likely (ML).

98. **Socio-political sustainability.** SWH technology is a proven technology the benefits of which are well understood. Based on the responses received from various stakeholders, it is inferred that the KM strategy under Component 1 has created greater awareness and built the capacity of various stakeholders to facilitate the transformation of the SWH market. Political will and support are also present in most countries. Considering this, socio-political sustainability of the GSWH project is rated as Highly Likely (HL).

99. **Institutional framework.** Based on the feedback received from the participating countries, the institutional framework is robust in participating countries and is rated Highly Likely (HL) on institutional sustainability.

100. **Environmental sustainability.** There are no significant environmental degradation issues related to component 1 of the GSWH project. Environmental sustainability of the GSWH project is rated Highly Likely (HL).

101. **Catalytic role and replication.** As discussed under paragraphs 66-67, the project developed (and is developing) knowledge products (handbooks, the SWH Tech Scope Report) that should help with replication of best practices from the project. However, regular sharing of international experiences and lessons learnt between experts remains limited, as is access to technical backstopping and training. The MTE did not come across a formalized replication strategy that could clearly detail the lessons learnt from the Phase 1 countries and elaborate the activities that could scale up and replicate the success stories in phase 2 countries. However, the model PIF prepared by DTIE should assist potential Phase 2 countries in submitting a concept for a national program. Hence catalytic role and replication for Component 1 of GSWH project are assessed as Moderately Satisfactory (MS).

## 5. Efficiency

102. There were significant delays between the GSWH project getting placed in the UNEP Work program and final approval by GEF which took more than three years and required two resubmissions. The project also needed to be extended from originally planned duration of 48 months to 56 months, and needs further extension of another year to complete all outputs – so the project will take 50% longer to complete than originally anticipated. No information is available about the reason for the delays during the design stage but, according to DTIE, the project extension was mainly due to execution delays on account of the late signature of cooperation agreements between UNDP and the participating countries after GEF and UNEP had already approved the project.

103. On the utilization of funds, and in the absence of the availability of comparative information from other similar projects, the MTE has not been able to compare the cost-to-results ratio for individual outputs for component 1 of the GSWH project. DTIE could also not report any explicit cost-saving measures taken by the project to increase its cost-efficiency. However, according to the Fund Management Officer and DTIE, cost-efficiency of the GSWH Component 1 is comparable to other UNEP projects managed by DTIE.

104. Project efficiency is rated as Moderately Satisfactory (MS).

## **6. Factors affecting performance**

### *A. Preparation and readiness - Design of Component 1 of the GSWH project*

105. In line with the ToR of the MTE, the GSWH project design and institutional arrangements have been reviewed at the inception phase of the evaluation. The analysis and individual parametric ratings on design of the project are provided in the Annex 7. Here below only a summary of design strengths and weaknesses is provided.

106. **Design strengths.** The GSWH Project has been developed in close co-ordination with the relevant national agencies in the targeted countries. The project is in line with the objectives of the GEF's Operational Program #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs" with the closest fit to the GEF-3 Strategic Priority #1, "Transformation of markets for high-volume, commercial, low GHG products or processes". Stakeholders have been mapped, their priorities and needs have been analysed and their involvement in the project well pondered using appropriate mechanisms and channels.

107. The project objectives are realistic and though the explicit development of a "Theory of Change" of the project was not required during formulation, the Results Framework / Logical Framework of the project presents the intervention logic quite clearly.

108. The GSWH project identifies the need for stable financial mechanisms and an exit strategy for GEF supported initiatives, and elucidates the factors that would impact the sustainability of the project with reference to various stakeholders in order to transform the SWH market.

109. The project design also identifies technical assistance activities that are intended to lay the necessary foundation of a supportive legal and regulatory framework, institutional structures and national capacities to initiate, develop and manage sustainable promotion of the SWH market at the national levels.

110. **Design weaknesses.** The assignment of two UN agencies to the project was expected to make the best of both agencies' comparative advantages. UNEP, as a global normative organization, was expected to be ideal to manage a global and regional knowledge management component, while UNDP's strength lays in its capacity to run country level interventions. However, this arrangement – and especially the fact that UNEP and UNDP are both implementing and executing their own components – has created a disconnect between the two components, leading to sub-optimal use of the intended synergies. Another weakness of the GSWH project design is its 'Monitoring and Evaluation' plan as discussed under section G below.

111. Based on above, the overall rating of the GSWH project component 1 on preparedness and readiness is Satisfactory (S).

### *B. Implementation Approach and Adaptive Management*

112. At the project execution level, the project is overseen by a Project Management Committee (PMC) which includes the International Copper Association, UNDP and UNEP. An area of concern is

that, so far, only two PMC meetings have taken place – in March 2010 and June 2011. PMC members have stressed to the MTE that there is a need for better coordination amongst UNEP, UNDP and other relevant stakeholders. Moreover, there is a need for a more clear-cut division of roles and responsibilities between UNDP and UNEP for activities in the remaining time of phase 1 and for the future phase 2.

113. UNEP is providing dedicated technically qualified and experienced staff and adequate resources to ensure timely and effective execution of the project. The technical competence required at the regional and country level is hired through SSFAs being signed with the regional partners.

114. According to DTIE, based on feedback received at the project Inception Workshop, it was decided to undertake regional SWH market assessments instead of one single global assessment, which allowed to highlight regional similarities in the barriers to SWH market transformation. SSFAs with regional partners were signed. Moreover, in order to maintain an effective overall coordination among project partners an extranet website has been established. Both of the decisions above show good adaptive management in Component 1 of the GSWH project. However, a significant design weakness i.e. the absence of SMART indicators to measure and monitor project results, was not taken care of during implementation.

115. Considering above the implementation approach and adaptive management for Component 1 of the GSWH project is rated as Moderately Satisfactory (MS).

### *C. Stakeholder Participation and Public Awareness*

116. The key stakeholders of the GSWH project include: global and local SWH manufacturers, dealers and installers, banks and financial institutions, ESCO companies, maintenance service providers and policy makers. Though project partners and implementing agencies have been interacting through (two) PMC's, internal communications and extranet, the other key stakeholders have been interacting with project implementers only during a few workshops and some feedback on the GSWH project website. The MTE has not come across any formal mechanism through which key stakeholders could have provided regular feedback on project implementation or any suggestions to improve it.

117. The awareness on the project has mainly been built through workshops and seminars conducted by the implementing agencies and/or partners and through the information provided on the GSWH website. The GSWH project per se, its status or the lessons learnt have not been uploaded on the <http://solarthermalworld.org/> website, though the website carries regular updates on SWH events (seminars and workshops, webinars) around the world.

118. Considering the above, stakeholder involvement in Component 1 is rated as Moderately Satisfactory (MS).

### *D. Country Ownership and Drivenness*

119. Component 1 of the GSWH project is a global component and not driven by the participating countries as is the case for Component 2. However, responses received from country stakeholders indicate that Component 1 has contributed to the creation of awareness on the SWH systems in the phase 1 participating countries, hereby potentially contributing to country ownership.

120. Country Ownership and Drivenness, component 1 of GSWH project is rated as Satisfactory (S).

### *E. Financial Planning and Management*

121. The MTE review of budget and variance data provided by DTIE and vetted by the FMO (see **Annex 5**), and the planned and actual expenditure on the project reveals that until May 2013, only 43 percent (US\$ 1,613,361) of the GEF grant for Component 1 of the project have been utilized. While,

according to the FMO, this expenditure rate is not exceptional, it is actually found very low by the MTE considering that the project has passed its initial completion date.

122. With regards to Co-financing, a review of the envisaged co-financing in the Prodoc, the current co-financing status provided by DTIE (**see Annex 5**) and the current status of co-financing received from global partner ICA, reveals that about 63.4 % of the ‘in cash’ co-financing has been received so far. The MTE has not been able to verify independently the components of ICA ‘in cash’ co-financing, the co-financing of 400,000 USD from other partners and their corresponding disbursements.

123. The financial management of Component 1 of the GSWH project is being overseen by a UNEP FMO in Nairobi. According to the FMO, all UNEP and GEF procedures and standards on maintaining accounts are being followed. No audits are required as it is an internally executed project and financial reports are not available to the MTE to verify this assertion.

124. Considering the above, the Component 1 of the GSWH project is assessed as Satisfactory (S) on Financial Planning and Management.

***F. UNEP Supervision and Backstopping***

125. The intuitional framework provided to supervise, monitor and report on the project outputs appears somewhat confusing. This MTE has shown how both project Components are mutually dependent to achieve the projects outcomes and impact. However, the global and national components are both managed and supervised completely separately by UNEP and UNDP, respectively. The PMC which was supposed to reinforce coordination between components seems not to be functioning as intended.

126. There seems to be some over-generous reporting in the PIRs. For the overall project, the PIRs have never identified any significant risks on achievement of outputs or implementation and rated progress as Satisfactory (S). However, an extension of the project from 48 to 56 months was sought, and another one year extension is very likely, which seems somewhat contradictory with overall satisfactory progress. For certain outputs, progress has been overstated. E.g. while the PIR for July 2011-June 2012 records achievement as 50% and rates as Moderately Satisfactory the output of a regularly updated, “quality controlled” roster and team of international SWH experts to support national level activities, the MTE has found no evidence of its existence.

127. Financial, administrative and other fiduciary aspects of project implementation supervision seem adequately managed through UNEP staff based in DTIE (Paris) and UNEP headquarters (Nairobi).

128. Considering the above, the project is rated as Moderately Satisfactory (MS) on Supervision and Backstopping.

***G. Monitoring and Evaluation (M&E)***

129. **M&E design.** A key weakness of the GSWH project design is its M&E system presented in the Project Document. The project Logical framework does not include ‘SMART’ indicators for monitoring of outputs and outcomes. Only qualitative assumptions are provided without quantifications with respect to baselines, targets and result outputs. The means of verification indicated in the Logical framework are the monitoring and evaluation reports themselves. One might wonder how this will work in practice. A few examples to illustrate the point are shown in Table 3 below (MTE comments inserted in ***bold italic***).

**Table 3. Examples of weaknesses in the M&E framework**

Project Strategy	Indicator	Baseline	Target
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<p><b>Outcome 1:</b> Effective initiation and co-ordination of the country specific support needs <b>(By whom? This part of the outcome statement is not an outcome but an output)</b> and improved access of national experts to state of the art information, technical backstopping, training and international experiences and lessons learnt.</p>	<p>The number of countries with SWH market transformation and strengthening activities initiated. <b>(This is an output indicator)</b> Availability <b>(to whom?)</b> of timely and cost-effective technical backstopping <b>(by whom?)</b> responding to the needs. <b>(This is an output statement, not an indicator.)</b></p>	<p>No proactive and coordinated effort to support the targeted GEF program countries to accelerate and promote the SWH market.</p>	<p>SWH market transformation and strengthening activities supported initially in 6 countries during phase I and expanded later to at least 16 GEF program countries in phase 2. <b>(This is an output target).</b> The technical backstopping needs of the countries met at the adequate level and in a timely manner leading to effective implementation of country specific SWH market transformation strengthening activities <b>(Another output target).</b></p>
<p><b>Output 1.1</b> Global SWH market assessment and analysis with the specific focus on GEF program countries</p>	<p>Status of the global SWH market assessment and analysis. <b>(What does “status” mean here? Progress on conducting the assessment? This indicator provides no measure for the quality and usefulness of the assessment and its process.)</b></p>	<p>No global SWH market assessment and analysis on GEF program countries</p>	<p>Global SWH market assessment and analysis with the specific focus on GEF program countries finalized.</p>
<p><b>Output 1.8</b> Regional and international thematic or general SWH workshops</p>	<p>The number of workshops organized and the number of countries and stakeholders participating to the workshop. <b>(This indicator provides no measure for the quality and usefulness of the workshops, the nature of the participants etc.)</b></p>	<p>No systematic effort to facilitate effective networking and information exchange on the SWH issues with the specific focus on the markets of GEF program countries.</p>	<p>At least 2 international and 2 regional workshops organized during the lifetime of the project in co-operation with the relevant international, regional or national interest groups.</p>

130. M&E design is rated as Moderately Satisfactory (MS).

131. **M&E Plan Implementation:** There is little information available on the implementation of monitoring by the project other than the PIR reports discussed under paragraph 126 above. Considering also the weaknesses in the design of the monitoring system, that have not been rectified during implementation, M & E plan implementation is expected to be no better than Moderately Satisfactory (MS).

132. **Budgeting and funding for M&E activities:** the MTE does not have comparative assessment available from other similar project to assess the adequacy of M&E budget, considering that the funds utilization is only 43 % on the component 1 of the GSWH project (if required, funds can be made available from other activities) and also considering confirmation from FMO UNEP that there



is enough budgetary provision in component 1 of GSWH project for M&E activities, the Budgeting and funding for M & E activities is rated as Satisfactory (S).

133. Considering the above, M & E of the Component 1 of the GSWH project is rated overall as Moderately Satisfactory (MS).

#### *H. Complementarities with UNEP strategies*

134. Project objectives and outputs, in particular for Component 1, are well aligned with the UNEP mandate and policies which include “climate change” as a main thematic area. Climate change is one of the six cross-cutting thematic priorities in UNEP’s Medium Term Strategy (MTS) 2010-2013, under which UNEP helps countries make sound, informed energy supply choices with a focus on renewable energy options.

135. Both of project components 1 and 2 recognize gender equality as a cross-cutting priority and the project promotes women’s participation in workshops organized as well as in surveys carried out under the project (as part of SWH market assessments).

136. The project is also consistent with the Bali Strategic Plan and Component 1 promotes South-South Cooperation, as it allows at least five developing countries to pursue their individual and/or shared national capacity development objectives through exchanges of knowledge, skills, resources and technical know-how, and through regional and interregional collective actions, including partnerships involving governments, regional organizations, civil society, academia and the private sector, for their individual and/or mutual benefit within and across regions.

## V. Conclusions and Recommendations

### 1. Conclusions

137. The MTE of the GSWH project Component 1 has found the following key strengths and weaknesses.

138. **Strengths.** The component is consistent in design and implementation with the UNEP mandate and policies, GEF objectives and global and national priorities on reduction of GHG emissions and advancement of renewable energy technologies such as SWH. The design of component 1 was also found broadly adequate.

139. The component succeeded in producing a number of useful outputs as planned (both in quantity and quality) such as SWH market assessment studies in various countries in Latin America, the Southern and Eastern Mediterranean region and the Southern and South Eastern Asia region which confirmed and analysed more in-depth the key barriers to SWH market transformation that had been identified during project design. The component established a network of the global and regional partner institutions with specific tasks and agreed responsibilities. To ensure that the knowledge products generated under the project are effectively disseminated, the component created a knowledge platform for industry, research institutions and NGOs at website <http://solarthermalworld.org/>. The component also developed three comprehensive, practical handbooks that can help in stimulating SWH market development in other countries worldwide.

140. It was quite hard to assess project effectiveness based on the assessment of the UNEP component alone. The Mid-term Reviews conducted by UNDP at the country level do not provide reliable information on progress in the achievement of the overall project outcomes. Component 1 appears to be contributing significantly to awareness and capacity building of end users on SWH systems, as can be inferred from the information provided on the GSWH website, the number of visitors of the website, and stakeholder opinions collected by the MTE. The forthcoming handbook for architects and building professionals to integrate SWH systems in the building sector will also contribute to building sector professionals to integrate SWH systems. The results, experiences and lessons learnt of the overall program have not yet been compiled, analysed and disseminated, and should be a critical contribution of Component 1 to higher-level results in the last year of the project.

141. The achievement of impact by the GSWH project is contingent to achievement of both component 1 and 2 outcomes. Therefore, an assessment of both components 1 and 2 will have to be done, so as to evaluate the likelihood of achievement of impacts for GSWH project. However, at this MTE stage and only based on the assessment of Component 1 outputs and feedback received from the participating countries, a rough estimate of the likelihood of impact was made by looking at the presence of drivers and assumptions. Most drivers were found to be in place and in all participating countries there is good policy support and a strong political will to accelerate and transform the SWH market.

142. In terms of sustainability, the GEF is likely to fund a second phase of the GSWH initiative to scale up the approach piloted in phase 1 through separate regional and country-level projects. PIF development for these projects is underway. The International Copper Association has committed to maintain the KM website beyond project funding. Component 1 of the project has also created greater awareness and built the capacity of various stakeholders to facilitate the transformation of the SWH market.

143. The (partial) success of the component up to now is largely due to the dedicated, technically qualified and experienced staff and adequate resources provided by UNEP and, in particular, its regional partners, allowing for technically sound execution of the project.

144. **Weaknesses.** Component 1 of the GSWH project has made much slower progress or delivered incomplete results on several outputs. For instance, a conclusive SWH market assessment at the global level, which can serve as a guide and reference for various international stakeholders to support SWH market transformation is still unavailable; progress on finalization of project proposals (PIFs) in additional countries is slow; the KM website lacks a 'virtual training facility'; the compilation of the lessons learnt from the project is delayed; and the contribution of UNEP to Component 2 has been less than optimal.

145. As regards component effectiveness, there is still much room for improving sharing of international experiences and lessons learnt from the GSWH project as well as enhancing access to technical backstopping and training. There is no evidence that Component 1 has influenced policy and regulations in participating countries, as UNEP did not receive any specific requests for support in this area. Chile and Mexico requested technical assistance from UNEP/DTIE with the design of their finance mechanisms, but the MTE could not ascertain any significant contribution of the component towards the creation of a replicable and attractive financing mechanism for end users in either country, or anywhere else.

146. Some key drivers required for a sustainable transformation of SWH markets are still weak, such as the application of regional standards and cooperation with regional external agencies and private sector. In addition, the project has only succeeded to an extent in leveraging additional financing to promote SWH markets and in the creation of "local champions" to promote SWH markets. Assessing project impact in terms of reduced GHG emission reductions that can be attributed to the project (let alone one of its components) is practically impossible, *inter alia* because there is no reliable baseline information available on GHG emissions in the supported countries and because effects of other on-going renewable energy interventions in those countries cannot be isolated from impacts of this project.

147. The MTE did not come across a formalized replication strategy that could clearly detail the lessons learnt from the participating countries and elaborate the activities that could scale up and replicate the success stories to other countries.

148. Coordination amongst UNEP, UNDP and relevant stakeholders was found lacking and the division of roles and responsibilities between UNDP and UNEP is not always clear. Interaction between the relevant stakeholders in broader terms has also been quite limited, confined to a few workshops and some feedback on the GSWH website in the absence of a more effective communication mechanism. There are also some gaps in the PIRs with regards to reporting progress on the project as described under UNEP Supervision and Backstopping.

149. The overall rating for Component 1 of the GSWH project is Moderately Satisfactory (MS). A summary of ratings per MTE criterion is provided in Table 4 below.

**Table 4. Evaluation Office Ratings Summary Table<sup>3</sup>**

<b>Criterion</b>	<b>Summary Assessment</b>	<b>Rating</b>
<b>1. Strategic relevance</b>	The project is consistent with global and national priorities, the UNEP mandate and policies and the relevant GEF focal area	<b>HS</b>
<b>2. Achievement of outputs</b>	Some high quality outputs were delivered but many outputs will require another extension of the project to be completed.	<b>MS</b>
<b>3. Attainment of project objectives and results</b>	This rating is based on the assessment of achievement of immediate outcomes (effectiveness), and the (early and partial) evaluation of the likelihood of impact and achievement of the project goal.	<b>MS</b>
<b>A. Effectiveness: Achievement of direct outcomes</b>	Component 1 has mostly contributed to raising awareness and capacity of end users and building sector professionals on SWH systems but has been more limited in providing technical backstopping and training to national experts and supporting policies and financial instruments.	<b>MS</b>
<b>B. Likelihood of impact</b>	Most drivers and assumptions are in place, but some key drivers are still weak such as the application of regional standards and cooperation with regional external agencies and private sector.	<b>ML</b>
<b>C. Achievement of project goal and planned objectives</b>	It is impossible to determine the volume of GHG emissions reductions that can be attributed to only one of the two project components. Both components need to be evaluated together. Also, reliable baseline information is lacking in the supported countries and effects of other on-going renewable energy interventions in the countries cannot be isolated from impacts of this project.	<b>MS</b>
<b>4. Sustainability and replication</b>	This rating reflects the lowest rating among the four sustainability dimensions (financial sustainability).	<b>ML</b>
<b>Financial</b>	ICA has committed to maintain the website beyond project funding, but for other outputs, no funding mechanisms or financial sources seem to be in place to sustain them beyond GEF funding. The GSWH project component 1 has so far not leveraged any financing.	<b>ML</b>

<sup>3</sup> The ratings presented in the table are the final ratings of the project at MTE stage decided by the UNEP Evaluation Office. In case there would have been any differences with the ratings given by the evaluator, these would have been indicated in the table. In this case, the Evaluation Office concurs with all ratings given by the evaluator.

<b>Socio-political</b>	The KM strategy under component 1 has created awareness, capacity building of various stakeholders to facilitate the transformation of the SWH market. Political will and support seems to be present in targeted countries.	<b>HL</b>
<b>Institutional framework</b>	The institutional framework is robust in participating countries.	<b>HL</b>
<b>Environmental</b>	There are no environmental degradation issues related to Component 1 of the GSWH project.	<b>HL</b>
<b>Catalytic role and replication</b>	The MTE did not come across a formalized replication strategy that could clearly detail the lessons learnt from the Phase 1 countries and elaborate the activities that could scale up and replicate the success stories in phase 2 countries.	<b>MS</b>
<b>5. Efficiency</b>	Cost-efficiency of Component 1 is comparable to other UNEP projects but there were important delays during project design and execution.	<b>MS</b>
<b>6. Factors affecting project performance</b>		
<b>A. Preparation and readiness</b>	The design was found overall of good quality, its main weakness being the M&E system.	<b>S</b>
<b>B. Project implementation and management</b>	UNEP is providing dedicated technically qualified and experienced staff and adequate resources to ensure timely and effective execution of the project. The technical competence required at the regional and country level is hired through SSFAs being signed with the regional partners. However, there are coordination issues with Component 2 of the project. Good coordination between the two components is critical to achieving the project's intended outcomes and impact.	<b>MS</b>
<b>C. Stakeholders participation and public awareness</b>	Key stakeholders (other than project implementers) have been interacting only through limited workshops and some feedback provided on the website. MTE has not come across any formal mechanism through which the key stakeholders would have provided feedback on the project design and implementation or any suggestions to improve it.	<b>MS</b>
<b>D. Country ownership and driven-ness</b>	Component 1 has assisted in creation of awareness on the SWH systems in the phase 1 participating countries, contributing thus to country ownership.	<b>S</b>

<b>E. Financial planning and management</b>	UNEP and GEF procedures and standards on maintaining accounts are being followed by the project. However, the expenditure rate of Component 1 is rather low and only 2/3 of anticipated co-financing has been received so far.	<b>S</b>
<b>F. UNEP supervision and backstopping</b>	Supervision arrangements are not ideal and there are some inconsistencies in PIR - reporting.	<b>MS</b>
<b>G. Monitoring and evaluation</b>		<b>MS</b>
<b>M&amp;E Design</b>	The project logframe does not include 'SMART' indicators for monitoring of outcomes and objectives. The means of verification have also not been defined explicitly.	<b>MS</b>
<b>Budgeting and funding for M&amp;E activities</b>	No benchmarking information is available but the project team considers the M&E budget adequate.	<b>S</b>
<b>M&amp;E Plan Implementation</b>	The gaps in the M&E plan limit M&E implementation. Some inaccurate reporting was noticed in the PIRs.	<b>MS</b>
<b>OVERALL PROJECT RATING</b>	Strengths and weaknesses of Component 1 of the project are summarized under paragraphs 138 to 148.	<b>MS</b>

*Note: Criteria are rated on a six-point scale: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Likelihood of impact and sustainability are rated from Highly Likely (HL) down to Highly Unlikely (HU).*

## **2. Recommendations**

Recommendation 1. Based on the assessment of progress and considering the volume of activities that remain to be completed before project-end including 'value adding new activities' proposed by stakeholders, it seems reasonable to recommend another no-cost extension to the GSWH project of 12 months until 31st December 2014. A list of remaining activities and a corresponding budget estimate provided by DTIE is presented in Annex 6.

Recommendation 2. There is a need to strengthen project coordination. More frequent PMC meetings need to be convened to strengthen coordination between the two components of the project and better clarify the respective roles and responsibilities between UNEP and UNDP for phase 2 countries. Country team representation in the PMC meetings should be considered.

Recommendation 3. It is also essential that the PMC members agree on a common Theory of Change for the project – the one reconstructed for this evaluation can provide a basis for discussion – so that the most essential, complementary outputs of both components to the projects outcomes and impact are more explicit and focused upon by both components' executing partners in a more coherent manner.

Recommendation 4. Progress on immediate, medium-term and longer term outcomes expected from the project needs to be monitored more closely using SMART indicators. Such indicators need to be developed and used for monitoring the last year of the project. SMART indicators should also be built into the M&E system of the second phase from the start, so that project performance can be monitored and tracked objectively.

Recommendation 5. For the KM website <http://solarthermalworld.org/> to play the role of a training facility, it needs to be upgraded to include SWH technical, economic and environmental assessment tools and calculation software, which will allow the visitor to undertake comparative cost and benefit analysis on various SWH technology and product options. Moreover, the website should include:

- a) current global best practices, especially on financial mechanisms used for promoting SWH use in the form of case studies and/or video
- b) case studies of countries which have successfully internalized SWH standards and certification, setting out a step-wise process to prepare the participating countries to develop and internalize SWH standards

Recommendation 6. Once the SWH Tech Scope Index is drafted, stakeholders' feedback should be solicited for review and validation across regions and countries before it can be applied for receiving statistically valid scores to evaluate SWH markets.

Recommendation 7. The project should also set up a formal mechanism through which stakeholders can provide feedback on the implementation of the project during the remaining period. Stakeholders should also be asked to provide suggestions to improve the design and implementation of the second phase of the project.

Recommendation 8. The project should put more efforts in the development of a regularly updated, quality controlled roster and team of international SWH experts to support national level activities. Differences of opinion among GSWH partners on criteria for inclusion of experts in the roster need to be sorted out. UNDP at many regional locations and UNIDO at their headquarters are maintaining rosters of experts in various practice areas and also regularly seek applications (through their websites and portals) for inclusion of experts in their rosters. The criteria used by UNDP and UNIDO can be studied and suitably used to create a roster of SWH experts.

Recommendation 9. The PIRs need to provide information that is based on validated facts and figures, clearly disaggregated per component. This will help in correctly assessing project progress and identifying the bottlenecks in achieving outcomes and impact.

Recommendation 10. The financial sustainability of the project outputs needs to be augmented by leveraging financing from project participating governments, climate change and green funds.

Recommendation 11. The Terminal Evaluation should cover both components of the project, and conducted jointly between the UNEP and UNDP evaluation offices. This will provide a more complete assessment of project performance and will ensure that lessons learned from both the global and national components are shared between UN partners and participating countries. This would also be in line with a request emanating from the GEF that all jointly implemented projects should also be jointly evaluated.

## **Annexes**

Annex 1: MTE Terms of Reference

Annex 2: List of documents reviewed

Annex 3: List of people met

Annex 4: Response to comments received on draft MTE report

Annex 5: Financial information

Annex 6: List of Remaining Activities and budget proposed by DTIE

Annex 7: Assessment of design of Component 1

Annex 8: Brief CV of the Consultant



## TERMS OF REFERENCE – Annex 1

### Mid-term Evaluation of the UNEP/GEF Project “Global Solar Water Heating Market Transformation and Strengthening Initiative (GSWH project)” GEF ID2939

#### PROJECT BACKGROUND AND OVERVIEW

##### A. Project General Information<sup>4</sup>

**Table 1. Project summary**

<b>Project Title:</b>	Global Solar Water Heating Market Transformation and Strengthening Initiative (GSWH project)
<b>Executing Agency:</b>	UNDP and UNEP-DTIE
<b>Project partners:</b>	Global Partner: - International Copper Association (ICA) Regional Partners: - Observatoire Méditerranéen de l'Energie (OME- Africa and Middle East) - Organización Latinoamericana de Energía (OLADE- Latin America) - International Institute for Energy Conservation (IIEC- South and Southeast Asia) - European Solar Thermal Industry Federation (ESTIF-Europe)
<b>Geographical Scope:</b>	Global
<b>Participating Countries:</b>	Albania- Algeria –Chile - India - Lebanon - Mexico

<b>GEF project ID:</b>	2939	<b>IMIS number:</b>	GFL-2328-2721-4A54
<b>Focal Area(s):</b>	Climate Change	<b>GEF OP #:</b>	1, 6
<b>GEF Strategic Priority/Objective:</b>	Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs	<b>GEF approval date*:</b>	29 July 2008
<b>UNEP approval date:</b>	7 May 2009	<b>Date of first disbursement*:</b>	13 May 2009
<b>Actual start date:</b>	May 2009	<b>Planned duration:</b>	60 months
<b>Intended completion date*:</b>	December 2013	<b>Actual or Expected completion date:</b>	February 2013
<b>Project Type:</b>	Full Project	<b>GEF Allocation*:</b>	US\$3,750,000
<b>PPG GEF cost*:</b>	N.A.	<b>PPG co-financing*:</b>	N.A.
<b>Expected MSP/FSP Co-financing*:</b>	US\$1,970,000	<b>Total Cost*:</b>	US\$5,720,000
<b>Mid-term review/eval. (planned date):</b>	December 2012	<b>Terminal Evaluation (actual date):</b>	N.A.

<sup>4</sup>Source: UNEP GEF Project Implementation Report (PIR) Fiscal Year 2012

<b>Mid-term review/eval. (actual date):</b>	April-June 2013	<b>No. of revisions*:</b>	2
<b>Date of last Steering Committee meeting:</b>	February 2010	<b>Date of last Revision*:</b>	13 June 2011
<b>Disbursement as of 30 June 2012*:</b>	US\$1,228,587	<b>Date of financial closure*:</b>	N.A.
<b>Date of Completion:</b>	N.A.	<b>Actual expenditures reported as of 30 June 2012:</b>	US\$1,228,587
<b>Total co-financing realized as of 30 June 2012:</b>	US\$885,000	<b>Actual expenditures entered in IMIS as of 30 June 2012*:</b>	US\$1,228,587.93
<b>Leveraged financing:</b>	0		

## B. Project Background

### 1. Project Rationale<sup>5</sup>

Through the 1990s and beginning of 2000, the global solar thermal market underwent a favorable development with a steady annual growth. At the end of 2003, a total of 132 million square meters of collector area were installed in 35 countries studied in the IEA Market Review for 2003, about 85-90% of the solar thermal market worldwide. By using the conversion factor of 0.7 kW/m<sup>2</sup>, the total installed capacity was estimated at 93Gigawatthour (GWh). The annual collector yield of all solar thermal systems in the countries studied was estimated at 55,233 GWh and the annual avoidance of Greenhouse Gas (GHG) emissions at 24,1 million tons of Carbon Dioxide Equivalent (CO<sub>2</sub>).

Although strong solar thermal market development has been evidenced in some GEF program countries, in many others solar water heating (SWH) is hardly utilized, despite favorable climatic conditions. By any standards, the global, economically feasible potential for increased use of solar thermal applications for hot water preparation is huge and comparable to any other form of renewable energy GEF has supported during its operations. It is a technology that can provide cost-effective energy solutions also to the lower income part of the population and can become a mass product leading to permanent market shift at the national level for the benefit of both the end users and the environment. In summary, it is an economic, commercially viable and available technology, which due to the different market barriers, however, has not reached the market penetration rate that it could reach on simply economic grounds.

Typical key barriers to growth can be summarized as follows:

- Subsidized or otherwise artificially low price of competing energy sources such as electricity or fossil fuels;
- High upfront costs and often higher overhead costs (related to marketing information, procurement, installation) of SWH systems compared to conventional water heating;
- Lack of established market infrastructure;
- Lack of attractive and specifically tailored financing mechanisms for customers considering high up front costs as a barrier;
- Lack of experience of the banking sector with SWH investments;
- Lack of awareness or adequate incentives for the power grid operators to consider SWH as a technology to manage the electricity demand.
- SWH not yet perceived as a standard option by planning professionals;
- Low awareness of energy savings and environment benefits of SWH systems;

<sup>5</sup>Source: Project Document: Project PIR (July 2011 – June 2012)

- Lack of motivated and specifically skilled installers;
- Lack of customer confidence on the technical performance of the SWH systems in the market;
- Lack of internationally recognized and harmonized standards, certification and labelling schemes and testing procedures; and
- Lack of incentives to support the early market development phase and the associated learning costs.

There have been a number of policies and instruments used to stimulate the SWH market development. In the review conducted in 2002 on global incentives used for promotion of solar water heating, it was concluded that: “In each country where SWH use has increased significantly, there has been a partnership between the government and industry to address the issues of quality standards, promotion and public perception. National targets appear very important and funding assistance (fiscal and /or financial) from government is very common. The successful initiatives appear to follow a number of key principles, which include: significant support from governments; fiscal measures to stimulate the market; improving building regulations to stimulate uptake of SWH; information and promotion programmes”.

This suggested that while in general solar water heating could be considered as economic, commercially viable and available technology, in most cases some form of public support was still essential for facilitating sustainable market transformation. This support could consist, among others, of:

- inclusion of solar water heating into the building codes or other appropriate building sector regulations either as a mandatory or voluntary measure;
- financial and/or fiscal incentives such as specific subsidies or favourable taxation regimes for personal taxation (such as the model applied in Greece), reduction of import duties for dedicated solar components, SME investment opportunities and facilities;
- development of applicable demand side management programs with local power utilities;
- public awareness raising and marketing campaigns; voluntary agreements with and/or awareness raising and capacity building of the key professional groups involved in building construction such as architects, mechanical engineers responsible for the design of buildings HVAC systems, plumbers and actual construction companies, who can play a key role in recommending or adopting SWH systems for their customers;
- introduction of adequate product standards, testing and certification scheme so as create and maintain customer confidence on the SWH market; and
- development and introduction of new financing models.

## 2. Project objectives<sup>6</sup> and components

The project’s global environmental objective was stated *as to accelerate global commercialization and sustainable market transformation of solar water heating, thereby reducing the current use of electricity and fossil fuels for hot water preparation.* It would build on the encouraging market development rates already achieved in some GEF program countries and seek to further expand the market in other GEF program countries, where the potential and necessary prerequisites for market uptake seem to exist.

The project aims to achieve this objective through implementing two components, each with its own component objective as presented in table 2.

**Table 2. Project components and component objectives**

Components	Component objectives
Component I	To effectively initiate and coordinate country specific support needs and improve

<sup>6</sup> Terms such as development objective, long-term objective, outcomes etc. used in the following section are the ones used in the Project Document. Their use does not necessarily fit the internationally recognized definitions of those terms and the MTE Team will have to take this into account.

The Global Knowledge Management and Networking	access of national experts to state of the art information, technical backstopping, training and international experiences and lessons learnt
<u>Component II</u> UNDP executed Country Programs	To establish basic conditions for the development of a SWH market on both the supply and demand side in 6 countries, conducive to the overall, global market transformation goals of the project.

The first phase of the project is supporting: i) the establishment of a global knowledge management (KM) component, and ii) a bundle of specific country programs for 6 countries: Albania, Algeria, Chile, India, Lebanon and Mexico, implemented under UNDP's National Execution Modality (NEX).

The project's targets for phase 1 would be: i) the installation of an additional 3 million square meters of SWH panels (compared to the expected baseline development) by the end of the country programs covered by phase 1; and ii) sustainable growth of these markets at the minimum average annual rate of 20% by completion of phase 1.

**Component I** of the project seeks an effective initiation and coordination of the country specific support needs and improved access of national experts to state of the art information, technical backstopping, training and international experiences and lessons learnt. This KM component is being executed by UNEP and a network of partners to facilitate coordinated, timely and professional backstopping for country specific SWH activities. It analyses and disseminates information on lessons learned and best practices, facilitate cross country information exchange and networking and serves as a catalyst to stimulate and initiate SWH market transformation in different GEF program countries globally. The overall program management is also funded under component I.

The global KM component includes a dissemination function reaching out to 10 additional countries where projects may be initiated or markets influenced through information sharing in a second phase of the project.

**Component II** seeks to establish the basic conditions for the development of a SWH market on both the supply and demand side, conducive to the overall, global market transformation goals of the project. The component focuses on overcoming the barriers and supporting the activities needed at the national level to stimulate sustainable SWH market development. It consists of parallel country programs which are managed locally under the UNDP National Execution (NEX) modality and under the overall monitoring and technical backstopping provided by the global KM component.

The support needs at the country level are clustered under five subcomponents to address the common major barriers to solar water heating development: policy and regulations; finance; business skills; information; and technology.

-Subcomponent 2.1: Creating and enabling legal, regulatory and institutional framework to support sustainable SWH market development.

-Subcomponent 2.2: Creating a sustainable demand for SWH systems in the targeted enduser markets by public awareness raising, marketing support and capacity building.

-Subcomponent 2.3: Enhancing the demand for SWH systems by the availability of attractive end-user financing mechanism and new delivery models.

-Subcomponent 2.4: Enhanced capacity of the supply chain to respond to the growing demand with good quality products and services sustaining the market growth.

-Subcomponent 2.5: Support institutionalized and results, experiences and lesson learnt documented and disseminated.

#### 4. Executing Arrangements

UNEP-DGEF and UNDP are the GEF-designated Implementing Agencies (IAs) for the project. UNDP, as the lead GEF implementing agency is responsible for overall project supervision to ensure consistency with GEF policies and procedures.

The project is jointly executed by UNEP and UNDP. The KM component of the project (component I) is executed by the Division of Technology, Industry and Economics of UNEP in Paris (UNEP-DTIE) with subcontracting of relevant international or regional expert institutions and NGOs to manage selected subcomponents. The UNEP-DTIE team is also responsible for the overall project monitoring and progress reporting in respect to set targets and indicators.

The country programs under component II are executed in 6 countries (Albania, Algeria, Chile, India, Lebanon and Mexico) under UNDP's National Execution Modality (NEX).

The project is being overseen by a Project Management Committee (PMC) including the International Copper Association, UNDP and UNEP.

#### 5. Project Cost and Financing

1. Table 3 presents a summary of expected financing sources for the project as presented in the Project Document and as related to the component executed by UNEP. The GEF provides US\$ 3,750,000 of external financing to the component. This puts the project in the Full-size Project category. The project is expected to mobilize another US\$ 1,970,000 in co-financing, mostly from the International Copper Association (US\$ 1,200,000), and UNEP-DTIE (US\$ 370,000). Table 3 summarizes expected costs per component and financing sources.

2. The most recent Project Implementation Review (PIR) for fiscal year 2012 reports that by 30 June 2012 the project had effectively disbursed US\$ 1,228,587 of the GEF grant to UNEP – close to 33 percent. By then, the project had mobilized over US\$ 885,000 in co-financing.

**Table 3. Estimated project costs per component and financing source (UNEP execution only)**

Component	Co-financing UNEP-DTIE	Co-financing others and ICA	GEF	TOTAL	%
<b>Comp I: Global KM and networking + overall program management</b>	370,000	1,570,000	3,750,000	5,720,000	
<b>Comp II: Executed by UNDP with US\$ 8,250,000 with additional cofinancing</b>					
<b>Total Project Financing</b>		1,970,000	3,750,000		100

Source: Project Document for CEO Approval

#### A. Project Implementation Issues

This Mid Term Evaluation (MTE) covers only component I on Global Knowledge Management and Networking. With regards to component II, each concerned UNDP country office will organize its own MT review.

The global project is progressing satisfactorily to meet its objectives. However, it has not yet been able to establish a link with the national SWH project in Algeria - implemented by UNDP - due to the delay in obtaining the government approval for the project.

As to date and based on the current information about the programming priorities of the next GEF programming cycle (GEF-5), an invitation to participate in the second phase of the project was sent to prospective countries. The second phase of the project is to include another 10 national SWH projects. This independent Mid Term evaluation's recommendations should contribute to an optimum design of these projects.

## TERMS OF REFERENCE FOR THE EVALUATION

### A. Objective and Scope of the Evaluation

In line with the UNEP Evaluation Policy<sup>7</sup> and the UNEP Evaluation Manual,<sup>8</sup> a Mid-term Evaluation (MTE) of the project on the **Global Solar Water Heating Market Transformation and Strengthening Initiative (GSWH project)** is undertaken half way through project implementation to analyse whether the project is on-track, what problems or challenges the project is encountering, and what corrective actions are required. The MTE will focus the Global Knowledge Management and Networking component only and should contribute to an optimum design of the projects for phase two. The MTE will assess project performance to date (in terms of relevance, effectiveness and efficiency), and determine the likelihood of the project achieving its intended outcomes and impacts, including their sustainability.

The MTE has the following primary purposes: (i) to provide evidence of results to date and of the likelihood of outcomes and impact in the future; (ii) to meet accountability requirements; (iii) to identify the challenges and risks to achievement of the project objectives and derive corrective actions needed for the project to achieve maximum impact and sustainability. In addition, the MTE is expected to promote learning, feedback, and knowledge sharing through results and lessons learned among the Executing Agency and its partners, UNEP, the GEF and their partners. It will focus on the following sets of **key questions**, based on the project's Logframe and current implementation issues, which may be expanded by the consultants as deemed appropriate:

**What are the key challenges to project implementation and what remedies can be proposed?**

What are the main issues underlying any significant delays incurred in project execution? How can these issues be addressed within the limits of existing resources and within the project timeframe?

**What progress has been made to accelerate global commercialization and sustainable market transformation of solar water heating, reducing the use of electricity and fossil fuels for hot water preparation?**

Is the operational, managerial and administrative support deployed by UNEP to support the country-level projects adequate to the task at hand? If not, how can this aspect be improved?

**Has the project facilitated technical backstopping for country specific SWH activities** in a coordinated, timely and professional way? Has it disseminated useful information and facilitated information exchange and networking? Has it served as a catalyst to stimulate and initiate sustainable SWH market transformation in the different countries? Has the project contributed to increase public awareness on international and regional basis?

**To what extent has the project engaged other agencies and partners in the knowledge management function?**

**Can the project realistically achieve its intended outputs and objectives within the time remaining?** If not, what would be a more realistic time frame or what activities should be prioritized so that the main outputs and objectives can still be achieved in a timely manner? Can the major sub-contracts and other regional-level consultancies be effectively completed within the remaining time of the project?

**What is the likely expected impact of the project in the current context?** Is the project in a position to achieve its targets as spelled out in its M&E Logical Framework in terms of cumulative, direct GHG reduction? Is the project taking advantage of most recent best practices in solar water heating?

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<sup>7</sup> <http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx>

<sup>8</sup> <http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx>

**What is the status of M&E of the project implementation?** Has the project established an effective evaluation and monitoring system and is the capacity for M&E among project personnel sufficient?

**How can the lessons learned from the project contribute to an optimum design of the 10 national projects envisioned to participate into the second phase of the project?**

## **B. Overall Approach and Methods**

The MTE of the GSWH Project will be conducted by one independent consultant under the overall responsibility and management of the UNEP Evaluation Office (Nairobi), in consultation with the UNEP DTIE Task Manager.

The MTE 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.

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

- (a) **A desk review** of project documents<sup>9</sup> including, but not limited to:
  - Relevant background documentation, *inter alia* UNEP and GEF policies, strategies and programmes on renewable energy and climate change and project's preparatory material; [add any other relevant background docs];
  - 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 countries to the EA; meeting minutes of the global Steering Committees; annual Project Implementation Reviews (PIRs) and relevant correspondence;
  - Documentation related to project outputs;
  - Documentation available on the project-established web portal for solar thermal professionals: [www.solarthermalworld.org](http://www.solarthermalworld.org)
- (b) **Interviews**<sup>10</sup> with:
  - Project management and execution support in UNEP/DTIE (Paris);
  - UNEP Task Manager (Paris) and Fund Management Officer (Nairobi);
  - Country lead execution partners and other relevant partners;
  - Relevant staff of GEF Secretariat;
  - Representatives of the project management committee;
  - Major co-financing (cash and in-kind) partners;
  - Relevant consultants and other project partners
- (c) **Country visit.** The Consultant will visit the project management team in Paris and the UNEP Evaluation Office and the Fund Management Office in Nairobi.

## **C. Key Evaluation principles**

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

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<sup>9</sup> Documents to be provided by the UNEP are listed in Annex 5.

<sup>10</sup> Face-to-face or through any other appropriate means of communication



sources) to the extent possible, and when verification was not possible, the single source will be mentioned<sup>11</sup>. Analysis leading to evaluative judgements should always be clearly spelled out.

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 UNEP strategies and programmes. The lead consultant can propose other evaluation criteria as deemed appropriate.

**Ratings.** All evaluation criteria will be rated on a six-point scale. However, complementarity of the project with 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.

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.

Particular attention should be given to identifying implementation challenges and risks to achieving the expected project objectives and sustainability. Therefore, when reviewing progress to date, the **“why?” question** should be at front of the consultants’ minds all through the evaluation exercise. This means that the consultants need to go beyond the assessment of “what” the project performance is to date, and make a serious effort to provide a deeper understanding of “why” the performance is as it is, i.e. of processes affecting attainment of project results (criteria under category 3 presented below). This should provide the basis for the corrective actions recommended by the evaluation and the lessons that can be drawn from the project. In fact, the usefulness of the evaluation will be determined to a large extent by the capacity of the consultants to explain “why things happened” as they happened and are likely to evolve in this or that direction, which goes well beyond the mere assessment of “where things stand” today.

## **D. Evaluation criteria**

### **1. Attainment of Objectives and Planned Results**

The evaluation should assess the relevance of the project’s objectives and the extent to which these were effectively and efficiently achieved or are expected to be achieved.

a) *Achievement of Outputs and Activities:* Assess, for each component, the project’s success in producing the programmed outputs, 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 3 (which covers the processes affecting attainment of project results).

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<sup>11</sup> Individuals should not be mentioned by name if anonymity needs to be preserved.

b) *Relevance*: Assess, in retrospect, whether the project's objectives and implementation strategies were consistent with: i) national environmental priorities; ii) the UNEP mandate and policies at the time of design and implementation; and iii) the relevant GEF focal area, strategic priorities and the relevant operational program(s).

c) *Effectiveness*: Assess whether the project is on track in achieving its main objectives and its component objectives as presented in Table 2 above. To measure achievement, 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 are affecting the project's achievement of objectives, cross-referencing as needed to more detailed explanations provided under Section 3.

d) *Efficiency*: Assess the cost-effectiveness and timeliness of project execution to date. Describe any cost- or time-saving measures put in place in attempting to implement the project within its programmed budget and timeframe. Analyse how delays, if any, have affected project execution, costs and effectiveness. Wherever possible, compare the cost and time over results ratios of the project with that of other similar projects. 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.

e) *Review of Outcomes to Impacts (ROtI)*: Reconstruct the logical pathways from project outputs over achieved objectives towards impacts, taking into account performance and impact drivers, assumptions and the roles and capacities of key actors and stakeholders, using the methodology presented in the GEF Evaluation Office's ROtI Practitioner's Handbook<sup>12</sup> (summarized in Annex 8 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 regards to: i) coordination of country specific support needs and ii) improved access to training, state of the art information, technical backstopping and the likelihood of those leading to reduction in direct GHG emissions.

#### **i. Sustainability and catalytic role**

**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 an exit strategy for the project has been prepared and how project results will be sustained and enhanced over time. The evaluation will have to ascertain that the project is looking further than its immediate outputs. Application of the ROtI method will assist in the evaluation of sustainability.

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? What is the project doing to ensure this socio-political sustainability of results and benefits?

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

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<sup>12</sup> [http://www.thegef.org/gef/sites/thegef.org/files/documents/Impact\\_Eval-Review\\_of\\_Outcomes\\_to\\_Impacts-RotI\\_handbook.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/Impact_Eval-Review_of_Outcomes_to_Impacts-RotI_handbook.pdf)

that adequate financial resources<sup>13</sup> 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? What concrete efforts is the project making to ensure financial sustainability of results and benefits?

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 so far, 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? How is the project contributing to the sustainability of these institutional achievements?

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? How is the project dealing with these?

**Catalytic Role and Replication.** The *catalytic role* of GEF-funded and UNEP-implemented 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 is:

a) *catalysing 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 established at a national and sub-regional level;

b) providing *incentives* (social, economic, market based, competencies etc.) to contribute to catalysing changes in stakeholder behaviour;

c) contributing 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 national demonstration projects;

d) contributing to *policy changes* (on paper and in implementation of policy);

e) contributing to sustained follow-on financing (*catalytic financing*) from Governments, the GEF or other donors;

f) creating opportunities for particular individuals or institutions ("*champions*") to catalyse change (without whom the project would not have achieved all of its results).

*Replication*, in the context of UNEP and 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, with special attention to the three pilot

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<sup>13</sup> Those resources can be from multiple sources, such as the public and private sectors, income generating activities, other development projects etc.

projects underway. What are the factors that may influence replication and scaling up of project experiences and lessons?

## ii. Processes affecting attainment of project results

**Preparation and Readiness.** Are 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? Is the project document clear and realistic to enable effective and efficient implementation? Are the partnership arrangements properly identified and the roles and responsibilities well negotiated? Are counterpart resources (funding, staff, and facilities) and enabling legislation assured? Are adequate project management arrangements in place? Have lessons from other relevant projects been properly incorporated in the project design and implementation? Are lessons learned and recommendations from Steering Committee meetings adequately being integrated in the project approach? What factors influenced the quality-at-entry of the project design, choice of partners, allocation of financial resources etc.?

**Implementation Approach and Adaptive Management.** This includes an analysis of 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 are being followed and are effective in delivering project outputs and outcomes. Have pertinent adaptations been made to the approaches originally proposed?
- b) Assess the role and performance of the units and committees established and the project execution arrangements at all levels, with particular attention to (a) the "internal execution" arrangements (i.e. ensuring the adequate separation of duties and responsibilities between UNEP's execution and implementation functions) as put in place by UNEP, including compliance with the recent UNEP guidelines on this specific category of GEF projects, and (b) execution arrangements at country level;
- c) Evaluate the effectiveness and efficiency of project management at the UNEP and the country level. How well is management able to adapt to changes during the life of the project?
- d) Assess the extent to which project management is responsive to direction and guidance provided by the Project Management Committee and UNEP;
- e) Identify administrative, operational and/or technical problems and constraints that influence the effective implementation of the project, and how the project partners try to overcome these problems.

**Stakeholder<sup>14</sup> Participation and Public Awareness.** The term stakeholder should be considered in the broadest sense, encompassing project partners, government institutions and private interest groups. The assessment will look at the approach(es) used to identify and engage stakeholders in project design and implementation. What are the strengths and weaknesses of these approaches with respect to the project's objectives? What is the achieved degree and effectiveness of collaboration and interactions between the various project partners and stakeholders during the course of implementation of the project?

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<sup>14</sup> 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.

The ROTI analysis should assist the consultants 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 objectives to impact.

**Country Ownership and Driven-ness.** The evaluation will assess the performance of the pilot countries, namely:

- a) in how have the Governments of the pilot countries assumed responsibility for the project and provided adequate support to project execution, including the degree of cooperation received so far from the various partners involved in the project and the timeliness of provision of counter-part funding to project activities;
- b) to what extent the political and institutional frameworks of the countries have been conducive to project performance;
- c) to what extent have the Governments promoted the participation of communities and their non-governmental organisations in the project; and
- d) how responsive have the pilot countries been to the project coordination and guidance and to UNEP supervision recommendations.

**Financial Planning and Management.** This requires the assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. The MTE 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 are 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 might influence project performance;
- c) Present to what extent co-financing has materialized so far as compared to what was expected at project approval. 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 actual costs and co-financing for the different project components (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.

**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 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.

**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 timeframe for various M&E activities and standards for outputs should be specified. The evaluators will use the following questions to help assess the M&E design aspects:
  - Quality of the project logframe as a planning and monitoring instrument: compare and assess the Logframe in the Project Document and the Logframe used in the 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? Were the data sources and data collection instruments appropriate? Was the frequency of various monitoring activities specified and adequate? In how far were project users involved in monitoring?
  - Arrangements for evaluation: Have specific targets and deadlines been specified for project outputs? Has the desired level of achievement been specified for all indicators of objectives and outcomes? Are 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 was budgeted adequately and is funded in a timely fashion during implementation.
- b) *M&E Plan Implementation.* The evaluation will verify that:
  - the M&E system is operational and facilitates 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 really being used to improve project performance and to adapt to changing needs.

### iii. Complementarities with the UNEP strategies and programmes

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 2011-2012.* The UNEP MTS specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. Using the completed 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 (MTS)<sup>15</sup>/ Programme of Work (POW) 2011/12 would not necessarily be aligned with the Expected Accomplishments articulated in those documents, complementarities may still exist.
- b) *Alignment with the Bali Strategic Plan (BSP)*<sup>16</sup>. The current and intended 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 take 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 impacts on gender equality and the relationship between women and the environment. Are there any unresolved gender inequalities that could affect sustainability of project benefits?
- 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.

## E. The Evaluation Consultant

One independent consultant will be hired for this evaluation. The consultant should have the following expertise and experience

- (d) Master's degree or higher in engineering related field with at least 15 years of relevant working experience;
- (e) Expertise in conducting project evaluations, preferably evaluation of large, multi-country, UN-implemented and GEF-funded environmental projects;
- (f) Expertise in the field of energy, environment, infrastructure and sustainable development including renewable energy and solar water heating;
- (g) Good knowledge of UNEP-GEF portfolio and areas of work.

<sup>15</sup><http://www.unep.org/PDF/FinalMTSGCSS-X-8.pdf>

<sup>16</sup><http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>

The **Consultant** will be responsible for the data collection and analysis phase of the evaluation, and for preparing the evaluation report. (S)He will ensure that all evaluation criteria are adequately covered by the evaluation.

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

## **F. Evaluation Deliverables and Review Procedures**

The Consultant will, after an initial telephone briefing with the UNEP Evaluation Office and the UNEP Project Manager, conduct initial desk review work and prepare and submit a brief inception report to the UNEP Evaluation Office, along the table of contents in Annex 9. The inception report should be approved by the UNEP Evaluation Office before starting fieldwork or desk based phone/email interviews.

The inception report lays the foundations for the main evaluation. Its purpose is to develop an evaluation framework that includes:

- a) A review of the quality of project design to help identify how project design impacts on project implementation and performance;
- b) analysis of the project's theory of change, creating a baseline which can be used to assess the actual project outcomes and impacts (expected and unexpected) during field visits and interviews;
- c) A detailed plan for the evaluation process.

The main components of the inception report are:

Review of the Quality of Project Design: The review of project design is done on the basis of the project document and log frame. The Consultant should also familiarize her/himself with the history and wider context of the project (details available on UNEP and the project website, documentation from past projects etc). The analysis should be used to complete the 'Template for assessment of the quality of project design' (in the Annex 7 of the TORs). The rating system follows the Evaluation ratings used for the main evaluation (also described in the annex of the TORs).

Theory of Change Analysis: Annex 6 of the TORs on Introduction to Theory of Change/Impact pathways, the ROTI Method and the ROTI results score sheet describes in details the Theory of Change approach. The Theory of Change analysis should be captured in a Theory of Change diagram, found in the annex. The diagram can be shared with project stakeholders in the course of the evaluation, as tool to aid discussion. Please note that the ratings requested in the annex are not needed in the inception report's Theory of Change analysis. The consultant should complete the ratings after the field visits/interviews. The ToC diagram and ratings should be incorporated in final evaluation report.

Evaluation Process Plan: The evaluation process plan is based on a review of the project design, theory of change analysis and also of all the project documentation (listed in TORs). The evaluation plan should include: summary of evaluation questions/areas to be explored/questions raised through document review; description of evaluation methodologies to be used.; list of data sources, indicators; list of individuals to be consulted; detailed distribution of roles and responsibilities among evaluation consultants (for larger evaluation teams); revised logistics (selection of sites to be visited)/dates of evaluation activities.



**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 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.

**Report summary.** The Consultant will prepare a 5-10 slide presentation summarizing the key findings, lessons learned and recommendations of the evaluation. The purpose of this presentation is to engage the main project partners in a discussion on the evaluation results and obtain their buy-in into the MTE recommendations.

**Review of the draft evaluation report.** The Consultant will submit the zero draft report to the UNEP EO according to the tentative schedule in annex 8 and revise the draft following the comments and suggestions made by the EO. The EO will then share the first draft report with the UNEP/DTIE Task Manager for review and comments. The UNEP Task Manager will forward the first draft report relevant 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. 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 Consultant in preparing the final draft report. The Consultant will submit the final draft report no later than 2 weeks after reception of stakeholder comments. The Consultant will prepare a **response to comments** that contradict the findings of the evaluation team and could therefore not be accommodated in the final report. This response will be annexed to the MTE report to ensure full transparency.

Consultations will be held between the Consultant, EO staff, the UNEP/GEF, UNEP/DTIE and key members of the project execution team. These consultations will seek feedback on the proposed recommendations and lessons.

**Submission of the final Mid-term Evaluation report.** The final report shall be submitted by Email to:

Segbedzi Norgbey, Head  
UNEP Evaluation Office  
P.O. Box 30552-00100  
Nairobi, Kenya  
Tel.: (+254-20) 762 3387  
Email: segbedzi.norgbey@unep.org

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

Maryam Niamir-Fuller, Director  
UNEP/GEF Coordination Office  
Nairobi, Kenya  
Tel: (+254-20) 762 4686  
Email: maryam.niamir-fuller@unep.org

Sylvie Lemmet, Director  
UNEP/DTIE  
15 rue de Milan  
75441 Paris Cedex 09  
France

Tel: +33 (0)1 44 37 14 50  
Fax: +33 (0)1 44 37 14 74  
Email: [sylvie.lemmet@unep.org](mailto:sylvie.lemmet@unep.org)

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15 rue de Milan  
75441 Paris Cedex 09  
France  
Tel: +33 (0)1 44 37 14 50  
Fax: +33 (0)1 44 37 14 74  
Email: [edu.hassing@unep.org](mailto:edu.hassing@unep.org)

The final evaluation report will be published on the UNEP Evaluation Office web-site [www.unep.org/eou](http://www.unep.org/eou) and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

As per usual practice, the UNEP EO will prepare a **quality assessment** of the zero 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 both GEF and UNEP criteria as presented in Annex 4.

The UNEP Evaluation Office will also prepare a **commentary** on the final evaluation report, which presents the EO ratings of the project based on a careful review of the evidence collated by the evaluation team and the internal consistency of the report. These ratings are the final ratings that the UNEP Evaluation Office will submit to the GEF Office of Evaluation.

### **G. Resources and Schedule of the Evaluation**

This Mid-term Evaluation will be undertaken by an independent evaluation consultant contracted by the UNEP Evaluation Office. The consultant will work under the overall supervision 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 consultant's individual responsibility to arrange for his/her travel, obtain documentary evidence, meetings with stakeholders, field visits, and any other logistical matters related to their assignment. The UNEP Task Manager Project Manager and Executing Agencies of the pilot countries will provide logistical support (introductions, meetings, transport, lodging etc.) for the country visits where necessary, allowing the consultants to conduct the evaluation as efficiently and independently as possible.

The **consultant** will be hired for ten weeks of work spread over 15 April to 15 July 2013. (S)He will travel to Nairobi, Kenya and Paris, France in May 2013.

### **H. Schedule of Payment**

One of the following two contract options will be used:

Lump-Sum Option:

- The evaluator will receive an initial payment covering the travel costs upon signature of the contract. A further 40% will be paid upon acceptance of the draft report. A final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and is **inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

- The evaluator will receive an initial payment of 40% of the total amount due upon acceptance of the draft report. Final payment of 60% will be made upon acceptance and satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case the consultant is 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.

If the consultant fails 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 1. Annotated Table of Contents of the Main Report

<b>Project Identification Table</b>	An updated version of Table 1 in section I.A. of these TORs
<b>Executive Summary</b>	Overview of the main findings, conclusions and recommendations of the evaluation. It should encapsulate the essence of the information contained in the report to facilitate dissemination and distillation of lessons. The main points for each evaluation parameter should be presented here (with a summary ratings table), as well as the most important lessons and recommendations. Maximum 4 pages.
<b>I. Evaluation Background</b>	
A. Context	A. Overview of the broader institutional and country context, in relation to the project's objectives.
B. The Project	B. Presentation of the project: rationale, objectives, components, intervention areas and target groups, milestones in design, implementation and completion, implementation arrangements and main partners, financing (amounts and sources), modifications to design before or during implementation.
C. Evaluation objectives, scope and methodology	C. Presentation of the evaluation's purpose, evaluation criteria and key questions, evaluation timeframe, data collection and analysis instruments used, places visited, types of stakeholders interviewed, and limitations of the evaluation.
<b>II. Project Performance and Impact</b>	
A. Attainment of objectives and planned results B. Sustainability and catalytic role C. Processes affecting attainment of project results D. Complementarity with UNEP programmes and strategies	This section is organized according to the 4 categories of evaluation criteria (see section D of these TORs) and provides factual evidence relevant to the questions asked and sound analysis and interpretations of such evidence. This is the main substantive section of the report. Ratings are provided at the end of the assessment of each evaluation criterion.
<b>III. Conclusions and Recommendations</b>	
A. Conclusions	This section should summarize the main findings of the evaluation, told in a logical sequence from cause to effect. It is suggested to start with the positive achievements and a short explanation why these could be achieved, and, then, to present the less successful aspects of the project with a short explanation why. The conclusions section should end with the overall assessment of the project. Findings should be cross-referenced to the main text of the report (using the paragraph numbering). The overall ratings table should be inserted here (see Annex 2).
B. Lessons Learned	Lessons learned should be anchored in the main findings of the evaluation. In fact, no lessons

	<p>should appear which are not based upon a conclusion of the evaluation. The number of lessons learned should be limited. Lessons learned are rooted in real project experiences, i.e. based on good practices and successes which could be replicated or derived from problems encountered and mistakes made which should be avoided in the future. Lessons learned must have the potential for wider application and use. Lessons should briefly describe the context from which they are derived and specify the contexts in which they may be useful.</p>
C. Recommendations	<p>As for the lessons learned, all recommendations should be anchored in the conclusions of the report, with proper cross-referencing, and their number should be limited to 5 or 6. Recommendations are actionable proposals on how to resolve concrete problems affecting the project or the sustainability of its results. They should be feasible to implement within the timeframe and resources available (including local capacities), specific in terms of who would do what and when, and set a measurable performance target. In some cases, it might be useful to propose options, and briefly analyse the pros and cons of each option.</p>
<b>Annexes</b>	<p>These may include additional material deemed relevant by the evaluator but must include:</p> <ol style="list-style-type: none"> <li>1. Evaluation TORs</li> <li>2. Evaluation program, containing the names of locations visited and the names (or functions) of people met</li> <li>3. Bibliography</li> <li>4. Summary co-finance information and a statement of project expenditure by activity (See annex 3 of these TORs)</li> <li>5. Details of the project's 'impact pathways' and the 'ROtI' analysis</li> <li>6. Technical working papers</li> <li>7. Brief CVs of the consultant</li> </ol> <p>MTE reports will also include any formal response/ comments from the project management team and/ or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP Evaluation Office.</p>

Examples of UNEP GEF project Evaluation Reports are available at [www.unep.org/eou](http://www.unep.org/eou).

## ANNEX 2. EVALUATION RATINGS

The evaluation will provide individual ratings for the evaluation criteria described in section II.D. of these TORs. Some criteria contain sub-criteria which require separate ratings (i.e. sustainability and M&E). Furthermore, an aggregated rating will be provided for Relevance, effectiveness and efficiency under the category “Attainment of project objectives and results”.

Most criteria will be rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Sustainability is rated from Highly Likely (HL) down to Highly Unlikely (HU).

In the conclusions section of the report, ratings will be presented together in a table, with a brief justification cross-referenced to the findings in the main body of the report. Please note that the order of the evaluation criteria in the table will be slightly different from the order these are treated in the main report; this is to facilitate comparison and aggregation of ratings across GEF project evaluation reports.

<b>Criterion</b>	<b>Summary Assessment</b>	<b>Rating</b>
<b>A. Attainment of project objectives and results</b>		HS → HU
1. Effectiveness		HS → HU
2. Relevance		HS → HU
3. Efficiency		HS → HU
<b>B. Sustainability of project outcomes</b>		HL → HU
1. Financial		HL → HU
2. Socio-political		HL → HU
3. Institutional framework		HL → HU
4. Environmental		HL → HU
<b>C. Catalytic role</b>		HS → HU
<b>D. Stakeholders involvement</b>		HS → HU
<b>E. Country ownership / driven-ness</b>		HS → HU
<b>F. Achievement of outputs and activities</b>		HS → HU
<b>G. Preparation and readiness</b>		HS → HU
<b>H. Implementation approach</b>		HS → HU
<b>I. Financial planning and management</b>		HS → HU
<b>J. Monitoring and Evaluation</b>		HS → HU
1. M&E Design		HS → HU
2. M&E Plan Implementation		HS → HU
3. Budgeting and funding for M&E activities		HS → HU
<b>K. UNEP Supervision and backstopping</b>		HS → HU

**Rating of Attainment of project objectives and results.** A compound rating is given to the category based on the assessment of relevance, effectiveness and efficiency. This aggregated rating is not a simple average of the separate ratings given to the evaluation criteria, but an overall judgement by the consultants. Relevance and effectiveness, however, will be considered as critical criteria. This means that the aggregated rating for Attainment of objectives and results may not be higher than the lowest rating on either of these two criteria.

**Ratings on sustainability.** According to the GEF Office of Evaluation, all the dimensions of sustainability are deemed critical. Therefore, the overall rating for sustainability will not be higher than the lowest rating on the separate dimensions.

**Ratings of monitoring and evaluation.** The M&E system will be rated on M&E design, M&E plan implementation, and budgeting and funding for M&E activities (the latter sub-criterion is covered in the main report under M&E design) as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

M&E plan implementation will be considered critical for the overall assessment of the M&E system. Thus, the overall rating for M&E will not be higher than the rating on M&E plan implementation.

### Annex 3. Project costs and co-financing tables

#### Project Costs

Component/sub-component	Estimated cost at design	Actual Cost	Expenditure ratio (actual/planned)

#### Co-financing

Co-financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other* (mill US\$)		Total (mill US\$)		Total Disbursed (mill US\$)
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	
- Grants									
- Loans									
- Credits									
- Equity investments									
- In-kind support									
- Other (*)									
-									
-									
<b>TOTALS</b>									

\* This refers to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.



#### Annex 4. Quality Assessment of the Evaluation Report

All UNEP evaluation reports 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 the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	UNEP EO Assessment	Rating
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
<b>UNEP additional Report Quality Criteria</b>		
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

$$\text{Quality} = (2*(0.3*(A + B) + 0.1*(C+D+E+F)) + 0.3*(G + H) + 0.1*(I+J+K+L))/3$$

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of Evaluation reports: A number rating between 1 and 6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1.

## **Annex 5. Documentation list for the evaluation to be provided by the UNEP Task Manager**

- Project design documents
- Annual Project Implementation Reports (PIRs)
- Supervision mission reports
- Project progress reports
- Financial reports
- Project revision documentation including budget revisions (as applicable)
- Correspondence and Management memos related to project (as applicable)
- Other documentation of supervision feedback on project outputs and processes (e.g. comments on draft progress reports, etc.).

## Annex 6. Introduction to Theory of Change / Impact pathways, the ROtI Method and the ROtI Results Score sheet

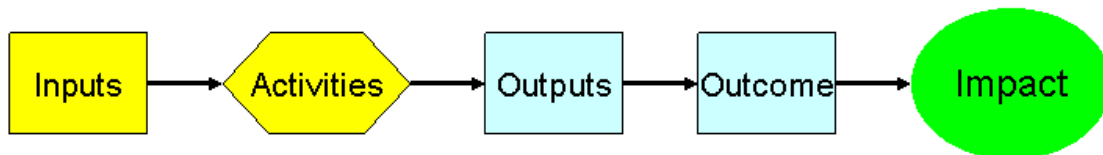
Terminal evaluations of projects are conducted at, or shortly after, project completion. At this stage it is normally possible to assess the achievement of the project's outputs. However, the possibilities for evaluation of the project's outcomes are often more limited and the feasibility of assessing project **impacts** at this time is usually severely constrained. Full impacts often accrue only after considerable time-lags, and it is common for there to be a lack of long-term baseline and monitoring information to aid their evaluation. Consequently, substantial resources are often needed to support the extensive primary field data collection required for assessing impact and there are concomitant practical difficulties because project resources are seldom available to support the assessment of such impacts when they have accrued – often several years after completion of activities and closure of the project.

Despite these difficulties, it is possible to enhance the scope and depth of information available from Terminal Evaluations on the achievement of results **through rigorous review of project progress along the pathways from outcome to impact**. Such reviews identify the sequence of conditions and factors deemed necessary for project outcomes to yield impact and assess the current status of and future prospects for results. In evaluation literature these relationships can be variously described as 'Theories of Change', Impact 'Pathways', 'Results Chains', 'Intervention logic', and 'Causal Pathways' (to name only some!).

### Theory of Change (ToC) / impact pathways

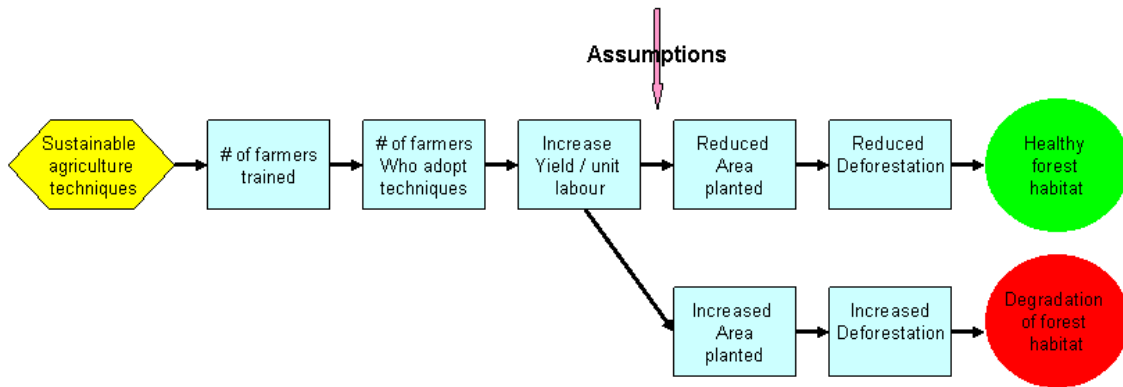
Figure 1 shows a generic impact pathway which links the standard elements of project logical frameworks in a graphical representation of causal linkages. When specified with more detail, for example including the key users of outputs, the processes (the arrows) that lead to outcomes and with details of performance indicators, analysis of impact pathways can be invaluable as a tool for both project planning and evaluation.

Figure 1. A generic results chain, which can also be termed an 'Impact Pathway' or Theory of Change.



The pathways summarise casual relationships and help identify or clarify the assumptions in the intervention logic of the project. For example, in the Figure 2 below the eventual impact depends upon the behaviour of the farmers in using the new agricultural techniques they have learnt from the training. The project design for the intervention might be based on the upper pathway assuming that the farmers can now meet their needs from more efficient management of a given area therefore reducing the need for an expansion of cultivated area and ultimately reducing pressure on nearby forest habitat, whereas the evidence gathered in the evaluation may in some locations follow the lower of the two pathways; the improved farming methods offer the possibility for increased profits and create an incentive for farmers to cultivate more land resulting in clearance or degradation of the nearby forest habitat.

Figure 2. An impact pathway / TOC for a training intervention intended to aid forest conservation.



The GEF Evaluation Office has recently developed an approach that builds on the concepts of theory of change / causal chains / impact pathways. The method is known as Review of Outcomes to Impacts (ROtI)<sup>17</sup> and has three distinct stages:

- a. Identifying the project's intended impacts
- b. Review of the project's logical framework
- c. Analysis and modelling of the project's outcomes-impact pathways

The **identification of the projects intended impacts** should be possible from the 'objectives' statements specified in the official project document. The next stage is to **review the project's logical framework** to assess whether the design of the project is consistent with, and appropriate for, the delivery of the intended impact. The method requires verification of the causal logic between the different hierarchical levels of the logical framework moving 'backwards' from impacts through outcomes to the outputs; the activities level is not formally considered in the ROtI method<sup>18</sup>. The aim of this stage is to develop an understanding of the causal logic of the project intervention and to identify the key 'impact pathways'. In reality such process are often complex; they often involve multiple actors and decision-processes and are subject to time-lags, meaning that project impact often accrue long after the completion of project activities.

The third stage involves analysis of the 'impact pathways' that link project outcomes to impacts. The pathways are analysed in terms of the '**assumptions**' and '**impact drivers**' that underpin the processes involved in the transformation of outcomes to impacts via **intermediate states** (see Figure 3). Project outcomes are the direct intended results stemming from the outputs, and they are likely to occur either towards the end of the project or in the short term following project completion. **Intermediate states** are the transitional conditions between the project's immediate outcomes and the intended impact. They are necessary conditions for the achievement of the intended impacts and there may be more than one intermediate state between the immediate project outcome and the eventual impact.

**Impact drivers** are defined as the significant factors that if present are expected to contribute to the realization of the intended impacts and **can be influenced** by the project / project partners & stakeholders. **Assumptions** are the significant factors that if present are expected to contribute to the realization of the intended impacts but are largely **beyond the control of the project** / project partners & stakeholders. The impact drivers and assumptions are ordinarily considered in Terminal Evaluations when assessing the sustainability of the project.

<sup>17</sup>GEF Evaluation Office (2009).ROtI: Review of Outcomes to Impacts Practitioners Handbook.

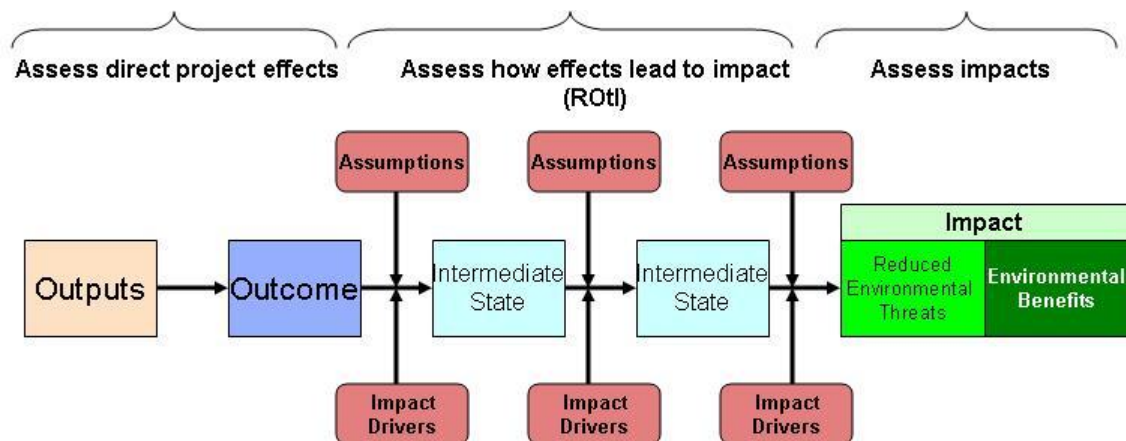
[http://www.gefweb.org/uploadedFiles/Evaluation\\_Office/OPS4/Roti%20Practitioners%20Handbook%2015%20June%202009.pdf](http://www.gefweb.org/uploadedFiles/Evaluation_Office/OPS4/Roti%20Practitioners%20Handbook%2015%20June%202009.pdf)

<sup>18</sup>Evaluation of the efficiency and effectiveness in the use of resources to generate outputs is already a major focus within UNEP Terminal Evaluations.

Since project logical frameworks do not often provide comprehensive information on the processes by which project outputs yield outcomes and eventually lead, via ‘intermediate states’ to impacts, the impact pathways need to be carefully examined and the following questions addressed:

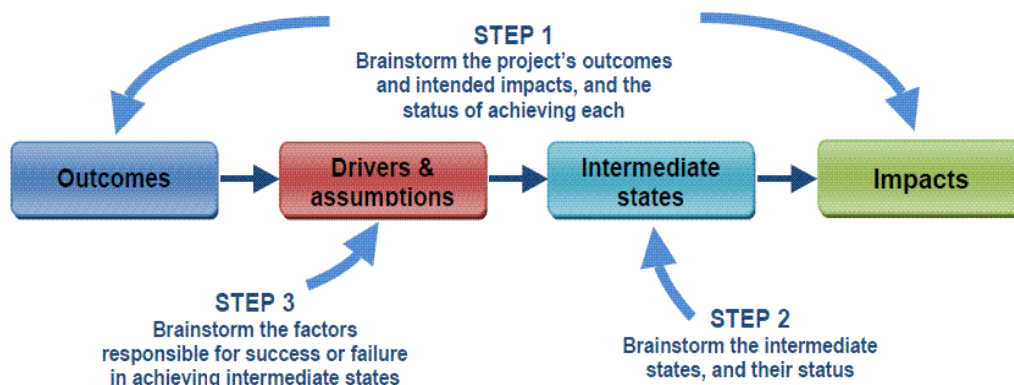
- Are there other causal pathways that would stem from the use of project outputs by other potential user groups?
- Is (each) impact pathway complete? Are there any missing intermediate states between project outcomes and impacts?
- Have the key impact drivers and assumptions been identified for each ‘step’ in the impact pathway.

Figure 3. A schematic ‘impact pathway’ showing intermediate states, assumptions and impact drivers (adapted from GEF EO 2009).



The process of identifying the impact pathways and specifying the impact drivers and assumptions can be done as a desk exercise by the evaluator or, preferably, as a group exercise, led by the evaluator with a cross-section of project stakeholders as part of an evaluation field mission or both. Ideally, the evaluator would have done a desk-based assessment of the project’s theory of change and then use this understanding to facilitate a group exercise. The group exercise is best done through collective discussions to develop a visual model of the impact pathways using a card exercise. The component elements (outputs, outcomes, impact drivers, assumptions intended impacts etc.) of the impact pathways are written on individual cards and arranged and discussed as a group activity. Figure 4 below shows the suggested sequence of the group discussions needed to develop the ToC for the project.

Figure 4. Suggested sequencing of group discussions (from GEF EO 2009)



Once the theory of change model for the project is complete the evaluator can assess the design of the project intervention and collate evidence that will inform judgments on the extent and effectiveness of implementation, through the evaluation process. Performance judgments are made always noting that project contexts can change and that adaptive management is required during project implementation.

The ROtI method requires ratings for outcomes achieved by the project and the progress made towards the ‘intermediate states’ at the time of the evaluation. According the GEF guidance on the method; *“The rating system is intended to recognize project preparation and conceptualization that considers its own assumptions, and that seeks to remove barriers to future scaling up and out. Projects that are a part of a long-term process need not at all be “penalized” for not achieving impacts in the lifetime of the project: the system recognizes projects’ forward thinking to eventual impacts, even if those impacts are eventually achieved by other partners and stakeholders, albeit with achievements based on present day, present project building blocks.”* For example, a project receiving an “AA” rating appears likely to deliver impacts, while for a project receiving a “DD” this would seem unlikely, due to low achievement in outcomes and the limited likelihood of achieving the intermediate states needed for eventual impact (see Table 1).

Table 1. Rating scale for outcomes and progress towards ‘intermediate states’

<b>Outcome Rating</b>	<b>Rating on progress toward Intermediate States</b>
D: The project’s intended outcomes were not delivered	<b>D:</b> No measures taken to move towards intermediate states.
C: The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding	C: The measures designed to move towards intermediate states have started, but have not produced results.
B: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding	B: The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact.
A: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, with specific allocation of responsibilities after project funding.	A: The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact.

Thus a project will end up with a two letter rating e.g. AB, CD, BB etc. In addition the rating is given a ‘+’ notation if there is evidence of impacts accruing within the life of the project. The possible rating permutations are then translated onto the usual six point rating scale used in all UNEP project evaluations in the following way.

Table 2. Shows how the ratings for ‘achievement of outcomes’ and ‘progress towards intermediate states translate to ratings for the ‘Overall likelihood of impact achievement’ on a six point scale.

Highly Likely	Likely	Moderately Likely	Moderately Unlikely	Unlikely	Highly Unlikely
AA AB BA CA BB+ CB+ DA+ DB+	BB CB DA DB AC+ BC+	AC BC CC+ DC+	CC DC AD+ BD+	AD BD CD+ DD+	CD DD

In addition, projects that achieve documented changes in environmental status during the project’s lifetime receive a positive impact rating, indicated by a “+”. The overall likelihood of achieving impacts is shown in Table 11 below (a + score above moves the double letter rating up one space in the 6-point scale).

The ROI method provides a basis for comparisons across projects through application of a rating system that can indicate the expected impact. However it should be noted that whilst this will provide a relative scoring for all projects assessed, it does not imply that the results from projects can necessarily be aggregated. Nevertheless, since the approach yields greater clarity in the ‘results metrics’ for a project, opportunities where aggregation of project results might be possible can more readily be identified.

Results rating of project entitled:							
		Rating (D – A)		Rating (D – A)		Rating (+)	Overall
Outputs	Outcomes		Intermediary		Impact (GEBs)		
1.	1.		1.		1.		
2.	2.		2.		2.		
3.	3.		3.		3.		
	<b>Rating justification:</b>		<b>Rating justification:</b>		<b>Rating justification:</b>		

### Scoring Guidelines

The achievement of **Outputs** is largely assumed. Outputs are such concrete things as training courses held, numbers of persons trained, studies conducted, networks established, websites developed, and many others. Outputs reflect where and for what project funds were used. These were not rated: projects generally succeed in spending their funding.

**Outcomes**, on the other hand, are the first level of intended results stemming from the outputs. Not so much the number of persons trained; but how many persons who then demonstrated that they have gained the intended knowledge or skills. Not a study conducted; but one that could change the evolution or development of the project. Not so much a network of NGOs established; but that the network showed potential for functioning as intended. A sound outcome might be genuinely improved strategic planning in SLM stemming from workshops, training courses, and networking.

#### Examples

*Funds were spent, outputs were produced, but nothing in terms of outcomes was achieved.* People attended training courses but there is no evidence of increased capacity. A website was developed, but no one used it. (Score – D)

*Outcomes achieved but are dead ends; no forward linkages to intermediary stages in the future.* People attended training courses, increased their capacities, but all left for other jobs shortly after; or were not given opportunities to apply their new skills. A website was developed and was used, but achieved little or nothing of what was intended because users had no resources or incentives to apply the tools and methods proposed on the website in their job. (Score – C)

*Outcomes plus implicit linkages forward.* Outcomes achieved and have *implicit forward linkages* to intermediary stages and impacts. Collaboration as evidenced by meetings and decisions made among a loose network is documented that should lead to better planning. Improved capacity is in place and should lead to desired intermediate outcomes. Providing

implicit linkages to intermediary stages is probably the most common case when outcomes have been achieved. (Score - B)

**Outcomes plus explicit linkages forward.** Outcomes have *definite and explicit forward linkages* to intermediary stages and impacts. An alternative energy project may result in solar panels installed that reduced reliance on local wood fuels, with the outcome quantified in terms of reduced C emissions. Explicit forward linkages are easy to recognize in being concrete, but are relatively uncommon. (Score A)

**Intermediary stages:**

The **intermediate stage** indicates achievements that lead to Global Environmental Benefits, especially if the potential for scaling up is established.

**“Outcomes” scored C or D.** If the outcomes above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.

**In spite of outcomes and implicit linkages, and follow-up actions, the project dead-ends.** Although outcomes achieved have *implicit forward linkages* to intermediary stages and impacts, the project dead-ends. Outcomes turn out to be insufficient to move the project towards intermediate stages and to the eventual achievement of GEBs. Collaboration as evidenced by meetings and among participants in a network never progresses further. The implicit linkage based on follow-up never materializes. Although outcomes involve, for example, further participation and discussion, such actions do not take the project forward towards intended intermediate impacts. People have fun getting together and talking more, but nothing, based on the implicit forwards linkages, actually eventuates. (Score = D)

**The measures designed to move towards intermediate states have started, but have not produced result, barriers and/or unmet assumptions may still exist.** In spite of sound outputs and in spite of explicit forward linkages, there is limited possibility of intermediary stage achievement due to barriers not removed or unmet assumptions. This may be the fate of several policy related, capacity building, and networking projects: people work together, but fail to develop a way forward towards concrete results, or fail to successfully address inherent barriers. The project may increase ground cover and or carbon stocks, may reduce grazing or GHG emissions; and may have project level recommendations regarding scaling up; but barrier removal or the addressing of fatal assumptions means that scaling up remains limited and unlikely to be achieved at larger scales. Barriers can be policy and institutional limitations; (mis-) assumptions may have to do with markets or public – private sector relationships. (Score = C)

**Barriers and assumptions are successfully addressed.** Intermediary stage(s) planned or conceived have feasible direct and explicit forward linkages to impact achievement; barriers and assumptions are successfully addressed. The project achieves measurable intermediate impacts, and works to scale up and out, but falls well short of scaling up to global levels such that achievement of GEBs still lies in doubt. (Score = B)

**Scaling up and out over time is possible.** Measurable intermediary stage impacts achieved, scaling up to global levels and the achievement of GEBs appears to be well in reach over time. (Score = A)

**Impact:** Actual changes in environmental status

**“Intermediary stages” scored B to A.**

**Measurable impacts achieved at a globally significant level within the project life-span. .**  
(Score = ‘+’)



**Annex 7. Template for the assessment of the Quality of Project Design – UNEP Evaluation Office September 2011**

<b>Relevance</b>		<b>Evaluation Comments</b>	<b>Prodoc reference</b>
Are the intended results likely to contribute to UNEPs Expected Accomplishments and programmatic objectives?			
Does the project form a coherent part of a UNEP-approved programme framework?			
Is there complementarity with other UNEP projects, planned and ongoing, including those implemented under the GEF?			
Are the project's objectives and implementation strategies consistent with:	i) Sub-regional environmental issues and needs?		
	ii) the UNEP mandate and policies at the time of design and implementation?		
	iii) the relevant GEF focal areas, strategic priorities and operational programme(s)? (if appropriate)		
	iv) Stakeholder priorities and needs?		
<b>Overall rating for Relevance</b>			
<b>Intended Results and Causality</b>			
Are the objectives realistic?			
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?			
Is the timeframe realistic? What is the likelihood that the anticipated project outcomes can be achieved within the stated duration of the project?			
Are the activities designed within the project likely to produce their intended results?			
Are activities appropriate to produce outputs?			
Are activities appropriate to drive change along the intended causal pathway(s)?			
Are impact drivers, assumptions and the roles and capacities of key actors and stakeholders clearly described for each key causal pathway?			
<b>Overall rating for Intended Results and causality</b>			
<b>Efficiency</b>			
Are any cost- or time-saving measures proposed to bring the project to a successful conclusion within its programmed budget and timeframe?			
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?			
<b>Overall rating for Efficiency</b>			
<b>Sustainability / Replication and Catalytic effects</b>			

Does the project design present a strategy / approach to sustaining outcomes / benefits?		
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 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?		
If funding is required to sustain project outcomes and benefits, does the design propose adequate measures / mechanisms to secure this funding?		
Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?		
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?		
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?		
Does the project design foresee adequate measures to catalyze behavioural changes in terms of use and application by the relevant stakeholders of (e.g.):	i) technologies and approaches show-cased by the demonstration projects;	
	ii) strategic programmes and plans developed	
	iii) assessment, monitoring and management systems established at a national and sub-regional level	
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]		
Does the project design foresee adequate measures to contribute to policy changes (on paper and in implementation of policy)?		
Does the project design foresee adequate measures to contribute to sustain follow-on financing (catalytic financing) from Governments, the GEF or other donors?		
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)?		
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?		
<b>Overall rating for Sustainability / Replication and Catalytic effects</b>		
<b>Risk identification and Social Safeguards</b>		
Are critical risks appropriately addressed?		

Are assumptions properly specified as factors affecting achievement of project results that are beyond the control of the project?		
Are potentially negative environmental, economic and social impacts of projects identified?		
<b>Overall rating for Risk identification and Social Safeguards</b>		
<b>Governance and Supervision Arrangements</b>		
Is the project governance model comprehensive, clear and appropriate?		
Are roles and responsibilities clearly defined?		
Are supervision / oversight arrangements clear and appropriate?		
<b>Overall rating for Governance and Supervision Arrangements</b>		
<b>Management, Execution and Partnership Arrangements</b>		
Have the capacities of partners been adequately assessed?		
Are the execution arrangements clear?		
Are the roles and responsibilities of internal and external partners properly specified?		
<b>Overall rating for Management, Execution and Partnership Arrangements</b>		
<b>Financial Planning / budgeting</b>		
Are there any obvious deficiencies in the budgets / financial planning?		
Is the resource utilization cost effective? Is the project viable in respect of resource mobilization potential?		
Are the financial and administrative arrangements including flows of funds clearly described?		
<b>Overall rating for Financial Planning / budgeting</b>		
<b>Monitoring</b>		
Does the logical framework: <ul style="list-style-type: none"> <li>capture the key elements of the Theory of Change for the project?</li> <li>have 'SMART' indicators for outcomes and objectives?</li> <li>have appropriate 'means of verification'?</li> <li>identify assumptions in an adequate manner?</li> </ul>		
Are the milestones and performance indicators appropriate and sufficient to foster management towards outcomes and higher level objectives?		
Is there baseline information in relation to key performance indicators?		
Has the method for the baseline data collection been explained?		
Has the desired level of achievement (targets) been specified for indicators of outcomes and are targets based on a reasoned estimate of baseline?		
Has the time frame for monitoring activities been specified?		
Are the organisational arrangements for project level progress monitoring clearly specified?		

Has a budget been allocated for monitoring project progress in implementation against outputs and outcomes?		
Overall, is the approach to monitoring progress and performance within the project adequate?		
<b>Overall rating for Monitoring</b>		
<b>Evaluation</b>		
Is there an adequate plan for evaluation?		
Has the time frame for evaluation activities been specified?		
Is there an explicit budget provision for mid term review and terminal evaluation?		
Is the budget sufficient?		
<b>Overall rating for Evaluation</b>		

## Annex 8: Tentative Evaluation Schedule

<b>Milestone</b>	<b>Date</b>	<b>Remarks</b>
Contract starts	15 April 2013	
Inception report sent to EO	3 May 2013	
Country missions	5-11 May 2013	
Zero draft evaluation report to EO	30 May 2013	
First draft evaluation report to EO	5 June 2013	
Comments on first draft collated by EO and sent to consultant	21 June 2013	
Final report to EO	27 June 2013	
Contract ends	15 July 2013	

## Annex 9: Inception report table of content

Section	Notes	Data Sources	Approx No. of pages
<b>1. Introduction</b>	Brief introduction to the project and evaluation.		1 max
<b>2. Project Background</b>	Summarise the project context and rationale. How has the context of the project changed since project design?	Background information on context	2 max
<b>3. Review of Project Design</b>	Summary of project design strengths and weaknesses. Complete the Template for assessment of the quality of project design (Annex of the Terms of Reference).	Project document and revisions, MTE/MTR if any.	2 Max + Completed template in Annex of inception report
<b>4. Theory of Change Analysis</b>	The ‘theory of change’ should be developed using the process described in Annex 7 (Introduction to Theory of Change/Impact pathways, the ROtI Method and the ROtI results score sheet) of the TORs. The Evaluation Office can provide examples of TOC diagrams on request. The diagram can be represented horizontally or vertically. The diagram should be explained in a narrative.	Project document narrative, logical framework and budget tables. Review of other project related documents.	-Diagram(s) - Narrative 2 pages max
<b>5. Evaluation Process Plan</b>	This section should include: -The evaluation framework- <ul style="list-style-type: none"> <li>• Detailed evaluation questions (including new questions raised by review of project design and theory of change analysis).</li> <li>• Data Sources and Indicators</li> </ul> This can be presented as a matrix for ease of use, showing which data sources will be used to answer which questions. - Distribution of roles and responsibilities among evaluation consultants (in case of larger evaluation teams). If needed, can be expanded in Annex - Revised timelines (dates of travel and key evaluation milestones).	Review of all project documents. Discussion with project team on logistics.	8 max
<b>6. Annexes</b>	- Completed table of the overall quality of project design -List of individuals and documents consulted for the inception report - List of documents and individuals to be consulted		

## List of Documents Reviewed

S. No.	Content
1.	TOR MTE
2.	GSWH Prodoc
3.	MTE Albania :UNDP
4.	MTE Chile UNDP
5.	MTE Lebanon UNDP
6.	MTE Report India UNDP
7.	PIR July 11 june 2012
8.	PIR july 2010 june 2011
9.	HY Prog Rpt July 2010 - Jan 2011
10.	HY Prog Rpt Jan 2010 - July 2010
11.	Prog Rpt Jul 2009 - Jan 2010
12.	SSFA OME
13.	SSFA ESTIF
14.	Regional Market Assessment report (OME-Africa and Middle East)
15.	IIEC Market Assessment Report
16.	PMC June 2011
17.	PIF Panama
18.	GEF Endorsement Panama
19.	Webinar SHAMCI
20.	ALGERIA Cancellation

**Annex 3 – People consulted for the evaluation**  
**People contacted who responded**

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## Response to comments received on the draft MTE report

No.	Comment from Stakeholders	Evaluation Office response
	<b>Comments from DTIE, Paris</b>	
1.	<p><b>Achievement of Outputs</b>  <b>Output A: Global SWH market assessment and analysis with the specific focus on GEF program countries.</b></p> <p><i>For this output we noticed that the consultant removed items 50 and 51 in the zero draft version dated 24 September 2013, and was after we provided evidence that the a methodology was used to conduct the regional market assessments, but still that was not reflected in the overall rating</i></p> <p>For clarity, DTIE commented the following on paragraph 50 in the zero draft MTE report:</p> <p><i>“OME applied a criteria for the selection and used a questionnaire to be filled by the countries selected for the study. OME market assessment is based on both primary and secondary data; IIEC on secondary; however, all secondary data are from reliable institutions/sources. To produce the Market Assessment Report, both primary and secondary data have been used.</i></p> <p><i>Description of OME Methodology: Country factsheets have been prepared by OME and completed by private and public experts in most of the countries under review. The country factsheets have the aim to provide a synthetic yet complete overview of the regulatory framework for solar thermal, the established targets, main figures about industry and market, system costs and other relevant information on each of the countries covered by the review.</i></p> <p><i>The assessment report provided a market assessment for 17 countries of the Mediterranean region, split as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>South West Mediterranean Countries (SWMCs): Algeria, Egypt, Libya, Morocco,</i></li> </ul>	<p>The deleted paragraphs in the zero draft report DTIE is referring to were the following:</p> <p><b>Paragraph 50: While the criteria for selection of the study countries were clear for the Latin America assessment, these were not as explicit for the Africa and Middle East (OME) and South and South East Asia (IIEC) for SWH market assessments. As Component 1 is the global component it would have been prudent to carry out the global SWH market assessment in GEF countries which have known solar radiation potential and have framed policies to support SWH. Moreover, the distinct difference between policies, programs and incentives supporting solar thermal and SWH need to be taken into account while selecting the countries.</b></p> <p><b>Paragraph 51. In the Latin America assessment, apart from the basic information gathered from secondary sources, primary data has been collected and collated using a questionnaire, which was e-mailed to all the National Coordinators of OLADE, who work in the Ministries or Secretaries of Energy of each country. However, the OME and IIEC SWH market assessments were mostly based on the secondary information collated from websites and published papers on internet. It appears that there was no validation of the secondary information to assess SWH potential through collection and collation of primary data for the OME and IIEC reports.</b></p>

<p><i>Tunisia</i></p> <ul style="list-style-type: none"> <li>• <i>South East Mediterranean Countries (SEMCs): Israel, Jordan, Lebanon, Palestine, Syria, Turkey</i></li> <li>• <i>Non-EU Mediterranean region</i></li> </ul> <p><i>These three groups of countries represent the Non-EU Mediterranean region (NEUM) were not included in this report. Out of these 17 countries, an in-depth analysis was carried out through primary data collection (questionnaires, telephone interviews with public and private actors and field visits) on 11 countries encompassing the North Africa and Middle East, plus Albania (as requested by UNEP, being a project implementing country).</i></p> <p><i>As a Mediterranean organization, OME has focal points in each of the North African and Middle East countries (either members of OME, or partners of OME network) and therefore has access to primary data.</i></p> <p><i>In addition, as written in the report, these countries represent a relevant share in terms of contribution to global GDP, population and energy consumption, so action is needed in order to turn these economies into greener models and to curb CO2 emissions through the adoption of RE solutions. In that respect, the potential for energy savings particularly in the residential, commercial and industry sector is huge and can be filled by solar thermal technologies. Most of these countries are also part of the Mediterranean Association of Energy Conservation Agencies, and have established targets for energy efficiency and renewable energy. As described in the assessment report, an industry value chain is established in most of the countries, but the development pace is quite diversified. Also the technology standards are different and not harmonized between countries. By covering all of them in the review, a clearer picture is offered to the reader, and those countries currently lagging behind can learn from leading countries' experiences.</i></p> <p><i>Final criterion for covering such a large number of countries is to disseminate the GWSH initiative throughout the region, in order to expand the current number of implementing countries besides Lebanon and Albania.</i></p> <p><i>PLEASE SEE ATTACHMENTS: Factsheets SWH countries item.50.pfd"</i></p>	<p>The overall rating for output delivery is based on the assessment of all planned project outputs (A to K). The additional information provided by DTIE has been worked into the final report (see paragraphs 47 to 51).</p>
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	<p>On paragraph 51 of the zero draft MTE report DTIE commented the following:</p> <p><i>“All economic and energy secondary data are taken from well-reputed sources. In particular, economic data are derived from the Organisation for Economic and Co-operation and Development’s (OECD) Economic indicators and the World Bank’s World Development Indicators 2010. For forecasts of GDP to 2015, data are taken from the International Monetary Fund (IMF) World Economic Outlook database (April 2011 and June 2011 updates); for the period 2015-2030, GDP projections are derived from available scenarios in the long-term IMF and World Bank (FUGI) forecasts. Energy data and prospects are based on the OME’s Mediterranean Energy Perspectives (MEP) 2011 publication and internal database. In particular, two scenarios are depicted: i) a Conservative Scenario, which takes a cautious approach and assumes a slow rate of implementation of new policies and governmental plans; and ii) a Proactive Scenario, which assumes achievement of targets for renewable and energy demand reduction.”</i></p>	
2.	<p><b>Paragraph 65</b></p> <p><i>Based on the evidence we provided in the previous draft as well as Item 63 above, the web site includes a comprehensive section on training and education with the name “Training and Education (<a href="http://solarthermalworld.org/taxonomy/term/74831%2C74831?module=browse">http://solarthermalworld.org/taxonomy/term/74831%2C74831?module=browse</a>), this section provides: manuals, handbooks, webinars and educational presentation about the SWH technology.</i></p> <p><i>For software and tools please check links below:</i></p> <p><i><a href="http://solarthermalworld.org/search/node/software">http://solarthermalworld.org/search/node/software</a></i></p> <p><i><a href="http://solarthermalworld.org/search/node/tool">http://solarthermalworld.org/search/node/tool</a></i></p> <p><i>Supply Side Training and Educational Tools:</i></p> <p><i><a href="http://solarthermalworld.org/taxonomy/term/74831">http://solarthermalworld.org/taxonomy/term/74831</a></i></p> <p><i>Also the unique SWH Tech Scope Report and Toolkit, developed under the project, has been identified as the main sustainable and replicable tool to evaluate the SWH market in a particular country. As no methodologies are publicly available that provide a high-level evaluation of the country market development opportunities for SWH, and therefore the SWH Tech Scope tool seeks to fill this gap and provides stakeholders with a report that benchmarks and evaluates specific a countries’ SWH policy environment, investment, business and value chain, and quality control and supporting institutions,</i></p>	<p>This is all recognised in paragraphs 63-64 of the final report.</p> <p>The consideration of the <i>SWH Tech Scope Report and Toolkit</i> as an “educational tool” has been added in the final report (see paragraph 64).</p> <p>The draft SWH Tech Scope Report and Toolkit is further discussed in paragraph 55 which remains unchanged from previous versions of the MTE.</p> <p>The reason why the KM website falls short on performing the role of a virtual training facility is explained in paragraph 64.</p>

	<p><i>the draft SWH scope was already shared with the consultant. So it was not clear why it was mentioned that the KM website was not able to perform the role of virtual training and provide tools.</i></p>	
3.	<p><b>Paragraph 67</b></p> <p><i>For this output, Work has already been achieved (and not just work in progress) through the development of “Guide for Standardization and Quality Assurance for Solar Thermal”. The guide provided details of the existing national and regional standards and certification for solar thermal worldwide. We don’t understand why this was only mentioned as a footnote (3) and not in the body of the report, if the consultant has a different opinion he should explain why the guide is not considered a review of existing national and regional SWH standards and certification.</i></p>	<p>The footnote has been removed and paragraph 68 has been reformulated to indicate that Output F is very similar to deliverable 3 under output C (see paragraph 56) which is well underway. In addition, the “Guide for Standardization and Quality Assurance for Solar Thermal”, a deliverable under Output E (see paragraph 66 last bullet), also contributes to this output. Output F is therefore considered “taken care of” by DTIE.</p>
4.	<p><b>Paragraph 74</b></p> <p><i>Please note that during project design the only 2 countries required the support in designing financial mechanisms were Mexico and Chile. The technical assistance to design a financial mechanism was offered by DTIE to Chile and Mexico, but in the end it is just the decision of the two countries to implement.</i></p>	<p>This is already mentioned in the paragraph. No changes were made.</p>
5.	<p><b>Paragraph 78</b></p> <p><i>The project invited international experts as speakers for specific solar water heating technical thematic areas during the regional workshop conducted by the project and this should be consider as another formal sharing of international experience, also same thing is done through webinars organized by the project.</i></p>	<p>The second half of the paragraph has been rewritten as follows: “Sharing of international experiences happened during the relatively few regional workshop conducted by the project (where international experts were invited as speakers) and through webinars organized by the project. However, according to the feedback received from national experts, more could be done in terms of sharing of international experiences and lessons learnt from the GSWH project. Access to technical backstopping and training, in particular, could still significantly be improved.”</p>

	<b>Comments from UNDP India</b>	
1.	There is no summary provided to the report. A 2 to 3 page summary would help quick browse	An Executive Summary has been added in the final

		report.
2.	Conclusions are not comprehensive. Only few lines are re-stated from earlier sections	Conclusions have been beefed up in the final report.
3.	<p>Reviewer has identified logframe has weakness. The project would perhaps benefited if the reviewer could give revised logframe.</p> <p>Some- how I have been seeing this consistent comment by all mid term and terminal evaluators. It may be noted that the UNDP/UNEP have involved internationally reputed consultants to help drawing them at the design stage. Another set of consultants at MTR and TE often find fault with them. There could be two reasons, the logframe could have evolved better over the years, or consistently we could not find appropriate consultants at design stage to help us draw SMART indicators and logframe.</p>	It is not part of the MTE Terms of Reference to provide a revised logframe for the component. This should be done by the project team in consultation with stakeholders.
4.	UNDP country office representation in PMC [for component 1] may be helpful	The MTE recommends better coordination between UNDP and UNEP (as both components are interrelated) Participation of UNDP country representatives in the PMC could be considered, but therefore the PMC has to meet first which hasn't happened since 2011.
5.	<p>Some of the recommendations are not practical. For examples,</p> <p>a) validation of facts and figures in PIR – they are already cleared by Project Management Unit and the line ministry concerned. The facts presented there are concurred by Project Executive Committee or Project Steering Committees</p> <p>b) conducting common terminal evaluations – different countries and UNEP may conclude the project and terminal evaluation at different time. this may be due to a variety of reasons. For example, UNDP India has closed the terminal evaluation and closed the project on the original time schedule.</p>	<p>a) The comment is probably referring to progress reports for the UNDP India project, whereas the MTE has only assessed the UNEP PIRs – where there is no clearance by a line ministry or Project Executive Committee or Project Steering Committee.</p> <p>b) It doesn't matter whether the country programmes have conducted terminal evaluations or not. There is a need for a comprehensive terminal evaluation of the whole GSWH project. It is well explained in the MTE that a partial evaluation of component 1 has severe limitations. The recommendation is in line with a GEF guideline to conduct a joint evaluation in case of co-implemented projects.</p>
6.	Reviewer has mentioned that they do not have sufficient information to draw GHG emission. PIRs give this information. In case UNDP India, both MTR and TE have given complete information. For ready reference, TE and associated documents for India terminal evaluation are enclosed.	Both the MTR and TE of the India country programme doubt the reliability of baseline information estimated by the project. The PIRs rely on the same data. An additional issue mentioned in the MTE is that it is very difficult to

		<p>distil emissions reductions that can be attributed to the project from those that would have happened anyway thanks to other SWH initiatives.</p> <p>Therefore, no reliable conclusions could be drawn on GHG emission reductions that can be attributed to the project.</p>
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**BUDGET AND VARIANCE**

IMIS number:	GFL-2328-2721-4A54
<b>Actual expenditures entered in IMIS as of 10 May 2013</b>	
2009	146,327.69
2010	462,451.85
2011	363,487.40
2012	442,358.03
2013	198,736.82
	<b>1,613,361.79</b>

### Annex 5B. Project costs and co-financing tables

**Title of Project:** Global Solar Water Heating Market Transformation and Strengthening Initiative

**Project Number:** GFL/2328-2721-4A54

**Name of Executing Agency:** UNEP

**Project Duration:** From May 2009 to December 2013

Co-financing (Type/Source)	Cash contributions US\$)		In-Kind Contributions				Comments
	Budget original (at time of approval by GEF)	Budget latest revision	Received to date	Budgets original (at time of approval by GEF)	Budget latest revision	Received to date	
- Cash							
- International Cooper Association	1,200,000	May 2013	761,000				The Rest of the co-financing amount will be materialized by the end of the project.
- Sub-Total							
- In-Kind							
- UNEP/DTIE				370,000	May 2013	190,000	
- Other partners				400,000	May 2013	290,000	
- Total	1,200,000		761,000	770,000		480,000	

\* This refers to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

***List of remaining activities proposed by DTIE (refer Annex 2)***

**Activity 1:** *Preparation of Project Identification Forms (PIFs) for inclusion of new countries in the Phase –II of the project*

Proposed Timeline: March 2013 to November 2013

Proposed Budget: 40,000 US\$ for hiring of regional and national consultants to collect data & information required for the preparation of the PIF documents for new countries and to develop a final PIF document based on the conditions of each country. *Budget line code: 1202*

**Activity 2:** *Preparation of the “Solar Water Heating Tech Scope report and toolkit”.*

Proposed Timeline: May 2013 to July 2014 (will include the development and dissemination of this knowledge product and conducting a full comprehensive market assessment for at least 5 Countries)

Proposed Budget: 110,000 US\$. *Budget line code: 1202 and 2102*

**Activity 3:** *Harmonizing the quality testing standards and certification methodologies for manufacture & installation of SWH components at national & regional levels*

Proposed Timeline: February 2013 to August 2014

Proposed Budget: 100,000 US\$ to fund activities that will be carried out by RECREEE through a small scale funding agreement (SSFA). *Budget line code: 2101*

**Activity 4:** *To*

a) *Prepare the Project Identification Form (PIF) for “Demonstration of Solar Thermal Systems Certification Scheme in the Arab Region:*

b) *Prepare full project document “Demonstration of Solar Thermal Systems Certification Scheme in the Arab Region”*

Proposed Timeline: February 2013 to November 2014

Proposed Budget: 55,000 US\$. *Budget line code: 2101*

**Activity 5:** *To update the regional market assessment in Asia*

Proposed Timeline: August 2013 to November 2013

Proposed Budget: 15,000 US\$. *Budget line code: 2101 and 2102*

a. **Activity 6:** *To organize the regional project workshop in Asia*

Proposed Timeline: March 2014

Proposed Budget: 80,000 US\$. *Budget line code: 2102*

**Activity 7:** *To develop the Architects and Builders Guidelines (Handbook) to Solar Water Heating Systems*

Proposed Timeline: December 2013 to February 2014

Proposed Budget: 25,000 US\$. *Budget line code: 2101*

**Activity 8:** *Conduct three B2B meetings in three different regions in partnership with the regional partners.*

Proposed Timeline: December 2013 to November 2014

Proposed Budget: 210,000 US\$. *Budget line code: 2102*

**Activity 9:** *To develop a regional solar water heating market assessment for potential countries in Africa*

Proposed Timeline: September 2013 to June 2014

Proposed Budget: 35,000 US\$. *Budget line code: 2101*

**Activity 10:** *To organize the regional project workshop in Africa*

Proposed Timeline: September 2014

Proposed Budget: 75,000 US\$. *Budget line code: 2102*

**Activity 11:** *To provide Technical Assistance requested by Project countries*

Proposed Timeline: May 2013 to November 2014

Proposed Budget: 90,000 US\$. *Budget line code: 2101*

**Activity 12:** *To sign SFAs with different regional partners to carry out different activities and develop knowledge products*

Proposed Timeline: May 2013 to November 2014

Proposed Budget: 170,000 US\$. Budget line code: 2102



### *Assessment of the Design of Component 1 GSWH Project*

In line with the ToR of the MTE, the GSWH project design has been reviewed and ratings provided in the Annexure 1. GSWH project Prodoc, draft Prodoc and executive summary have been considered for referencing the observations and arriving at the assessment rating. Following are the key observations in terms of project design's strengths & weaknesses.

#### *Strengths*

- a) The GSWH Project design scores *Highly Satisfactory (HS)* on the 'Relevance' parameter, as the project has been developed in close co-ordination with the main national agencies in the targeted countries. The project is in line with the objectives of the GEF's Operational Programme #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs" with the closest fit to the GEF-3 Strategic Priority #1, "Transformation of markets for high-volume, commercial, low GHG products or processes". Stakeholders have been mapped, their priorities & needs have been analyzed & their involvement envisaged using appropriate mechanisms and channels.
- b) With regards to *Intended Results & Causality* the GSWH Project design is 'Satisfactory'. The project objectives are realistic and though 'Theory of Change' concept was probably not required to be elaborated explicitly during formulation of Prodoc in the year 2006-07, the Results Framework – Log Frame of the project presents the intervention logic quite clearly. The baseline and the GEF intervention are qualitatively linked to the project outputs and outcomes thus defining the causal pathways to drive change.
- c) The GSWH project identifies the need for stable financial mechanisms and an exit strategy for GEF supported initiatives and elucidates the factors that would impact the sustainability of the project with reference to various stakeholders in order to transform the SWH market.

The project design has not defined explicitly any financial risks that may jeopardize sustenance of project results & onward progress towards impact in the project documents.

The project design identifies technical assistance activities that are intended to lay the necessary foundation of a supportive legal and regulatory framework, institutional structures and national capacities to initiate, develop and manage sustainable promotion of the SWH market at the national levels.

Considering all above, the GSWH project is rated '*Highly Likely (HL)*' on *Sustainability / Replication and Catalytic effects*.

- d) The GSWH project proposes to be overseen by a Project Management Committee (PMC) including the International Copper Association, UNDP and UNEP. Further, the design designates UNDP, as the lead GEF Implementing Agency, entrusted with the responsibility on overall project supervision to ensure consistency with GEF policies and procedures, and also to provide guidance on linkages with related GEF-funded activities. With clear roles & responsibility on *Governance & Supervision*, the project design is rated as '*Highly Satisfactory (HS)*'.
- e) *Management, Execution and Partnership Arrangements and Financial Planning / budgeting at the design stage have been assessed as 'Satisfactory'*.

### *Weakness*

A key weakness of the GSWH project design is its *'Monitoring'* rated as *'Moderately Satisfactory (MS)*. Though the significant elements of 'Theory of Change' are included in the project design but the project log frame does not include 'SMART' indicators for monitoring of outcomes and objectives. The means of verification have also not been defined explicitly in the project design. Only qualitative assumptions have been provided without quantifications wrt baselines, targets and result outputs.

Moreover, the milestones and performance indicators are not correlated to the 'baselines' i.e quantified & defined explicitly. The higher level objectives of the project i.e the estimated global benefits are projected to be "Indirect", connected to the successful initiation and implementation of activities at the country level – which being a UNDP (NEX) component – can be a factor beyond direct management & control of UNEP.

*Overall rating of the GSWH project is 'Satisfactory'.*

Relevance		Evaluation Comments	Prodoc reference
Are the intended results likely to contribute to UNEPs Expected Accomplishments and programmatic objectives?		<p>Yes.</p> <p>The project has been developed in close co-ordination with the main national agencies in the targeted countries.</p> <p>The project has ensured cooperation with the related activities of the International Copper Association, as well as UNEP/MEDREP projects.</p>	Item 2.7, Pg. 9 &10 Prodoc
Does the project form a coherent part of a UNEP-approved programme framework?		Yes. Within UNEP, the project will contribute to the implementation of the Technology, Industry and Economics Algeriagrammes on energy and economics (biennium 2004-2005 sub programme - A/58/6 (Sect.14) Rev.1).	Information not included in the Prodoc but available in Draft Prodoc Item 74, Pg.20 & Executive Summary item 102 Pg. 24
Is there complementarity with other UNEP projects, planned and ongoing, including those implemented under the GEF?		Yes.	Item 2.7 pg 10. Prodoc.
Are the project's objectives and implementation strategies consistent with:	i) Sub-regional environmental issues and needs?	<p>Yes,</p> <p>The project has been developed in close co-ordination with the main national agencies in the targeted countries.</p>	Item 2.7, Pg. 9 &10.Prodoc

	ii) the UNEP mandate and policies at the time of design and implementation?	Yes	Information not included in the Prodoc but available in Draft Prodoc Item 74, Pg.20 & Executive Summary 102 Pg. 24
	iii) the relevant GEF focal areas, strategic priorities and operational programme(s)? (if appropriate)	Yes, The project will contribute to meeting the objectives of the GEF's Operational Programme #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs" with the closest fit to the GEF-3 Strategic Priority #1, "Transformation of markets for high-volume, commercial, low GHG products or processes".	Item 2.7 pg 9. Prodoc
	iv) Stakeholder priorities and needs?	Yes, stakeholders have been mapped, their priorities & needs have been analyzed and involvement envisaged using appropriate mechanisms and channels.	Section 2.3 Pg 8, Section 2.5 Pg 9 and Section 5 Pg. 36.
<b>Overall rating for Relevance</b>		Highly Satisfactory(HS)	
<b>Intended Results and Causality</b>			
Are the objectives realistic?		Yes	
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?		Yes. Though Theory of Change concept was not required to be elaborated during formulation of Prodoc in year 2006-07.	Results Framework – Logical Framework analysis –

	However, the Results Framework – Log Frame presents the intervention logic.	Appendix 2a Pg. 46.
Is the timeframe realistic? What is the likelihood that the anticipated project outcomes can be achieved within the stated duration of the project?	Yes. The risk analysis and mitigation measures have been included in the project design and it is most likely that the project outcomes will be achieved during the project duration.	Section 3.5 Pg 26.
Are the activities designed within the project likely to produce their intended results?	Yes. The Results Framework – Log Frame presents the baseline, success indicators and targets clearly (qualitatively) – a design feature essentially required to achieve results	Results Framework – Logical Framework analysis – Appendix 2a Pg. 46.
Are activities appropriate to produce outputs?	Yes.	Results Framework – Logical Framework analysis – Appendix 2a Pg. 46.
Are activities appropriate to drive change along the intended causal pathway(s)?	Yes. The baseline and the GEF intervention are qualitatively linked to the project outputs and outcomes thus defining the causal pathways to drive change	Results Framework – Logical Framework analysis – Appendix 2a Pg. 46.
Are impact drivers, assumptions and the roles and capacities of key actors and stakeholders clearly described for each key causal pathway?	Yes. The participation of key actors and stakeholders in the project has been defined	Section 3.5 Pg 26.
<b>Overall rating for Intended Results and causality</b>	Satisfactory (S)	
<b>Efficiency</b>		
Are any cost- or time-saving measures proposed to bring the project to a successful conclusion within its	Yes	Information not included in the Prodoc but

programmed budget and timeframe?		available in Draft Prodoc Item 73 & 74 Pg.20
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?	Yes	Information not included in the Prodoc but available in Draft Prodoc Item 73 & 74 Pg.20
<b>Overall rating for Efficiency</b>	Satisfactory (S)	
<b>Sustainability / Replication and Catalytic effects</b>		
Does the project design present a strategy / approach to sustaining outcomes / benefits?	Yes. Project identifies the need for stable financial mechanisms and an exit strategy for GEF supported initiatives	Item 3.8 Pg. 30 & 31.Prodoc
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 government and stakeholder awareness, interests, commitment and incentives to execute, enforce and pursue the programmes, plans, agreements, monitoring systems etc. prepared and upon under the project?	Yes. The project identifies the factors that would impact the sustainability of the project with reference to various stakeholders in order to transform the SWH market	Item 3.8 Pg. 30 & 31.Prodoc
If funding is required to sustain project outcomes and benefits, does the design propose adequate measures / mechanisms to secure this funding?	Yes. The project identifies the need for new financing and delivery models, which can continue to operate on the self-sustaining basis after the project has been completed	Item 3.8 Pg. 30 & 31.Prodoc
Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?	Not defined explicitly in the project documents	
Does the project design adequately describe the institutional frameworks, governance structures and processes, policies, sub-regional agreements, legal and	Yes.	Section 4. Pg 33 Prodoc

accountability frameworks etc. required to sustain project results?			
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?		Yes. The cumulative, direct GHG reduction resulting from the installation of the additional 3 million m2 by the end of the project has been estimated at 14.9 million tons of CO2eq over 15 years and the cumulative, incremental GHG reduction impact including both direct and direct post project impact by at over 80 million tons of CO2eq by the end of 2020.	Item 2.6 pg.9 Prodoc
Does the project design foresee adequate measures to catalyze behavioural changes in terms of use and application by the relevant stakeholders of (e.g.):	i) technologies and approaches show-cased by the demonstration projects;	Yes. The project design includes activities as seminars & workshops to facilitate continuing contacts and co-operation between the different stakeholder groups at the national and international level which would cover technologies and approaches show-cased by the demonstration projects	Item 3.9 pg. 31 and 32
	ii) strategic programmes and plans developed	Yes. Project design identifies technical assistance activities that are intended to lay the necessary foundation of a supportive legal and regulatory framework, institutional structures and national capacities to initiate, develop and manage sustainable promotion of the SWH market at the national	Item 3.9 pg.32

		levels	
	iii) assessment, monitoring and management systems established at a national and sub-regional level	Yes. Project design envisages a need for close monitoring and evaluation of the project implementation and results, thereby providing lesson learned for future action	Item 3.9 pg.32
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]		Yes. To bring about institutional changes the project proposes to disseminate the lessons learnt through a wide range of media to a number of targets to ensure that maximum benefit can be gained	Item 3.10 pg.32
Does the project design foresee adequate measures to contribute to policy changes (on paper and in implementation of policy)?		Yes. The project envisages facilitating continuing contacts and co-operation between the different stakeholder groups at the national and international level by organizing seminars, workshops and other public events, thereby bringing the project proponents, the policy makers and the potential investors / other donors together.	Item 3.9 pg.31
Does the project design foresee adequate measures to contribute to sustain follow-on financing (catalytic financing) from Governments, the GEF or other donors?		Yes. UNEP/DTIE foresees co-operation with the project partners, to continue to manage and disseminate the information, experiences and lessons learnt after the closure of the project and . Leveraging additional financial resources through partnerships and networking to be one of the key tasks and targets	Item 3.9 pg.31



	of the project management unit.	
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)?	Yes. Identifies local stakeholders in Phase I countries as Champions to catalyze change	Item 3.5 Pg.25 Prodoc
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?	Yes.	
<b>Overall rating for Sustainability / Replication and Catalytic effects</b>	Highly Likely (HL)	
<b>Risk identification and Social Safeguards</b>		
Are critical risks appropriately addressed?	Yes. Although social risks are not anticipated to be high, the project proposes to undertake environmental and social assessment at each country program level	Item 3.11 pg.32
Are assumptions properly specified as factors affecting achievement of project results that are beyond the control of the project?	To an extent. The project specifies the barriers to achievement of results – but not as factors beyond the control of the project.	Item 3.4 Pg 17-24
Are potentially negative environmental, economic and social impacts of projects identified?	Yes. Project identifies the need for environment & social safeguards during manufacturing of SWHs and proposes to be taken care in the component 2 of the project (specifically 2.1 & 2.4)	Item 3.11 pg.32
<b>Overall rating for Risk identification and Social Safeguards</b>	Satisfactory (S)	
<b>Governance and Supervision Arrangements</b>		
Is the project governance model comprehensive, clear and appropriate?	Yes. The project proposes to be overseen by a Project	Section 4. Pg. 33

	<p>Management Committee (PMC) including the International Copper Association, UNDP and UNEP.</p> <p>UNDP, as the lead GEF Implementing Agency, will be responsible for overall project supervision to ensure consistency with GEF policies and procedures, and will provide guidance on linkages with related GEF-funded activities.</p>	
Are roles and responsibilities clearly defined?	Yes	Same as above
Are supervision / oversight arrangements clear and appropriate?	Yes	Same as above
<b>Overall rating for Governance and Supervision Arrangements</b>	Highly Satisfactory (HS)	
<b>Management, Execution and Partnership Arrangements</b>		
Have the capacities of partners been adequately assessed?	Yes.	Section 4: Implementation Arrangements Pg. 33
Are the execution arrangements clear?	Yes.	Section 4: Project Management & supervision Pg. 33 & 34
<b>Overall rating for Management, Execution and Partnership Arrangements</b>	Satisfactory (S)	
<b>Financial Planning / budgeting</b>		
Are there any obvious deficiencies in the budgets / financial planning?	No	Appendix 2. Pg 41
Is the resource utilization cost effective? Is the project viable in respect of resource mobilization potential?	Yes	Appendix 2. Pg. 41

Are the financial and administrative arrangements including flows of funds clearly described?	Yes	Appendix 2. Pg 41
<b>Overall rating for Financial Planning / budgeting</b>	Satisfactory (S)	
<b>Monitoring</b>		
<p>Does the logical framework:</p> <ul style="list-style-type: none"> <li>capture the key elements of the Theory of Change for the project?</li> <li>have ‘SMART’ indicators for outcomes and objectives?</li> <li>have appropriate 'means of verification'?</li> <li>identify assumptions in an adequate manner?</li> </ul>	<p>Yes. Key elements are of Theory of Change for project are provided</p> <p>Indicators are provided, but cannot be categorized as ‘SMART’</p> <p>Not defined explicitly</p> <p>To an extent – qualitative assumptions have been provided without quantifications wrt baselines, targets and result outputs.</p>	Appendix 4a Pg. 46-49.
Are the milestones and performance indicators appropriate and sufficient to foster management towards outcomes and higher level objectives?	The milestones and performance indicators are not correlated to the ‘baselines’ (quantified & defined explicitly). The higher level objectives i.e the estimated global benefits are projected to be “Indirect”, connected to the successful initiation and implementation of activities at the country level – which is UNDP (NEX) component – can be a factor beyond direct management of UNEP	Appendix 4a Pg. 46-49.
Is there baseline information in relation to key performance indicators?	Not explicitly quantified	
Has the method for the baseline data collection been explained?	Not explicitly defined	

Has the desired level of achievement (targets) been specified for indicators of outcomes and are targets based on a reasoned estimate of baseline?	Quantified targets vis a vis baseline information not defined explicitly	
Has the time frame for monitoring activities been specified?	Yes	Section 6. Pg 35 – 38
Are the organisational arrangements for project level progress monitoring clearly specified?	Yes	Section 6. Pg 35 – 38
Has a budget been allocated for monitoring project progress in implementation against outputs and outcomes?	Yes	Section 6. Pg 35 – 38
Overall, is the approach to monitoring progress and performance within the project adequate?	Yes	Section 6. Pg 35 – 38
<b>Overall rating for Monitoring</b>	Moderately Satisfactory (MS)	
<b>Evaluation</b>		Section 6. Pg 35 – 38
Is there an adequate plan for evaluation?	Yes	
Has the time frame for evaluation activities been specified?	Yes	
Is there an explicit budget provision for mid term review and terminal evaluation?	Yes	
Is the budget sufficient?	Yes	
<b>Overall rating for Evaluation</b>	Satisfactory (S)	

## Annex 8 - Brief CV of the MTE Consultant: Dr. Naval Karrir

Dr. Naval Karrir has post graduation both in engineering & management with a PhD, having more than 29 years of experience working with Public, Private, Government and NGO sectors in the fields of energy, environment (both mitigation & adaptation-including CDM), infrastructure and sustainable development.

Further, he has experience of working with multilateral agencies-World Bank, Asian Development Bank, UNDP, UNEP, UNIDO; bilateral agencies-GTZ Germany, NEDO's & JBIC Japan and Governments in India, Mauritius, Montenegro, Cambodia & Nepal .

Dr. Naval has experience in conceptualization, development, implementation and evaluation of GEF (Global Environment Facility) projects.

### ***Recent assignments (Multilateral / bi lateral Agencies)***

#### ***Assisting***

- Government of Pakistan, Ministry of Water & Power, as Team Leader & International Expert on implementation of ADB financed National CFL project, which aims to replace about 30 million incandescent bulbs with efficient, high quality Compact Fluorescent Lamps (CFL).
- UNDP Ethiopia and Government of Ethiopia on undertaking a comprehensive policy analysis (policies, legislations, standards and codes) with a view of identifying critical gaps and opportunities and recommending measures that are necessary to create enabling environment for transition to inclusive, low emission Climate Resilient Green Economy (CRGE – focus area industrial sector).

#### ***Assisted***

- Asian Development Bank (ADB), Philippines as an International Expert to develop Monitoring & Evaluation (M&E) Framework and Knowledge Products (KPs) in Climate Investment Fund (CIF) Pilot countries: Philippines, Vietnam, Cambodia, Indonesia and Nepal.
- UNDP Montenegro as International Expert in the field of Renewable Energy Sources (RES)
- Asian Development Bank (ADB) as Independent Technical Evaluation Consultant (Sustainability & Environment) to support Government of India in mainstreaming Public Private Partnership (PPP) for providing urban facilities in rural areas.
  - b. UNDP, Montenegro on successful development & approval of a GEF project for integration of global environment commitments in investment/development decisions & Rio Convention reporting.
  - UNDP Mauritius as Technology Transfer Expert on Solar PV based GEF project.
  - UNDP India as Consultant for Mid Term review of the GEF project 'Global Solar Water Heating Market Transformation and Strengthening Initiative'.
  - For UNEP EO undertook terminal evaluation of UNEP/GEF project
    - c. "Promoting energy efficiency through a Cleaner Production/Environment Management System framework in six countries: China, India, Vietnam, Czech Republic, Hungary & Slovak Republic".
- For UNEP as part of the UNEP/World Bank 3 country (Brazil, China & India) energy efficiency project, undertook an Energy Efficiency gaps & strategy study. The assignment involved a) providing recommendations on the strategic implementation gaps in the UNEP/World Bank

project b) undertaking a 'Delphi Study' (through structured Questionnaire based interview methodology) to arrive at recommendations to fill the gaps

**Presently leading a team of professionals** involved with conceptualization, development & execution of projects in the in the area of energy, environment, infrastructure and sustainable development

As part of Government of India, TERI, Deloitte. (International consulting firm), World Bank and now Sustainability Synergies have been involved with conceptualization, development and implementation of energy efficiency , cleaner production & climate change projects in various sectors of the Indian economy including: Industrial , power, transport, agriculture, urban, commercial, domestic and forestry. He has been part of various Government committees on energy & environment and credited with development of innovative projects & financing mechanisms leading to energy conservation and environment protection.

Based on projects conceptualized, developed and implemented in the SME (Small & Medium Enterprises) sector, have created innovative financing mechanisms for ushering in productivity enhancement and providing competitive advantages to the various SME clusters in sectors as: textile, steel, pottery & ceramics, brass & metal ware and automobiles.

He has presented papers both at national and international levels in the area of energy efficiency and environment protection.

Dr. Naval is an accredited (EIAM, DNV) environmental auditor and practicing energy auditor.