

# **TERMINAL EVALUATION REPORT (Final version)**

## **MME/UNDP/GEF Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Phase II**

Prakash (Sanju) Deenapanray

ELIA – Ecological Living In Action Ltd  
74 Société La Flèche  
La Gaulette  
Mauritius

**12 January 2011**

# TABLE OF CONTENTS

LIST OF ACRONYMS .....	2
EXECUTIVE SUMMARY.....	4
<b>1. THE PROGRAMME AND ITS DEVELOPMENT CONTEXT .....</b>	<b>11</b>
1.1 PROGRAMME START AND ITS DURATION.....	11
1.2 PROBLEMS THAT THE PROJECT SEEKS TO ADDRESS .....	12
1.3 IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROGRAMME .....	13
1.4 MAIN STAKEHOLDERS.....	13
1.5 OUTCOMES/ RESULTS EXPECTED .....	13
<b>2. CONTEXT AND PURPOSE OF THE EVALUATION .....</b>	<b>14</b>
2.1 PURPOSE OF THE EVALUATION .....	14
2.2 KEY ISSUES ADDRESSED.....	15
2.3 METHODOLOGY OF THE EVALUATION .....	15
2.3.1 <i>Documentation review</i> .....	16
2.3.2 <i>Questionnaire</i> .....	16
2.3.3 <i>Interviews and consultations</i> .....	16
2.3.4 <i>Field visits</i> .....	16
2.3.5 <i>Participation of stakeholders and or partners</i> .....	17
2.4 STRUCTURE OF THE EVALUATION REPORT .....	17
<b>3. FINDINGS OF EVALUATION .....</b>	<b>17</b>
3.1 DESIGN, CONCEPTUALIZATION AND FORMULATION.....	17
3.1.1 <i>Programme formulation</i> .....	17
3.1.2 <i>Country ownership/drivenness</i> .....	19
3.1.3 <i>Stakeholder participation</i> .....	20
3.1.4 <i>UNDP comparative advantage</i> .....	21
3.1.5 <i>Linkages between project and other interventions</i> .....	21
3.1.6 <i>Management arrangements</i> .....	21
3.2 IMPLEMENTATION .....	22
3.2.1 <i>Financial Planning</i> .....	22
3.2.2 <i>Monitoring and evaluation</i> .....	24
3.2.3 <i>Execution and implementation modalities</i> .....	25
3.2.4 <i>Management by the UNDP country office in Namibia</i> .....	25
3.2.5 <i>Coordination and operational issues</i> .....	26
3.3 RESULTS .....	27
3.3.1 <i>Attainment of objectives, outcomes and outputs</i> .....	27
3.3.2 <i>Sustainability beyond the Project Life Cycle</i> .....	30
3.3.3 <i>Contribution to capacity building, sub-regional and national development</i> .....	32
3.3.4 <i>Gender relevance</i> .....	33
<b>4. RECOMMENDATIONS .....</b>	<b>33</b>
<b>5. LESSONS LEARNED .....</b>	<b>36</b>
<b>6. CONCLUSIONS .....</b>	<b>38</b>
<b>ANNEX 1. STAKEHOLDERS PARTICIPATING IN NAMREP II .....</b>	<b>40</b>
<b>ANNEX 2. TERMS OF REFERENCE – TERMINAL EVALUATION .....</b>	<b>41</b>
<b>ANNEX 3. EVALUATION SCHEDULE .....</b>	<b>46</b>
<b>ANNEX 4. LIST OF PERSONS AND ORGANIZATIONS INTERVIEWED, AND SITES VISITED .....</b>	<b>47</b>
<b>ANNEX 5. LIST OF DOCUMENTS REVIEWED .....</b>	<b>50</b>
<b>ANNEX 6. QUESTIONNAIRE – TERMINAL EVALUATION .....</b>	<b>51</b>
<b>ANNEX 7. ANALYSIS OF OUTPUTS IN LOGICAL FRAMEWORK.....</b>	<b>55</b>

## LIST OF ACRONYMS

APR-PIR	Annual Project Report – Project Implementation Report
APIR	Annual Project Implementation Review
AWP	Annual Work Plan
BW	Bank Windhoek
C/B	Cost Benefit
CO <sub>2</sub>	Carbon Dioxide
CART	Centre for Applied Research and Technology
CDM	Clean Development Mechanism
CPD	Country Programme Document
CPAP	Country Programme Action Plan
CP	Country Programme
CTA	Chief Technical Advisor
DRFN	Desert Research Foundation of Namibia
DKK	Danish crown
DANIDA	Danish Development Agency
DRR	Deputy Resident Representative
ECB	Electricity Control Board
ERP	Expenditure Report
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRN	Government of Namibia
HQ	Head Quarter
IW	Inception Workshop
IR	Inception Report
IT	Information Technology
kWh	kilowatt-hour
MAWRD	Ministry of Agriculture, Water and Rural Development
MME	Ministry of Mines and Energy
M&E	Monitoring and Evaluation
MWTC	Ministry of Works, Transport and Communication
MDGs	Millennium Development Goals
MYFF	Multi-Year Funding Framework
MET	Ministry of Environment and Tourism
Mt	Metric Ton
MWh	Mega watt-hour
MTE	Mid-Term Evaluation
MoE	Ministry of Education
MoU	Memorandum of Understanding
MW	Megawatt
N\$	Namibian Dollars
NAMWATER	Namibian Water Corporation
NAMPOWER	Namibian Power Corporation
NPC	National Planning Commission
NDC	Namibia Development Corporation
NAMSTA	Namibian Solar Technicians Association
NAMREP	Barrier Removal to Namibian Renewable Energy Programme
NCSA	National Capacity Self-Assessment
NEX	National Executing Modality
NGO	Non-Governmental Organization
NHE	National Housing Enterprise
NPM	National Project Manager

NPD	National Project Director
NSI	Namibian Standards Institution
OGEMP	Off-Grid Energisation Master Plan
OGEMPF	Off-Grid Energisation Master Plan Fund
PE	Premier Electric
PoN	Polytechnic of Namibia
PMU	Project Management Unit
PAC	Project Advisory Committee
PAPI	Project Assistant Policy Implementation
PATI	Project Assistant Technology and Information
PAEA	Project Assistant Economics and Administration
PAFA	Project Assistant Finance and Administration
PIR	Project Implementation Report
PSC	Project Steering Committee
PS	Permanent Secretary
PVP	Photovoltaic water pump
QDPF	Quarterly Development Partners Forum
RE	Renewable Energy
RED	Renewable Energy Division
REEE	Renewable Energy and Energy Efficiency
REEEI	Renewable Energy and Energy Efficiency Institute
ROAR	Report Oriented Annual Result
RC	Regional Coordinator
REEECAP	Renewable Energy and Energy Efficiency Capacity Development Programme
RET	Renewable Energy Technology
RCU	Regional Coordinating Unit
SENSE	Sustainable Energy Namibian Society
SET	Solar Energy Technology
SHS	Solar Home System
SRF	Solar Revolving Fund
SWH	Solar Water Heater
SMEs	Small Medium Enterprises
SPR	Standard Project Report
SE	Solar Energy
TE	Terminal Evaluation
tCO <sub>2</sub>	Tonne of Carbon Dioxide
TV	Television
ToR	Terms of Reference
TTR	Terminal Tripartite Review
TPR	Tripartite Review
UN	United Nations
UNAM	University of Namibia
UNFCCC	United Nations Framework Convention on Climate Change
UNDAF	UN Development Assistance Framework
UNDP	UN Development Programme
UNDP CO	UN Development Programme Country Office
USD	US dollar
US\$	US dollar
UNESCO	United Nations Education Scientific Cultural Organization
VAT	Value-Added Tax
W	Watt
W <sub>p</sub>	Watt peak
WVTC	Windhoek Vocational Training Centre

## Executive Summary

### Brief description of programme

The Namibian Renewable Energy Programme (NAMREP) project aims to (a) improve livelihoods and income generation opportunities of rural people by providing them with access to off-grid solar energy technologies (for lighting, radio/TV, water pumping, small electric tools and refrigeration) and (b) reduce the dependency of increasingly expensive imported fuels by promoting solar water heating (to the household, and institutional and commercial sectors) and solar water pumping in the agricultural sector through the removal of barriers capacity and institutional barriers, public awareness and social acceptability barriers, and financial and technical barriers. In the process, NAMREP is expected to contribute to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions in the order of 233,700 tCO<sub>2</sub> over a 15-year period.

The programme has been implemented in two phases. The first phase (NAMREP I) focused on providing technical assistance to government, NGOs, finance and other sectors to remove and reduce barriers in terms of capacities, institutional development, technical constraints, financial instruments and public awareness. NAMREP I laid the foundation for an accelerated implementation of the solar technologies stimulated by financing schemes for appropriate product delivery mechanisms in Phase II. NAMREP II started in June 2007 with GEF funding to the tune of USD 2.6million. Phase II focused on promoting the delivery of commercially, institutionally and technically sustainable solar energy services to rural and off-grid communities.

Phase II of NAMREP sought to achieve five broad outcomes. These were:

1. Build capacity in public and private sectors and in NGOs;
2. New policies, laws, regulations and actions in support of renewable energy are in place;
3. Increased public awareness and social acceptability amongst stakeholders;
4. Appropriate financing and product delivery schemes set up and expanded; and
5. Learning, evaluation and adaptive management.

### Context and purpose of the evaluation

Since the assistance of UNDP/GEF to NAMREP II phases out in September 2010, it is standard practice as per UNDP/GEF Monitoring and Evaluation Policies and Guidelines<sup>1</sup> to carry out a Terminal Evaluation (TE) of Phase II. The purpose of TE is to analyze and assess the achievements and progress made towards achieving the original objectives of NAMREP II. Achievements and progress are assessed against five key criteria, namely:

Relevance – The extent to which the project is suited to local and national development priorities and organizational policies, including changes over time;  
Effectiveness – The extent to which an objective has been achieved or how likely it is to be achieved;

---

<sup>1</sup> Guidelines for GEF Agencies in Conducting Terminal Evaluations, Evaluation Document No. 3 (Global Environment Facility, Evaluation Office, 2008); and The GEF Monitoring and Evaluation Policy, Evaluation Document No. 1 (Global Environment Facility, Evaluation Office, 2006) – both documents accessed at <http://thegef.org> - 12 July 2010.

Efficiency – The extent to which results have been delivered with the least costly resources possible (without carrying out a full financial audit);

Impacts – The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. These include direct project outputs, short- to medium-term outcomes, and longer term impacts including global environmental benefits, replication effects, and other local effects; and

Sustainability – The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion – i.e. project should be environmentally, financially and socially sustainable.

The scope of TE also covers the effectiveness of the programme's implementation approach; stakeholder participation; and Monitoring and Evaluation. In sum, the evaluation is expected to result in *recommendations* and *lessons learned* to assist in defining future direction of similar programmes.

### **Major findings and Recommendations**

This section reports the main findings of the evaluation and gives the corresponding *recommendation(s)* where applicable.

#### Relevance of programme

1. There is unanimity among stakeholders that NAMREP II was highly relevant given a context and baseline of: (1) rising fuel prices; (2) high cost of grid-connectivity in rural areas; (3) decreasing the dependence on imported electricity and fossil fuels; (4) to reduce the country's emissions of GHG, including a reduction in use of non-renewable biomass;

#### Effectiveness and efficiency of programme

##### *Programme design, conceptualization and formulation*

2. The emission factors used to calculate the emission reductions of the programme were not done transparently or in a verifiable way.

*Recommendation:* To employ approved baseline and monitoring methodologies of the Clean Development Mechanism in addition to prescribed GEF methodologies. This will provide a stronger basis for leveraging any carbon finance to support projects.

3. A very effective process was put in place at the national level to achieve full country ownership of project.
4. Few critical stakeholders should have been included, at least at an earlier stage of the programme design (and implementation)

*Recommendations:* (1) Include RCs as a key stakeholder in the roll-out of OGEMPF; and (2) include NSI in design of future projects introducing new technologies, products, equipment etc ... and for which national standards would be required.

5. A change in management structure has led to poorer than expected management of project;
6. The programme suffered in terms of technical quality assurance over its last year of implementation while the position of Chief Technical Advisor remained vacant;

7. Project ensured good linkages with other projects and interventions, but it was noted that it is essential to have the setup of a coordinating entity for SETs/RETS activities in Namibia;

*Recommendation:* It is proposed that REEEI be capacitated to become the coordinating entity for all RE and EE projects/programmes for better harmonization and complementarity of projects.

#### *Implementation*

8. Financial planning was done effectively leading to very high project delivery rates. While about 99.2% of the GEF funds had been used at the time of terminal evaluation, several key end-of-project activities were outstanding;

*Recommendation:* It is recommended that the financial planning process should be captured as a project best practice. Corrective action should be taken in future project when allocating financial resources so that key activities (e.g. end-of-project) are not left out.

9. Gaps were identified in the programme M&E under the new management structure of NAMREP II;

*Recommendation:* Project management staff should be trained to make full use of the logical framework.

10. Some deficiencies in the oversight function of UNDP CO in the context of the new management structure were noted;

*Recommendation:* The UNDP CO should play a more prominent role in project oversight by being more closely involved in monitoring M&E activities, as well as undertaking regular site visits.

11. In this stage of transition for the setup of OGEMPF, there is a high operational risk concerning the failure to hold Guarantee Fund Committee meetings;

*Recommendation:* Need to ensure that the responsibility for secretarial services of the committee is handed over to RED.

#### Results and Impacts

12. **Global and development objectives were** either partially met or could not be assessed because key activities to quantify their attainment were not carried out;

*Recommendations:* (1) To check emission factors to assess the validity of real emission reductions that project has delivered; (2) It is imperative to carry out suppliers and end-users survey to assess the actual impacts of the project before project closure. This will also allow capturing lessons learned to design OGEMPF so that the ultimate beneficiaries are indeed rural, off-grid communities. Alternative sources of funding should be made available to complete these activities if sufficient GEF funds are no longer available.

13. **Outcome 1:** achieved satisfactorily – no VTCs accredited to date to provide training courses;

*Recommendation:* Need to complete public review of unit standards, as well as any outstanding processes so that WVTC can start dispensing courses.

14. **Outcome 2 and 3:** These outcomes have been achieved in a highly satisfactory manner, and have been major strengths of NAMREP II from which best practices should be captured for dissemination and replication.
15. **Outcome 4:** This was achieved in a satisfactory manner. No loans have been disbursed over the past year, and first cost reduction strategies were not in place as initially proposed;

*Recommendations:* Discussed under sustainability below.

16. **Outcome 5:** Learning, evaluation and adaptive management processes, particularly for the capturing of lessons and the maintenance of updated project statistics (e.g. sales figures, system faults, success stories, etc..) was not carried out in a regular and structured manner for the project to be able to draw and capitalize on its best practices, and to address its shortcomings;

*Recommendation:* It is highly recommended to carry out a systematic lessons learned exercise for NAMREP II before its closure. Please see more under Lessons Learned below.

### Sustainability

All stakeholders have shown optimism that NAMREP II has played a catalytic role in the deployment of a market for SETs. SET market is ripe but some bottlenecks have to be addressed.

#### *Institutional sustainability*

17. It has been noted that no inter-sectoral coordinating entity for SETs/RETs has been identified or set up under the programme;

*Recommendation:* It is proposed that REEEI should play this role, while observing that it will have to be capacitated in terms of human and financial resources.

18. It has been noted that the Renewable Energy Division, Ministry of Mines and Energy has no core competency to manage a commercial loan scheme like OGEMPF;

*Recommendations:* (1) The Ministry should consider the outsourcing of the management of OGEMPF to private sector institutions that already have experience in running SRF under NAMREP II; or (2) in case the Ministry decides to manage OGEMPF internally, then it is proposed that lessons learned from BW, FNB, Konga to manage the SRF should be captured and transferred to MME.

#### *Financial sustainability*

19. There has been a slowdown in loan disbursements for SETs since the end of 2009 that is affecting the entire SET value chain in Namibia;

*Recommendation:* The roll-out of OGEMPF should be carried out as quickly as possible in order to build on the momentum of NAMREP II

20. High awareness of the benefits of SETs has resulted in the rapid de-capitalization of previous Guaranteed Loan Schemes leading to unfulfilled market demand;

*Recommendation:* The implementation of proposed levies on petroleum products and electricity should be carried out.



21. The first cost of SET remains a market barrier, and is especially for rural communities who constitute the poorer segment of the population;

*Recommendation:* Government should implement first cost reduction strategies that have been identified under NAMREP II to catalyse the local market for SETs and its value chain. This is especially important when these systems will be deployed to improve the livelihoods of the poor

22. There is a lack of level playing field for SETs compared to fossil fuel derived energy and electricity;

*Recommendation:* The gradual introduction of cost-reflective electricity/energy tariffs should be implemented by national authorities to enhance the financial sustainability of SETs.

#### *Market sustainability*

23. The Guaranteed Loan Scheme operated under NAMREP II did not benefit the intended rural communities;

*Recommendation:* The shortcomings in the design of the SRF have to be studied so that OGEMPF can be designed in such a way to avoid a similar problem.

24. Theft of PV modules constitutes a major problem in remote applications and in the Northern parts of Namibia where the majority of the rural population is located.

*Recommendations:* (1) Need to carry out a situation analysis to document the full extent of the problem, including the profile of systems that are targeted for theft; (2) stakeholders have identified several counter measures that will increase the cost of SETs targeted by thefts. Hence, it is necessary to carry out a feasibility and cost/benefit analysis of security these measures.

25. Solar cookstoves were not included in definition of SETs in NAMREP II, although their deployment is expected to have significant impact on the livelihood of rural communities that rely on non-renewable biomass for thermal energy.

*Recommendation:* It is proposed that OGEMPF should cover solar cookstoves because of its high relevance and multiple benefits to rural communities.

### **Lessons learned**

1. Detailed cost-benefit analysis of SETs compared to alternatives using fossil fuels (electricity, diesel or kerosene) is essential for marketing SETs in both rural and urban areas;
2. Designing and communicating the benefits of SETs in terms of their contributions to savings on energy bills, and enhancement of the standard of living and livelihood of off-grid communities is critical for their social acceptability;
3. The programme has shown that the role of a Chief Technical Advisor is absolutely necessary, and the absence jeopardizes the technical quality assurance of the project;
4. The sequencing of activities in this type of project is very important for the effective and efficient delivery of outcomes and outputs. NAMREP II has shown

that there may be several factors, some of which may have been anticipated within the project conceptualization, design and formulation. In contrast, there are unforeseen factors that could not be anticipated, but for which remedial solutions could be found through an adaptive, learning management system;

5. Financial instruments to assist end-users to overcome the initial high capital expenditure of SETs are critical in creating demand and a market for SETs;
6. Management structure of Phase II was changed without any empirical evidence of the relative merits of the new structure over the preceding one (i.e. NAMREP I). This created a situation where the confusions over roles and responsibilities for oversight of technical quality of the project emerged to the detriment of its effectiveness and efficiency. The lesson that can be learned here, as has been suggested by the UNDP CO, is that empirical evidence is required before proposing and instituting an alternative project management structure, especially in the case when one already existed;
7. Phase II has created much awareness about the benefits and advantages of SETs. Setting up loan schemes at higher capitalization levels than those achieved in NAMREP will be required to satisfy market needs;
8. Evaluation has shown that NAMREP II has performed extremely well on aspects like capacity building and awareness-raising, as well as institutionalising policies and regulations for promoting SETs. Also, good examples were identified where capacity building and training created entrepreneurship and improved the business of small enterprises. Also, the programme put in place a very effective process to generate country ownership of the programme. The programme missed an opportunity to systematically capture these successes into best practices to be replicated and disseminated.
9. At the same time, a key lesson that has been learned during NAMREP is that the financial schemes operated by Konga, BW and FNB have benefitted mostly the richer communities, at the expense of poorer, rural (and off-grid) communities who were the intended market segments in Phase II. The lessons learned from this shortcoming have not been captured so that they are avoided in the future;

### Main conclusions

Overall NAMREP II has been relatively successful in meeting its end-of-project objectives and outcomes. Over the past three and half years the project has made a major contribution to the promotion and delivery of commercially and technically sustainable energy services (for off-grid lighting, radio, TV, water pumping, and refrigeration) and solar water heating to the household, institutional, commercial, and agricultural sectors of Namibia, albeit that the intended beneficiaries, namely rural and off-grid communities, were bypassed by NAMREP II. The project has contributed to everything from the passage of new regulations supporting SETs to increased public awareness of SETs to the establishment of financial products and platforms for consumer financing of SETs. Progress on certain key outcome areas has slowed considerably over the last two years, but on a cumulative basis the project has performed in a satisfactory manner. The public profile and visibility of SETs in Namibia seems to have increased substantially over the past couple years and NAMREP II provides an excellent platform for Namibia to continue to expand its

activities in the area of low-carbon development, renewable energy and energy efficiency. The project has important synergies with the National Policy on Climate Change for Namibia and White Paper on Energy. Technical reporting of project activities could have been more detailed and comprehensive but otherwise project management and stakeholder engagement was good.

The ratings for stakeholder participation and monitoring & evaluation have been rated as satisfactory and marginally satisfactory, respectively.

# 1. The Programme and its Development Context

This chapter sets the problem statement that NAMREP II set out to address. The broad outcomes of the project are enumerated, as well as its expected outputs. This chapter forms the reference against which the evaluation has taken place. The programme can be identified as follows;

GEF Project ID: 3062  
 GEF Agency Project ID: 00054005  
 Country: Namibia  
 Project Title: Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Phase II  
 GEF Agency: UNDP

## 1.1 Programme start and its duration

NAMREP II is the sequel to Phase I of the programme, and was started in June 2007 when the GEF CEO endorsed its implementation with UNDP as the implementing agency. However, Phase II inception activities took place in parallel with the closure of Phase I between January and June 2007. The duration of NAMREP II was 3 years. A no-cost extension was granted and the project was extended from June to September 2010. The dates for key milestones are shown in Table 1.

Table 1. Timing of key Programme milestones.

Milestone	Expected Date	Actual date
CEO endorsement/approval	March 2007	31 May 2007
Agency approval date	April 2007	18 June 2007
Implementation start		22 November 2007
Midterm evaluation	May 2006 (Phase I)	May 2006 (Phase I)
Project completion	30 September 2010	30 September 2010
Terminal evaluation completion	November 2009	17 November 2010
Project closing	December 2009	(28 February 2011)

The financial resources that were requested and that were made available through GEF and co-financing for the implementation of NAMREP II are given in Table 2.

Table 2. Project framework.

Project Component	Activity type	GEF financing (in \$)		Cofinancing (in \$)	
		Approved	Actual	Promised	Actual
1. Capacity building	TA	210,000	210,000	315,000	523,000
2. Policies, laws and regulations	TA	181,000	181,000	538,750	538,750
3. Public awareness and social acceptability	TA	275,900	275,900	222,500	430,500
4. Financial and product delivery model	TA and investment	1,302,000	1,302,000	5,500,000	5,500,000
5. Learning, evaluation and	Scientific and	302,100	302,100	433,750	643,750

adaptive management	technical analysis				
6. Project management		329,000	329,000		
Total		2,600,000	2,600,000	7,010,000	7,636,000

Further, the breakdown of co-finances is given in Table 3. Co-financing was only provided for project implementation.

Table 3. Details about expected and actual cofinancing in USD.

Source of cofinancing	Type	Project Implementation	
		Expected †	Actual ‡
Danish Government (Bilateral Agency)	cash	1,155,000	1,155,000
Finish Government (Bilateral Agency)	cash	3,626,000	5,726,000
RE financing schemes with banks (private sector)	cash	2,000,000	
MME	In-kind	100,000	755,000
MME	cash	755,000	
<b>Total</b>		<b>7,636,000</b>	<b>7,636,000</b>

† Data obtained from the Project Inception Report of 14 August 2007.

‡ Data obtained from the UNDP/GEF Project Implementation Report (PIR) of September 2010.

### **1.2 Problems that the project seeks to address**

The problems that the project seeks to address can be understood by looking at future energy needs of the country. The baseline scenario has implication for the socio-economic development of Namibia, as well as detrimental environmental impacts.

Namibia's growing economy will require energy services to facilitate this growth. Further, much of the current conventional energy consumption relies on non-renewable hydrocarbon fuels of finite quantity, which have to be fully imported from South Africa. The shortage of power supply in South Africa poses an additional threat to the energy security of Namibia. In addition, the growing need for power for lighting, refrigeration and cooking in the baseline scenario is not met using grid electricity. Where this need is met, it is done through the use of relatively expensive and fossil-based alternatives such as diesel, paraffin, candles, coal and fuel wood. Given the low rural incomes, coupled with the rising cost of grid electrification, the decreasing value of the Namibian dollar and the dispersed nature of non-electrified settlements, grid expansion deep into rural areas is not a viable option. South Africa is rationalising its power industry and may raise the price of power exports to Namibia, so the government has indicated the possibility of sharp rises in the power tariffs in the near future. All these factors have a number of implications. Firstly, massive investments are required for the grid to reach the rural populations, but the government is lacking these funds. Secondly, the likelihood of low electricity consumption levels will jeopardise cost recovery on grid connections in remote rural areas.

Against this backdrop, the baseline scenario is characterised by two unsustainable conditions:

- (i) Households and/or communities will have no access to financial resources to develop their locally available solar energy sources and families will remain dependent on the use of inefficient technology (such as candles and batteries for lighting) as energy sources in rural communities or adopt fossil fuel based technologies (such as diesel generators). This has the consequence of limiting evening activities to a minimum and reducing opportunities for income generation or improvements in the quality of education, health, and public service delivery (all of which are significantly improved by a suitable supply of electricity); and
- (ii) Few government resources will be directed to SET investment, and the majority of available resources will be dedicated to conventional grid extension. Private investment in renewable energy will not occur because (a) solar energy systems are not perceived as an attractive investment, (b) the regulatory and institutional arrangements promoting solar energy to be distributed are not in place, (c) the market demand for SETs remains small and (d) of the lack of adequate financing availability for SETs.

Hence, NAMREP II has sought to address these two constraints by creating conducive conditions to create a market for SETs, especially in rural and off-grid communities.

### ***1.3 Immediate and development objectives of the programme***

The global goal to which NAMREP II contributes is “to increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions and improving livelihoods and income generation of rural people”. In order to achieve this goal, NAMREP II has sought through its development objective “to promote the delivery of commercially, institutionally and technically sustainable energy services by providing solar energy, including solar electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration) and solar water heating to the household, institutional, commercial, and agricultural sectors”.

### ***1.4 Main stakeholders***

The cohort of main stakeholders partaking in NAMREP II were : (i) government ministries and institutions; (ii) NGOs and parastatals; (iii) capacity building organisations; (iv) financial and private sector institutions, (v) Donor Agencies/Development Partners; and (vi) end-users/beneficiaries. Annex 1 provides the breakdown of the 6 categories of stakeholders.

### ***1.5 Outcomes/ Results expected***

The five expected outcomes of NAMREP II and their associated outputs as listed below:

Outcome 1: Build capacity in public and private sectors and in NGOs

- 1.1 Training programmes for public and private sector and NGOs have been established and executed

- 1.2 Decentralized Renewable Energy Technology (RET) companies are adequately supported
- 1.3 Vocational and training centres are capacitated and providing technical training on Solar Energy Technologies (SETs)

Outcome 2: New policies, laws, regulations and actions in support of renewable energy are in place

- 2.1 Policy and regulatory frameworks for renewable energy and off-grid electrification are formulated
- 2.2 Government ministries and public institutions finance and implement solar technologies and projects
- 2.3 The REEE Institute (REEEI) is established at the Polytechnic of Namibia and functioning well

Outcome 3: Increased public awareness and social acceptability amongst stakeholders

- 3.1 Comparative information on cost and benefits of SETs is developed
- 3.2 Increased knowledge of SETs among potential end-users and national and regional decision-makers. Feasibility of introducing the 'SETs Kit for the Poor' explored.
- 3.3 Active networks or associations of stakeholders are in place
- 3.4 Information Kit documenting appropriate and inappropriate appliances for RETs/SETs

Outcome 4: Appropriate financing and product delivery schemes set up and expanded.

- 4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded
- 4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up

Outcome 5: Learning, evaluation and adaptive management

- 5.1 Adaptive management, monitoring and evaluation
- 5.2 Lessons learned are documented and disseminated

The quantitative and qualitative results that were expected to emanate from NAMREP II are given in the second column of the table given in Annex 7.

## **2. Context and Purpose of the Evaluation**

The context and purpose of the Terminal Evaluation are set out in the TOR found at Annex 2. The analysis follows the template suggested in the TOR with re-ordering of some sections to improve the flow of information and to take into account the feedback received from stakeholders and reviewers.

### **2.1 Purpose of the evaluation**

The Monitoring and Evaluation Policy (M&E Policy) at the project level in UNDP/GEF has four objectives to:

- a) Monitor and evaluate results and impacts;
- b) Provide a basis for decision making on necessary amendments and improvements;

- c) Promote accountability for resource use;
- d) Document, provide feedback on, and disseminate lessons learned.

The principal purpose of TE is to assess the project results and impacts as required by the UNDP/GEF Monitoring and Evaluation Policy. It is also mandatory to evaluate and review any UNDP programme of funding amounting to at least USD 1million when the assistance is about to phase out. TE is intended to assess the relevance, performance and success of the projects. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals and objectives. It will also identify and document lessons learned and make recommendations that might improve the design and implementation of other UNPD/GEF projects.

The schedule to complete the Terminal Evaluation is outlined in Annex 3.

## **2.2 Key issues addressed**

To analyze and assess the achievements and progress made so far towards achieving the original objectives of NAMREP II. Factors that have facilitated or impeded the achievement of the objectives will be identified, while also considering the *effectiveness, efficiency, relevance, impact and sustainability* of the programme. These are the five key evaluation criteria prescribed by GEF in its Monitoring and Evaluation Policy. The evaluation is expected to result in *recommendations* and *lessons learned* to assist in defining future direction of similar programmes.

The evaluation will include ratings on two broad aspects of the programme, namely (1) sustainability; (2) achievement of objectives and outcomes; while also rating the effectiveness of the programme's (3) implementation approach; (4) stakeholder participation; and (5) Monitoring and Evaluation.

## **2.3 Methodology of the evaluation**

A scientific approach was used to carry out the evaluation, while also drawing on the guidelines provided by GEF to its implementing agencies for carrying out Terminal Evaluations, as well as the GEF Monitoring and Evaluation Policy. For instance, in addition to assessing the programme based on the five key evaluation criteria mentioned above, section 3 (Scope) of the *Guidelines for GEF Agencies in Conducting Terminal Evaluations* (please see footnote 2) provides guidance on how to assess:

- Projects results;
- Risks to sustainability of project outcomes;
- Catalytic role of project (if any);
- Monitoring and evaluation systems;
- Long-term changes;
- Processes affecting attainment of project results; and
- Lessons and recommendations.

In order to provide empirical evidence for quantifiable assessment, this TE has made use of the following complementary instruments:



### **2.3.1 Documentation review**

The documents listed in Annex 5 were reviewed. Further, the reports mentioned in the Monitoring and Evaluation Plan of the Project Document, such as minutes of the Project Steering Committee and the Project Advisory Committee; Annual Project Implementation Reviews (PIRs) and related documentation; the Annual Project Reports (APRs); Standard Progress Reports of the Tripartite Review Meetings; Mid-Term Evaluations were also reviewed. Typically, these documents allow evaluation of the project implementation to be assessed against the 3 key criteria – i.e. Effectiveness, Efficiency and Results.

### **2.3.2 Questionnaire**

To complement the documentation review, the questionnaire given in Annex 6 was used to gather information on performance of Phase II against the 5 key evaluation criteria described above. The questionnaire also contains specific questions related to the conceptualization and design, relevance, implementation and performance of NAMREP II. The questionnaire has been designed to minimise any forms of bias to ensure impartiality of results. The questionnaire was sent to the PMU ahead of the field mission, and any clarifications were provided by IC during face-to-face meetings.

### **2.3.3 Interviews and consultations**

Since NAMREP II covered a broad scope of activities, documentation review and survey by questionnaire was not sufficient to probe into its performance. Face-to-face interviews were therefore carried out with selected stakeholders during a one-week in-country mission. Annex 4 provides a list of persons and institutions that were consulted.

The interviewees were identified following the documentation review and in consultation with PMU. In general, the interviewees cover the cohort of 6 categories of stakeholders:

1. Government and ministries;
2. NGOs and parastatal (Para-governmental) bodies;
3. Private sector and individuals (entrepreneurs);
4. Donor or development partner agencies;
5. Capacity building/development organisations; and
6. Financial institutions.

### **2.3.4 Field visits**

Since a main objective of NAMREP II is to enhance the livelihood of off-grid and rural communities that are sparsely distributed in Namibia, it was important to understand the social acceptability of SETs and their impacts on beneficiary/end-user communities, as well as understanding their experiences with using SETs. The PMU organised several field visits to selected beneficiary rural communities that are not connected to the grid, as well as to selected institutions that have made use of SETs. Annex 4 gives a summary of field visits carried out as part of this evaluation. In selecting beneficiary communities and institutions, IC had asked PMU to identify both successful cases, as well as cases where deployment of SETs failed to materialise or where problems were encountered during technology deployment, if any. Obviously, the field visits included interviews and consultations with end-users / beneficiaries of the project.

### **2.3.5 Participation of stakeholders and or partners**

The PMU, in collaboration with the implementing and executing institutions, and IC drafted a list of stakeholders that were not only key stakeholders of NAMREP II, but were also representative of the broader cohorts of stakeholders associated with the project. Further, the questionnaire was administered next to stakeholders beyond the list given in Annex 4. A broad pool of stakeholders was deemed necessary to avoid bias, and also to provide meaningful feedback. The cohort of stakeholders include: (i) government ministries and institutions; (ii) NGOs and parastatals; (iii) capacity building organisations; (iii) financial institutions and Donor Agencies; (iv) private sector and individuals; and (v) end-users/beneficiaries.

### **2.4 Structure of the evaluation report**

The Terminal Evaluation report is comprised of six (6) sections. Section 1 gives an overview of NAMREP II, including its development context by situating the problem statement. The broad objectives of Phase II are articulated as well as its outcomes and outputs. Section 2 has provided an introduction to the need to undertake this Terminal Evaluation, as well as the methodology used to carry out the evaluation has been presented. Section 3 gives the findings of the evaluation. Recommendations emanating from these analyses are given in Section 4. Section 5 highlight the lessons learned based on the analyses given in Section 3. Some conclusions are given in Section 6.

## **3. Findings of Evaluation**

This section reports the findings of this evaluation. In particular, the design and formulation, and implementation of NAMREP II are analysed. This section also analyses the attainment of results according to the indicators set in the logical framework, and discusses the findings concerning the sustainability of the programme beyond its lifecycle. For the sake of guiding the reader, the main findings of this evaluation are *italicized and underlined*. The analyses provided here are based on evidence gathered using the methodology that has been elaborated in section 2.3.

There has been unanimity among all stakeholders who were consulted during this evaluation that NAMREP II was highly relevant given a context and baseline of: (1) rising fuel prices; (2) high cost of grid-connectivity in rural areas; (3) decreasing the dependence on imported electricity and fossil fuels; (4) to reduce the country's emissions of GHG, including a reduction in use of non-renewable biomass;

### **3.1 Design, conceptualization and formulation**

#### **3.1.1 Programme formulation**

The formulation of Phase II arose from a process that included three main activities.

1. The lessons learned from Phase I could be drawn upon to improve the quality of Phase II. In fact, Phase II was formulated after carrying out a 'End of Phase I' status study, coupled with extensive stakeholder consultations;
2. The stakeholders had a final opportunity to review the project at the Inception Workshop prior to its implementation; and

3. A Project Advisory Committee was set up to provide technical input in the project formulation. Another level of technical input was provided by UNDP's Regional Technical Advisor, Climate Change Mitigation.

However, feedback received during field study has identified gaps in programme formulation, and shown that inclusion of the following elements would have improved the formulation of NAMREP II:

1. It is well accepted that NAMREP has been instrumental in catalysing a market for SETs in Namibia. However, analysis of the profile of beneficiaries has shown that the Phase II by large missed its intended target groups of end-users, namely rural and off-grid communities. Large chunks of funding made available by NAMREP II (e.g. guaranteed loan by FNB) went to two applications, that is: (i) SHW units in urban households (to replace electric geysers); and (ii) PVP to relatively rich farmers in the Southern parts of Namibia.<sup>2</sup> This finding was reported both by BW and FNB, and further substantiated by REIA that reported having the majority of its business done in Windhoek and the South of Namibia. The representative of FNB reported that it had identified this shortcoming. As a remedial step, FNB attempted to open access of the guaranteed loan scheme to the entire population. However, this did not work out since the underlying driver for loan applications were suppliers of SETs, most of which are based in Windhoek. In order to avoid delays, a decision was made to roll out the FBN scheme even if the target population was not reached. The rapid de-capitalization of the loan scheme meant that a remedial solution to this problem was not found during the lifetime of the programme;
2. Although Phase I had focused on Solar Cookstoves in rural areas, Phase II did not include SC in its definition of SETs. The present assessment has shown that this became an unmet gap. Rural communities rely mostly on fuel wood for cooking purposes. Fetching fuel wood places several constraints on these communities since family members have to devote much of their time to collecting. This means that family members have less time to pursue alternative and more productive activities (as would have been the case if a Solar Cookstove was available to them). Further, burning of wood has negative environmental impacts because: (i) it results in greenhouse gas emissions, and (ii) the above-ground biomass in the semi-arid areas of Namibia could be regarded as stocks of nutrients (since the soil quality/fertility is quite poor) that are lost when wood is burned. The last point has implications for the integration of climate change mitigation/adaption, biodiversity, SLM and broader LULUCF issues in the design/formulation of future projects (GEF-funded or otherwise) in Namibia. This issue was raised by Prof Oyedokun who is a member of PAC;
3. Since the biggest impacts of the benefits of SETs occurs in off-grid communities,<sup>3</sup> it would have been more meaningful to give the thirteen (13) Regional Councils a more central role in the implementation of the project. Each RC is best placed to understand the constraints that it faces regarding the social

---

<sup>2</sup> A PVP system on a typical farm of around 30-40 thousand hectares would be equivalent to 5-10 SHS in an off-grid application.

<sup>3</sup> Off-grid, rural communities are defined as the poorer segment of the population whose livelihood can be enhanced by the use of SETs. Hence, large-scale farmers who are also found in off-grid, rural areas are not categorised as 'intended beneficiaries'.

acceptability and other implementation constraints (e.g. theft) of SETs. It appeared that RCs had little role to play in NAMREP II beyond hosting underutilised and unproductive demonstration systems on their premises.<sup>4</sup> This is especially important in the context of Namibia which is a sparsely populated country. Planned decentralisation of the implementation of SETs to the level of RCs should be investigated and implemented by GRN. This would be compatible with UNDP's Territorial Approach to Climate Change (TACC) where the rationale is to devolve the administration and implementation of climate change mitigation activities to the sub-national level.

Members of the PMU raised this issue when it was found out during the implementation of the programme that the deployment of SETs would have been more effective and efficient if RCs were used as a hub; and

4. The emission factors used to calculate direct and indirect emission reductions arising from the project lack transparency in their calculations (i.e. emission factors are quoted without explicitly providing any information on the methodology that was used in calculations). It is proposed that future emission reduction calculations would be based on approved baseline and monitoring methodologies of CDM. This offers several advantages, including (1) standardisation of calculations, and (2) providing a better foundation for developing potential CDM projects whereby carbon finance can be an additional revenue stream to support the Sustainable Development of Namibia (or any other country).<sup>5</sup> The PM also reported that issues related to Namibia importing electricity from South Africa was not accounted for in emission calculations.

### 3.1.2 Country ownership/drivenness

Country ownership is an important feature of the project assessment since it also inevitably provides an indication of the future sustainability of the programme. There are several key indicators that show unambiguously that NAMREP II was fully owned and driven by GRN. For instance,

1. The project has been relevant to the on-going national efforts under Namibia's climate change programme (National Communications under the UNFCCC) to develop a national mitigation plan and support the development of technologies that reduce GHG emissions, including renewable energy technologies (RETs);
2. NAMREP II supported the White Paper on Energy Policy (1998) of GRN that recognises the importance of renewable energy in improving access to energy in rural areas (rural households, businesses, public services and water supply), as well as in generating electricity for the grid and the more rational use of electricity in buildings and for water heating;

---

<sup>4</sup> A typical example is the Ohangwena Regional Council where three very expensive are hosted in a burglar-proof cage. The cage being covered with corrugated iron sheets renders the systems unproductive. Further, the Governor mentioned that very few people query about the systems. In addition to being already overworked to be able to carry out outreach activities, the staff members of the Council have insufficient proficiency about the technicalities of SETs to advise potential customers.

<sup>5</sup> One could also include projects for the Voluntary Markets.

3. The setting up of a Renewable Energy Division (RED) within the Energy Directorate of MME, as well as the REEEI (hosted at the Polytechnic of Namibia) to take on some non-core functions of MME related to SETs testify to the commitment of GRN for the promotion of SETs in Namibia. It is noteworthy that RED is headed by a high-level cadre in the person of the Deputy Director of the Energy Directorate, MME;
4. In NAMREP II, GRN has led by example by establishing two cabinet Directives to drive the process of SET deployment in Namibia (please see appraisal of Output 2.1 in Table 2 below for more details); and
5. The PSC was chaired by the PS of MME, implying highest level of direct oversight given to project by the implementing institution.

### 3.1.3 Stakeholder participation

Although the project proponents did a commendable job at involving as many stakeholders as possible right at the outset of the project,<sup>6</sup> review shows that *some instrumental stakeholders were not engaged in the project, at least at a sufficiently early stage of the project*. Three examples will illustrate this point, as well as highlighting the strategic value that the additional stakeholders would have brought to the programme:

- Although NSI did not exist at the start of Phase II, its involvement with the development of standards (through a technical committee) could have been achieved earlier in the project. The strategic value of the inclusion of NSI or a technical committee would have allowed standards for SETs to be developed earlier in the project. This would have provided the quality assurance required by the entire value chain of the SETs from financial institutions to suppliers to installers to end-users regarding the technical quality of SET products and systems. In general, the disbursement of loans should be pegged to standards in order to ensure that limited funds are used efficiently, as well as to maximise public acceptance of the new technology. Discussions with the representative of FNB showed that delays in the disbursement of loans accrued due to the lack of timeliness to develop standards;
- The National Qualifications Authority should have been involved at the design and formulation stage of the project. Such inclusion would have assisted the project to better manage unforeseen delays arising due to setting up of the Vocational Training Act 2008 that hampered VTCs from delivering accredited training courses on SETs to technicians. This has prevented the accomplishment of one programme output as will be discussed in section 3.3.1; and
- Further, discussion of the third gap that has been identified under section 3.1.1 has demonstrated the strategic value for including high level representatives of the 13 RCs in the design and implementation of the programme.

Since capacity building and the setting up of product standards are crucial aspects of any Renewable Energy or Energy Efficiency project, this review provides key lessons for similar project that are yet to be implemented within Namibia (e.g. Namibian Energy Efficiency Programme) and elsewhere. In terms of capacity building, had the

---

<sup>6</sup> The stakeholders that were included in the design of the project, including participating in the Inception Workshop, are found at Annex 1.

work on standards and certification been done in advance of the registration of suppliers and installers, they would have been technically better equipped to provide quality equipment and services to end-users.

### **3.1.4 UNDP comparative advantage**

There are several factors that have given UNDP a clear comparative advantage as a GEF implementing partner in NAMREP II. These are:

1. The longstanding in-country presence of UNDP has meant that it has developed effective partnerships with all the key stakeholders relevant to the programme. These partnerships spanning from policy-decision makers to communities have ensured that UNDP has a very good understanding of the needs and expectations of the various stakeholders;
2. The UNDP CO has a dedicated Energy and Environment Unit, which is staffed with nationals. This makes it easy for UNDP to communicate with GRN on issues related to Energy;
3. UNDP's Country Programme Document (which outlines the interventions of UNDP in GRN over a typical period of 3 years) is formulated following discussions with GRN, and hence is linked to the government's priorities; and
4. The clear comparative advantage of UNDP also stems from the fact that Phase II emanated from Phase I of NAMREP, where UNDP was already the GEF implementing partner. The association of UNDP with NAMREP I, and the successful implementation of Phase I, provided the foundation for the continuation of UNDP as implementing partner.

### **3.1.5 Linkages between project and other interventions**

In Phase II, NAMREP has continued to collaborate with REEECAP that was funded by DANIDA, and which provided co-financing support. REEECAP was implemented by the Polytechnic of Namibia and focused on (a) strengthening the capacity of REEEI, (b) efficient use of energy in low-cost housing, and (c) capacity building on renewable energy, energy efficiency and rural development. REEECAP was completed in 2008. Through REEECAP, NAMREP II was able to work closely with two NGOs, namely the Desert Research Foundation and the Habitat Research Centre.

Towards the second half of its term, NAMREP II was able to provide input to the conceptualisation, design and formulation of another MME/UNDP/GEF project entitled 'Namibian Energy Efficiency Programme, NEEP' that has as its main objective to enhance energy efficiency in buildings. The implementation of NEEP should start in the 4<sup>th</sup> Quarter 2010 / 1<sup>st</sup> Quarter 2011. *It is expected that the lessons learned in NAMREP II will enable Namibia to generate better results from the implementation of NEEP (and other GRN/UNDP/GEF projects that are being developed - e.g. Concentrated Solar Power Technology Transfer for Electricity Generation in Namibia (CSP TT NAM) Project).*

### **3.1.6 Management arrangements**

NAMREP II employed a management arrangement that deviated from the one used in NAMREP I. In NAMREP I, a Chief Technical Adviser (CTA), supported by a Deputy CTA, had the responsibility for both project management and technical advisory functions that ensured good coordination and M&E. In contrast, the PMU for Phase II consisted

of two distinct roles in a Project Manager and a CTA (ex-Deputy CTA from Phase I). The rationale was to decouple the responsibility for day-to-day and financial management (PM) from technical management (CTA) in order to ensure better programme implementation. Also, it was expected that the new structure would lend a higher level of programme ownership to GRN, whereby the UNDP CO would have less involvement in M&E. The change in supervisory arrangements within the project where the PM did not directly supervise CTA meant that PM lost control of this function. The change in management structure has led to poorer than expected management of the project, especially regarding M&E as is further discussed in section 3.2.2.

Further, the CTA's appointment with NAMREP II came to term in October 2009, and since this position was not renewed, assurance of the technical quality in the last 11 months of the project was carried out by remaining administrative staff of PMU, with the support of the UNDP CO. The absence of a technical advisor in the last year of the project has prevented significant technical input in learning and adaptive management processes (e.g. PIRs).

### **3.2 Implementation**

In this section, the implementation approach employed by NAMREP II to achieve its objectives is evaluated.

#### **3.2.1 Financial Planning**

This aspect of NAMREP II was carried out in a very effective way, mostly based on experience gathered from Phase I, and also because of the in-country (both within GRN and UNDP) experience to carry out the financial planning for GEF-funded projects.<sup>7</sup> The successful financial planning stems from the fact that AWP's were finalised using a multi-stakeholder and consensual approach involving PMU, RED, and UNDP. For quality assurance, all AWP's were then approved by PSC. Further, the effective financial planning can be seen from the very high annual delivery levels<sup>8</sup> of the project, which were 92%, 90.5%, 95.2% for 2008, 2009 and 2010, respectively. The data on delivery levels provides only a rough overview of the total expenditures, and does not reveal expenditure as a function of outcomes to see the effectiveness of financial spending.

In order to make any linkages between use of financial resources and completion of programme activities, the data given in the two tables below have to be used. The projected and actual expenditure are in USD (US\$). The first table gives the allocation of funds as a function of the 5 project outcomes, as well as the expected management costs throughout the lifetime of Phase II of the programme. This data has been taken verbatim from the Project Inception Report of 2007, and are classified according to five broad expenditure categories (staff, consultants and travels; subcontracts; audiovisual, printing, publications etc.; grants; miscellaneous).

---

<sup>7</sup> Several GRN/UNDP/GEF projects have been implemented in Namibia in areas as diverse as biodiversity, sustainable land management and climate change mitigation/adaptation.

<sup>8</sup> Delivery is a standard internal metric used by UNDP to assess the efficient allocation of financial resources to project activities within a one-year period. These numbers were provided by the UNDP CO.

<b>Allocation of GEF funds given in Annexure 7.2 of the Project Inception Report, August 2007</b>							
	Comp1	Comp2	Comp3	Comp4	Comp5	Mgt	Total
staff, consultants, and travels	65,000	35,000	30,000		70,000	20,000	<b>220,000</b>
subcontracts	145,000	121,000	215,900	112,000	207,100	285,000	<b>1,086,000</b>
audiovisual, printing, publications etc..		25,000	30,000		25,000	18,000	<b>98,000</b>
grants				1,190,000			<b>1,190,000</b>
miscellaneous						6,000	<b>6,000</b>
<b>Total</b>	<b>210,000</b>	<b>181,000</b>	<b>275,900</b>	<b>1,302,000</b>	<b>302,100</b>	<b>329,000</b>	<b>2,600,000</b>

The actual expenditure as of 10 November 2010 was obtained from the yearly (2007-2010) Combined Delivery Reports (CDR) provided by the UNDP CO. Although the CDR contains more than five types of expenditure categories, for consistency, the categories listed in the Inception Report have been retained. Any additional expenditure category has been lumped under 'miscellaneous'. GEF funds were disbursed by either UNDP or GRN. However, it was noted that the later was very small, if any. The data given below reflect expenditures up to 10 November 2010.

<b>Actual expenditure of GEF funds according to Combined Delivery Reports 2007-2010</b>							
	Comp1	Comp2	Comp3	Comp4	Comp5	Mgt	Total
staff, consultants, and travels	91,012.72	146,875.46	37,039.79	7,171.55	143,652.06	238,125.52	663,877.1
subcontracts	106,491.04	61,244.54	102,763.48	76,374.98	69,138.85	47,701.01	463,713.9
audiovisual, printing, publications etc..		12,810.43	46,359.63	1,458.34	9,231.03	6,643.38	76,502.8
grants				1,185,137.68			1,185,137.7
miscellaneous	31,075.51	19,522.81	20,646.34	68.83	90,561.83	28,084.24	189,959.6
Total	228,579.3	240,453.2	206,809.2	1,270,211.4	312,583.8	320,554.2	2,579,191.1

Financial data analysis and comparison of the two tables allow a few observations to be made:

1. The total expenditure of NAMREP II (USD2,579,191) is around 99.2% of total allocated GEF funds of USD2,600,000. This shows that NAMREP II has been very efficient at spending its share of GEF funding. However, it is noted that several important end-of-project activities (see section 3.3.1) have not been completed, which raises questions concerning the effectiveness of financial spending;
2. The actual levels of spending for outcomes and project management are quite consistent with the projected allocations at the project inception stage. This shows that the financial planning process that was put in place worked well;



3. Grants / microcredit loans that were allocated under Outcome 4 were disbursed entirely in 2007 and 2008;
4. Spending on Outcomes 2 and 3 were higher during 2007 and 2008 (especially for outcome 3), which is compatible with the fact that results accruing under these outcomes were obtained during the first half of the programme;

Further, discussions with FNB have shown that the financial risk arising from defaults by borrowers to FNB loan scheme leading to a draw down on the Loan Guarantee Fund, and a reduction in its size by the time it is released to OGEMPF are being dealt with effectively. In fact, FNB reported that it had registered only two defaults to date, and that these cases were being closely monitored.

### **3.2.2 Monitoring and evaluation**

The Project Document provided an elaborate structure for Monitoring & Evaluation (M&E). However, gaps have appeared during the implementation phase of the project that may not necessarily be related to the M&E quality system in place, but rather due to the lack of clearly defined roles within the management structure of the project.

- As introduced in section 3.1.6, in the new management structure of Phase II, there was no role clearly charged with monitoring and review of technical outputs/reports, measurement/assessment of project achievements which would form the basis for monitoring and evaluation. This dysfunction may also be related to the carry forward of a management culture from Phase I where the CTA had absolute control over the project to a situation (viz Phase II) where CTA had a reduced role. These factors created frictions within the PMU that adversely affected M&E, and hence reduced the effectiveness and efficiency of the project. An example of an isolated case that supports this conclusion is the onset of a forensic audit in May 2009. In short, the NPM was informed that a PMU staff member had fraudulently diverted project funds through a third party to a personal bank account. The management of MME was alerted and this triggered an investigation and the contract of that staff member being elapsed, was not renewed. This case prompted PMU to advise MME on which other areas of the project were susceptible to potential exposure. Following identification of few areas MME and UNDP initiated a forensic audit to ensure that corrective actions would be taken to improve the performance of Phase II;
- Several M&E activities have taken place throughout the life of the project, both in the field and PMU to provide project assurance in line with UNDP/GEF requirements. However, the UNDP CO reported that the advice provided has not always been taken up by the PMU, leading to lack of timely fulfilment of some reporting requirements (e.g. end-of-project report, quarterly progress reports, PSC meetings).
- Learning and adaptive management processes, particularly for the capturing of lessons and the maintenance of updated project statistics (e.g. sales figures, system faults, success stories, etc), should have been done in a regular and structured manner for the project to be able to draw best practices.

- Despite the fact that the M&E plan at entry was adequate, and that sufficient funds were allocated for programme M&E activities, a shortcoming in M&E relates to an ineffective use of the Logical Framework. Evaluation of NAMREP II revealed that the Logical Framework was not utilised to its full extent as a tool for programming and sequencing the activities of the project, as well as using it to guide M&E. For instance, as discussed in more depth in Section 6 a few key outputs were not evaluated. One lesson learned is that making better use of the Logical Framework for the purpose it was set out for – i.e. sequencing and programming of project activities and to assess project performance – would have enhanced the delivery quality of NAMREP II. The reason for this shortcoming lies with the members of the PMU lacking the knowledge to use the Logical Framework to its full advantage and/or not taking on board the advices provided by the UNDP CO (see second bullet point above);

### **3.2.3 Execution and implementation modalities**

NAMREP II was executed under the NEX modality, with UNDP as the executing partner, while the Ministry of Mines and Energy was the implementing institution on behalf of GRN. The execution and implementation modalities followed those of typical GRN/UNDP/GEF projects.

### **3.2.4 Management by the UNDP country office in Namibia**

There are several examples which demonstrate that *the UNDP CO could have played a more prominent role in the management and oversight of the programme.*

- The UNDP CO acknowledged that it could have carried out better oversight of the project by working more closely with PMU on M&E aspects of the project. For instance, the UNDP CO was not aware that the SET demonstration systems installed on the premises of RCs did not serve their intended functions of raising awareness of SETs to enhance community buy-in the rural areas. However, it should be noted through the discussion in section 3.1.6 that the new management structure was intended to transfer programme ownership away from UNDP CO. This critical self-assessment by the UNDP CO clearly demonstrates its willingness to learning from this lesson so that it can more effectively provide oversight on future projects/programmes. Some examples where UNDP could have provided better oversight including: (1) to gauge from representatives of RCs to know whether or not SET demonstration units were being used productively; (2) to assist or facilitate the process of finding alternative solutions when it became know that the guaranteed Loan Scheme was not reaching the intended beneficiary communities; (3) engaging more with end-users to know more about any constraints they were experiencing concerning the delivery of SETs such as after sales services, faulty or malfunctioning equipment. Other examples are discussed separately below;
- Another relatively weak element has been the slowness of UNDP's procurement process that has adversely impacted the project. For instance, the Annual tendering Contract for developing tools for GRN procurement of SETs took 7 months, which resulted in MET foregoing ~N\$3million when this fund was reallocated to other ministries due to delays in its disbursement;

- Another issue relates to the development of Unit Standards (for developing course curricula and training courses on SETs), where UNDP, guided by its corporate policy on Intellectual Property Rights, needed to retain the rights on the Unit Standards, especially when these would be retained in the private domain. This issue resulted in delays where unit standards and related job profiles could only be done in 'draft' form. A solution was found whereby the Unit Standards were open for wide public/stakeholder consultations so that they would be in the public rather than the private domain. This example is not strictly related to the performance of the UNDP CO but is rather attributed to UNDP's corporate policies. The UNDP CO played a facilitating role to find a solution to this apparent barrier.

The contribution of UNDP CO to capacity building (of PMU staff) and knowledge management (inter-GEF project linkages) were highly commendable.

### **3.2.5 Coordination and operational issues**

Coordination of NAMREP II with other national projects in order to meet the development objectives of GRN was performed highly satisfactorily. In order to ensure close coordination with relevant projects, the PAC has included and invited the co-financiers and project coordinators from other projects. In particular managers of the DANIDA supported REEECAP were invited to all PSC and PAC meetings and workshops, at least until its completion in 2008. In fact, The Project Directors and/or project managers of REEECAP and NAMREP sit in each other's Project Steering Committee. National level coordination with other projects was ensured by the participation of NAMREP II in the Quarterly Development Partners Forum, which is hosted by the NPC. The QDPF is a platform for cross-linkages and cross-fertilisation between different projects implemented by GRN with the assistance of development partners or donor agencies. The overall objective of QDPF is to ensure that projects avoid duplication and are complementary, and work in synergy to achieve the development objectives of GRN.

Operational issues were dealt by the PMU, with the PSC having an overarching guiding role. The satisfactory overall project performance testifies that operational issues were also dealt with satisfactorily.

In this stage of transition for the setup of OGEMPF, there is a high operational risk concerning the failure to hold Guarantee Fund Committee meetings. The solution rests by ensuring that the responsibility for secretarial services of the committee is handed over to RED, MME.

### 3.3 Results

#### 3.3.1 Attainment of objectives, outcomes and outputs

The appraisal of the project against set targets, as defined by key indicators set at the Inception Phase, is provided below. For the sake of simplicity and ease of interpretation, the assessment is summarised in tabular form in Annex 7 where the first two columns are drawn from the Logical Framework (as vetted and agreed at the Inception Meeting of August 2007). The third column gives the evaluator's comments, while the last column gives the rating based on a 6-level<sup>9</sup> sliding scale from 'Highly Satisfactory' degrading to 'Highly Unsatisfactory' as per the TOR. The ratings of outcomes and outputs are related to their relevance, effectiveness and efficiency as defined on page 15 of the Guidelines for GEF Agencies in Conducting Terminal Evaluations. Please note that the financial planning aspects discussed in section 3.2.1 have also been taken into account to arrive at the final rating.

The main findings concerning an evaluation of the achievement of objectives, outcomes and outputs are now discussed following the Logical Framework.

*This evaluation has found out that the attainment of the **global goal and development objective** of NAMREP II was not quantified as expected, which represents a major shortcoming of the programme. Hence, the attainment of both objectives has been rated as unsatisfactory.* The reasons are:

**GLOBAL GOAL:** To increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions and improving livelihoods and income generation of rural people.

1. The supplier and end-user surveys that were expected as part of programme M&E to quantify the changes in the consumption of liquid fossil fuels and electricity were not completed. One reason for the non-completion of these end-of-project activities is the lack of CTA during the final year of project implementation. Consequently, the emission reduction delivered by the programme could not be properly assessed; and
2. As noted in section 3.1.1, rural communities did not end-up being the main beneficiaries of SETs under NAMREP II. Even in the absence of supplier and end-user surveys, it is therefore, unrealistic to expect that NAMREP II would have improved the livelihood of rural people in any significant way.

The PMU employed alternative methodologies not requiring any surveys (i.e. desk research) and estimated reductions in the use of kerosene, diesel, electricity, and emission reductions. The results are given in Annex 7.

**DEVELOPMENT OBJECTIVE:** To promote the delivery of commercially, institutionally and technically sustainable energy services by solar energy, including solar electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration) and

<sup>9</sup> The scale covers: Highly Satisfactory (HS); Satisfactory (S); Marginally Satisfactory (MS); Marginally Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU).

solar water heating to the household, institutional, commercial, and agricultural sectors.

The attainment of this objective could not be evaluated because supplier and end-user surveys were not completed. Hence, the impacts of the programme on end-users cannot be assessed. A preliminary survey carried out by REEEI showed that the total deployment of SETs exceeded expectation, but with the uptake of SWHs being only 15% of what was expected. The higher than expected uptake was due to a 164% deployment of SHS. This survey does not provide any information on the profile of beneficiaries.

### **OUTCOME 1: Built capacity in public and private sectors and in NGOs**

*The attainment of this outcome has been rated as satisfactory.*

The main achievement has been the training of 155 persons, out of which 55 were technicians. Both targets are beyond expectations. Twenty technicians participated in NTCRE accreditation training allowing them to participate in commercial financing schemes. The technicians were provided training in the sizing, design and installation of SET systems. However, the lack of surveys among suppliers/technicians has not allowed the impact of this training on their business turnover to be quantified.

Further, as discussed in section 3.1.3, no VTCs have been accredited to date to provide training on RETs.

### **OUTCOME 2: New policies, laws and regulations and actions in support of RETs are in place**

*This outcome has been achieved in a highly satisfactory manner, and has been a major strength of NAMREP II.* Although an inter-sectoral coordination structure on RET has not been proposed, several major achievements include:

1. Setting up of the Solar Water Heater Cabinet Directive and the Off-Grid Energization Master Plan (OGEMP) and the National Regulatory Framework on Energy. In 2008, the National Technical Committee on Renewable Energy was established and the Renewable Energy Strategic Action Plan; in 2009 the OGEMP Fund and a Renewable Energy Division within the MME were established;
2. REEEI is fully operational and it has taken on some non-core functions of MME like the setting up of energy shops and carrying out energy research. It is also involved in policy dialogue with MME and ECB meaning that it has also started to support core functions within MME;
3. The NTCRE conducted a study on standards and identified standards on solar water heater and solar panels, which will become the Namibian standards for these technologies; and
4. SET plans have been integrated in at least four Government Ministry, namely Ministry of Works and Transport, Ministry of Agriculture Water and Forestry, Ministry of Environment and Tourism and the Ministry of Mines and Energy.

### **OUTCOME 3: Increased public awareness and social acceptability amongst stakeholders**

*This outcome has been achieved in a highly satisfactory manner, and has been another major strength of NAMREP II.* The following have been achieved:

1. Total number of loans issued under the SRF and Bank Windhoek reached 1018, broken down as follows SHS: 694; SWH: 169; PVP: 155;
2. Cost-Benefit (C/B) analyses for SWH, PVP, and productive use have been updated. An additional leaflet on affordable RET options has been produced;
3. The outreach to promote SETs has been productive with: distribution of 18,000 printed materials; more than 200 persons attending workshops and meetings; 34 on-site demonstrations have been carried out; 160 decision-makers have been briefed on SETs;
4. SENSE is fully functional as a virtual network with over 200 members. In addition to SENSE, a REoIA that regroups around 80% of suppliers of RETs in Namibia was formed;

As will be further discussed below (sections 3.3.3 and 3.3.4), the above activities have created much awareness of SETs in Namibia, which has resulted in a conducive environment for the sustainability of SETs (while taking note that other enabling factors need to be also put in place). An important aspect of capacity building has been the effective use of a mixture of official (English) and traditional languages in communication.

#### **OUTCOME 4: Appropriate financing and product delivery schemes set up and expanded.**

*This outcome has been rated satisfactory, because of mixed results.* The evaluation has noted the following

- The Bank Windhoek (BW) scheme initiated under this project has come to an end, having extended a total of 177 loans. The First National Bank (FNB) scheme also initiated under this project issued 116 loans. SRF loans for 2008 and 2009 were 138 and 149, respectively. No loans issued under SRF for 2010 due to transition to OGEMPF. This has caused a slowdown in the deployment of SETs, and is affecting the entire supply chain since financial incentive is a driver for their uptake;
- In addition, the local banks, i.e. FNB, SB and BW are independently issuing loans in support of the RETs. The Namibia Agricultural Bank now finances RETs as part of the loan scheme.
- The loan repayment rate of the three schemes is 85% (defaults of 105 out of 693) for SRF, 97.75% (defaults of 4 out of 177) for BW and 98.3% (2 defaults out of 116) for FNB; and
- A strategy for first cost reduction is not in place, and this has been reported by REoIA as being a key constraint for the financial sustainability of SETs. The reluctance of the Ministry of Finance to provide economic and financial incentives to lower first cost of SETs is because the beneficiaries of these technologies have been the richer populations of Namibia.

#### **OUTCOME 5: Learning, evaluation and adaptive management**

Evaluation has revealed that learning, evaluation and adaptive management processes, particularly for the capturing of lessons and the maintenance of updated project statistics (e.g. sales figures, system faults, success stories, etc) was not carried out in a regular and structured manner for the project to be able to draw and capitalize on its best practices, and to address its shortcomings. Issues related to M&E have been discussed in section 3.2.2. The following have been observed:

- Supplier and end-user surveys as prescribed in the Logical Framework were not carried out. This has prevented effective learning and dissemination of best practices to be identified, as well as project weaknesses to be assessed so that corrective actions could be taken;
- The fact that the global and development objectives were largely missed because the expected beneficiaries (rural communities) were not reached by NAMREP II demonstrates that adaptive management was deficient. The unproductive use of expensive SETs systems in demonstration installations on the premises of RCs also shows inadequacies of this outcome;
- Lessons learned have been published but these were done in an academic format more amenable to publication in a scientific journal than for wide stakeholder dissemination and for the layperson;
- The positive aspects under this outcome are: (1) The RE Division increased its staff complement from 4 to 6 during in 2010. The REEEI also established and filled a new position for the Energy Shop Coordinator; (2) Out of the 4 PMU staff, one has integrated the RE Division of MME, while another has just applied for a position within MME; (3) Standard Progress Reports were produced quarterly, and a total of 15 publications were produced during Phase II; (4) During a regional meeting 6 countries were introduced to NAMREP II. Also, experiences and lessons were shared with Kenya through a bilateral collaboration.

### **3.3.2 Sustainability beyond the Project Life Cycle**

Stakeholders were optimistic concerning the future sustainability of SETs both in grid and off-grid applications while noting that a few shortcomings had to be address decisively. Better insight into the project sustainability is obtained by looking at its three dimensions more closely.

Institutional Sustainability: The REEEI is fully operational and the virtual network SENSE is up and running under its aegis. Further, REEEI has taken on some non-core operations from MME as provided by NAMREP II, and is well placed to becoming the entity to manage/coordinate all SET/RET projects (applied research, technology transfer, implementation etc...) in Namibia. Discussions with REEEI, RED (MME) and UNDP have shown that the staffing of REEEI remains an outstanding issue so far. It suffered the loss of 2 trainee staff in 2009, and only 3 out of 6 positions are filled to date. REEEI is expected to be funded through various sources, including PoN, MME and through competitive bidding exercises/consultancies. However, there is a general view that REEEI should eventually operate independently of PoN and MME as a cost-centre. For this to happen, a road map (business plan) has to be articulated by REEEI

with the support of PoN and MME.<sup>10</sup> It is expected that the financial support of PoN and MME will still be required during this transition.

Financial Sustainability: It is widely recognised that the foundation for financial sustainability has been laid in phase I by putting in place a credit guarantee scheme through the restructuring of the SRF and the signing of a MoU with Bank of Windhoek. The guaranteed loan scheme is considered a key achievement in order to overcome the high initial cost barrier. In Phase II, the guaranteed loan scheme was tendered to FNB, which within a period of four months (July to October 2009) had given out loans for the purchase of SETs to the tune of N\$5.9million using GEF financial support, representing the total capitalised funding available. This situation clearly demonstrates that the market demand for SETs is ripe, at least under conditions where loans were guaranteed by NAMREP II and commanded a very low interest rate of 3% when the Prime Lending Rate has hovered around 10.75%. The success of SRF has resulted in its rapid "de-capitalization". Previously proposed means to capitalize any future loan schemes should be implemented. *It is necessary to report here that the SRF was frozen at the end of 2009 because of the institutionalisation of a revamped loan scheme under OGEMP. This means that the demand for loans to purchase SETs have not been met since October 2009, which if unattended would result in a quasi-paralysis of the value chain starting with suppliers of SETs to installers to end-users.*

Looking at the financing objectives of the project, and considering the interest and support by banks, the project could have created a platform for the transfer of skills from the finance industry to government, particularly considering the demands on the MME to run the OGEMP.

SET Market Sustainability: Market sustainability is contingent on designing financial instruments (see above) in a way that the intended beneficiaries are reached. The evaluation has shown that although the market for SETs in urban areas may be ripe, the same cannot be said for rural areas. Several recommendations have been proposed to address the sustainability on SETs in rural communities.

The theft of PV modules, principally in the Northern parts of Namibia because of the lucrative market for modules across the border in Angola, is now reported as a severe constraint for the future deployment of PV systems installed in areas that are relatively far from human settlements (e.g. systems that are used to electrify fencing to control the migration of cattle or those used for pumping water from bore holes in agriculture).<sup>11</sup> Although, such events could not be anticipated at the inception stage of the project, there is no indication that NAMREP II has been responsive to this external factor. However, this evaluation has revealed that suppliers, technicians and local leaders are already prospecting creative solutions to the problem of theft, albeit in an ad hoc and disjointed fashion. The next section will provide a few

---

<sup>10</sup> PoN receives funding from the Ministry of Education that does not acknowledge the newly created REEEI as a recipient. PoN provides a physical location for the Institute on its Engineering campus, including logistics support. MME has already provided seed funding for the setting up of REEEI over the past few years.

<sup>11</sup> Theft was voiced as the main challenge to the industry by the Renewable Energy Industry Association that regroups roughly 80% of suppliers of SETs in Namibia, as well as the Governor of the Ohangwena Regional Council, which is found in the North of Namibia (i.e. region bordering Angola).



recommendations on how the theft problem could be tackled, and should form an integral part of the yet to be completed 'lessons learned' exercise.

### **3.3.3 Contribution to capacity building, sub-regional and national development**

There are positive signs which show that NAMREP II performed very well regarding capacity building, but the impacts at the sub-regional level and to improve rural community livelihoods have been sub-optimal. Capacity building has been a major strength of NAMREP II. Stakeholders unanimously reported that the entire NAMREP programme performed highly satisfactorily in this respect. This is easily seen from the assessment of Outcomes 1 and 3. Perhaps more could have been achieved at the sub-national level by involving Regional Councils in the commercialization and market development aspects of the project as has been discussed earlier. It is the view here that national development would be better understood by looking at the contribution of NAMREP II towards improving the livelihoods of off-grid communities through completion of supplier and end-user surveys. As discussed earlier, the project underperformed because the target segment did not benefit the rural communities as expected.

While the printing and distribution of printed materials and participation at trade fairs may not necessarily translate into tangible capacity building, several examples have been identified which demonstrate that the programme has performed well in this respect.

- Discussions with the REoIA and REEEI have shown that NAMREP II has played a catalytic role in raising awareness of SETs in Namibia, providing training to technicians and end-users, and by assisting in the development of standards. Further, meetings with BW and FNB has revealed that, at least in the urban areas, there is a high demand for loans to purchase SETs (e.g. SWH, SHS and PVP);
- The best example is that of an RET Enterprise Established in Informal Settlement in Havana, Katutura (Windhoek). A woman who runs a kindergarten in the informal settlement of Havana, Katutura (Windhoek) became an SET entrepreneur after her school benefited from a SHS through NAMREP II. In order to enhance her knowledge in SETs, she even followed a basic course in electronics/SETs. The women entrepreneur is not selling solar torches in the Havana that has virtually no connectivity to the grid. A meeting with the entrepreneur has shown that she is looking forward to scaling up her business activities in SETs;
- Speedy Solar is a SME set up by a young entrepreneur (accountant by profession) who benefited from training under NAMREP II. He has established good connections with suppliers of SETs and has been successful in installing systems through the Guaranteed Loan Scheme funded by NAMREP II. The entrepreneur recognizes the untapped market potential in rural areas has started administrative processes to set up Energy Shops in the Northern part of Namibia (which account for 60% of the nation's population)

It is noted here that NAMREP II may well have generated more success stories that can become best practice examples for the better formulation of future projects or to

re-design projects beyond the lifecycle of NAMREP II, but which have not been captured yet.

### 3.3.4 Gender relevance

NAMREP II can be considered to be an example of best practice in addressing gender equality and empowerment in energy projects. Training on community management of RET demonstration units was carried out for a total of 60 people in 7 regions of the country. Of these, about 50% were women and 50% were men. Technicians training held included 25% participation of women. OGEMP has led to solar electrification of three villages in a remote part of the Kunene region. Women and men in these communities now have equal access to modern lighting. In addition, street lighting has improved security for women at night. Women now have access to information through radio, closer to their homes. NAMREP also field tested a low cost system that will be more accessible to rural women. Support to entrepreneurs has encouraged the participation of women in RE enterprises. The project has 4 women entrepreneurs to set up and/or improve their RE businesses. In its PMU, NAMREP II has engaged women in 3 of its six positions.

## 4. Recommendations

This section details the main recommendations of this evaluation based on the analyses presented in section 3.

### *Project design, conceptualization and formulation*

1. The emission factors used to calculate the emission reductions of the programme should apply approved baseline and monitoring methodologies of the Clean Development Mechanism, in addition to prescribed GEF methodologies. This will provide a stronger basis for leveraging additional funds through carbon finance to support projects to deliver sustainable development dividends;
2. A review of stakeholder participation has shown that it will be necessary to include: (i) RCs as key stakeholders in the roll-out of OGEMPF; and (ii) NSI in design of future projects introducing new technologies, products, equipment etc ... and for which national standards would be required;
3. It has been noted that it is essential to have the setup of a coordinating entity for SETs/RETs activities in Namibia. It is proposed that REEEI be capacitated to become the coordinating entity for all RE and EE projects/programmes for better harmonization and complementarity of projects. This recommendation also has strong implications for the institutional sustainability of SETs/RETs in Namibia;

### *Implementation*

4. It is recommended that the financial planning process should be captured as a project best practice. Corrective action should be taken in future project when allocating financial resources so that key activities (e.g. end-of-project) are not left out;

5. Concerning gaps that were identified in the programme M&E under the new management structure of NAMREP II, it is recommended that project management staff should be trained to make full use of the logical framework;
6. The UNDP CO should play a more prominent role in project oversight by being more closely involved in monitoring M&E activities, as well as undertaking regular site visits;
7. In this stage of transition for the setup of OGEMPF, there is a high operational risk concerning the failure to hold Guarantee Fund Committee meetings. This can be avoided by ensuring that the responsibility for secretarial services of the committee is handed over to RED;

### *Results and Impacts*

8. Concerning the attainment of the global and development objectives of NAMREP II, it is recommended that: (1) the emission factors are cross-checked to assess the validity of real emission reductions that project has delivered; (2) it is imperative to carry out suppliers and end-users survey to assess the actual impacts of the project before project closure. This will also allow capturing lessons learned to design OGEMPF so that the ultimate beneficiaries are indeed rural, off-grid communities;
9. In order to avoid further delays in the accreditation of VTCs to deliver training courses, it is recommended that the public review of unit standards are expedited, and as well as any outstanding processes so that WVTC can start dispensing accredited training courses;
10. It is highly recommended to carry out a systematic lessons learned exercise for NAMREP II before its closure so that project statistics (e.g. sales figures, system faults, success stories, etc..) can be collected, analysed and disseminated; to draw and capitalize on its best practices; and to address its shortcomings;

The following recommendations will enhance the sustainability of making SETs available to improve the livelihoods of rural communities after closure of NAMREP II:

11. Institutional Sustainability: The REEEI should be supported (through adequate allocation of resources) and empowered (through the right mandate and accountability) to become the national institute to manage and coordinate all national projects related to RE and EE in Namibia. In order for the Institute to retain its impartiality, it is imperative that it should aim to operate as a cost-centre in the medium-term, say within the next 5 years. For this to materialise, a road map should be developed by REEEI with the collaboration of key partners such as PoN and MME.
12. Financial sustainability: The following considerations should be noted:
  - The deployment of SETs in off-grid applications cannot take place without the rollout of OGEMPF, and this has to take place very fast for expectations of the

market to be satisfied. A positive note is that the budget for OGEMPF is already available until the financial year 2012/13;<sup>12</sup>

- One proposition, which is also linked to institutional sustainability, has been to host the management of OGEMPF at MME (and more specifically RED). Discussions with stakeholders, including the Deputy Director of the Energy Directorate, who is also the head of RED, has shown that the administration of a loan scheme would be better transferred to a financial institution mainly because such an activity does not form part of the core functions of MME.<sup>13</sup> Financial institutions like BW and FNB already have the experience with administering loans. This is especially so since transfer of know how to manage commercial loans was not transferred from financial institutions to MME during the project lifetime;
- Regardless of which of MME or financial institutions were to administer OGEMPF, it should be designed in such a way that off-grid communities are its sole beneficiaries. For instance, OGEMPF could limit its sub-prime loans to a small set of SETs, like SHS **and solar cookstove**, to target rural communities. A list of pre-qualified technologies can be defined and communicated to the market, and the list can be reviewed periodically. There are a multitude of benefits for including solar cookstoves on the list because of reduction in deforestation, protection of biodiversity, reduction of emission of greenhouse gases, preservation of soil fertility and beneficial health impacts, among others;
- Commercial loans could be provided to cater for other markets (PVP and SHW). BW already provides loans for SHWs at a prime-plus rate by including it in its commercial home loan scheme targeted at future urban home owners. In this case, the cost of a SHW unit is relatively small compared to the home-only loan, and its repayment is amortized over the longer term (compared to 5 years under SRF) of the home loan to the benefit of the client;
- Past experience suggests that the allocated budget for OGEMPF may not be sufficient to meet market demand for SETs. In this case, it is proposed that the recommendations to use levies on petroleum and electricity be adopted promptly. It has shown that a sum amounting to N\$50million could be collected annually under a low scenario (Asca Investments, 2009); and

The high upfront capital cost of SETs remains a barrier for their deployment in poorer, off-grid communities where their development dividends are expected to highest. The decision up to now by the Ministry of Finance not to reduce or eliminate taxes (VAT) on SETs is understandable in a context where the beneficiaries of NAMREP II have been predominantly urban households and large-scale farmers – i.e. the richer communities in Namibia. Further, the Ministry of Finance has argued that removal of VAT on imported SET products would penalise local manufacturers. It is anticipated that making the case for the reduction or removal of taxes on SETs<sup>14</sup> would be easier to implement by

---

<sup>12</sup> The allocated yearly budgets are: N\$7.9million for each of 2009/10 and 2010/11; N\$4million for each of 2011/12 and 2012/13.

<sup>13</sup> This will be akin to re-inventing the wheel. The learning curve will be steep, and the process may potentially be inefficient and having high overheads.

<sup>14</sup> For instance, all buyers (not confounding rural and urban market segments) could pay VAT on SETs, but those living in off-grid regions would be entitled to a VAT refund upon proof of evidence. This refund process would be carried out by the lending institution which would already have the complete profiles of their clients.

the Ministry of Finance when a solid case can be made that the target communities are indeed off-grid communities.<sup>15</sup>

13. SET Market Sustainability: Some key recommendations include:

- REEEI should continue to provide business support services for the private sector, especially the development of rural-based solar technicians into small entrepreneurs (RE SMEs), including the setting up of Energy Shops in rural areas. These RE SMEs are an essential link in the supplier/RE SME/end-user chain, by providing products and services in the rural market that they know well;
- The involvement of Regional Councils as key stakeholders for reaching the off-grid communities should be considered. For instance, the demonstration units that were installed on the premises of Regional Councils should be made more visible and be put to productive use. It is far more effective to demonstrate and sell the benefits of SETs to potential customers by putting them to real applications. Also, RCs should be assisted to develop their capacity in SETs, as well as including the use of SETs in their projects for community development;
- Concerning the issue of theft of PV modules installed far from populated areas, it is recommended that the relative costs and benefits of the following solutions (this is a non-exhaustive list that has been compiled after discussions with suppliers, technicians and local leaders) are investigated: (1) reduce system accessibility by installing them at increased heights and/or using electrical fencing; (2) mounting of PV modules so that they can be stolen only by damaging them thereby rendering them valueless; (3) connecting the SET control system to mobile telephony so that a pre-identified list of persons are sent SMS as soon as the PV modules are disconnected from the control system during theft (this will only work in regions where there is coverage of mobile telephony); and (4) incorporating a GPS monitoring system to the PV modules (on a fee for rent basis) so that stolen systems can be tracked. The second option has been described as being potentially the least-cost solution. Further, the use of insurance schemes against theft should be investigated.

## 5. Lessons Learned

This section summarises the best and worst practices in addressing issues relating to relevance, performance and success of the programme. Learning from the experiences discussed below is important for the better design, conceptualisation, and formulation of future projects within and outside Namibia. Lessons learned are drawn from the analyses presented in section 3, and, where ever relevant, recommendations have been given in the previous section.

1. Detailed cost-benefit analysis of SETs compared to alternatives using fossil fuels (electricity, diesel or kerosene) is essential for marketing SETs in both rural and urban areas. Such analyses have been crucial in creating awareness of the comparative advantages of SETs, especially in a context of higher initial capital investment for SETs. NAMREP II has been outstanding at designing and communicating the benefits of SETs through a host of complementary

---

<sup>15</sup> The case could also be built on the premises that increasing the livelihood of rural communities would translate in their higher total factor productivity within the economy, (and hence more wealth creation) by improvements in health and education, among other factors.

techniques such as through seminars, workshops, trade fares, distribution of leaflets/pamphlets, publications and by carrying out applied activities involving the sizing, design and installation of SETs. Of importance has been the use of a mixture of the official (English) and traditional languages in communication;

2. The sequencing of activities in this type of project is very important for the effective and efficient delivery of outcomes and outputs. NAMREP II has shown that there may be several factors, some of which may have been anticipated within the project conceptualization, design and formulation. In contrast, there are unforeseen factors that could not be anticipated, but for which there are remedial solutions. In order to maintain the relevance of the programme, it has to be responsive to both foreseeable and unforeseen factors. Several examples show that NAMREP II did not respond to such factors decisively resulting in lower programme effectiveness and efficiency. These examples are: (1) issue of theft of PV modules, (2) delays in the setting up of standards for SET products and system; and (3) changes in legislation that has prevented VTCs from get accreditation to deliver training courses. The lessons learned here are that future projects should include the design of standards for novel SET/RET products and development of accredited training courses early in the project cycle.
3. Financial instruments to assist end-users to overcome the initial high capital expenditure of SETs are critical in creating demand and a market for SETs. Stakeholders were adamant that the setting up of the SRF or NAMREP-supported guaranteed fund managed by FNB have been instrumental in creating the level of demand for SETs in Namibia.
4. A key lesson that has been learned during NAMREP is that the financial schemes operated by Konga, BW and FNB have benefitted mostly the richer communities, at the expense of poorer, rural (and off-grid) communities who were the targeted market segments in Phase II. Based on this lesson, care should be given to designing financial instruments in ways so that unwarranted outcomes are not produced.
5. Changes in management structure in Phase II was changed without any empirical evidence of the relative merits of the new structure over the preceding one (i.e. NAMREP I). This created a situation where the confusions over roles and responsibilities for oversight of technical quality of the project emerged to the adequate M&E of the programme. In the future, such changes should be evidence-based, or should be amended to respond to the project context.
6. The Logical Framework forms the basis for sequencing of programme activities, and for M&E. Programme management staff should make full use of this tool, and when needed staff should be trained in its use. Lack of adequate M&E leads not only leads to sub-optimal achievement of project outcomes, but also fails to provide the necessary feedback for the project to be responsive to changes in its environment.
- 7.

8. It has been learned that the decentralisation of project activities to Regional Councils can be an effective way to have a better impact at the level of rural communities. However, the RCs have to be better capacitated.
9. NAMREP has shown that a high level of awareness of SETs results in the rapid decapitalization of loan schemes to fund SETs. The capitalization of OGEMPF should consider this lesson learned.

## **6. Conclusions**

The project has significantly contributed to the introduction of new policy-regulatory measures within its first year. In 2007, these include the Solar Water Heater Cabinet Directive and the Off-Grid Energisation Master Plan (OGEMP) and the National Regulatory Framework on Energy). In 2008, the National Technical Committee on Renewable Energy, and the Renewable Energy Strategic Action Plan were established. In 2009, the OGEMP Fund and a Renewable Energy Division within the Ministry of Mines and Energy were established. In addition, some important steps have been undertaken to advance the policy environment during the life of the project (e.g. guidelines for independent power producers by the Electricity Control Board; incorporation of renewable energy in NAMPOWER's generation mix for the future; meetings with policy makers and community leaders have been held in all the 13 regions; formulation of Code of Practice on SET installations, and standards for key SET components; and, the Namibia Technical Committee on Renewable Energies (NTCRE) becoming fully operational. The introduction of several measures during the life of the project will further support current and future actions in support of renewable energy technologies. The progress attained has significantly contributed to the promotion and delivery of commercially, institutionally and technically sustainable energy services. One key lesson to be drawn from this progress is the necessary follow-up required for the effective implementation of policy measures, for instance, in the support the project has provided to NTCRE. This support has led to the formulation and development of standards and the necessary engagement with the National Standards Institute (NSI) to ensure sustainability in their application.

Key progress within the NAMREP project relates to financing for renewable energy; implementation of standards for Renewable Energy Technologies (RETs) in Namibia; affordable RET options for lower income households; and, opportunities for RE in Namibia: (a) launching the FNB scheme, which was fully subscribed, in coordination with a Committee that ensured equitable regional distribution of beneficiaries; (b) the scheme introduced innovative procedures that reduced the default risk to the customer, the service providers and the bank, resulting in a 100% repayment rate, and minimal complaints (less than 1% of loans issued); (c) supporting the establishment of NTCRE, under the Namibia Standards Institute (NSI); NTCRE includes participation by the RE industry and has selected standards to be adopted for RETs; it is also budgeted for under the NSI for future sustainability; (d) scoping the market, testing systems and compiling a leaflet to raise awareness on affordable options available; as a result, a small local entrepreneur located in the informal settlements, and who wanted to start a business selling these systems and devices to

low income households of this area, was supported; she was able to secure suppliers for her business, and the story featured in a local magazine.

Concerning gender-related issues, NAMREP II can be considered to be an example of best practice in addressing gender equality and empowerment in energy projects. The project could have become a best practice for the region on other elements, had it taken a more proactive approach to the reporting of lessons learned. The opportunity was there to bank on the significant public awareness of the project in its promotion of solar energy technologies. In terms of capacity building, had the work on standards and certification been done in advance of the registration of suppliers and installers, some of the technical issues encountered in the delivery of SETs would have been avoided. Meanwhile, looking at the financing objectives of the project, and considering the interest and support by banks, the project could have created a platform for the transfer of skills from the finance industry to government, particularly considering the demands on the MME to run the OGEMP.

The programme was suited to the local and national development priorities and organizational policies, particularly considering a context of rising energy prices and national priorities around energy security. However, it has been rated as marginally satisfactory with progress towards project closure showing attainment of most of its outcomes and targets with some shortcomings in terms of some critical end-of-project targets. Resources have been allocated efficiently towards capacity building, public awareness and financing, though with cases requiring further investigation for future lessons. The attainment of results was satisfactory with the programme having both positive and negative results. From the positive side, the project has significantly contributed to the promotion of solar energy technologies in Namibia, while on the negative side, the access to financing benefited mostly urban populations, and quality aspects of the delivery of SETs was constrained by faulty systems, and lack of standards. The likely ability of the project to continue to deliver benefits for an extended period of time after completion was rated satisfactorily. Several recommendations and lessons learned have been proposed to enhance the design, conceptualisation, implementation of similar projects in the future, as well as to ensure better sustainability after the project life-cycle.

Stakeholder participation has been found to be satisfactory. Gaps in programme monitoring and evaluation were noted that translate into a marginally satisfactory rating.



## Annex 1. Stakeholders participating in NAMREP II

<p><b>Government Ministries and Institutions</b></p> <ul style="list-style-type: none"> <li>• Ministry of Mines and Energy</li> <li>• Ministry of Environment and Tourism</li> <li>• Ministry of Agriculture, Water and Rural Development</li> <li>• Ministry of Works, Transport and Communication</li> <li>• Ministry of Education</li> <li>• Regional Councils (13 in total)</li> <li>• National Planning Commission</li> <li>• Namibian Development Corporation</li> <li>• Ministry of Finance</li> <li>• Ministry of Trade and Industry</li> <li>• Ministry of Women Affairs and Child Welfare</li> <li>• Solar Revolving Fund (managed by Konga Investments)</li> </ul>	<p><b>NGOs and Parastatals</b></p> <ul style="list-style-type: none"> <li>• Desert Research Foundation of Namibia</li> <li>• Gobabeb Training and Research Centre</li> <li>• Namibia Nature Foundation</li> <li>• Ibis</li> <li>• Namibia Wildlife Resorts</li> <li>• NamWater</li> <li>• Telecom Namibia</li> <li>• Habitat Research and Development Centre</li> <li>• Agribank</li> <li>• Electricity Control Board</li> <li>• NamPower</li> <li>• Regional Electricity Distributors</li> <li>• National Housing Enterprise</li> </ul>
<p><b>Capacity Building Institutions</b></p> <ul style="list-style-type: none"> <li>• University of Namibia</li> <li>• Polytechnic of Namibia</li> <li>• Windhoek VTC</li> </ul>	<p><b>Donor Agencies / Development Partners</b></p> <ul style="list-style-type: none"> <li>• UNDP</li> <li>• DANIDA</li> </ul>
<p><b>Financial and Private Sector Institutions</b></p> <ul style="list-style-type: none"> <li>• Premier Electric</li> <li>• Bank Windhoek</li> <li>• First National Bank Namibia</li> <li>• SMEs (suppliers, installers, technicians of SETs)</li> <li>• Private housing developers</li> <li>• Namibian breweries</li> <li>• Engineering and consultancy bureaus (e.g. CSA, EmCon, Craddle)</li> </ul>	<p><b>End-users / Beneficiaries</b></p> <ul style="list-style-type: none"> <li>• Off-grid communities</li> <li>• Regional Councils</li> <li>• Households</li> <li>• Building owners</li> <li>• Communal farmers</li> <li>• Commercial farmers</li> </ul>

(Source: Project Inception Report, 2007).

## **Annex 2. Terms of Reference – Terminal Evaluation**

### **MME/UNDP/GEF Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Phase II**

---

#### **INTRODUCTION**

The Monitoring and Evaluation Policy (M&E Policy) at the project level in UNDP/GEF has four objectives to:

- a) Monitor and evaluate results and impacts;
- b) Provide a basis for decision making on necessary amendments and improvements;
- c) Promote accountability for resource use;
- d) Document, provide feedback on, and disseminate lessons learned.

A mix of tools is used to ensure effective Project Monitoring and Evaluation (M&E). These might be applied continuously throughout the lifetime of the project e.g. periodic monitoring of indicators through the annual Programme Implementation Reports (PIR), Project Steering Committee meetings – or as specific and time-bound exercises such as Mid-Term Reviews (MTR), Audit Reports and Final Evaluations (FE). In accordance with UNDP/GEF Monitoring and Evaluation policies and procedures, all regular and medium-sized projects supported by the GEF should undergo a Final Evaluation upon or nearing completion of implementation. A Final Evaluation of a GEF-funded project (or previous phase) is also required before a concept proposal for additional funding (or subsequent phases of the same project) can be considered for inclusion in a GEF work program. However, a final evaluation is not an appraisal of the follow-up phase.

Final evaluations are intended to assess the relevance, performance and success of the projects. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals and objectives. It will also identify and document lessons learned and make recommendations that might improve the design and implementation of other UNPD/GEF projects.

#### **BACKGROUND**

The Namibian Renewable Energy Programme (NAMREP) project aims to (a) improve livelihoods and income generation opportunities of rural people by providing them with access to off-grid solar energy technologies (for lighting, radio/TV, water pumping, small electric tools and refrigeration) and (b) reduce the dependency of increasingly expensive imported fuels by promoting solar water heating (to the household, and institutional and commercial sectors) and solar water pumping in the agricultural sector through the removal of barriers capacity and institutional barriers, public awareness and social acceptability barriers, and financial and technical barriers. In the process, NAMREP will contribute to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions in the order of 233,700 tonnes of CO<sub>2</sub> (over a 15-year period).

The project has been implemented in two phases. The first phase (NAMREP I) focused on providing technical assistance to government, NGOs, finance and other sectors to remove and reduce barriers in terms of capacities , institutional development, technical constraints, financial instruments and public awareness.. These interventions have paved the way for an accelerated implementation of the solar technologies stimulated by financing schemes for appropriate product delivery mechanisms in the second phase. The first phase has been under implementation for a period of 2.5 years since 2004 with funding of USD 2.6 million from the Global Environmental Facility (GEF).

Phase two (NAMREP II) started in 2007 also with funding of USD 2.6 million from the GEF. Phase II focused on promoting the delivery of commercially, institutionally and technically sustainable energy services by solar energy.

### ***The Project Development Goal:***

The goal to which NAMREP II contributes is "to increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions and improving livelihoods and income generation of rural people".

### ***The Project Objective:***

The project objective is "to promote the delivery of commercially, institutionally and technically sustainable energy services by providing solar energy, including solar electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration) and solar water heating to the household, institutional, commercial, and agricultural sectors".

### ***The Project has five Outcomes, and associated Outputs as listed below:***

#### **Outcome 1: Built capacity in public and private sectors and in NGOs**

- 1.1 Training programmes for public and private sector and NGOs have been established and executed
- 1.2 Decentralized Renewable Energy Technology (RET) companies are adequately supported
- 1.3 Vocational and training centres are capacitated and providing technical training on Solar Energy Technologies (SETs)

#### **Outcome 2: New policies, laws, regulations and actions in support of renewable energy are in place**

- 2.1 Policy and regulatory frameworks for renewable energy and off-grid electrification are formulated
- 2.2 Government ministries and public institutions finance and implement solar technologies and projects
- 2.3 The REEE<sup>16</sup> Institute is established at the Polytechnic of Namibia and functioning well

#### **Outcome 3: Increased public awareness and social acceptability amongst stakeholders**

- 3.1 Comparative information on cost and benefits of SETs is developed
- 3.2 Increased knowledge of SETs among potential end-users and national and regional decision-makers. Feasibility of introducing the 'SETs Kit for the Poor' explored.
- 3.3 Active networks or associations of stakeholders are in place
- 3.4 Information Kit documenting appropriate and inappropriate appliances for RETs/SETs

#### **Outcome 4: Appropriate financing and product delivery schemes set up and expanded.**

- 4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded
- 4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up

#### **Outcome 5: Learning, evaluation and adaptive management**

- 5.1 Adaptive management, monitoring and evaluation
- 5.2 Lessons learned are documented and disseminated

## **1. GENERAL OBJECTIVES OF THE EVALUATION:**

The final evaluation of the UNDP/GEF project "NAMREP" is initiated by the UNDP Namibia and it is being undertaken in accordance with the UNDP/GEF Project Monitoring and Evaluation Policy see

(<http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html>). The principal purpose of the Final Evaluation is to assess the project results and impacts as required by the UNDP/GEF Monitoring and Evaluation Policy. It is also mandatory to evaluate and review any UNDP programme of the magnitude of USD 1 million or more, at mid-term and when the assistance is about to phase out.

## **2. PROGRAMME PERFORMANCE:**

### **2.1 OBJECTIVES OF THE FINAL EVALUATION:**

---

<sup>16</sup> Renewable Energy and Energy Efficiency

A final evaluation is a mandatory requirement of UNDP/GEF Programmes and Projects of this magnitude. The evaluation will analyze and assess the achievements and progress made so far towards achieving the original objectives of the NAMREP Programme. It will also identify factors that have facilitated or impeded the achievement of the objectives. The evaluation will consider the effectiveness, efficiency, relevance, impact and sustainability of the NAMREP Programme. While a thorough assessment of the implementation to date is important, the evaluation is expected to result in recommendations and lessons learned to assist in defining future direction of similar programmes.

The evaluation will in particular assess:

- (1) Programme Design – review the original programme intervention strategy including objectives, outcomes, outputs and activities and assess quality of the design and delivery of planned outcomes. The review should also assess the conceptualization, design, effectiveness, relevance and implementability of the programme. The review should include the updated logical framework matrix which was designed during Programme Inception.
- (2) Programme Impact – assess the achievements of the NAMREP Programme to date against the original objectives, outcomes and activities using the indicators as defined in the project document as well as any valid amendments made thereafter. The indicators that have been identified during the Programme Inception should be used as benchmark to measure the impacts of NAMREP.
- (3) Programme Implementation – assess:
  - a. Project management arrangements, i.e., effectiveness of UNDP/GEF, UNDP Country Office and the Project Management Unit (NAMREP PMU);
  - b. Quality and timeliness of delivering outputs and activities;
  - c. Financial situation (i.e., budget and expenditure status)<sup>17</sup>
  - d. Cooperation among partners including but not limited to: GEF, UNDP, counterpart Ministries, PMU, PAC and private companies;
  - e. Responsiveness of project management to adapt and implement changes in project execution, based on partner and stakeholder feedback.

Based on the above points, the evaluation should provide a document of approximately 50 pages indicating what programme and project activities, outputs/outcomes and impacts have been achieved to date, and specifically:

- (1) Assess the extent of the progress which the NAMREP Programme has made to achieve its objectives and where gaps are evident;
- (2) Draw lessons from the experiences of the NAMREP Programme, in particular those elements that have worked well and those that have not, requiring adjustments and;
- (3) Provide recommendations to strengthen the effectiveness, efficiency, impact, implementation, execution and sustainability of the NAMREP Programme.

## **2.2 SCOPE OF THE EVALUATION:**

While the specific issues of concern are listed in the following paragraphs, a reference to the UNDP programming manual and UNDP/GEF guidelines to conduct terminal or end-of-cycle evaluations should be made for addressing the issues not covered below.

*The evaluation will include ratings on the following two aspects: (1) Sustainability and (2) Outcome/Achievement of objectives (the extent to which the programme's immediate and development objectives were achieved). The evaluation team should provide ratings for three of the criteria included in the Final Evaluations: (3) Implementation Approach; (4) Stakeholder*

---

<sup>17</sup> In this regard, this evaluation is not a financial audit.

Participation/Public Involvement; and (5) Monitoring and Evaluation. The ratings will be: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory, and N/A.

**2.2a) Programme Conceptualization/Design:**

1. Whether the problem the programme addressed is clearly identified and the approach soundly conceived;
2. Whether the target beneficiaries and end-users of the results of the programme are clearly identified;
3. Whether the objectives and outputs of the programme were stated explicitly and precisely in verifiable terms with observable success indicators;
4. Whether the relationship between objectives, outputs, activities and inputs of the programme are logically articulated and;
5. Whether the programme started with a well-prepared work-plan and reasons, if any, for deviations.

**2.2b) Programme Relevance:**

1. Whether the programme is relevant to the development priorities of the country and;
2. Given the objectives of the programme, whether appropriate institutions have been assisted.

**2.2c) Programme Implementation:**

The evaluation team will examine the quality and timeliness in regard to:

1. The delivery of inputs specified in the programme document, including selection of sub-programmes/projects, institutional arrangements, interest of beneficiaries, the scheduling and actual implementation;
2. The fulfilling of the success criteria as outlined in the programme document;
3. The responsiveness of the programme management to significant changes in the environment in which the programme functions (both facilitating or impeding programme implementation);
4. Lessons from other relevant programmes if incorporated in the programme implementation.
5. The monitoring and backstopping of the programme as expected by the Government and UNDP;
6. The delivery of Government counterpart inputs in terms of personnel, premises and indigenous equipment and;
7. Programme's collaboration with industry associations, private sector and civil society, if relevant.

**2.2d) Programme Performance:**

1. Whether the management arrangements of the programme were appropriate;
2. Whether the programme resources (financial, physical and manpower) were adequate in terms of both quantity and quality;
3. Whether the programme resources are used effectively to produce planned results;
4. Whether the programme is cost-effective compared to similar interventions;
5. Whether the technologies selected (any innovations adopted, if any) were suitable;
6. The role of UNDP CO and its impact (positive and negative) on the functioning of the programme.

**2.2e) Results/Success of the programme applied to each Specific Programme/Project (3 Areas):**

The overall outputs and their meaning are as defined in the programme support documents and project documents that should form the main basis for this evaluation. In addition to the mid-term targets in the logical framework, the details of the specific project impact to be provided are:

1. What are the major achievements of the programme vis-à-vis its objectives.
2. What are the potential areas for programme's success? Please explain in detail in terms of impact, sustainability of results and contribution to capacity development.

3. What major issues and problems affected the implementation of the programme and what factors could have resolved them.
4. Given an opportunity, what actions the evaluation team members would have recommended to ensure that this potential for success translated into actual success.
5. Level of institutional networking achieved and capacity development of key partners, if done in a structured manner at different stages – from inception to sub-programme operations.
6. Environmental impact (positive and negative) and remedial action taken at each sub-programme site.
7. Social impacts, including impact on the lives of women at each sub-programme site.
8. Any underlying factors, beyond control, that influenced the outcome of each sub-programme.

A table should be included in which progress against the programme objectives and each outcome should be discussed and rated on the six-point UNDP scale (Highly Satisfactory HS, Satisfactory S, Marginally Satisfactory MS, Marginally Unsatisfactory MU, Unsatisfactory U, and Highly Unsatisfactory HU).

### **2.3 Methodological and Evaluation Approach**

The consultant should provide details in respect of:

- a) Documentation review (desk study);
- b) Interviews and/or consultations;
- c) Field visits if any;
- d) Questionnaires, if used; and
- e) Participation of stakeholders and/or partners.

### **2.4 Consultations**

The consultant is open to consult all reports, files, manuals, guidelines and resource people they feel essential, to make the most effective findings, conclusions and recommendations. The mission will maintain close liaison and consult with the UNDP Resident Representative and Deputy Resident Representative in Namibia, as well as other concerned officials and agencies in UNDP; the Project Steering Committee, the Project Advisory Committee, the Ministry of Mines and Energy etc.

### **2.5 Reporting**

The consultant will report directly to the Senior Management of UNDP Namibia, UNDP/GEF RCU, but mostly to the UNDP Resident Representative and/or his designated officials to act on his behalfs. The consultant shall work in close collaboration with the NAMREP PMU. The consultant will prepare and submit the draft report of the final evaluation to UNDP. A presentation and debriefing of the report to UNDP and the project beneficiaries (Ministry of Mines and Energy) and the Project Steering Committee will be made as part of the combined wrap-up workshop for the NAMREP Final Evaluation. The reporting schedule will be finalized during the inception meeting between the consultant and key stakeholders.

### **DISCLOSURE**

*Although the team is free to discuss with the authorities on anything relevant to the assignment, under the terms of reference, the team is not authorized to make any commitments on behalf of UNDP or the Governments of Namibia.*

### **Annex 3. Evaluation schedule**

TE and delivery of the final report was completed in 22 man-days, spread out between the middle of August 2010 and the beginning of October 2010 as follows:

1. Desk work (Mauritius) – Six (6) days to carry out documentation review (evaluating PIRs, MTRs, Steering Committee notes of minutes, documents related to NAMREP, and the design of questionnaire. The documents to be reviewed were sent by courier to IC, and were received on. The drafting of TE report was initiated in this period;
2. In-country mission (Namibia) – Six (6) days to undertake interviews/discussions with stakeholders and site visits. This took place between 4 September and 11 September 2010;
3. Desk work (Mauritius) – Seven (7) days to complete analysis of interviews and questionnaire surveys, and to complete draft final TE report. This was carried out between 13 September and 28 September 2010;
4. In-country mission (Namibia) – Three (3) days to present findings to stakeholders, collate stakeholder feedbacks, and finalise TE report and submit to UNDP CO. This was carried out between 8 and 12 November 2010.

## Annex 4. List of persons and organizations interviewed, and sites visited

Date	Activity	Venue	Contact Person for logistics/accompanying host	Remarks
<b>Saturday 4 September 2010</b>	14h20 Arrival of consultant in Windhoek Check into Hotel	Hosea Kutako International Airport  Arebbusch Travel Lodge Tel: 061 252255	UNDP	UNDP to pick up at airport. Booking at Arebbusch in the name of E. Hoveka
<b>Sunday 5 September 2010</b>	Tour of Windhoek		E. Hoveka Tel: 0811281584	To be arranged with Mr. Deenapanray
<b>Monday 6 September</b>	08h30 – 9h30 UNDP  10h00 – 11h00 Mr. M Reimer Chairperson REIAoN  11h30 – 12h30 Ms. Selma-Penna Utonih, Director Energy & NAMREP NPD 12h30 – 13h00 PMU 14h30 – 15h30 RE Division  16h00 – 17h00 Ms. Ms. Mary-Tuyeni Hangula NPC Director Multilateral Cooperation	UNDP offices  Conserve Southern Industrial area 6 <sup>th</sup> Floor MME Building  1 <sup>st</sup> Floor MME Buidling  1 <sup>st</sup> Floor MME Buidling 1 <sup>st</sup> Floor MME Buidling  NPC, 1 <sup>st</sup> Floor Government Office Park	Talvi Ndevaetela – 0811244174/ Raul Alfaro  T/Ndevaetela/F.Shiihopo  N. Hipangelwa  L. Kalompo/ E. Hoveka  E. Hoveka/ N. Hipangelwa  T/Ndevaetela/E. Hoveka	TN to pick up at hotel
<b>Tuesday 7 September</b>	08h30 – 9h30 Mr. Ndhlukula REEEI/PoN	Polytechnic of Namibia  Katututra, Old	T. Ndevaetela/E. Hoveka  T.Ndevaetela/ F. Shihepo	



	<p>10h00 Visit to Technician premises (Speedy Solar)</p> <p>Visit to Morning Sun Kindergarden</p> <p>12h00 – 13h00 Mr Sauer Bank Windhoek</p> <p>14h30 – 15h30 Mr. Titus, FNB</p> <p>15h45 – 16h30 Mr Tjozo TC1 Secretary, NSI MME</p>	<p>Compound</p> <p>Havana Katutura</p> <p>Bank Windhoek offices</p> <p>FNB Windhoek West</p> <p>NSI offices</p>	<p>T.Ndevaetrela/E. Hoveka</p> <p>T.Ndevaetrela/E. Hoveka</p>	
<b>Wednesday 8 September</b>	<p>7h00 Depart for Field</p> <p>14h00 Site Visit Namutoni EEC and King Nehale Gate</p> <p>17h30 – Arrive Ondangwa</p>		<p>T. Ndevaetela/E. Hoveka, N. Hipangelwa</p> <p>T. Ndevaetela/E. Hoveka, N. Hipangelwa</p>	TN to pick up at hotel
<b>Thursday 9 September</b>	<p>10h00 – 11h00 Hon U. Nghaamwa , Governor</p> <p>10h00 – 13h00 Site Visit Engela Hospital</p> <p>14h00 – Depart for Otiwarongo</p>		<p>T. Ndevaetela/E. Hoveka, N. Hipangelwa</p>	
<b>Friday 10 September</b>	<p>07h00 – Depart Otjiwaring</p>	<p>Polytechnic of</p>	<p>T. Ndevaetela/E. Hoveka, N. Hipangelwa</p>	

	<p>9h30 – 10h15 Prof. Zaccheaeus Oyedokun</p> <p>10h30 – 11h30 Ms. Amaambo NAMPOWER</p> <p>12h00 – 13h00 Mr. Manyame, ECB</p> <p>14h00 – 15h30 Debriefing Meeting with PSC and other stakeholders</p>	<p>Namibia</p> <p>NAMPOWER Offices</p> <p>ECB Offices</p>	<p>T. Ndevaetela/ E. Hoveka</p> <p>T. Ndevaetela/ E. Hoveka</p>	
<b>Saturday 11 September</b>	07h30 Departure of Consultant	Hosea Kutako International Airport	T. Ndevaetela	TN arrange transport to airport from Arebbusch

## **Annex 5. List of documents reviewed**

Asca Investment (Pty) Ltd (2009), Assessment of Renewable Energy Projects Financing Through Petroleum and Electricity Levy.

Consulting Services Africa (2005), Baseline Study: Barriers Removal to Namibian Renewable Energy Programme (NAMREP) – Final Report.

Consulting Services Africa (2006), Strategic Action Plan for the Implementation of Renewable Energy Policies as Outlined in the Namibian White Paper on Energy Policy.

Consulting Services Africa (2007), Development of a Regulatory Framework for Renewable Energy and Energy Efficiency within the Electricity Sector.

Consulting Services Africa (2007), Off-Grid Energisation Master Plan for Namibia – Final Report.

Emcon Consulting Group (2006), Developing and Conducting a Solar Water Heater Promotional Campaign in Windhoek.

Emcon Consulting Group and Tinda ESI (2006), Code of Practice and Register of Products for Namibian Solar Energy Technologies.

Mangrove (Pty) Ltd, Business Development Training Manual for Renewable Energy SMEs.

Nakatana L (2008), Assessment of Renewable Energy Curricula Application in Education Institutions in Namibia.

NAMREP Standard Progress Reports – 2008, 2009 and 2010.

PH Consultants (2008), On the Technical Training on Renewable Energy Technologies Installation and Maintenance for Artisans (electrical and plumbing) – Workshop Draft Report.

PriceWaterCoopers (2006), UNDP/GEF/MME Barrier Removal to Namibian Renewable Energy Programme (NAMREP): Assessment of Duties and Taxes.

Project Document (2007), MME/UNDP/GEF Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Phase II.

Project Inception Report (2007), MME/UNDP/GEF Barrier Removal to Namibian Renewable Energy Programme Phase II (NAMREPII).

SK Holdings (Pty) Ltd (2006), Development of First Cost Reduction Strategies for Renewable Energy Products and Services.

## Annex 6. Questionnaire – Terminal Evaluation

### Explanatory note

As a key stakeholder to NAMEP, you are most probably aware that Phase II of the project is in the process of closure. It is standard procedure to carry out a Terminal Evaluation (TE) of NAMREP II as per standard UNDP/GEF Monitoring and Evaluation Policies and Guidelines.<sup>18</sup>

There are four objectives to this independent review, namely:

1. Monitor and evaluate results and impacts;
2. Provide a basis for decision making on necessary amendments and improvements;
3. Promote accountability for resource use (although this exercise is not a Financial Audit);
4. Document, provide feedback on, and disseminate lessons learned.

A variety of instruments is being used to undertake the TE, and one these is the use of questionnaires. In this regard, your views about the various aspects of NAMREP II are being sought. Please note that the International Consultant will carry out an in-country mission in the 2<sup>nd</sup> week of September 2010 during which time there will be the opportunity for face-to-face discussions.

Although you are encouraged to identify yourself, please note that you have the right to anonymity. In the event that you wish to remain anonymous, do however indicate the stakeholder group that you belong to.

Please note that the broad objective, goal and outcomes of NAMREP II are found at PART D of the questionnaire. You may wish to use summary of any indicators (should you have them) listed at PART D to answer PARTS B and C.

=====

### PART A - Details of Interviewee

Name of person:

Affiliation (name of institution):

Address:

You or your institution's involvement with NAMREP II:

Stages of involvement with NAMREP II: Design; Formulation; Implementation; Monitoring & Evaluation; Beneficiary; Other (please state: \_\_\_\_\_) – **Please tick as appropriate.**

=====P

### PART B - General Questions (to be answered by all key stakeholders)

1. Please provide your general feedback on the following components of NAMREP II using the following ratings: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory, or N/A. You should use one rating per component.

**Briefly justify your response (where applicable).**

Relevance – The extent to which the project is suited to local and national development priorities and organizational policies, including changes over time;

Effectiveness – The extent to which an objective has been achieved or how likely it is to be achieved;

Efficiency – The extent to which results have been delivered with the least costly resources possible (while noting that this evaluation is not a financial audit);

Results – The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. These include direct project outputs, short- to medium-term outcomes, and longer term impacts including global environmental benefits, replication effects, and other local effects; and

---

<sup>18</sup> Guidelines for GEF Agencies in Conducting Terminal Evaluations, Evaluation Document No. 3 (Global Environment Facility, Evaluation Office, 2008); and The GEF Monitoring and Evaluation Policy, Evaluation Document No. 1 (Global Environment Facility, Evaluation Office, 2006) – both documents accessed at <http://thegef.org> - 12 July 2010.

**(You may wish to strike out the inappropriate type of results)**

Sustainability – The likely ability of the project to continue to deliver benefits for an extended period of time after completion – i.e. project should be environmentally, financially and socially sustainable.

Stakeholder participation – How well do you believe that the relevant project stakeholders were involved in the project design, formulation, implementation, and monitoring?

Monitoring and evaluation – How would you rate the monitoring and evaluation of the project?

2. Looking back on NAMREP II (i.e. with hindsight), what would you have done differently, if any, regarding any one of the dimensions listed under Question 1.
3. Do you believe that NAMREP II has played a catalytic role in promoting Solar Energy Technologies in Namibia? Yes/No/Partially.
4. Are there any risks that have not been identified in the project concerning the sustainability of project outcomes? Yes / No. If 'yes' please specify.
5. (a) Have there been factors outside the project boundary that have assisted project outcomes. Yes/No. If 'yes' please specify.  
(b) Have there been factors outside the project boundary that have prevented project outcomes. Yes/No. If 'yes' please specify.  
(c) Have there been factors within the project boundary that have prevented project outcomes. Yes/No. If 'yes' please explain.
6. (a) What do you believe the strengths of NAMREP II have been?  
(b) What do you believe the weaknesses of NAMREP II have been? If there are any, please mention how they could have been overcome.  
(c) Are there any opportunities that NAMREP II failed to capitalise on? If yes, please explain how they could have been reaped.
7. How has NAMREP II benefited beneficiary communities / end-users of Solar Energy Technologies?
8. (a) How would you rate the level of public awareness of SETs in Namibia?  
(b) How would you describe the level of social acceptability to SETs in Namibia?
9. Have there been any major changes that have affected the project since its conceptualization and formulation?

=====  
**PART C - Specific Questions**

This part contains specific questions pertaining to the design, formulation, relevance, implementation and performance of NAMREP II. A 'Yes/No' answer may be sufficient, but **in case a 'No' answer is given it would be good to substantiate the response very briefly**. Please write 'N/A' if you are unable to answer a question.

Conceptualization/Design

1. Do you believe that the issue the programme sought to address has been clearly identified and the approach soundly conceived?
2. Have the objectives and outputs of the programme been stated explicitly and precisely in verifiable terms with observable success indicators?
3. Have the relationship between objectives, outputs, activities and inputs of the programme been logically articulated?

Relevance:

1. How relevant has NAMREP II been to the development priorities of the country?
2. Which institutions have received the support of the project?

Implementation:

1. Has the project made use of an appropriate institutional arrangement to deliver its outcomes?

2. Have the interests of beneficiaries (communities and institutions) been duly addressed during implementation?
3. Has NAMREP II been responsiveness to any significant changes in its environment?
4. Have the lessons learned from NAMREP I or other relevant programmes been duly taken into account during the implementation of Phase II?
5. Were the monitoring and backstopping of the programme by the Government and UNDP been as expected?
6. Has the Government counterpart inputs in terms of personnel, premises and indigenous equipment been adequate?

Programme Performance:

1. Do you think that NAMREP II had adequate resources (financial, physical and manpower) in terms of both quantity and quality?
2. Did the programme use its resources effectively (i.e. produced planned results)?
3. Did the programme use its resources efficiently to achieve planned results?
4. Were the Solar Energy Technologies covered by the project suitable for Namibia?
5. Have there been any environmental impacts (positive and negative) at technology deployment sites? What remedial actions were taken for any 'negative' impacts?
6. What have been the major social impacts (positive and negative), including impact on the lives of women at technology deployment sites? What remedial actions were taken for any 'negative' impacts?

=====

**PART D – Statistics & Data on Indicators (please make available where relevant)**

A major part of the evaluation seeks to assess the extent to which NAMREP II has been able to deliver on its objectives, outcomes and outputs. For this the indicators listed in the logical framework of the project document have to be reviewed.

Please note that one stakeholder or group of same stakeholders may not be able to cover all indicators. Please provide data or statistics on any indicators that you may possess. Where practicable, the cohort of institutions that may possess a given set of indicators has been listed for guidance only. The time period should cover the years 2007-2010.

**GLOBAL GOAL (End-users surveys, PMU, MME, Bureau of Statistics)**

- Consumption of kerosene for lighting in households that use PV
- Consumption of diesel by commercial farmers that have installed PVP
- Consumption of grid electricity by households and building owners that have installed a SWH

**DEVELOPMENT OBJECTIVE (End-users surveys, PMU, MME, Bureau of Statistics)**

- Number of systems (SHS, PVP and SWH) sold in 2009
- Survey report on impacts of NAMREP on end-users:
  - Number of people/households affected
  - Number of social services affected
  - Number of people with improved income (proxy – decrease in electricity bill by 40%, meaning that after the payback period of a SHW (SRF – 5 years), savings (i.e. disposable income) increases by 40% of electricity bill in baseline)

**OUTCOME 1 - Built capacity in public and private sectors and in NGOs (PMU, MME, Industry Association, REEEI)**

- Number of RET businesses set up outside Windhoek
- Level of end-user satisfaction with installation and after-sales service (end-user survey)
- Rate of reported system faults
- Turnover of RET suppliers (no direct evidence)
- Number of personnel from government, NGOs and solar technicians trained in RET activities (101)

- Number of technicians who have set up a small business or improved their services after participating in at least one training workshop
- Number of training centres capacitated to offer training on RETs

**OUTCOME 2 - New policies, laws and regulations and actions in support of RETs are in place (PMU, MME, REEEI)**

- Number and type of new policy-regulatory measures introduced
- Development of guidelines on standards and codes of practices
- Ministries (apart from MME) that have integrated SET-based projects in their plans
- Inter-sectoral coordination structure on RET – has it been proposed / instituted
- Setting up of REEE Institute that has taken over some non-core functions from MME

**OUTCOME 3 - Increased public awareness and social acceptability amongst stakeholders (PMU, MME, REEEI, Banks, Industry Association, beneficiaries/end-users)**

- Number of sales and/or loan applications for SETs per type of customer
- Updated information on Cost/Benefits of SWH and PVP
- C/B of social and productive uses of SETs (SHS, PVP, PV refrigeration) in rural areas
- Number of people reached through dissemination campaigns
- Number of people reached through workshops and meetings
- Number of on-site demonstrations of SET systems conducted
- Number of decision-makers briefed on SETs
- Is Sustainable Energy Namibian Society fully functional?
- Number and % of PV suppliers, NGOs and other organisations participating in SENSE

**OUTCOME 4 - Appropriate financing and product delivery schemes set up and expanded (PMU, MME, development & commercial banks)**

- Number and type of lending schemes
- Number of loans granted by SRF and lending volume
- A strategy to reduce first cost is in place
- Capitalisation and scaling up data for existing schemes (SRF and BW)

**OUTCOME 5 - Learning, evaluation and adaptive management (PMU, MME, REEEI)**

- Number of staff working in MME and REEE Institute on RETs
- Number of lessons learned and dissemination activities
- Has PMU staff been absorbed in MME or REEE Institute
- End-of-project study
- Completion of Project progress reports
- Completion of Terminal evaluation
- Data on NAMREP Quarterly and other publications
- Number of countries benefiting from NAMREP's experiences

## Annex 7. Analysis of Outputs in Logical Framework

PROJECT STRATEGY (Objectives, outcomes, outputs)	Final Indicator (End of Phase II)	Verification (by evaluator)	Performance Rating (by evaluator)
<p><b>GLOBAL GOAL</b> To increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO<sub>2</sub> emissions and improving livelihoods and income generation of rural people</p>	<ul style="list-style-type: none"> <li>▪ Consumption of kerosene for lighting in households that use PV has been reduced</li> <li>▪ Consumption of diesel by commercial farmers that have installed PVP has been reduced</li> <li>▪ Consumption of grid electricity by households and building owners that have installed a SWH has been reduced</li> <li>▪ Based on the annual sales figures of SETs given below, the baseline of CO<sub>2</sub> emissions avoided in 2004-2008 will be at least 15,580 tCO<sub>2</sub> annually (or 233,670 tCO<sub>2</sub> over the 15-year lifetime of the systems)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Supplier survey and end-user surveys were not carried out as planned to properly assess the reduction in the use of fossil fuels due to uptake of SETs</li> <li>▪ However, the PMU used an alternative methodology based on secondary research to estimate any such reductions</li> <li>▪ SHS reduced use of kerosene by ~50%</li> <li>▪ PVP uptake has reduced annual consumption of diesel by 21,320L</li> <li>▪ The collector area of installed SHW increased by factor 3.5 between 2008 and 2010. This increase is expected to have decreased electricity use, but was not quantified</li> <li>▪ Avoided emissions over a period of 15 years have been calculated to ~243,900tCO<sub>2</sub>, which exceeds the set target, while assuming that the emission factors used by the project were correct.</li> </ul>	<ul style="list-style-type: none"> <li>▪ unsatisfactory</li> </ul>
<p><b>DEVELOPMENT OBJECTIVE</b> To promote the delivery of commercially, institutionally and technically sustainable energy services by solar</p>	<ul style="list-style-type: none"> <li>▪ Number of systems sold in 2009 has increased to 3580 which is 10x of the baseline year. Break down as follows: 1900</li> </ul>	<ul style="list-style-type: none"> <li>▪ End-user survey was not completed</li> <li>▪ REEEI preliminary survey showed that number of systems sold in 2009 stood at 3900 with a tentative breakdown standing as: 80%</li> </ul>	<ul style="list-style-type: none"> <li>▪ unsatisfactory</li> </ul>



<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
energy, including solar electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration) and solar water heating to the household, institutional, commercial, and agricultural sectors	(SHS), 380 (PVP) and 1300 (SWH) <ul style="list-style-type: none"> <li>▪ Impacts of NAMREP on end-users:               <ul style="list-style-type: none"> <li>▪ Number of people/households affected</li> <li>▪ Number of social services affected</li> <li>▪ Number of people with improved income</li> </ul> </li> </ul>	SHS (3120); 15% PVP (385); 5% SWH (195) <ul style="list-style-type: none"> <li>▪ Impacts of NAMREP on end-users were not determined</li> </ul>	
<b>OUTCOME 1 Built capacity in public and private sectors and in NGOs</b>	<ul style="list-style-type: none"> <li>▪ RET businesses outside Windhoek have increased at least 1000%</li> <li>▪ Level of end-user satisfaction with installation and after-sales service increased by 50%</li> <li>▪ Rate of reported system faults has decreased with 30%</li> <li>▪ Turnover of RET suppliers increases</li> </ul>	<ul style="list-style-type: none"> <li>▪ End-user survey was not completed</li> <li>▪ RET businesses outside Windhoek increased from 24 in 2008 to 30 in 2010</li> <li>▪ Complaints dropped virtually to zero</li> <li>• Assumed to have dropped to zero as well</li> <li>• No study in RET turnover</li> </ul>	<ul style="list-style-type: none"> <li>▪ satisfactory</li> </ul>
1.1 Training programmes for NGOs, public and private sector have been established and executed	<ul style="list-style-type: none"> <li>▪ Some 25 personnel from government, NGOs involved in RET activities as well as 35 solar technicians have been trained</li> </ul>	<ul style="list-style-type: none"> <li>▪ Total of 155 persons were trained out of which 55 were technicians</li> </ul>	<ul style="list-style-type: none"> <li>▪ Technicians and staff is willing to be trained</li> </ul>
1.2 Decentralised RET companies are adequately supported	<ul style="list-style-type: none"> <li>▪ At least 50% of all technicians that participated in at least one training workshop have set up or improved their</li> </ul>	<ul style="list-style-type: none"> <li>▪ No survey amongst solar technicians/small RE entrepreneurs was carried out</li> <li>▪ However, 20 technicians participated in</li> </ul>	<ul style="list-style-type: none"> <li>▪ Marginally unsatisfactory</li> </ul>

<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
	services into small RE businesses	NTCRE accreditation training allowing them to participate in commercial financing schemes that would have improved their businesses	
1.3 Vocational and training centres are capacitated and providing technical training on RETs	<ul style="list-style-type: none"> <li>▪ At least two training centres are capacitated to offer training on RETs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Changes in legislation have prevented this target to be achieved. It is anticipated that following country-wide deliberations, it is expected that WVTC will be able to offer accredited training</li> </ul>	<ul style="list-style-type: none"> <li>▪ Satisfactory (given that there was unforeseen constraints)</li> </ul>
<b>OUTCOME 2 New policies, laws and regulations and actions in support of RETs are in place</b>	<ul style="list-style-type: none"> <li>▪ At least three new policy-regulatory measures have been introduced (e.g. White Paper on RE, provision of access to electricity with RETs to schools; clinics and main government institutions in off-grid areas; making SWH compulsory for new public building in urban and rural areas that consume hot water; setting RET and/or off-grid targets in national power supply; definition of incentives for SETs; PV irrigation in agricultural programmes)</li> </ul>	<ul style="list-style-type: none"> <li>▪ This target has been fully attained in the first year of the project in 2007. These include the Solar Water Heater Cabinet Directive and the Off-Grid Energisation Master Plan (OGEMP) and the National Regulatory Framework on Energy). In 2008, the National Technical Committee on Renewable Energy was established and the Renewable Energy Strategic Action Plan; in 2009 the OGEMP Fund and a Renewable Energy Division within the MME were established.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>
2.1 Policy and regulatory frameworks for RE and off-grid electrification	<ul style="list-style-type: none"> <li>▪ At least two policy measures have been introduced</li> <li>▪ Guidelines on</li> </ul>	<ul style="list-style-type: none"> <li>▪ Solar Water Heater Cabinet Directive and the Off-Grid Energisation Master Plan (OGEMP)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>

<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
are formulated	standards and codes of practices are developed	<ul style="list-style-type: none"> <li>▪ The NTCRE conducted a study on standards and has identified standards on solar water heater and solar panels, which will become the Namibian standards for these technologies.</li> </ul>	
2.2 Government ministries and public institutions finance and implement solar technologies and projects	<ul style="list-style-type: none"> <li>▪ SET-based features/projects are integrated in the plans of at least two ministries or institutions</li> <li>▪ An inter-sectoral coordination structure on RET is proposed</li> </ul>	<ul style="list-style-type: none"> <li>▪ SET plans have now been integrated in at least four Government Ministry, namely Ministry of Works and Transport, Ministry of Agriculture Water and Forestry, Ministry of Environment and Tourism and the Ministry of Mines and Energy.</li> <li>▪ An inter-sectoral coordination structure on RET has not proposed. However, a recommendation has been made in this TE that REEEI could fulfil this coordination role.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>
2.3 REEE Institute (at Polytechnic of Namibia, PoN) is established and functioning well	<ul style="list-style-type: none"> <li>▪ The REEE Institute is fully functioning and has taken over some non-core functions from MME</li> </ul>	<ul style="list-style-type: none"> <li>▪ REEEI is fully operational and it has taken on some non-core functions of MME like the setting up of energy shops and carrying out energy research. It is also involved in policy dialogue with MME and ECB meaning that it has also started to support core functions within MME.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>
<b>OUTCOME 3 Increased public awareness and</b>	<ul style="list-style-type: none"> <li>▪ Number of sales and/or loan applications for</li> </ul>	<ul style="list-style-type: none"> <li>▪ Total number of loans issued under the SRF and Bank</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>

<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
<b>social acceptability amongst stakeholders</b>	SETs per type of customer	Windhoek has reached 1018, broken down as follows SHS: 694; SWH: 169; PVP: 155.	
3.1 Comparative info on demand for energy services and costs and benefits of SETs is collected and developed	<ul style="list-style-type: none"> <li>▪ Updated information on: <ul style="list-style-type: none"> <li>▪ C/B of SWH</li> <li>▪ C/BPVP</li> <li>▪ C/B of social and productive uses of SETs (SHS, PVP, PV refrigeration) in rural areas</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Cost-Benefit (C/B) analyses for SWH, PVP, and productive use have been updated. An additional leaflet on affordable RET options has been produced.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly satisfactory</li> </ul>
3.2 Increased knowledge of SETs among national and regional decision-makers and end-users	<ul style="list-style-type: none"> <li>▪ 6,000 people have been reached through dissemination campaigns</li> <li>▪ 500 people have been reached through workshops and meetings</li> <li>▪ At least 40 on-site demonstrations of SET systems conducted</li> <li>▪ Number of decision-makers briefed on SETs</li> </ul>	<ul style="list-style-type: none"> <li>▪ 18,000 printed materials have been distributed over the project lifetime</li> <li>▪ More than 200 persons have attended workshops and meetings</li> <li>▪ 34 on-site demonstrations have been carried out</li> <li>▪ 160 decision-makers have been briefed on SETs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Between satisfactory and highly satisfactory</li> </ul>
3.3 Active networks or associations in place	<ul style="list-style-type: none"> <li>▪ SENSE is fully functional</li> <li>▪ Number and percentage of PV suppliers, NGOs and other organisations participating in SENSE</li> </ul>	<ul style="list-style-type: none"> <li>▪ SENSE is fully functional as a virtual network with over 200 members;</li> <li>▪ These data are not available since membership or affiliation to SENSE as a virtual network does not require members to provide details about their profiles;</li> <li>▪ In addition to SENSE, a REoIA that regroups around 80% of suppliers of RETs in Namibia was formed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly Satisfactory</li> </ul>
<b>OUTCOME 4 Appropriate</b>	<ul style="list-style-type: none"> <li>▪ Number and type of lending</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Bank Windhoek (BW) scheme</li> </ul>	<ul style="list-style-type: none"> <li>▪ Satisfactory</li> </ul>

<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
<b>financing and product delivery schemes set up and expanded.</b>	<ul style="list-style-type: none"> <li>▪ schemes</li> <li>▪ Number of loans granted and lending volume; repayments of loans</li> <li>▪ A strategy to reduce first cost is in place</li> </ul>	<p>initiated under this project has come to an end, having extended a total of 177 loans. The First National Bank (FNB) scheme also initiated under this project issued 116 loans. The SRF is being transformed into the OGEMP Fund</p> <ul style="list-style-type: none"> <li>▪ The loan repayment rate of the three schemes is 85% (defaults of 105 out of 693) for SRF, 97.75% (defaults of 4 out of 177) for BW and 100% for FNB.</li> <li>▪ A strategy for first cost reduction is not in place</li> </ul>	
4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded	<ul style="list-style-type: none"> <li>▪ 300 loans awarded per year</li> </ul>	<ul style="list-style-type: none"> <li>▪ SRF loans for 2008 and 2009 were 138 and 149, respectively. No loans issued under SRF for 2010 due to transition to OGEMPF</li> </ul>	<ul style="list-style-type: none"> <li>▪ satisfactory</li> </ul>
4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up	<ul style="list-style-type: none"> <li>▪ Existing schemes (SRF, BW) have been capitalised and scaled up</li> <li>▪ New schemes with at least one other bank have been established</li> <li>▪ At least one scheme with a development bank to develop RETs and productive uses</li> </ul>	<ul style="list-style-type: none"> <li>▪ The BW scheme is fully subscribed and has issued a total of 177 loans. Meanwhile, FNB scheme has issued a total of 116 loans. Through the OGEMP fund, a new scheme replacing the SRF to finance RETs has been established by the MME. In addition, the local banks, i.e. FNB, SB and BW are independently issuing loans in support of the RETs. The Namibia Agricultural Bank now finances RETs as part of the loan</li> </ul>	<ul style="list-style-type: none"> <li>▪ satisfactory</li> </ul>

PROJECT STRATEGY (Objectives, outcomes, outputs)	Final Indicator (End of Phase II)	Verification (by evaluator)	Performance Rating (by evaluator)
<b>OUTCOME 5 Learning, evaluation and adaptive management</b>	<ul style="list-style-type: none"> <li>▪ Number of staff working in MME and REEE Institute on RETs</li> <li>▪ Number of lessons learned and dissemination activities</li> </ul>	<p>scheme.</p> <ul style="list-style-type: none"> <li>▪ The RE Division increased its staff complement from 4 to 6 during in 2010. The REEEI also established and filled a new position for the Energy Shop Coordinator.</li> <li>▪ Two lessons learnt reports on financing schemes were prepared for the project and presented to the project steering committee. The reports were also presented at two Renewable energy workshops.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Successful implementation of all the activities in the previous components</li> </ul>
5.1 Adaptive management, monitoring and evaluation	<ul style="list-style-type: none"> <li>▪ PMU staff absorbed in MME or REEE Institute</li> <li>▪ End-of-project study</li> <li>▪ Project progress reports</li> <li>▪ Terminal evaluation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Out of the 4 PMU staff, one has integrated the RE Division of MME, while another has just applied for a position within MME;</li> <li>▪ End of project study has not been completed, and it was not clear whether or who would be take the responsibility to complete this activity since the contracts of PMU staff would end at the end of September;</li> <li>▪ Project progress reports have been completed except for the Standard Progress report covering the period June to September 2010. However, this is expected to be completed by the time the TE is finalised;</li> <li>▪ This TE report is</li> </ul>	<ul style="list-style-type: none"> <li>▪ Satisfactory</li> <li>• Unsatisfactory</li> <li>• Highly Satisfactory</li> <li>• Highly Satisfactory (contingent upon</li> </ul>

<b>PROJECT STRATEGY (Objectives, outcomes, outputs)</b>	<b>Final Indicator (End of Phase II)</b>	<b>Verification (by evaluator)</b>	<b>Performance Rating (by evaluator)</b>
		expected to be finalised by the end of September (or latest the first week of October 2010)	approval by UNDP)
5.2 Lessons learned have been documented and disseminated	<ul style="list-style-type: none"> <li>▪ NAMREP Quarterly and other publications</li> <li>▪ Experiences are shared with at least 3 countries/GEF projects in the region</li> </ul>	<ul style="list-style-type: none"> <li>▪ Standard Progress Reports were produced quarterly, and a total of 15 publications were produced during Phase II;</li> <li>▪ Lessons learned reports were still at the draft stage and needed finalisation;</li> <li>▪ During a regional meeting held at 6 countries benefited from the experience of NAMREP II. Also, experiences and lessons were shared with Kenya through a bilateral collaboration;</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly Satisfactory</li> </ul>

### Main conclusions

The evaluation has resulted in the following ratings for the five key performance criteria:

1. Relevance – highly satisfactory
2. Effectiveness – satisfactory
3. Efficiency – satisfactory
4. Impacts – satisfactory
5. Sustainability – highly satisfactory

The ratings for stakeholder participation and monitoring & evaluation have been rated as highly satisfactory and marginally satisfactory, respectively.

### Lessons learned

1. Detailed cost-benefit analysis of SETs compared to alternatives using fossil fuels (electricity, diesel or kerosene) is essential for marketing SETs in both rural and urban areas;
2. Designing and communicating the benefits of SETs in terms of their contributions to savings on energy bills, and enhancement of the standard of living and livelihood of off-grid communities is critical for their social acceptability;
3. The sequencing of activities in this type of project is very important for the effective and efficient delivery of outcomes and outputs. NAMREP II has shown that there may be several factors, some of which may have been anticipated within the project conceptualization, design and formulation. In contrast, there are unforeseen factors that could not be anticipated, but for which there are remedial solutions;
4. Financial instruments to assist end-users to overcome the initial high capital expenditure of SETs are critical in creating demand and a market for SETs;
5. A key lesson that has been learned during NAMREP is that the financial schemes operated by Konga, BW and FNB have benefitted mostly the richer communities, at the expense of poorer, rural (and off-grid) communities who were the targeted market segments in Phase II;
6. Management structure of Phase II was changed without any empirical evidence of the relative merits of the new structure over the preceding one (i.e. NAMREP I). This created a situation where the confusions over roles and responsibilities for oversight of technical quality of the project emerged to the detriment of its effectiveness and efficiency;
7. NAMREP II has had the positive unforeseen outcome of creating entrepreneurs in the commercialization of SETs among beneficiaries of the project;
8. Phase II has created much awareness about the benefits and advantages of SETs. Setting up loan schemes at higher capitalization levels than those achieved in NAMREP will be required to satisfy market needs;

### Recommendations

1. A study to determine the actual impacts of SETs on improving the livelihoods and income generation capacity of beneficiaries living in off-grid communities is highly recommended;
2. The setting up of OGEMPF needs to be done without any further delays while adapting the loan scheme specifically to reach off-grid communities, and by using the proper management structure to achieve effectiveness and efficiency;
3. Strategies to reduce or eliminate duties and taxes (VAT) on SETs should be implemented after it has been ensured that the right target markets are benefiting from OGEMPF;
4. OGEMPF should receive a higher level of capitalization through measures like placing a levy on petroleum and electricity as has been proposed in the past;



5. It is recommended that the logical framework should be used as a tool to guide the programming of project activities & for monitoring and evaluations purposes;
6. Going forward beyond the project life cycle, renewed emphasis should be given to the deployment of solar cook stoves;
7. The REEEI should be supported and empowered to become the national institute to manage and coordinate all national projects related to RE and EE in Namibia;
8. Commercial banks should be encouraged to set up loan schemes for SETs that are either supplementary or complementary to OGEMPF and Konga Lend;
9. The demonstration units that were installed on the premises of Regional Councils should be made more visible and be put to productive use;
10. It is recommended that future project related to mitigation of greenhouse gases use the standardised baseline and monitoring methodologies to calculate emission reduction resulting from project implementation;