

**Final Report**  
**Mid-Term Project Evaluation**  
**Market Transformation for Solar Thermal Water Heating in Albania**

Report submitted at the request of:  
**UNDP-GEF / Albania Country Office**

by:

*Elvita Kabashi, Programme Officer/UNDP CO Albania*  
*John O'Brien, RTA / UNDP Regional Office Bratislava*  
*and Mirela Kamberi, Project Manager*  
PIMS: 3611

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Project ID: 62847

Project Inception: 04 December, 2009

Allocated resources:

- GEF; GoA (MoETE, MoEFWA), UNDP

- Other (in-kind and parallel-GoI, ADA, Swiss Gov., HFI)

Total Budget: USD 2,750,000 / GEF USD 1,000,000

Project Duration: 4.5 years

Implementing Agency: UNDP/ Executing Agency: MoETE

Other Partner: MoEFWA



by:

**Louis-Philippe LAVOIE**

*EE/RE Programme Specialist and Evaluator*

[gclpl@videotron.ca](mailto:gclpl@videotron.ca)

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## LIST OF ACRONYMS

ADA	Austrian Development Agency
BAU	Business as Usual
CDM	Clean Development Mechanism
CEE	Albanian Centre for Energy Efficiency
CO	UNDP Country Office
CO <sub>2</sub>	Carbon Dioxide
DTIE	Division of Technology, Industry and Economics
EE	Energy Efficiency
ERE	Electricity Regulatory Authority
ESCO	Energy Service Company
EU	European Union
FS	Feasibility StudyGDP                      Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
HFI	Harry Fultz Institute
HQ	UNDP Headquarters
HVAC	Heating, Ventilating, and Air Conditioning
ICA	International Copper Association
IEA	International Energy Agency
ITA	International Technical Adviser
M&E	Monitoring and Evaluation
IMELS	Italian Ministry for the Environment, Land, and Sea
INSTAT	National Institute of Statistics
MoETE	Ministry of Economy, Trade and Energy Albania
MoEFWA	Ministry of Environment, Forestry and Water Management Albania
METGI	Ministry of Environment and Territory of the Government of Italy
MPWTT	Ministry of Public Works, Transport and Telecommunication
NANR	National Agency for Natural Resources
NES	National Energy Strategy
PDF	Project Development Facility
PIR	Project Implementation Review
PM	Project Manager
PMT	Project Management Team
PMU	Project Management Unit
PSC	Project Steering Committee
RCU	UNDP Regional Co-ordination Unit
RTA	Regional Technical Adviser
SESCO	Solar Energy Service Company
SGM	Small grant Mechanism
SWH	Solar Water Heating
SPF	Swiss Institut für Solartechnik (Solartechnik, Prüfung, Forschung)
SWT	Solar und Wärmetechnik Stuttgart (A “spin-off” of the Institute of Thermodynamics and Heat Technology of the University of Stuttgart)
TPR	Tripartite Review
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Program
VAT	Value Added Tax

## **FOREWORD**

The Evaluator conducted his site visit in Albania (Tirana) from June 22 to July 3, 2012.

The First Draft MTE Report was submitted to the UNDP on July 15, 2012 and the written comments received from the Project Manager (Mirela Kamberi), the RTA (John O'Brien) and the International Technical Advisor (Vesa Rutanen) were taken into consideration in the preparation of this Final Draft.

The Final MTE Report was submitted on August 25, 2012 and officially circulated on October 16.

## EXECUTIVE SUMMARY

The long-term goal of the project is to accelerate the sustainable market development of solar water heating in Albania. As a result of the GEF project as defined by Outcomes 1 to 4 through expected Outputs, 520,000 m<sup>2</sup> (ref. *Appendix 4 - 2020 Impacts Evaluation Spreadsheet*) will be installed by 2020 rather than 184,000 m<sup>2</sup> as per the BAU scenario. The GHG emissions reduction resulting from the alternative scenario has been estimated at 146,000 tons of CO<sub>2</sub> per year in 2020 or at a cumulative amount of over 800,000 tons of CO<sub>2</sub> by 2020 from the project start (2010).

The five primary and typical outcomes of the project are summarized below:

- Outcome 1: Policy and Regulation
- Outcome 2: Information-Awareness and Capacity Building
- Outcome 3: Financial Mechanism and SWH Delivery Model
- Outcome 4: Quality-Technology and Business Skills
- Outcome 5: Information Sharing

**Table 1 – Outcomes and Key Performance Indicators**

Outcome	Indicators
Objective: To accelerate and sustain the solar water heating market in Albania as a part of the Global SWH Market Transformation and Strengthening Initiative.	<p><u>The total installed SWH capacity and annual sale:</u> At least 75,000 m<sup>2</sup> of new installed collector area during the project, and an annual sale of 20,000 m<sup>2</sup> reached by the end of the project timeframe with expected continuing growth to reach the set target of 520,000 m<sup>2</sup> of installed SWH capacity by 2020.</p> <p><u>Level of customer satisfaction on the SWH systems installed:</u> Positive experience by over 80% of the clients, who have purchased a SWH system on the basis of problem free good quality products and after sale services.</p>
1. Policy & Regulation	The adoption and effective enforcement of the recommended legal and regulatory changes to promote sustainable SWH market development.
2. Information-Awareness & Capacity Building	<p>The demand for additional information, as measured by market surveys.</p> <p>The share of new and renovated buildings (across different types) integrating SWH into their design.</p>
3. Financial Mechanism & SWH Delivery Model	The amount of financing leveraged through new financing models specifically tailored for SWH market needs.
4. Quality-Technology & Business Skills	<p>The share of supply side entities adopting the proposed quality control schemes.</p> <p>The level of customer satisfaction with the systems installed.</p>
5. Information Sharing	Continuing support for SWH market development also after the end of the project.

The current project is a country component of the Global Market Transformation and Strengthening Initiative<sup>1</sup> executed by the UNEP/UNDP. The overall programme involves 6 countries (Albania-Algeria-Chile-India-Lebanon-Mexico). The SWH project in Albania is funded by the GEF through the Global Project (Albanian component: USD 1,000,000) spread over 5 years (start-up date: December 2009). The expected Government co-financing accounts for USD 955,500<sup>2</sup> while the UNDP CO is investing USD 150,000. Other bilateral agencies agreed to provide additional financial input services. The project must be completed at the end of 2014.

**TABLE 2 – Key achievements at mid-term and Rating**

Outcome	Achievements	Rating
<b>Objective:</b> To accelerate and sustain the solar water heating market in Albania as a part of the Global SWH Market Transformation and Strengthening Initiative.	<ul style="list-style-type: none"> <li>The target is 75,000 m<sup>2</sup> of new installed SWH capacity reached by the end of the project: At mid-term nearly 40,000 m<sup>2</sup> of new SWH capacity has been installed, which accounts for more than 50% of the expected final impact (direct post-project and indirect) within the project timeframe.</li> <li>An annual sale of 20,000 m<sup>2</sup> reached by the end of the project with a growing trend at an average rate of 20%: the project already achieved this target at the end of 2011.</li> <li>The stated longer term goal of 520,000 m<sup>2</sup> of installed capacity by 2020: if the market trend continues in the same way over upcoming years, the target will be reached.</li> <li>Adoption of a national system for adequate product standards, labeling and quality control schemes, which are, to the extent where it is possible, harmonized with international schemes: work in progress. Secondary regulations are already drafted in this regard. An issue still remains in regard to SWH equipment testing facilities for the purpose of international certification although a first set of trial tests (4 collectors) have been carried out in the premises of the existing testing facilities in Tirana.</li> <li>Enhanced capacity of the supply chain to offer their products and services and verify customer satisfaction: more than 300 participants were trained over the last 2 years and the GEF project provided TA to commercial energy end-users and at least one that had faced an unfavourable experience in the recent past (out of the project framework), and finally the project carried out an annual survey to follow up on the market transformation and the performance of installed equipment.</li> </ul>	<b>S</b>
1. Policy & Regulation	The regulatory framework is a key component of the project. The final draft of the Law on RE Resources is on the verge of being promulgated. The upcoming regulation encompasses a set of requirements (Chapter 5) related to SWH and the needed fiscal incentives. At mid-term this result is already impressive although the government did not yet enforced the new regulation. Secondary regulations related to SWH have been submitted to the Government.	<b>S</b>
2. Information-Awareness & Capacity Building	<ul style="list-style-type: none"> <li>The public awareness has been raised through advertising and promotional materials and events.</li> <li>The training materials have been produced and training sessions on the solar water heating technology have been delivered to target groups.</li> <li>The design of the marketing campaign targeting key stakeholders is completed.</li> </ul>	<b>HS</b>

<sup>1</sup> GEF grant of USD 12,000,000

<sup>2</sup> According to the Prodoc, the equivalent of 650,000 Euro is 955,000 USD.

	<ul style="list-style-type: none"> <li>- Consultations conducted with both the Association of Constructors and the Association of Architects to learn about the actual need for further awareness raising and training on solar thermal systems.</li> <li>- The project website is fully operational.</li> <li>- Showcase: "The portable solar shower" was launched in Durres in 2011 with the participation of the main stakeholders working in this area.</li> <li>- The training of a considerable number (137) of architects, building engineers, other professionals in the building sector, hotel owners, SWH installers, etc. was conducted.</li> <li>- Curricula have been improved and training sessions delivered to about 50 trainees by 3 Vocational Training Centers.</li> </ul>	
3. Financial Mechanism & SWH Delivery Model	<p>Project Component 3 is just starting: For the time being, 3 activities were carried out but tangible results did not yet materialize:</p> <ul style="list-style-type: none"> <li>- The report on evaluating the "<i>feasibility of different financial support schemes</i>" has been finalized.</li> <li>- A round table was organized with local banks, representatives from the Tourism and Business Associations and other stakeholders to discuss the most feasible support mechanisms.</li> <li>- A survey was conducted with the members of the Albanian Tourist Association (the final results still pending) for the identification of their needs regarding the financing of SWH systems in the Albanian hotel sector.</li> </ul>	<b>MS</b>
4. Quality-Technology & Business Skills	<ul style="list-style-type: none"> <li>- The Labeling and Certification protocol must be in line with certification scheme enforced in the EU countries (Keymark<sup>3</sup>), although an interim stage can be favourable to local manufacturers to improve the quality of SWH equipment.</li> <li>- Tests carried out in Switzerland on equipment produced in Albania have already evaluated the products as quite good.</li> <li>- The secondary regulations are under preparation, the draft version has been submitted.</li> <li>- The Standards have already been adopted by the General Directorate of Standardization.</li> <li>- The certification and labelling activity is in progress.</li> <li>- The ADA procured some testing equipment that was installed at the premises of the Harry Fultz Institute in Tirana but an appropriate testing facility, as per international requirements, does not yet exist in Albania.</li> <li>- As a result of the project, about 46 participants have already been trained by 3 Vocational Training Centers, but the "recognition system" has not yet been developed.</li> </ul>	<b>S</b>
5. Information Sharing	<ul style="list-style-type: none"> <li>- The estimate on the penetration rate of SWH systems in Albania till 2020 for households, the service and industry sectors was finalized as a follow-up of the update of the relevant market analyses.</li> <li>- Monitoring equipment for electricity and water consumption of electrical boilers in 20 different households in three Albanian climatic zones was installed.</li> <li>- A proposal was finalized and sent to the NANR for a long term SWH market monitoring in Albania.</li> </ul>	<b>S</b>

<sup>3</sup> The Solar Keymark Association is a voluntary third-party certification mark for solar thermal products, demonstrating to end-users that a product conforms to the relevant European standards and fulfills additional requirements. The Solar Keymark is used in Europe and increasingly recognized worldwide.

## RATING

Based on the desk review, available data and meetings and discussion with team members and a few stakeholders and project beneficiaries, the overall rating of the project in terms of its progress is **“Satisfactory” (S)**, mainly due to the fact that it is progressing at a good pace in the attainment of a number of targets set in the Prodoc although there is a need for improvement in order to achieve several of the outcomes to the project that have not yet been achieved at mid-term and a few implementation issues linked to Government co-financing, which has not been transferred in accordance with the planning.

At mid-term, the Evaluator estimates at low risk the achievement of most of the objectives and is optimistic in regards to the successful completion of the project and the sustainability of the market transformation of the SWH technology in Albania. Because of the new upcoming regulation, the better quality of SWH equipment and installation services as well as the recent and upcoming increase of the electricity tariff, the market transformation is on the right track in Albania at the very least in the residential and service sectors. From now and up to the end of the project timeframe, the PMU should tackle the industrial sector, which has been very lightly addressed over the last 2 years. On the basis of the results already achieved and actions to be undertaken in the near future, the sustainability in terms of SWH market transformation is promising.

## RECOMMENDATIONS

The MTE report provides three specific recommendations to improve the project performance and the final results towards objectives. In Section 4 (Performance Analysis and Rating), the Evaluator highlights a few minor recommendations to improve and enhance a few Outputs where some weaknesses were pointed out.

Recommendation 1: Outline of the Required Financial Mechanism(s) for energy-intensive end-users.

Recommendation 2: Intensive TA to set up the “EE/RE Investment Fund” to be set up and funded by the Government.

Recommendation 3: Improvement of the Impacts Monitoring and Verification Tools of installed SWH systems.

## CONCLUSION

In general, the major activities related the project implementation process, financial management and level of achievement towards the objectives are **Satisfactory**.

On the other hand, the Evaluator pointed out some weaknesses, especially in terms of the replication risk because of the lack of co-financing (pending issue discussed at section 4.2.1 - Financial Management), the lack to date of a financial support mechanism, and the weak penetration of SWH in hot water-intensive industrial end-users especially because of the financial capacity of equipment manufacturers to provide an attractive financing mechanism to industrial facilities. Finally, because of the difficult financial situation of the Electricity Public Utility, the utility's financial scheme cannot be considered.

The *likely sustainability of the project is satisfactory* because of the new RE regulation and because the market transformation is proceeding more easily than expected. At mid-term, the final project objective of 20,000 m<sup>2</sup> installed a year has already been achieved. The new regulation, drafted with the assistance of the project, should speed up the market transformation even more effectively over the upcoming years.

In the view of the Evaluator, the Project Management Unit is aware of the fact that it is urgent to come to a decision and to make the needed adjustments to the project by taking into consideration the need to extend the market transformation to the tourism and industrial sectors, as well as the required adjustments to the work plan up to the end of the project timeframe in accordance with the availability or not of the national co-financing commitment.

*At this stage of the project implementation, the Evaluator would recommend slightly opening the window for a project duration extension to be requested at the appropriate time, which could be useful in a situation where the national co-financing would be secured during the last year of the project timeframe. The same rationale is applicable to the "UNEP-Italy" co-financing scheme. In such a case, a one-year extension could be considered at the appropriate time with the aim of extending the project to a larger number of government and industrial facilities.*

Finally, because of the willingness of the UNDP CO and its commitment to facing the identified issues and undertaking adaptive management, the Evaluator is optimistic in regards to the successful completion of the project and the sustainability of the market transformation of the SWH technology in Albania.



## 1. BRIEF DESCRIPTION OF THE PROJECT

As a part of the UNDP/UNEP/GEF Global Solar Water Heating Market Transformation and Strengthening Initiative (USD 12,000,000 approved in 2008) which covers 6 countries (Albania, Algeria, . Chile, India, Lebanon, Mexico), the country program of Albania aims at accelerating the market development of solar water heating in Albania with an objective to facilitate the installation of 75,000 m<sup>2</sup> of new installed collector area over the duration of the project, an annual sale of 20,000 m<sup>2</sup> reached by the end of the project, with an expected continuing growth to reach the set target of 520,000 m<sup>2</sup> of total installed SWH capacity by 2020. This has been estimated to correspond to over 300 MW of avoided new fossil fuel power capacity by using solar power instead of electricity for water heating, and an estimated cumulative GHG emissions reduction potential of over 800,000 tons of CO<sub>2</sub> by the end 2020. The SWH project in Albania is funded by the global project at approximately USD 1,000,000 spread over 5 years (started up at the end of 2009).

The long-term goal of the project is to accelerate a sustainable market development of solar water heating in Albania. Under the estimated business as usual (BAU) scenario, 184,000 m<sup>2</sup> of new solar thermal panels would be installed in Albania by 2020, while in the alternative scenario, 520,000 m<sup>2</sup> of new solar thermal installations are expected by 2020. The GHG emissions reduction resulting from this alternative scenario has been estimated at 146,000 tons of CO<sub>2</sub> per year in 2020 or at a cumulative amount of over 800,000 tons of CO<sub>2</sub> by 2020 from the project start.

The five primary and typical outcomes of the project are summarized below:

- Outcome 1: **Policy** - An enabling legal and regulatory framework to promote a sustainable SWH market.
- Outcome 2: **Information and Capacity Building** - Enhanced awareness and capacity of the targeted end-users and building professionals to consider and integrate SWH systems into different types of buildings.
- Outcome 3: **Finance** - Increased demand for SWH systems through the availability of attractive end-user financing mechanisms or other delivery models, such as SESCOs or utility driven models.
- Outcome 4: **Technology and Business Skills** - A certification and quality control scheme applicable for Albanian conditions and the enhanced capacity of the supply chain to offer products and services promoting a sustainable SWH market
- Outcome 5: **Information Sharing** - The provided support institutionalized and the results, experiences and lessons learnt documented and disseminated (including monitoring, learning, evaluation and other feedback for adaptive management).

## 2. CONTEXT AND PURPOSE OF THE MID-TERM EVALUATION

The purpose of the MTE for this Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, to capture lessons learned and suggest recommendations on major/minor improvements*. The MTE is to serve as an agent of change and play a critical role in supporting accountability. As such, the MTE will serve to:

- Strengthen the adaptive management and monitoring functions of the project;
- Enhance the likelihood of achieving the project and GEF objectives through analyzing project strengths and weaknesses and suggesting measures for improvement;
- Enhance organizational and development learning;
- Create the basis for the replication of successful project outcomes achieved to date;
- As part of the adaptive management approach, the MTE intends to identify/validate any proposed changes to the Prodoc to ensure the achievement of all project objectives; and,
- Assess whether it is possible to achieve the objectives in the given timeframe, taking into consideration the pace at which the project is proceeding and a few unexpected pitfalls.

## 3. ACHIEVEMENT / PERFORMANCE ANALYSIS AND RATING

The following table includes the performance rating of priority project outcomes as defined in the Project Document. The ratings are set in accordance with the GEF methodology in regards to relevance, effectiveness and efficiency:

- |  |  |
|--|--|
| - <i>Highly Satisfactory (HS):</i>       | The project has no shortcomings in the achievement of its objectives.          |
| - <i>Satisfactory (S):</i>               | The project has minor shortcomings in the achievement of its objectives.       |
| - <i>Marginally Satisfactory (MS):</i>   | The project has moderate shortcomings in the achievement of its objectives.    |
| - <i>Marginally Unsatisfactory (MU):</i> | The project has significant shortcomings in the achievement of its objectives. |
| - <i>Unsatisfactory (U):</i>             | The project has major shortcomings in the achievement of its objectives.       |
| - <i>Highly Unsatisfactory (HU):</i>     | The project has severe shortcomings in the achievement of its objectives.      |

At mid-term, the overall rating of the project in terms of its progress is “**Satisfactory**” (S), mainly due to the fact that it is progressing at a good pace in the attainment of a number of targets set in the Prodoc although there is a need for improvement to a few implementation issues.

Because of the Satisfactory result at mid-term, the Evaluator estimates at low risk the achievement of most of the objectives (Ref. to Section 2 above) and is optimistic in regards to the successful completion of the project and the sustainability of the market transformation of the SWH technology in Albania.

### Overall Performance Indicators

As per the project design, there are five key indicators of the success at the end of the project timeframe:

- The target is 75,000 m<sup>2</sup> of new installed SWH capacity reached by the end of the project: At mid-term, the installation of nearly 40,000 m<sup>2</sup> of new SWH capacity has been installed, which accounts for more than 50% of the expected final impact (direct post-project and indirect) within the project timeframe.
- An annual sale of 20,000 m<sup>2</sup> reached by the end of the project with a growing trend at an average rate of 20%: the project already achieved this target at the end of 2011.
- The stated longer term goal of 520,000 m<sup>2</sup> of installed capacity by 2020: if the market trend continues in the same way over upcoming years, the target will be easily reached.
- Adoption of a national system for adequate product standards, labeling and quality control schemes, which are, to the extent where it is possible, harmonized with international schemes: work in progress. Secondary regulations are already drafted in this regard. An issue still remains in regard to SWH equipment testing facilities for the purpose of international certification although a first set of trial tests (4 collectors) have been carried out in the premises of the testing facility of the Harry Fultz Institute in Tirana.
- Enhanced capacity of the supply chain to offer their products and services and verify customer satisfaction: more than 300 participants were trained over the last 2 years and the GEF project provided TA to commercial energy end-users and at least one that had faced an unfavourable experience in the recent past (out of the project framework), and finally the project carried out an annual survey to follow up on the market transformation and the performance of installed equipment.

In accordance with these general success indicators, the GEF project is on the right track towards its successful completion although when some details (component-based) are examined, there is still room for improvements and adjustments.

### 3.1 Project Concept/Design Relevance and Strategy

The climate in Albania is typically Mediterranean<sup>4</sup>, with favourable conditions for utilizing solar water heating compared to, for example, Northern and Central Europe. According to studies conducted as a part of the preparation of the National Energy Strategy (NES 2002), the EU guidelines included a *“Directive to Promote Renewable Energy Cooling and Heating”*, and following the development of a baseline, the demand for hot water in

<sup>4</sup> The average temperature during the coldest month (January) in Albania is 4.8 °C, while the average temperature during the hottest month (July) is 22.8 °C.

Albania is projected to grow from 600 GWh in 2000 to 875 GWh in 2015, in the residential sector alone.

The goals of the adopted National Energy Strategy (NES) of Albania includes to:

- Guarantee the security of energy supply with a specific emphasis on electricity;
- Enhance the efficient and economic use of energy with minimal environmental impacts, in order to support the sustainable development of the different economic sectors of Albania.

By its very nature, the SWH project fits in with the NES objectives and other “directives” to curb the electricity demand on a long-term basis and, as a result to positively impact GHG emissions reduction. The project design and strategy (focus on the regulation framework, capacity building and outreach activities) are still actual in this regard. In addition, the GEF financing is appropriate for dealing with the expected outcomes and reaching the target.

On the other hand, the Evaluator regrets that the project design did not pay more attention to the industrial sector. As an example, the Prodoc only mentioned the industrial “segment” twice.

*Finally and this should be noted, the Albanian SWH project was expected to take advantage of its belonging to the Global Market Transformation and Strengthening Initiative executed by the UNEP/DTIE at least in terms of knowledge management and information sharing. The Global SWH Project Initiative was supposed to serve all the participating six countries as the "global knowledge hub and clearing house" to facilitate cross border exchange of information and lessons learnt, access to state of the art international information, workshops, training materials etc., but up till now in Albania, there has been evidence of only a small percentage of value added from the global project. As a specific example, the Global Project did not invite the country to take part in the recent workshop in Lebanon on knowledge sharing towards developing solar water heating in other countries.*

The project strategy was quite relevant in that it focused on the regulation framework and secondary regulations, outreach/awareness activities and training activities for equipment installers. In spite of a few weaknesses in the project design, the project strategy is in accordance with the GEF budget provision to achieve the target in terms of market transformation.

Concept and Strategy have been rated **SATISFACTORY**.

### **3.1.1 Project Relevance and Underlying Assumptions**

The SWH project is relevant as a continuation of similar activities advanced by other donors over the last 5 years (ADA and Swiss Cooperation) to advance the national policy in the field of RE.

The underlying basic assumptions (willingness and action of the government toward the development of the new RE regulation and fiscal/duties incentives) will materialize since the new regulation will be enforced by Parliament by the end of 2012.

A quite questionable assumption is related to national co-financing, that is to say the government's financial support. The underlying assumption was that the MoETE and Ministry of Environment, Forestry and Water Management Albania (MoEFWA) would provide a co-financing of 500,000 Euros and 150,000 Euros respectively. At the project approval stage (at the end of 2009), the in-cash co-financing was not an assumption but a clear commitment duly approved by the Government<sup>5</sup>. The assumption was that the MoETE would transfer its co-financing (500,000 Euros in-cash) to the UNDP with the aim of advancing investments in SWH equipment through Outcome 2. At mid-term, the MoETE had transferred about 40,000 Euros only and, in the future, the ministry intends to transfer its co-financing to a government agency (NANR), which will manage the contribution (co-financing) to support the SWH project and to pay the salaries and expenses of the NANR staff members. At this point in time, there is a particular issue in this regard because the NANR intends to use the money for the purpose mentioned above while the MoETE still maintains that the in-cash transfer should be sent to the UNDP for the SWH project. In the opinion of the Evaluator, because the NANR is part of the MoETE, this ministry must take action to ensure that the money is redirected to the UNDP. In the meantime, to avoid facing this type of situation in the future, the UNDP CO and the MoETE should agree through a MoU on the way upcoming transfers are managed in accordance with the initial agreement duly approved by the Government in 2009.

The Evaluator wonders why the Prodoc did not consider end-user investments in new SWH equipment as a component of the overall co-financing. In most other EE/RE projects funded by the GEF, co-financing includes investments directly resulting from project implementation including those provided by the private sector. This is not the case for the project in Albania, where the investment of the private sector should account for nearly 20 million USD if the project reaches its target of 75,000 m<sup>2</sup> of new installed SWH by the end of the project timeframe.

Another key assumption was related to market transformation. As per the BAU scenario, the average demand growth from 2010 to 2020 would be about 7% a year but, as a result of the project, the demand should increase to 20% to achieve the objective in 2020. As per the KPI, the installation of new equipment at the end of the project timeframe should be 20,000 sqm/yr in 2015. Based on a survey conducted in 2011, the installation of new equipment is already on target with 20,000 sqm/yr about 3 years before the project's completion (rather than 8,500 sqm/yr as per the BAU scenario). This means that the market is responding far more favourably and rapidly than expected.

Other assumptions (underlined) were relevant:

- (i) Support of the key Government stakeholders: NPD (MoETE and the Ministry of Environment, Forestry and Water Management (MoEFWM) played a key role and provided the needed support to the project team and UNDP especially in regard to the development of the new regulation and fiscal/duties incentives.
- (ii) Interest of the key stakeholders in participating in the marketing campaign: the current result (20,000 sqm installed in 2011) demonstrates the interest and made the

<sup>5</sup> Government Decree No. 714, dated 23.06.2009 according to which both the MoETE and MoEFWA would respectively provide 100,000 Euros and 30,000 Euros a year for a period of 5 years.

needed investment decision broken down as follows in 2011: 47% service end-users, 41% residential and 12% industrial. The proven interest of energy end-users in the residential and service sectors probably played an instrumental role in regard to the market transformation, and the assumption of the “affordability” of SWH equipment (at least 30-40% of the population living on the coastal line should be able to purchase SWH systems) facilitated the adoption of SWH equipment.

- (iii) Support of the targeted educational entities: confirmed in practice by the rollout of a training program in 3 vocational training centers<sup>6</sup> having already trained 46 qualified installers. The need of qualified installers was pointed out in 2009 and the project dealt with that issue at the earliest stage of the project timeframe.
- (iv) Initial demand for the financial services created and interest of the local financing sector to enter new market areas: At mid-term, equipment manufacturers and energy end-users do not have easy access to project financing although a few mechanisms are already available through other project initiatives. On the other hand, the outstanding implementation of SWH in the residential and service sectors did not indicate a particular need for a financial mechanism, at least in these market segments.
- (v) Support of the SWH supply chain recognizing the value added: At mid-term, the certification mechanism has not been put in place and, so far, there are no SWH equipment testing facilities in Albania. The need for a certification mechanism is still very current but will require more time than expected to be efficiently enforced.
- (vi) Agreed co-operation between vendors and other business entities involved in the SWH market: appropriate support from market operators (only 6 manufacturers/importers) and the data from the yearly market surveys (M&E) are reliable.
- (vii) Recognition of the benefits of a proposed institution by the local supply chain: No active institution is in place to represent and support the local SWH industry and to promote the sustainable market growth of SWH in Albania in general. Despite the fact that there are only a few players on the SWH market in Albania, the need for an association is still current. The association should be very helpful, among other things, in the quality control management of installers and equipment.
- (viii) Finally, the assumption related to market transformation was somewhat pessimistic. Indeed, at the end of Year 2 (2011), the installation of new SWH equipment has already been achieved, that is to say 20,000 sqm (yearly target) were installed in 2011 rather than at the end of 2014. In other words, the market transformation is proceeding faster than expected.

Most assumptions were relevant except for those related to the financial commitments of the Government and other bilateral donors as well. The pace of the market transformation was based on a questionable estimate of the current situation at the project design stage, but it was in 2005.

In regard to the co-financing, the Evaluator would like to mention that this type of situation is unusual because, as a rule, governments agree to provide a significant in-kind input (usually over evaluated in \$) and a small co-financing in-cash. The UNDP cannot be

<sup>6</sup> At mid-term, three vocational training centers are equipped with the necessary hardware to run the specific SWH related courses, while the training program has involved all training centers throughout Albania.

held responsible because of the current situation. The UNDP sent a few letters to the MoETE with the aim of solving the co-financing and funds management issue. The issue is to comply with the financial commitment in accordance with the planning agreed by all parties in 2009 that is to say, 100,000 Euros a year from Year 1 to Year 5. At the project design stage, investments in SWH directly resulting from the project (direct impact only) should have been considered as a co-financing component as well. It is not too late to make this adjustment to the co-financing scheme.

As a result of the co-financing difficulties, the Relevance of Underlying Assumptions is rated **Marginally Satisfactory**.

### 3.1.2 Country Ownership/Drivenness

Albania is a small country with a mid-term strategy to integrate the EU and roll out the needed efforts to comply with the UNFCCC requirements as a non-Annex I country to the Convention in addition to complying with EU regulations in the field of RE, including the EU quality certification requirements for new SWH equipment installed in Albania.

In principle, the outstanding in-cash co-financing commitment (in 2009) is clear evidence of the way the country intended to play an instrumental role in the development of RE resources in Albania. However, as most of the co-financing has not materialized, sooner or later Country Ownership/Drivenness will be called into question. On the other hand, Country Ownership/Drivenness is not only related to co-financing. The new regulation, on the verge of being promulgated and enforced, is also a strong signal in regard to the country's willingness/ownership and drivenness. The involvement of the Vocational Training Centers is another demonstration of its willingness.

At the stage of the project design and strategy, the Country's Ownership/Drivenness has been rated **SATISFACTORY** although issues related to co-financing transfers still exist. At mid-term, the MoEFWA and UNDP have transferred the expected co-financing as per the planning, but the MoETE (the major co-financer) has only transferred less than 10% of its commitment.

### 3.1.3 Stakeholders' Participation

In addition to both ministries (MoETE and MoEFWM) dealing with the new regulation and involved in the joint steering committee, the project relies on three key external players: (i) energy end-users; (ii) equipment manufacturers and (iii) equipment installers. The Evaluator visited a pilot site (a demo project funded by the GEF) and another private SWH project implemented in a "Boutique Hotel" in downtown Tirana, and held a meeting with the Tourism Industry Association representative. All parties have been supporting the SWH project from the earliest stage but they mentioned the need to be provided with more information on the new regulation and incentives measures. Although the project website provides a lot of relevant information about the regulation and tools to proceed with a simple feasibility study to advance the decision-making process, perhaps the energy end-users and decision makers are not aware of the usefulness of the website.

A relevant charter for the establishment of a local solar thermal association was drafted (2011) and shared with potential members for their comments/suggestions.

The project outlined a draft of possible joint support schemes with the municipality of Tirana, but, at the time of the Mid-term Evaluation, it had not been possible to meet with the municipal authorities and to evaluate progress.

Stakeholders also include national experts and consultants. The Evaluator met with experts on the RE regulation, SWH market studies and assessments as well as trainers. For the time being, their quality involvement has been a part of the successful project's achievements.

In regards to the Project Concept/Design Relevance and Strategy, the Stakeholders' Participation has been rated **SATISFACTORY** mainly because at the implementation stage, the committed MoETE co-financing did not materialize in accordance with the initial planning. However the Evaluator did not perceive any "official reluctance" to comply with the Government's commitment in this regard, the issue is related to delays and the manner in which the MoETE transferred the in-cash co-financing.

#### **3.1.4 Replication Approach**

The replication approach is mainly based on a set of outreach activities to secure the energy end-users in regard to the quality and durability of new installed SWH equipment and the regulation framework. Such a replication strategy is outlined to provide manufacturers and installers with the technical best practices guidelines, the appropriate training sessions, and information sharing on the new SWH technology.

This was done over the last two years. In addition, a secondary regulation is under preparation to certify the quality (labeling and certification schemes) of both national and imported equipment as required by the upcoming new regulation and the regulation already established in EU community.

Case studies and additional promotional materials are required for current pilot projects (3) and other upcoming demonstration projects.

The Replication Approach has been rated **SATISFACTORY**.

#### **3.1.5 Cost-Effectiveness**

Investments in RE are rarely cost effective on the short-term. Such a situation was particularly true in Albania 3 and 4 years ago when the electricity tariff was too low. Nowadays and even more so in the future, because of the electricity sector reform in Albania (privatization of the distribution grid), the low voltage tariff will increase year after year to reflect the real and/or the marginal cost. The new price structure (from \$0.08 to \$0.14/kwh) enables the use of SWH equipment to replace electric water heating equipment in households and the service sectors. Because of the new energy pricing and the attractive cost of quality SWH equipment, the payback period can be around 4 ½ years. Alternatively, the purchase of SWH systems will be made attractive through specific fiscal/duties incentives provisioned by the new regulation. Another alternative can also be



considered, where the client would simply pay a monthly fee, which will be kept lower than his/her current electricity bill and, in which case, the duration of the payback period is expected to be less significant.. In other words, cost-effectiveness is more or less a decision-making criteria based on the financial mechanism made available.

The project's cost-effectiveness is relatively good taking into consideration the nature of the investments. In regard to the GHG abatement cost based on the revised direct and post-project GHG emissions reduction, the project did not provide an accurate number. Based on my own calculations, the abatement cost (direct and post-project within the project timeframe of 5 years) should be about USD 250 per ton. Consequently, it can be concluded that, when the GEF approved the project in 2009, the abatement cost (usually under USD 20 per ton) had not been taken into consideration. On the other hand, if the total GHG emissions reduction is used, including direct, post-project and indirect reductions (up to 2020) estimated at 800 ktons, the abatement cost would be USD 1.25. Again, the Global Project should rule about that point and issue a guideline for all countries involved in the programme.

A not applicable (n.a.) rating has been given to cost-effectiveness because that particular component is not uniquely related to project performance per se.

### **3.1.6 Overall Project Sustainability**

At the level of Concept/Design, the strategy to secure the sustainability of the market transformation was appropriate but additional steps and efforts must be undertaken by the end of the project timeframe.

- Two financial incentives are provisioned in the new RE regulation to support the sustainable growth of the SWH market. The new regulation is expected to be enforced by the end of 2012. To this end, the GEF project worked closely with the fiscal authority to draft the additional secondary regulations. At mid-term, the new RE regulation is on the verge of being promulgated and the outline of fiscal and duty incentives has already been agreed upon by all parties. Again, the Evaluator would like to highlight the fact that this strategy should result in a key output in terms of sustainability. The MoETE confirmed that these two incentives and the secondary regulations would be enforced a few months following the promulgation of the new RE regulation by the Government. The PMU expects the secondary regulations to be enforced in early 2013.

GEF resources under this project are not sought for the capitalisation of any new financing instruments but for technical assistance to support their design, development and launch (ref. Project Outcome 3). To this end, the project carried out a financial study in 2010-2011. Most of the relevant financial mechanisms have been appropriately reviewed and discussed. The financial study reviewed the following financial schemes:

- (i) Government Incentives and Financing Programs –partial covering of SWH systems costs through grants, rebates and low-interest loans from the Government or through private financing to make the deployment and use of these systems economically feasible: this is somewhat considered as part of the new RES law to be endorsed shortly.

- (ii) Other financial instruments already exist in situations where commercial SWH end-users and SMEs are able to provide collateral to the banks to get a loan to install SWH systems. The Albanian commercial banks confirmed that they have SME and retail departments that can normally handle the financing procedures for SMEs and the commercial/service sector. But most of the time, these energy end-users are not so familiar with the preparation of bankable documents. When needs be, the project should provide the required TA to borrows.
  - (iii) The third option needs to be put in place and operate for the financing of SWH systems in the service sector and for SMEs that cannot provide sufficient collateral and need the backing of a suitable financial instrument, that is to say a Loan Guarantee Fund (LGF): the real market demand for such a Loan Guarantee Facility still remains unclear. For instance, the PMU pointed out that, in the commercial banks' perspective, collateral to be provided by hotels hasn't really been a problem yet. Besides, the round table with the National Association of Banks in July, 2011 also mentioned that a Guarantee facility may lower the quality of products by partly or totally transferring the risk to a third party. As such, and in view of the lack of Italian/UNEP money, the project should drop the idea of further developing a Guarantee Facility Operating Manual. The project will now use the local funds to support public buildings through the Investment Cost-Sharing Small Grants Mechanism. In addition the project intends to draft some case studies to provide an overview of the best practices in SWH and their impacts that deserve to be encouraged in similar situations by other energy end-users. A particular focus should be put on the cost- effectiveness and performance of investments in SWHs in the hotels/multi-storied buildings sectors.
  - (iv) With the aim of enhancing the market transformation, the financial study provided the UNDP/GEF with a few recommendations especially regarding the outline a few financial mechanisms and providing additional TA and training to financial institutions already involved in the field of loan guarantees and environment/CC/RE project financing. The most recent survey the project conducted at the end of 2011 demonstrated that 90% of the energy end-users who installed new SWH equipment in 2011 were service and residential energy end-users and only 10% were industrial energy end-users. In accordance with these statistics, the service and residential sectors seemingly do not need any financial incentives or restricting regulations for them to install SWH equipment. The outreach activities and training for installers most probably played a key role to advance the SWH penetration in those market segments.
- With the aim of extending the market penetration and securing the sustainability of the overall project impacts, the GEF project should pay more attention to the industrial sector during the upcoming years in terms of awareness and financing support. It is well known that the transaction costs of most financial mechanisms (e.g.: ESCO / RESCO/Utility- or Municipality-based delivery models / LGF and Revolving Funds) are usually too high to be handled with small investment schemes for residential or most of the service energy end-users. As a rule, the situation is not the same in the industrial sector and, because there is a significant potential to increase market penetration in that sector, the GEF project should very quickly outline a new set of activities for that purpose, both TA and additional support to borrowers for preparing bankable documents. For the time being, the Evaluator did not notice a strong attentiveness to support the industrial sector although a few efforts were rolled out in the food

processing industrial sector. During interviews with a representative of the tourism industry (that is comparable to other industrial facilities, at least in the case of large hotels and beach resorts) and with the market development/monitoring specialist, all mentioned the relevance of prioritizing this sector because of its potential in terms of cost and energy savings and the impact on competitiveness. The mid-term project results demonstrate that the sustainability of the market transformation in the service and residential sectors must rely, first of all, on the quality of the equipment, quality of installation and guarantees on equipment. Seemingly, the situation is not the same in the industrial sector. In addition to criteria previously mentioned, the financial competitiveness of SWHs is obviously the most critical factor in ensuring a sustainable market growth in the commercial and industrial sectors. It is a matter of fact that additional efforts and a particular approach are required to extend the SWH technology in the industrial sector.

- The project has addressed the sustainability aspects in its design by taking into account international experience and observed best practices. In most countries where SWH use has increased significantly, a partnership between the government and SWH industry had been created to address the issues of quality standards, promotion and public perception of SWH. In terms of certification, the results of the product testing of locally manufactured panels in Switzerland (2011) indicated that, at least with some manufacturers, the quality of their product is not so far from the Solar Keymark requirements. More time is however required to meet the Solar Keymark requirements for a quality management system of the current production facilities and to comply with the EU certification requirements. Therefore, an option was brought up for further consideration to introduce an interim Albanian label that would simply include a requirement to meet Solar Keymark equivalent technical standards for panels based on a random sample collection. For the overall quality management requirements of the production facilities, a longer transition period could be allowed, e.g. with a target of reaching the Solar Keymark requirements within the next 5 years.
- The commitment of the Government to engage itself in a long and stable program to stimulate investments in solar thermal is the cornerstone of the project's market transformation sustainability. At mid-term, the Evaluator has noted positive results already achieved in this regard because of the fiscal/duty upcoming incentives.
- The current project initiative appears to follow a number of key principles toward market transformation sustainability, which include: significant support from governments; fiscal measures to stimulate the market; improving building regulations to stimulate the uptake of SWHs and information and outreach programs.

The Evaluator has rated the sustainable perspective of the SWH market transformation as **SATISFACTORY** even without any financial support mechanism in place. The market transformation in the residential and service sectors has already achieved the target on a yearly basis. In both sectors, it would seem that the market transformation did not need to be boosted by a particular financial mechanism. Perhaps the project has taken advantage of “low hanging fruits” and the timely market transformation trend. The Evaluator assumes that the intensive promotional/awareness campaign is what sparked the market transformation in both sectors. *Again, the market transformation in other sectors, especially in the industrial sector, is still at its first stage of development.*

In order to ensure the continuation of the similar growth pattern that occurred over the last two years, the required efforts to expand the client base within the service and residential markets cannot be neglected. The project is fully aware of the challenge faced to speed up the development of SWHs and to secure the sustainability of the market transformation in the industrial sector, which doesn't work the same way as in the residential/service sector in terms of technology and financial issues.

### 3.1.7 Linkages

Linkages Between the Project and Other Interventions within the Sector  
(rating no required)

The Annual Progress Report 2011 highlights a few activities jointly carried out with other donors and international organizations. The most positive results of the linkage with other organizations are the equipment testing activities jointly carried out with a Swiss Consortium led by INFRAS to test a representative sample of SWH equipment manufactured in Albania. As per comments gathered from a major equipment manufacturer met during the site visit, the result in terms of performance and quality is promising for future development in Albania. The issue of having the required high-tech testing facility in Tirana is still required. Other activities were undertaken with Switzerland, including two theoretical and on-site training sessions with installers and hotel owners with existing installations (visited by the Evaluator).

In collaboration with the Italian NGO – CeLIM, a program was outlined for the training of energy engineers and other local government representatives regarding the application of the SWH technology in public and private buildings.

The Austria Development Agency (ADA) was previously involved in a few project initiatives related to SWH systems in Albania. As a continuation of its current cooperation program, the ADA procured some testing equipment that was installed at the premises of the Harry Fultz Institute in Tirana.

Finally, the Evaluator cannot avoid mentioning that the linkage and collaboration with UNEP (Global Initiative) has not been very effective up to now. Within the frame of the "*Mediterranean Renewable Energy Programme*", the Italian Ministry of Environment, Land and Sea (IMELS) and UNEP agreed to jointly implement the "*Development of the Financing Mechanism for Solar Water Heating Market*" project in cooperation with the country programme in Albania under the Global Solar Water Heating Initiative. Up to now the UNDP/GEF project in Albania has not yet secured the expected support from Italy's co-financing managed by the UNEP.

Because of the quality and efficient linkage with national and bilateral project partners, the linkage between the project and other organizations is rated **SATISFACTORY**.

### 3.1.8 Management Arrangements

The project is managed through a very light yet efficient management structure (see Organization Chart at Appendix 1) with a full-time Project Manager and one full-time

Technical Assistant supported by a part-time communication assistant, a part-time driver, and an international technical advisor. At the country level, the project management arrangement is however in line with UNDP/GEF project requirements: (i) a PMU set up to manage the project and to be accountable for results to the UNDP; (ii) a National Project Director (NPD) who is part of the key implementing ministry (MoETE) and the PM holds monthly meetings with the NPD; (iii) the UNDP CO supervises quality control through its Environment and Participation Cluster, and (iv) the PSC holds yearly meetings (two meetings in 2012) and proceeds with the approval of the AWP and makes all key decisions. Finally and importantly, the PMU and the UNDP CO report to the Regional Technical Advisor (RTA - Bratislava) on project progress and results.

The project is expecting to benefit from the technical backstopping provided by the knowledge management component of the global SWH umbrella project but so far this is unfortunately not happening. Among others, the Evaluator pinpointed a lack of support in regard to a common methodology to evaluate the GHG emissions and information sharing from other projects within the Global SWH project in other countries. The Evaluator noted that the UNEP Global Project did not invite the Albanian project team to a recent global knowledge sharing workshop held in Lebanon in early 2012 and this type of situation is not ideal.

As described in the first paragraph in this section, the management arrangements are simple and efficient at the national level towards backstopping most issues and the dialogue between national stakeholders is seemingly positive and efficient, even though there is a pending issue in regard to national co-financing. The new assigned RTA follows up tightly on the progress of the project and provides effective support to the PMU and the country office with the aim of streamlining various implementation issues.

The Evaluator rated the Management Arrangement as **Satisfactory**.

## **3.2 Project Implementation: Satisfactory**

### **3.2.1 Financial Management**

Because of the co-financing issue, the budget disbursement pace is late on the planned calendar. At mid-term, the GEF and UNDP funding has been disbursed on target with no delay but problems remain with the national counterpart co-financing.

**Table 3 – GEF Financing Disbursements Schedule (USD)**

Outcome	Planned on the project timeframe (2009-2014)	Achieved at mid-term (End of June 2012)	Remaining
Outcome 1	130 000,00	165 179,38	-35 179,38
Outcome 2	190 000,00	112 881,31	77 118,69
Outcome 3	190 000,00	22 605,49	167 394,51
Outcome 4	200 000,00	67 947,55	132 052,45
Outcome 5	200 000,00	76 108,95	123 891,05
Outcome 6	90 000,00	83 823,32	6 176,68
<b>Total</b>	<b>1 000 000,00</b>	<b>528 546,00</b>	<b>471 454,00</b>

At the end of May 2012, the total budget disbursement represents close to USD 625,000 (including co-financings) as opposed to the mid-term target of USD 1,050,000 (the amount that should have been disbursed at mid-term). At first glance, it appears that the disbursement pace is late on the scheduled disbursement calendar. The situation results of the lack of co-financing that has not yet materialized in-cash as expected. To this end, the UNDP sent many letters to the MoETE and the ministry re-confirmed its commitment to transfer \$50 000 to the UNDP by the end of July 2012 and another tranche of \$50,000 by the end of the year. On the other hand, the MoEFWM transferred its contribution (\$76 000) as planned whereas such is not the case for the MoETE. The Government's initial commitment was about \$955,000 and the actual financial input was only about \$125,000 at the end of June 2012 as opposed to what was expected, appreciatively 50% of the global amount, or \$475,000.

At mid-term, about 53% (see Table 3) of the GEF grant has been committed or already spent in accordance with the planning. With the aim of rationalizing its expenses, the project has shared some project costs with other climate change projects, as an instance, the driver, the communication officers, etc.

On the other hand, the Evaluator is somewhat concerned about the co-financing disbursements by the end of the project timeframe because of the delays in regard to co-financing. At mid-term, the project has received \$50,000 from the MoETE, that is to say 8% of its commitment. At this pace, it is very unlikely that the project will be in a position to disburse almost \$675,000 in one year or less than two years in a situation where the overall co-financing will be transferred at the end of 2013 or even later on. The latest issue is also related to the financial management arrangement the Government of Albania would like to implement to support the project in accordance with its commitment. The MoETE intends to transfer the co-financing to the National Agency for Natural Resources rather than to the UNDP. In such a situation, the co-financing (\$125,000 a year, for 5 years) could also be used for salaries of a few agency staff members and activities connected to the SWH project. If the MoETE proceeds in that manner, the UNDP CO will be required to proceed with a major adjustment to its delivery schedule by taking into account additional delays and if any, the default of transfers. In the opinion of the Evaluator, the co-financing should be transferred to the UNDP CO (by the MoETE or the NARN) and managed by the

PMU in line with the existing joint management arrangement and decisions made by the Steering Committee. However, the Evaluator has not obtained any information leading to conclude that the government co-financing commitments should not come to reality. As per the rules of the Ministry of Finance, the destination of the local contribution is not changeable. The issue remains with the timing of the money transfer!

The Evaluator is nevertheless much more concerned in regard to the Italian co-financing (\$1,000,000), which has been transferred to the UNEP with the aim of co-financing the soft loan component within the SWH project in Albania. According to the MoU signed in 2008, Italy's grant would be used for the Solar Water Heating programme in Albania with the aim of subsidizing a pre-determined percentage of the interest rate of financial institutions willing to provide loans for purchasing SWH equipment made in Italy. As the Evaluator mentioned previously, the UNDP should clarify the situation with the UNEP as soon as possible to secure the needed support in accordance with previous agreements. Again, the UNDP CO should clarify the situation ASAP with the UNEP in this regard with the aim of adjusting its delivery schedule and activities to be carried out from now up to the end of the project timeframe.

*At this stage of the project implementation, the Evaluator would recommend slightly opening the window for a project duration extension to be requested at the appropriate time, which could be useful in a situation where the national co-financing would be secured during the last year of the project timeframe. The same rationale is applicable to the "UNEP-Italy" co-financing scheme. In such a case, a one-year extension could be considered at the appropriate time with the aim of extending the project to a larger number of government and industrial facilities.*

At mid-term of the project implementation, the issues related to co-financing are still crucial and the UNDP should take stock in this regard and consider that point as a top priority to be dealt with in the upcoming months (ASAP). I recommend that the UNDP management write once again a formal letter to the Government on this pending issue and arrange a meeting at a senior level to discuss the possibility of resolving it.

Because of issues mentioned above, the Evaluator has rated the financial management as **Marginally Satisfactory**, even though the GEF funding is disbursed and managed as per expectations and in accordance with UNDP procedures. On the other hand, the Evaluator does not intend by this rating to underline any weaknesses in regard to the financial management of the funds available to carry out current activities.

### 3.2.2 Monitoring and Evaluation

The QPRs are short (1 page) and provide enough factual information on project progress, but these reports did not deal with issues and upcoming pitfalls, if any.

PIR 2009-2010 (6 months after the project start-up: 18 pages) provided too many details (6 pages) related to Articles in the new regulation (Outcome 1). Most of the recommendations toward Development Objectives linked to Outcomes 2-3 and 4 were implemented in 2010-2011. The report did not encompass any recommendation related to Outcomes 1 and 5. In terms of the implementation issue, the PIR 2009-2010 already

pointed out a risk the project could face in a situation where the co-financing did not materialize, especially in regard to the financial mechanism.

PIR 2010-2011 (12 months: 6 pages) was shorter and focused on the key points. The PIR fairly dealt with Development Objectives, Outcomes 1 to 5. In terms of Implementation, the report made a few key recommendations related to each Outcome.

The M&E related to the impact in terms of GHG emissions reduction is not clear enough and should be improved in accordance with the most appropriate GHG emissions reduction calculation methodology. In the course of the MTE, the Evaluator noticed that the Technical Assistant and the International Technical Advisor were already working on improving the calculation methodology. In addition, the Evaluator recommends harmonizing the economic and social impacts and GHG emissions calculation methodology throughout other SWH Global Initiatives<sup>7</sup> currently implemented by the UNEP in the six selected countries.

The Evaluator would like to highlight the relevance of using a database for monitoring the project impacts from the baseline up to the final results over at least one year after the completion of the SWH demo/pilot projects.

Finally, the Evaluator suggests preparing a Completion Report for each demo/pilot or full-scale project implemented as a result of the GEF project. A Completion Report is a brief document ruling on the actual achievement of a sub-project (SWH pilot project or other). In addition to a short description of the project, the report should provide information on: (i) the implementation calendar; (ii) the project beneficiary(ies); (iii) the cost-breakdown structure (TA and equipment); (iv) a financial analysis (cost-effectiveness and payback period); (v) SWH specifications; (vi) expected impacts in terms of energy savings, GHG emissions reduction and social impacts, if any; and finally, it should provide details related to issues met during various stages from the project identification up to the project commissioning. Completion Reports would be useful to feed the previously mentioned database and to carry out the final evaluation of the whole project.

The M&E activities have been rated **Marginally Satisfactory** but the situation is readily improvable by the end of the project timeframe.

### 3.2.3 Adaptive Management and Risk Management

To date, no adaptive management or risk management have been carried out within the project because the project was in a position to deal with most of its development objectives with the GEF and other co-financing, although the MoETE did not fully walk the talk in this regard. Despite the lack of co-financing, the PMU adjusted its AWP 2012 to focus more on other key outputs rather than on the development of a financial mechanism. In that sense, the PMU adapted its resources to face the situation.



However, the project will be required to adjust its approach during the upcoming 2 ½ years in order to provide more TA to a larger spread of energy end-users and to implement a financial support delivery mechanism (as an example, the Investment Cost-sharing Small Grants scheme to be supported by national co-financing) to provide the needed financing support to target government/public facilities or additional TA (Feasibility Studies) to the private sector in order to ensure the sustainability of project results.

The AWP 2012 should be amended to launch the FS delivery mechanism within Outcome 3. To this end, the PMU should proceed with a budget revision in accordance with this objective and make the required trade-off between many priorities. The budget review 2012 already includes an unused provision of USD 32,000 for a FS/TA mechanism. From June 2012 up to the end of the year, such a budget provision should be appropriate to roll out the FS delivery mechanism in the municipal sector. However the PMU should provision at least a similar amount to extend the FS/TA delivery mechanism to the industrial sector. Another way to be more adaptive toward budget management would perhaps be to use some funds from the upcoming co-financing transfers to finance most of the studies in the municipal/institutional sector and the GEF money for a FS/TA delivery mechanism in the industrial sector.

In the industrial sector, the market transformation issue is mainly related to the successful establishment of a financial mechanism useful to the industrial/service sector and to the implementation of the appropriate regulation framework. Although the project does not have the required resources to set up an investment fund, it is nevertheless important to deal with the financial sector to figure out the best way to use existing investments and guarantee funds in accordance with the recommendations of the mentioned financial study.

During the upcoming 2 ½ years, the adaptive approach should result in:

- The adjustment to the current WP 2012 to provide more TA to private (industrial and tourism) and public/municipal energy end-users through TA and a small grants mechanism to be implemented. The AWP 2012 includes (see Outcome 3, Output 3.2) a provision of support to demonstration projects in the municipal sector and other supports toward extending the SWH programme in the industrial and multi-apartment buildings. To create a quick impact of such support, the AWP 2012 and 2013 should establish a quantitative target in terms of feasibility studies to be carried out in selected priority sectors. The recommended SWH FS should be a standard document dealing with the technical and financial components of SWH projects with the aim of boosting the investing decision-making process in the private sector. At the same time, the FS could be seen as a training tool for technical staff members, especially in the industrial sector. While the PMU is enabled to use the GEF and the co-financing funds to design FS and implementing demo projects in the public and municipal sectors, such a scheme is hardly applicable to support similar investments in the private sector. The provision of FS to the private sector (industrial, apartment buildings and hotels) is perhaps the easiest, less costly and most acceptable way to support the private sector and, as a result, to increase the direct impact of the project by the end of its timeframe. The AWP 2012 should be amended to launch the FS delivery mechanism within Outcome 3. The Evaluator is not in

a position to rule about the number of FS to be delivered by the project, but at first glance, at least 20 or 30 FS should be carried out in 2012 and 2013 to have a significant impact on the whole project outcome. To this end, the PMU should proceed with a budget revision in accordance with this objective and make the required trade-off between many priorities and, if need be, to drop some secondary activities. However, the Evaluator is not in a position to provide a clear advice in regard to the required activity trade-off!

- The Evaluator would like to note that Component 3 is designed to generate a demand for the technology through applicable consumer financing and, as applicable, financial support schemes with an objective to leverage the needed investment to reach the set target of 75,000 m<sup>2</sup> of new SWH capacity through these financing mechanisms. Besides the cash market that continues to exist in Albania, bank lending has emerged as one of the most prospective options for the financing of SWH systems. At this point in time, the Evaluator feels somewhat ambiguous in this regard because the project has already reached the target of 20,000 m<sup>2</sup>/year of new installed equipment with no financial support provided to SWH users. However, it is assumed that the industrial and commercial sectors would be more interested in investing in SWHs if there were a financial mechanism to support the investment decisions; this is an assumption that needs to be thoroughly checked in the upcoming months through a survey of the industrial and commercial sectors. If the assumption proves to be true, the PMU will be required to deal with the financial sector and other identified development partners to outline and test the appropriate financial mechanism(s). This means that the project should give a very secondary priority to the development of a financial mechanism to support the residential and service sectors and the highest priority to the design and implementation of a Investment Cost-Sharing Small Grants Mechanism with the aim of partly financing the installation of SWH equipment in government, institutional and municipal facilities through resources made available by the MoETE. The basic principle of such an approach has been already discussed and approved by the SC at its meeting on June 22, 2012. If the average investment is \$15,000 per project, the PMU should be in a position to design and implement about 40 SWH projects in the public and municipal sectors. Some other options should also be evaluated such as performance grants, loan guarantees, soft loans, etc., but because of the limited amount of remaining time for the implementation of a financial mechanism, the “small grants” mechanism is surely easiest to manage and fastest to implement among all options.
- Re-designing project Component 3 accordingly with the available resources (co-financing: quantity and timing) to focus on the implementation of an Investment Cost-Sharing Small Grants scheme limited to the public sector and additional TA (e.g.: feasibility studies) to energy-intensive end-users in multi-apartment buildings and the tourism and industrial sectors. The small grants programme should be cost sharing-based in the public/municipal sector (let’s say 75%/25% shared between the grant programme and the SWH project beneficiaries), but the provision of TA (including FS) should be delivered for free to all beneficiaries who have confirmed their preliminary willingness to invest in SWH.
- Revision of two major key performance indicators, that is to say the direct, post-project and indirect impacts in terms of GHG emissions reduction and the installed equipment

(m<sup>2</sup>) to take into consideration co-financing and other financial mechanisms (options), the actual status of the market transformation and the likely impact of the project in the industrial sector.

In the industrial sector the issue of the market transformation is mainly related to the successful establishment of a financial mechanism useful to the industrial/service sector and to the implementation of the appropriate regulation framework. Although the project does not have the required resources to set up an investment fund, it is nevertheless important to deal with the financial sector to figure out the best way to use existing investments and guarantee funds in accordance with the recommendations of the mentioned financial study.

Adaptive and Risk Management have been rated **SATISFACTORY**, among other things, because of the outstanding management capacity of the Project Manager and the project team to face the situation (drastic lack of co-financing) and their willingness to implement the needed upcoming adjustments to the AWP.

### 3.3 Results and Outcomes

**Table 4 – Results and Outcomes**

<b>Results and Outcomes</b>	<b>S</b>	To accelerate and sustain the solar water heating market in Albania as a part of the Global SWH Market Transformation and Strengthening Initiative.
Attainment of Outputs, Outcomes and Objectives	<b>S</b>	<p>At least 75,000 m<sup>2</sup> of new installed collector area during the project, and an annual sale of 20,000 m<sup>2</sup> reached by the end of the project with expected continuing growth to reach the set target of 520,000 m<sup>2</sup> of installed (cumulative) SWH capacity by 2020 corresponding to a cumulative 800 ktons of GHG emissions reduction.</p> <p>Based on available data and the calculation spreadsheet prepared by the Technical Assistant, at mid-term the actual GHG emissions reduction seems to have been underestimated.</p> <p>In accordance with the revised spreadsheet made available at the end of his site presence it seems that the direct annual impact on GHG does not take into consideration the impact resulting from TA and feasibility studies provided to a few energy end-users and the direct post-project impacts have been seemingly merged with the indirect impacts spread on the equipment life cycle.</p> <p>The causality factor in determining indirect impacts is estimated at 40%; perhaps this is a bit optimistic since, after one year of project implementation, the annual target of new SWH systems installed reached the target of 20,000 m<sup>2</sup>.</p> <p>Again, the UNEP (Global Project Initiative) should outline a Technical Note and recommend a common GHG emissions reduction calculation methodology for the Global SWH programme and the right way to estimate the causality factor. Among other things, the Albanian project highlighted the likely impact on market transformation through “soft” measures like awareness, promotional and training activities, but the quantification of indirect GHG emissions reduction, especially in the context of “soft” measures, is not easy to translate in terms of the causality factor that should reflect to what extent the GEF can claim for GHG reductions. Based on the current Alternate Scenario, the estimated average annual growth rate of SWH penetration should be 22% over the upcoming 10 years (2011-2020) if the causality factor is 40% while the BAU growth rate is estimated at 7% on the same time horizon. These figures and assumptions should be compared with data and assumptions in other countries involved in the Global SWH Programme.</p> <p>At mid-term of the project timeframe, the attainment of expected results is promising and rated <b>SATISFACTORY</b></p>

Project Impacts	<b>HS</b>	<p>A significant SWH market transformation: increase of the SWH demand and improvement of the quality of equipment and installation especially in the residential and service sectors. The project demonstrated that there is no need for a particular financial mechanism to speed up the market transformation in these sectors.</p> <p>In 2009 (the project started up in January 2010), new sales of SWHs represented 4,600 m<sup>2</sup> and at the end of 2010, new sales and installations were almost 20,000 m<sup>2</sup>/yr. This is already an impressive result since the current result is the target the project expected to achieve by the end of 2014. In other words, the SWH market demand growth has been faster than expected. As mentioned before, it is quite difficult to estimate the accurate causality of the “soft” measures implemented during the first two years of the project timeframe. Based on a causality factor of 40%, the project can claim a good result of 8,000 m<sup>2</sup>/yr of new SWH installations, in terms of direct impact. On the other hand, because the Prodoc is not clear enough in this regard, the project can also claim a higher impact, that is to say, almost 20,000 m<sup>2</sup>/yr in 2010, and a bit more in 2011. Those numbers must be revisited in accordance with the UNEP-KM guidelines to be outlined ASAP.</p> <p>In accordance with the KPI, the Evaluator has rated the “likely project impacts” as <b>HIGHLY SATISFACTORY</b>.</p>
Prospects of Sustainability	<b>S</b>	<p>Because of the new regulation, the better quality of SWH equipment and installation services as well as the recent and upcoming increase of the electricity tariff, the market transformation is nearly a matter of fact in Albania. The installation of about 20,000 m<sup>2</sup> in 2011 is a key indicator in this regard. The market share of the service and residential sectors is similar with more or less 45% per sector. At the moment, the industrial sector only represents 10% of new installed equipment; for this reason, the industrial sector should be intensively tackled because of its likely potential, although the market development in this sector calls for another approach, especially in terms of financial mechanisms. Taking the available resources into consideration, the Evaluator is assuming that it was quite difficult for the PMU to deal with all sectors at the same time.</p> <p>On the basis of results already achieved and actions to be undertaken in the near future, the sustainability in terms of SWH market transformation is promising. At mid-term, the Evaluator has rated the Prospects of Sustainability as <b>SATISFACTORY</b>.</p>
<b>OUTCOME 1:</b> An enabling institutional, legal and regulatory framework to promote a sustainable SWH market.	<b>S</b>	<p>On target.</p> <p>The regulatory framework is a key component of the project. The final draft of the Law on RE Resources is on the verge of being promulgated. The upcoming regulation encompasses a set of requirements (Chapter 5) related to SWH and the needed fiscal incentives. At mid-term this result is already impressive although the government did not yet enforced the new regulation.</p> <p>Indicator: <i>The adoption and effective enforcement of the recommended legal and regulatory changes to promote sustainable SWH market development.</i></p> <p>NOTE: Outcome 1 is not rated HS because the new regulation is not yet promulgated.</p>

<p><b>Output 1.1:</b> Analysis, recommendations and the associated advocacy work for the introduction of adequate public financial and fiscal incentives to promote the SWH market finalized.</p>	<p><b>S</b></p>	<p><u>Indicator:</u> The status of the proposal for the new public financial or fiscal incentives to stimulate the SWH market.</p> <p>Secondary regulations (decrees, decisions of the cabinet and circulars) already outlined. The approval should proceed in early 2013. The main regulation (Law on Renewable Resources) encompasses the needed basic requirements in this regard at Article 26, Chapter 5.</p>
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<b>Output 1.2:</b> Analysis, recommendations and the associated advocacy work for the adoption of the required amendments into the building law and building code to encourage the installation of SWHs in new buildings and in those going through a major renovation finalized.	<b>S</b>	<p><u>Indicators:</u> The status of the proposal for the required amendments into the building law and building code.</p> <ul style="list-style-type: none"> <li>- Voluntary agreement with selected municipalities to install solar water heating systems in all new public buildings and those going through a major renovation.</li> <li>- The final draft of the National Plan on Renewable Energies has been prepared and submitted.</li> <li>- Chapter 5 related to SWHs has been submitted as part of the new law of renewable energy.</li> <li>- EU directives were analyzed point by point leading to a concrete proposal on how to integrate similar provisions into the Albanian legislation.</li> <li>- The project provided the Government with TA in regard to the obligation to install piping for hot water up to the roof of all new buildings and on buildings undergoing a major renovation.</li> </ul>
<b>Output 1.3</b> Analysis, recommendations and the associated advocacy work for setting up the required regulatory framework for a SWH quality control system finalized.	<b>S</b>	<p><u>Indicator:</u> The status of the proposal for setting up the required regulatory framework for a SWH quality control system.</p> <p>Work in progress: the project is still dealing with the certification modalities and requirements in line with the EU certification (labeling) requirements. The Standard has already been adopted by the General Directorate of Standardization: the project is part of the their Technical Commission on Standards of Heating/Cooling/Ventilation, which include SWH. Three of the most relevant adopted standards have even been translated in Albanian.</p> <p>At this point in time, the project intends to recommend the enforcement of an interim Albanian "Certification Label for SHW". Such an approach should enable equipment suppliers to improve the quality of SWH equipment with the aim of complying with the EU Certification/Labeling modalities within a few years (...to be determined...).</p>

<b>OUTCOME 2:</b> Enhanced awareness and capacity of the targeted end-users and building sector professionals to consider and integrate SWH systems in different types of buildings.	<b>HS</b>	<p>Enhanced awareness and capacity of the targeted end users and building sector professional to consider and integrate SWH systems into different types of buildings.</p> <p>Indicators: Increased demand for additional information, as measured by market surveys. The share of new and renovated buildings (minor or major retrofit across different types) integrating SWH into their design.</p> <p>Outcome 2 deserves a special mention and <b>the best rating</b> because of its proven impact on market transformation in the residential and service sectors.</p>
<b>Output 2.1:</b> Materials for public awareness raising and marketing campaigns as well as for training of building designers developed and/or adapted to Albanian conditions and made available in printed and electronic format.	<b>HS</b>	<p><u>Indicator:</u> The availability of suitable public awareness raising and marketing material.</p> <p>On target. The public awareness has been raised through advertising and promotional materials and events.</p> <p>The training materials have been produced and training sessions on the solar water heating technology have been delivered to target groups: (i) the training of architects, building engineers and other professionals in the building sector (in two stages) involved 68 participants; (ii) the training of importers, energy engineers, local representatives and other policy makers involved 23 participants; (iii) the training of students of polytechnic universities in Albania involved 173 participants; (iv) the training of SWH systems installers organized in two stages involved 46 participants; (v) the training of 5 SWH systems manufacturers; and (vi) the training of 25 media representatives to increase their capacity to appropriately cover the issues and success stories related to the benefits of solar energy. Several leaflets, posters, articles on SWH were produced and tailored to the recipients of the specific magazines of the Albanian Association of Banks, Association of Tourism, Association of Constructors, Energy Efficiency Center and other magazines. SWHs were featured on several TV programmes, etc.</p>
<b>Output 2.2 :</b> Final design of the marketing campaign	<b>HS</b>	<p><u>Indicators:</u> Design of the marketing campaign agreed with the key stakeholders. Level of cost-sharing.</p> <p>On target: The design of the marketing campaign targeting key stakeholders is completed, but there is not any clear indication of cost-sharing with key stakeholders.</p> <p>In addition to other promotional campaign, a marketing campaign has been designed and is planned to be implemented upon the endorsement of the specific legislation on solar energy, i.e. the Law on Renewable Energy. Several events have been already undertaken like the “Mobile Solar Shower” campaign, etc.</p>



<b>Output 2.3:</b> Public awareness raising and marketing campaigns implemented in co-operation with relevant public entities and private SWH suppliers and manufacturers.	<b>HS</b>	<p><u>Indicator:</u> The level of public awareness raising and marketing campaign implemented.</p> <p>On target: The level of public awareness is in progress and the marketing campaign is implemented and some activities will continue up to the end of the project timeframe.</p> <p><i>Consultations conducted with both the Association of Constructors and the Association of Architects to learn about the actual need for further awareness raising and training on solar thermal systems clearly exist by:</i></p> <ul style="list-style-type: none"> <li>i) compiling training materials;</li> <li>ii) inviting foreign architects with experience on solar design to train the local architects; and to work more closely with the universities in Albania that are educating new architects; it was also agreed that the associations can provide the space for training and take care of other required logistics.</li> </ul> <p>The project website is fully operational. The project developed a calculation tool to enable energy end-users to determine their needs and calculate the costs and payback periods of SWH equipment.</p> <p>Showcase: "The portable solar shower" was launched in Durrës in 2011 with the participation of the main stakeholders working in this area. The event is widely presented in different televised and written media.</p>
<b>Output 2.4</b> Trained building designers and other key professionals to consider SWH as an option in the design of new buildings and renovation of existing ones.	<b>HS</b>	<p><u>Indicators:</u> The number of trained professionals.</p> <p>The share of new or renovated buildings including SWH as an option.</p> <p>On target: Numerous professionals were trained and as a result the share of new or renovated buildings including SWH as an option made significant progress.</p> <p>The training of a considerable number (137) of architects, building engineers, other professionals in the building sector, hotel owners, SWH installers, etc. was conducted. Fifteen hotels were visited together with the designers, installers, out of which 5 have already taken into consideration the given recommendations on the installation of SWH systems or on improving their existing ones. The increased rate of the annual sales of SWH systems (4,600 m<sup>2</sup> in 2009 and 19,000 m<sup>2</sup> in 2010) is a good indication for the consideration of SWH systems in new buildings and/or ones under renovation.</p>
<b>Output 2.5</b> Improved curricula of SWH training courses in relevant academic and technical institutions and vocational schools	<b>HS</b>	<p><u>Indicator:</u> The curricula adopted by the targeted educational entities</p> <p>On target: The training curricula is adopted by the targeted educational entities. Curricula have been improved and training sessions delivered to about 50 trainees by 3 vocational training centers. The working group for the curricula of SWH training courses headed by the National Employment Service drafted the new specific curricula which were endorsed by the Minister of Labour. The Vocational Training Centers now have the new approved curricula for the specific courses for SWH systems installers and repairmen. The training manual has also been endorsed by the Ministry.</p>

<p><b>OUTCOME 3:</b> Increased demand for SWH systems by the availability of attractive end-user financing mechanisms or other delivery models, such as SESCOs or utility driven models.</p>	<p>MS</p>	<p>The set target is: <i>"The agreed financial support mechanisms and new delivery models is in operation with a cumulative target of USD 15 million leveraged by them for SWH financing by the end of the project"</i></p> <p>Indicator: The amount of financing leveraged through new financing models specifically tailored for SWH market needs.</p> <p>Project Component 3 is just starting. For the time being, 3 activities were carried out but tangible results did not yet materialize:</p> <ul style="list-style-type: none"> <li>• The report on evaluating the feasibility of different financial support schemes has been finalized;</li> <li>• A round table was organized with local banks, representatives from the Tourism and Business Associations and other stakeholders to discuss the most feasible support mechanisms;</li> <li>• A survey was conducted with the members of the Albanian Tourist Association (the final results still pending) for the identification of their needs regarding the financing of SWH systems in the Albanian hotel sector.</li> </ul> <p>At this point in time, the Evaluator is concerned because the project did not yet clearly provision (or budgeted) the required financial resources to develop (TA, design and recommend) a financial mechanism, even in the likely situation where the co-financing counterpart would be made available and the Investment Cost-Sharing Small Grants programme implemented.</p> <p>On the other hand, a few financial instruments have been made available by a few financial institutions and through other projects and donors over the recent years. The GEF project carried out in 2010-2011 a "Financial Mechanisms Feasibility Study" which pointed out the main issues and provided many recommendations that had not yet been implemented mainly because of the lack of co-financing. At mid-term, the Government disbursed about USD 125,000 and an amount of almost USD 675,000 still remains to be invested in the project to comply with the Government's commitment. The Government still intends to put in place a sort of "Environment Investment Fund" for the purpose of advancing various sustainable project initiatives in the field of EE, RE and other environmental concerns. To this end, the GEF project should provide TA to the Government in that matter. Based on many experiences in other countries, such a "RE/EE Investment Fund" should observe procedures and fund management guidelines in the same manner as other commercial lenders. Although loans could be granted at a lower interest rate, the investment fund will always require the likely borrowers to provide the needed collateral guarantee before granting a loan to intensive energy end-users, e.g. hotels and industrial facilities in the private sector.</p> <p>However, the AWP 2012 encompasses relevant activities (ref.: AWP Outputs 3.2 and 3.3), but at the time of the MTE, the Evaluator was not provided with clear information in regard to activities carried out in accordance with the KPI of Output 3.2 (new financing instruments and, as applicable, delivery models made available) and of Output 3.3 (the capacity of the SWH supply side to operate and/or market the new financing services.)</p> <p><b>Rated Marginally Satisfactory</b></p>
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<p><b>Output 3.1</b> Enhanced awareness of the key financial sector stakeholders and local suppliers on the specific characteristics and financing opportunities on the SWH market.</p>	<p><b>S</b></p>	<p><u>Indicator:</u> The level of interest created.</p> <p>The targeted installation of 20,000 m<sup>2</sup> SWH systems a year at the end of 2014 was already achieved at the end of 2010 without any special financial mechanism or grant programme. The project held a round table with financial institutions and the main finding was that the key financial institutions did not require or ask for any particular training programme to analyze and evaluate SWH projects.</p> <p>On the other hand, the SWH manufacturing sector (the Evaluator met with only one of the 3 active manufacturers in Albania) requires more high quality components and testing equipment. Seemingly the financial sector intends to deal with the investment opportunity in the manufacturing sector in accordance with BAU banking regulations in regard to collateral and financial criteria.</p> <p>Because the project has not yet intensively addressed opportunities for SWH investments in the industrial sector, and because of the higher technical complexity of SWH projects in the industrial sector, the project should provide the needed support (sub-sectors to be defined) to decision makers through the provision of TA, feasibility studies and bankable documents for the industrial sector with the aim of implementing large-scale SWH systems.</p> <p>Because of the somewhat basic KPI related to Output 3.1, this Output deserves a Satisfactory rating.</p>
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<p><b>Output 3.2</b> Design the financial structuring and the implementation arrangements for the specific purpose of financing vehicles responding to specific SWH market needs finalized and agreed with the key stakeholders, and integrated into the overall SWH marketing package.</p>	<p><b>MS</b></p>	<p><u>Indicator:</u> New financing instruments and, as applicable, delivery models made available.</p> <p>Almost nothing has been done for that purpose, except the “Feasibility Study Related to Financial Mechanisms” and the round table.</p> <p>The Feasibility Study report did not provide any relevant recommendation. The report carried out a thorough analysis of available financial mechanisms. The main finding is that many financial mechanisms have already been developed, including the loan guarantee mechanism scheme. The report explored the feasibility of rolling out the ESCO business model (SESCO). Except for a thorough review of the available financial mechanisms, the report is not very useful. However the PMU held a round table involving financial institutions and key players to evaluate the way to take advantage of these financial mechanisms for the development of SWH in Albania</p> <p>The upcoming two and half years should be focused, among other things, on:</p> <ul style="list-style-type: none"> <li>- the set up and operation of the Investment Cost-Sharing Small Grants program for municipal and public facilities;</li> <li>- the provision of advice to support the Government with the aim of setting up the “RE/EE or Environment Fund”, and</li> <li>- the design of a financial mechanism that will be adapted to promote the RE/EE investments scheme targeted by the upcoming investment fund.</li> </ul> <p>At this point in time, the Evaluator is somewhat concerned about the set up of a financial mechanism or of the “RE/EE Fund”, by the end of the project timeframe.</p> <p>To be implemented, the small grants program will require the full co-financing pledged by the Government and the set up of the RE/EE Fund to secure the sustainability of the financial mechanism to be developed and implemented</p> <p>The UNDP CO should work very intensively to secure all committed co-financing, that is to say 250,000 Euros to cover the last 2 ½ years of the project and the same amount during the next 2 ½ years. In the absence of this co-financing, the small grants program cannot be operational.</p> <p>At the time of the MTE, the current result is quite far from the expected outcome as required by the KPI of Output 3.2. The rating is therefore Marginally Satisfactory.</p>
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<b>Output 3.3</b> As required, trained SWH supply side stakeholders to effectively operate and/or market the new financing services.	n.a .	<p>Cannot be evaluated at this moment because there are currently no results in regard to financial services or mechanisms.</p> <p>The project intends to institute a “small-grant” programme using the Government co-financing. The PMU should take action ASAP to design this programme and secure the MoETE’s approval to implement the programme, especially in the municipal and public sectors. Nowadays, governments are quite reluctant to provide grants or subsidies to the private sector. In addition, by regulation, the GEF money cannot be used to directly support investments in the private sector through a grant scheme<sup>8</sup>.</p> <p>The first two years of the project implementation demonstrated that the residential sector and to a certain extent the service sector, does not need a particular financial mechanism to invest in SWH. The ESCO business model does not exist in Albania and because of time constraints; it would be quite difficult to develop such a business model within the upcoming two years.</p> <p>Finally, the financial sector does not require any particular capacity building or training programme. The recent Financial Study carried out by the project revealed that some financial tools are already available to borrowers but not yet used for the purpose of SWH. However, the project should address that issue and provision some TA to intensive energy end-users for the submission of quality bankable documents as per the financial sector's requirements.</p> <p>This Output will be evaluated at the stage of the FE.</p>
<b>OUTCOME 4:</b> A certification and quality control scheme applicable for Albanian conditions and enhanced capacity of the supply chain to offer products and services promoting a sustainable SWH market.	S	<p>The Labeling and Certification protocol must be in line with certification scheme enforced in the EU countries (Keymark<sup>9</sup>), although an interim stage can be favourable to local manufacturers to improve the quality of SWH equipment. Tests carried out in Switzerland on equipment produced in Albania have already evaluated the products as quite good and on the verge of complying with the international requirements in that matter.</p> <p><u>Indicator:</u> The share of supply side entities adopting the proposed quality control schemes. The level of customer satisfaction with the systems installed.</p> <p>Because of the result of sub-activities under Outcome 4, the overall Outcome performance is rated <b>Satisfactory</b>.</p>
<b>Output 4.1</b> Set of SWH standards and an associated certification and labelling system developed (or adapted) for	S	<p><u>Indicator:</u> Availability of a quality control system for SWH equipment suitable for Albanian situation.</p> <p>Tests have been conducted and the secondary regulations are under preparation. The Standards have already been adopted by the General Directorate of Standardization. The certification and labelling activity is in progress. Many activities were carried</p>

<sup>8</sup> By regulation, at the end of the project timeframe the UNDP cannot transfer the project assets to the private sector.

<sup>9</sup> The Solar Keymark Association is a voluntary third-party certification mark for solar thermal products, demonstrating to end-users that a product conforms to the relevant European standards and fulfills additional requirements. The Solar Keymark is used in Europe and increasingly recognized worldwide

Albanian conditions.		out. At this point in time, equipment manufacturers would like to, first and for a few years, comply with an Albanian certification scheme. Such an approach should enable equipment manufacturers for a period of time providing them with the opportunity and time to eventually invest in new production equipment.
<b>Output 4.2</b> A pilot testing facility to check compliance with adopted standards.	n.a .	<p><u>Indicator:</u> The number of locally tested systems according to adopted standards.</p> <p>The Austria Development Agency (ADA) was previously involved in a few project initiatives related to SWH in Albania. As a continuation of its current cooperation program, the ADA procured some testing equipment that was installed at the premises of the Harry Fultz Institute in Tirana but an appropriate pilot testing facility does not yet exist in Albania.</p> <p>This Output will be evaluated at the stage of the FE.</p>
<b>Output 4.3 :</b> Technical support to local manufacturers and importers to obtain a certification and to improve their product quality in general.	n.a .	<p><u>Indicator:</u> The number of manufacturers receiving TA</p> <p>The number of missions and trade seminars organized</p> <p>The project must deal with this component from now up to the end of the project timeframe.</p> <p>This Output will be evaluated at the stage of the FE.</p>
<b>Output 4.4 :</b> A training and recognition system in place for SWH system installers.	S	<p><u>Indicator:</u> The availability of the system.</p> <p>The number of SWH system installers trained.</p> <p>As a result of the project, about 46 participants have already been trained by 3 vocational training centers.</p> <p>The "recognition system" has not yet been developed.</p> <p>In addition, the GEF project is currently addressing this output with the aim of supporting manufacturers and professional installers to set up a joint association to this end.</p>
<b>OUTCOME 5</b> The provided support institutionalized and the results, experiences and lesson learnt documented and disseminated (including monitoring, learning, evaluation and other feedback for adaptive management).	S	<p>Work in progress.</p> <p><u>Indicator:</u> Continuing support for SWH market development also after the end of the project.</p>

<b>Output 5.1</b> The reporting framework and arrangement for the SWH market monitoring established and continuing after the end of the project.	<b>S</b>	<p><u>Indicators:</u> Agreed reporting format and institutional arrangements for SWH market monitoring established.</p> <p>The estimate on the penetration rate of SWH systems in Albania till 2020 for households, the service and industry sectors was finalized as a follow-up of the update of the relevant market analyses.</p> <p>Monitoring equipment for electricity and water consumption of electrical boilers in 20 different <i>households</i> in three Albanian climatic zones was installed and the first monitoring data were provided. <i>This data will be useful to accurately establish the baseline.</i></p> <p>A proposal was finalized and sent to the NANR for SWH market monitoring in Albania; the project collaborated with the National Institute of Statistics (INSTAT) to include an indicator related to SWH systems in the template of the national population and buildings census carried out by INSTAT in the fall of 2011.</p> <p>The project has not yet designed and implemented a comprehensive database that would be useful to systematically collect, sort and analyze data and the impacts of installed SWH equipment. This should be done in 2013 and transferred to the NANR at the end of the project timeframe.</p>
<b>Output 5.2</b> An agreed business and financing plan for the establishment of an Albanian Solar Center, a Solar Thermal Industry Association or a similar entity to sustain the required market promotional activities.	<b>S</b>	<p>Work in progress.</p> <p><u>Indicators:</u> The status of the business and financing plan.</p> <p>The charter for the establishment of a local Solar Thermal Association was drafted and shared with likely potential members for comments/suggestions. The business plan of the new Association was drafted and circulated for comments from potential members (manufacturers and importers). Based on some comments already gathered, the project will revisit the draft charter and business plan to better match the Association to the needs of interested participants.</p>
<b>Output 5.3</b> An established Albanian Solar Center, a Solar Thermal Industry Association or a corresponding entity.	n.a	<p><u>Indicator:</u> The Association established and in operation</p> <p>Not yet implemented, but the activity is not delayed and work is in progress. Cannot be rated at this stage.</p>
<b>Output 5.4</b> Project Mid-term and Final Evaluation.	<b>S</b>	<p><u>Indicator:</u> Status of the evaluations</p> <p>On target</p> <p>The MTE was carried out in June 2012.</p>

<b>Output 5.5</b> The project final results and lessons learnt documented and disseminated.	<u>Indicator:</u> Available report  Work in progress: This output will take place when the project will have gathered reliable data spread over a full year or longer on a significant sample of SWH projects. Case studies should be drafted by the end of the project timeframe. Cannot be rated at this stage.
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#### 4.0 PROJECT OUTCOMES RISK EVALUATION AND RATING

In accordance with the requirements mentioned in the TORs, each dimension of the sustainability of major project outcomes has been rated as follows:

- *Likely (L)*: There are no or negligible risks that affect this dimension of sustainability.
- *Moderately Likely (ML)*: There are moderate risks that affect this dimension of sustainability.
- *Moderately Unlikely (MU)*: There are significant risks that affect this dimension of sustainability.
- *Unlikely (U)*: There are severe risks that affect this dimension of sustainability.

The following table deals with the risk evaluation rating in regards to the attainment of each outcome. The ratings related to the performance and achievement of activities and project components are presented in Table 2.

**Table 5:- Risk Evaluation Matrix / Project Outcomes**

Project Outcomes	Relevance	Efficiency	Effective-ness	Results / Impacts	Overall Rating	Sustain-ability
<b>Outcome 1</b> An enabling institutional, legal and regulatory framework to promote a sustainable SWH market.	L	L	L	L	L	L
<b>Outcome 2:</b> Enhanced awareness and capacity of the targeted end users and building sector professionals to consider and integrate SWH systems in different types of buildings.	L	L	L	L	L	L



**Table 5:- Risk Evaluation Matrix / Project Outcomes**

Project Outcomes	Relevance	Efficiency	Effective-ness	Results / Impacts	Overall Rating	Sustain-ability
<b>Outcome 3:</b> Increased demand for SWH systems by the availability of attractive end-user financing mechanisms or other delivery models, such as SESCOs or utility driven models.	L	L	ML	ML	ML	L
<b>Outcome 4</b> A certification and quality control scheme applicable for Albanian conditions and enhanced capacity of the supply chain to offer products and services promoting a sustainable SWH market.	L	L	ML	ML	ML	L
<b>Outcome 5</b> The provided support institutionalized and the results, experiences and lesson learnt documented and disseminated (including monitoring, learning, evaluation and other feedback for adaptive management).						

## 5.0 CONCLUSION AND RECOMMENDATIONS

### 5.1 Conclusion

In general, the major activities related the project implementation process, financial management and level of achievement towards the objectives are **Satisfactory**.

On the other hand, the Evaluator pointed out some weaknesses, especially in terms of the replication risk because of the lack of co-financing (pending issue discussed at section 3.1.3 - Financial Management), the lack to date of a financial support mechanism, and the weak penetration of SWH in hot water-intensive industrial end-users at least because of the financial capacity of equipment manufacturers to make available an attractive financing mechanism to industrial facilities. Finally, because of the difficult financial situation of the Electricity Public Utility, the utility's financial scheme cannot be considered.

The *likely sustainability of the project is satisfactory* because of the new RE regulation and because the market transformation is proceeding more easily than expected. At mid-term, the final project objective of 20,000 m<sup>2</sup> installed a year has already been achieved. The new regulation, drafted with the assistance of the project, should speed up the market transformation even more effectively over the upcoming years.

The successful market transformation, at least in the residential and service markets, revealed that the use of a financial mechanism to advance investments is not the key decision-making criteria. For those sectors, the procurement cost and the quality of equipment prevail over other criteria. In the industrial sector, in addition to quality and cost, the industrial investor is usually more interested in dealing with EE/RE investments when the “promoter” can provide an attractive financial mechanism. However, the low impact of the project in the industrial sector is perhaps the result of the lack of activities supported by the project in that sector.

The Evaluator has drawn up a list of 3 recommendations. Time flies and only two years are left to address the priority concerns pointed out at the time of the MTE and implement these recommendations.

In the view of the Evaluator, the Project Management Unit is aware of the fact that it is urgent to come to a decision and to make the needed adjustments to the project by taking into consideration (i) the actual successful market transformation in the residential and service sectors and related lessons learnt , (ii) the need to extend the market transformation to the tourism and industrial sectors, and (iii) the required adjustment to the work plan up to the end of the project timeframe in accordance with the availability or not of the national co-financing commitment.

Finally, because of the willingness of the UNDP CO and its commitment to face the identified issues and undertake adaptive management, the Evaluator is optimistic in regards to the successful completion of the project and the sustainability of the market transformation of the SWH technology in Albania.

At this stage of the project implementation, the Evaluator would recommend slightly opening the window for a project duration extension, which could be required in a

situation where the national co-financing would be secured during the upcoming months. The same rationale is applicable with the “UNEP” co-financing scheme. In such a case, a one-year extension would be appropriate and allow to extend the project to a larger number of government facilities and obtain additional results from co-financing.

## 5.2 Recommendations

### **Recommendation 1: Outline of the Required Financial Mechanism(s)**

The last 2 years of the project implementation did not point out a crucial need in regard to financial mechanisms in the residential and service sectors. Indeed, the target of 20,000 m<sup>2</sup> installed a year has been reached after 2 years rather than at the end of the project timeframe. 90% of these investments were rolled out in the residential and service sectors and only 10% in the industrial sector. In spite of the successful achievements over the last 2 years, the public/municipal sector is still under-investing in SWH. To this end, the GEF project should design and implement a “Small Grants Mechanism” (SGM) to boost the installation of SWH in the most hot water-intensive public/municipal facilities, among others: hospitals, kindergartens, cafeterias and laundries. The SGP should be a **cost-sharing** program between three parties: (i) the energy end-user; (ii) the national co-financing (MoETE), and the GEF project for TA. The energy end-user and the co-financing would share the investment and installation costs. The GEF project should deal with the project design and management, coordination, procurement, quality control, monitoring and reporting. To this end, the first step would be to carry out a feasibility study and a needs assessment of the target beneficiaries. On the assumption that the national co-financing will be made available in the upcoming months and that other transfers will occur twice a year by the MoETE, the project should be in a position to implement about 75 SWH projects based on an investment of more or less USD 10,000 per project. The AWP 2012 planned to use about USD 190,000 from the national co-financing (MoETE and MoEFWA) mainly for activities included in Outcome 2 (25%) and Outcome 3 (75%). Although a budget provision has been appropriately allocated (Outcomes 2 and 3), in the opinion of the Evaluator, sustainability would be far more secured if the co-financing were rolled out through a small grant programme to share the investment costs in municipal and public facilities. See Section 3.1.3 - Adaptive Management for additional details.

However the Small Grant Mechanism (SGM) is not per se a sustainable mechanism. The likely upcoming “RE/EE Investment Fund” the government intends to put in place should have a more sustainable perspective, especially in regard to supporting SWH investments in the private sector. The GEF project should provide the MoETE with the needed TA to advance the effective use of the RE/EE Fund. As an instance, the LGF mechanism could be useful for providing a guarantee to the RE/RE Investment Fund or to other financial institutions if need be, while the borrower requires an additional or more reliable collateral guarantee. The LGF scheme is already available in Albania and the project should use some of its resources to provide the needed TA to borrowers in the preparation of bankable documents in line with the financial institution requirements.

Another financial mechanism to be considered is the Soft Loan Program (SLP). The SLP would be major instrument for the financing of investments in SWH especially in the tourism and industrial sectors. The SLP would be financed and managed by the RE/EE

Investment Fund management team or preferably by a financial institution. Again, the project should provide specific TA to the Government in this regard.

Many other options are also available but, based on experience in other countries, the less risky and more sustainable mechanisms are LGF and soft loans to support the Government's investment fund. In addition, because those mechanisms are not grant schemes, as a rule, the donor community is not reluctant to become involved in this type of sustainable financial support.

**Recommendation 2: Intensive TA to set up the "EE/RE Investment Fund"**

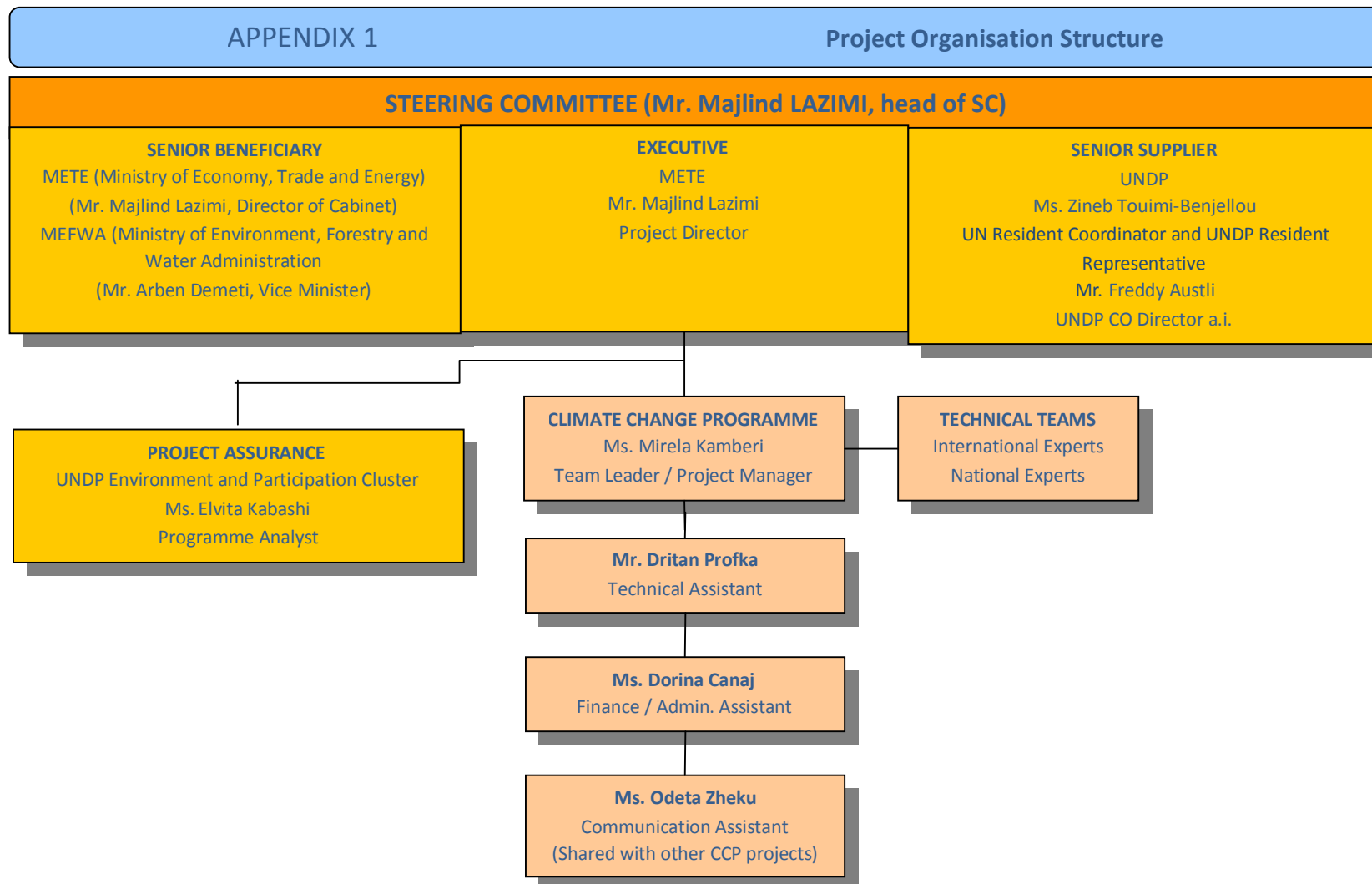
Provision of more intensive TA to the MoETE to draft the regulation related to the "EE/RE Investment Fund" required to advance the enforcement of the RE Regulation and boost investments in RE/EE. A clear and appropriate regulation, modalities, selection criteria and decision-making procedures, accountability of the fund manager and reporting are the cornerstones of a modern and efficient investment fund. The GEF project should be involved with the MoETE to outline the basic regulation and to carry out a consultation stage with target beneficiaries.

**Recommendation 3: Improvement of the Impacts Monitoring and Verification Tools**

Strengthen the monitoring and reporting on energy savings, GHG emissions reduction, baseline and database related to SWH projects. The wording "monitoring and verification" is more appropriate than M&E because the purpose is to "verify" the actual impacts of the project.

The Evaluator had a look at the way the GEF project determines the GHG emissions reduction. At the time of the MTE, the project did not take into account the SWH projects implemented as a direct impact of the TA provisioned to energy end-users. The PMU should straight away work out a thorough methodology to determine the direct and post-project direct impacts as well as the indirect impacts based on a justified causality factor (not easy to determine...). The reliable M&V/database to be developed and implemented should also be useful to figure the GHG emissions reduction abatement cost to provide a fact base on emissions-reduction opportunities and their associated cost and investment needs. To this end, the project should rely on the Global Project Initiative to provide clear guidelines in regard to (i) GHG emissions calculation methodology and cost abatement; (ii) GHG emissions factor and relevance of using the marginal or average factor for SWH projects and the appropriateness to use the average or the marginal factor. I recommend that the project formally write to the UNEP project requesting that the Global Project provide clear guidelines.

Finally, the UNDP CO should intervene with the Global SWH Program Secretariat with the aim of sharing the same common GHG emissions calculation guidelines with other Global SWH projects. In so doing, it will be possible, and hopefully much more reliable, to make comparisons from one project to another. Again, it is important to note that Knowledge Management and information sharing is a key component of the Global SWH Programme and, until now, the valuable expected support has been somewhat lightly provided to the Albanian project by the Global Programme.



Appendix 2: Achieved Mission Agenda and Persons-Institutions met

**APPENDIX 2**

**ACHIEVED Agenda for the MTE mission**

Day	Date	Time	Type of event	Participants	Place
Fri	22 June 2012	17:25	Arrival to Tirana (to be taken by the driver from the airport)	Louis-Philippe LAVOIE	
Sat	23 June 2012	10:00	Meeting with the Financial Assistant	Dorina Canaj	Project office
Sun	24 June 2012				
Mon	25 June 2012	09:00	Kick-off meeting	Elvita Kabashi, Freddy Austli, Mirela Kamberi	UNDP office
		12:00	Kick-off meeting - skypetalk with RTA (UNDP -BRC)	John Obrien	Project office
		14:00-15:00	Meeting with the Chair person: Steering Committee	Majlind Lazimi (Director of Cabinet)	METE
		15:30-18:00	Project Management Unit Kick-off meeting	Mirela Kamberi, Dritan Profka, Odeta Zheku	Project office
Tue	26 June 2012	9:00-10:00	Continuing with the Project Management Unit meeting - skypetalk with International Adviser	Vesa Rutanen	Project office
		10:30-11:30	Meeting with the METE (Ministry of Economy, Trade and Economy)	Agim Bregasi (Director of Energy Policy)	MoEFWA
		11:30-12:30	Meeting with the representative from the Municipality of Tirana	Edmond Panariti (Deputy Mayor)	Municipality
		14:00-17:00	Continuing with the Project Management Unit meeting	Mirela Kamberi, Dritan Profka, Odeta Zheku	Project office
Wed	27 June 2012	9:30-10:30	Work meeting with Mirela : first wrap-up	Mirela Kamberi	Project office
		11:00-12:00	Meeting with the MoE (Ministry of Environment, Forestry and Water Administration)	Arben Demeti (Deputy Minister)	METE
		14:00-15:00	Meeting with the Architect Association Representative	Artan Shkreli (Head) / Sokol Dervishi (member)	Project office
		15:00-16:00	Meeting with the Building/Construction Association Representative	Enkeleida Prifti (Secretary)	Association office
		16:00-17:00	Meeting with the representative of Albanian Tourism Association	Matilda Naco (Head)	Project office
Thu	28 June 2012	9:00-10:00	SWH demonstration site visit_VTC Tirana 1	Vasil Muka (Director)/ Ernest Godella (SWH courses Instructor)	VTC TR 1

		10:00-11:00	SWH demonstration site visit_Hotel Theranda	Martin Gjonaj (Administrator)	Theranda
		11:00-12:00	SWH demonstration site visit_Manufacturer Mihal Sila	Mihal Sila (Owner)	Termotirana
		13:30-18:00	Preparation of the draft main findings note and additional desk review		Project office
Fri	29 June 2012	9:00-12:00	Continuing with the Preparation of the draft main findings note and additional desk review		Project office
		14:00-15:00	Presentation of ther main findings	All team members	UNDP office
		15:00-18:00	Closing meeting with PC	Mirela Kamberi	Project office
Sat	30 June 2012				
Sun	01 July 2012				
Mon	02 July 2012				
Tue	03 July 2012	15:00	Final Wrap-up Meeting (UNDP CO)	Louis-Philippe LAVOIE / Elvita (UNDP CO) / Mirela (PM)	
Tue	03 July 2012	18:00	Departure	Louis-Philippe Lavoie	

Appendix 3: IMPACTS EVALUATION SPREADSHEET

**MONITORED  
MARKET**  
[m2 of  
installed  
area]

Year	Service		Residential		Industry		GRAND TOTAL	
	New Sale	Total	New Sale	Total	New Sale	Total	New Sale	Total
2002	1 100	7 100	700	6 000			<b>1 800</b>	<b>13 100</b>
2003	1 700	8 800	1 300	7 300			<b>3 000</b>	<b>16 100</b>
2004	4 600	13 400	3 900	11 200			<b>8 500</b>	<b>24 600</b>
2005	4 600	18 000	3 600	14 800			<b>8 200</b>	<b>32 800</b>
2006	700	18 700	1 800	16 600			<b>2 500</b>	<b>35 300</b>
2007	500	19 200	2 200	18 800			<b>2 700</b>	<b>38 000</b>
2008	5 400	24 600	2 400	21 200			<b>7 800</b>	<b>45 800</b>
2009	2 300	26 900	2 300	23 500			<b>4 600</b>	<b>50 400</b>
2010	10 032	36 932	9 781	33 281			<b>19 813</b>	<b>70 213</b>
2011	9 789	46 721	8 450	41 731	2 268	2 268	<b>20 507</b>	<b>90 720</b>
2012								
2013								
2014								
2015								
2016								
2017								
2018								
2019								
2020								

ORIGINAL ASSUMPTIONS IN THE PROJECT DOCUMENT	
Projected Alternative [m2]	Projected Baseline [m2]
33 000	33 000
40 000	40 000
47 350	47 350
55 656	55 068
66 037	63 171
79 534	71 679
97 754	80 613
122 351	89 994
153 098	99 844
189 994	110 186
232 424	121 045
279 522	132 448
331 329	144 420
388 317	156 991
451 004	170 190
519 960	184 050



average

**INSTALLATIONS FACILITATED DIRECTLY BY THE PROJECT**

Name of project	Year of Installation	Panel Area [m2]	Annual Useful Energy Production [kWh]			
			2011	2012	2013	2014
Thethi	2011	12				
VTCs	2011	9				

New installation during 2008-2012 (alternative):	75 001
<b>New installation during 2008-2012 (baseline):</b>	<b>42 644</b>

# PROJECT GHG REDUCTION IMPACT

Average annual yield	575	[kWh/m2,a]
Calculated panel lifetime	15	[years]

Emission Factors	Average for all supply		For avoided import	
Baseline GHG Emission Factor	0,285	[kg/kWh]	0,844	[kg/kWh]
CO2 savings per m2, year	164	[kg/m2,a]	486	[kg/m2,a]
Lifetime CO2 savings per m2	2,46	[tons/m2]	7,28	[tons/m2]

Direct GHG Reduction	2010	2011	2012	2013	2014	Total
Installed Panel Area Facilitated Directly by the Project [m2]	0	21				21
Direct CO2 reduction over the lifetime of panels with the average EF for all power supply [tons of CO2]	0	52	0	0	0	52
Direct CO2 reduction from avoided import [tons of CO2]	0	153	0	0	0	153

Indirect GHG Reduction	2010	2011	2012	2013	2014	Total
New installations [m2]	19 813	20 507				40 320
Assumed project impact [causality factor]	40%	40%				
Indirect CO2 Reduction over the lifetime of panels with the average EF for all power supply [tons of CO2]	19 458	20 139	0	0	0	39 597
Indirect CO2 Reduction from avoided import [tons of CO2]	57 716	59 738	0	0	0	117 454