MID-TERM REVIEW OF THE UNDP/GEF/MME PROJECT NAM/01/G32

Barrier Removal to Namibian Renewable Energy Programme (NAMREP)

FINAL VERSION

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LIST OF ABBREVIATIONS

APR-PIR	Annual Project Report – Project Implementation Report
CO_2	carbon dioxide
CART	Centre for Applied Research and Technology
CTA	Chief Technical Advisor
DKK	Danish crown
ECB	Electricity Control Board
GEF	Global Environment Facility
GHG	greenhouse gas
GRN	Gvernment of Namibia
kWh	kilowatt-hour
MAWRD	Ministry o Agriculture, Water and Rural Development
MME	Ministry of Mines and Energy
MoU	Memorandum of Understanding
MW	megawatt
NAMREP	Barrier Rermoval to Namibian Renewable Energy Programme
NHE	National Housing Enterprise
NPD	National Project Director
NGO	non-governmental organisation
PoN	Polytechnic of Namibia
PMU	Project Management Unit
PSC	Project Steering Committee
PVP	photovoltaic water pump
RDE	Royal Danish Embassy
RE	renewable energy
REEE	renewable energy and energy efficiency
REEECAP	Renewable Energy and Energy Efficiency
RET	renewable energy technology
SENS	Sustainable Energy Namibian Society
SET	solar energy technology
SHS	solar home system
SRF	Solar Revolving Fund
SWH	solar water heater
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	UN Development Programme
USD	US dollar
US$	US dollar
VAT	value-added tax
W	Watt
W_p	peak Watt
WVTC	Windhoek Vocational Training Centre

LITERATURE

CSA (2005)

Baseline Study: Barrier Removal to Namibian Renewable Energy Programme (NAMREP), Consulting Service Africa (2005)

EXECUTIVE SUMMARY

Namibia has one of the best solar regimes in Africa. The solar technologies with most scope in Namibia are solar home systems (SHS), solar water heaters (SWH) and photovoltaic pumps (PVP), the latter having more dominance in the agricultural sector. SWHs are used in urban areas and in rural areas by clinics, hostels and commercial farms. A SHS provides a basic electricity service for off-grid households and, depending on its size, can provide power for lights, radio, TV and small electric tools and equipment or even refrigeration.

Despite the solar potential in Namibia, various technical, capacity, information, financial and policy-related barriers inhibit the more widespread application of solar energy technologies. In order to lower these barriers and to realise the considerable solar potential, UNDP-GEF launched a US$ 14 million technical assistance project, called NAMREP, in collaboration with Government of Namibia through its Ministry of Mines and Energy (MME) with co-financing from MME and the Danish government (through two Danish-funded projects). The UNDP-GEF contribution is US$ 5.3 million. It was decided to implement the project in two phases, a Phase I (2004-2006) with US$ 2.6 million and a Phase II, conditional on the result in the first Phase, from 2006 to 2008 with US$ 2.7 million GEF contribution. Phase I would be implemented in close coordination with the Danish-supported REEECAP (Renewable Energy and Energy Efficiency Capacity Building) project.

The project has six broad outcomes (or components):

1. Addressing capacity barriers by building capacity in the government, renewable energy technology (RET) industry, non-governmental organizations (NGOs) and the Project Management Unit (PMU);
2. Addressing the institutional barriers by having new policies, laws, regulations and actions in support of RETs in place within Government ministries and relevant institutions;
3. Increasing public awareness and social acceptability of renewable energy technologies amongst stakeholders;
4. Reducing financial barriers by increased acceptability of RETs as a result of more affordable financing scheme(s) and policies/strategies to reduce cost;
5. Addressing technical barriers by means of the existence of well-equipped and capacitated institutions to undertake information dissemination, technical training studies;
6. Implementation and demonstration (to test the market for RETs and complement project activities to successfully complete the market transformation).

A Project Management Unit (PMU) was set up at MME consisting of six staff members. Project progress is monitored by the Project Steering Committee, consisting of representatives from UNDP, MME and the Ministry of Environment and Tourism (MET). NAMREP was officially launched in February 2004, but activities did not really start until all the Project inception tasks (office set up, financial/accounting procedures, staff recruitment, Project Inception Report, Project Procedures Manual, Annual Work Plan, etc.) were completed in August 2004.

Implementation of the Danish-funded REEECAP commenced in May 2004. However, the MME informed the Bureau and the Royal Danish Embassy (RDE, in Pretoria) that in fact the establishment of the Bureau had been ‘illegal’. Consequently, the Bureau was closed and the RDE froze further disbursement of funds to REEECAP in October 2004. A review of REEECAP and its future was done in June 2005 and, in principle, the RDE and MME agreed to re-start REEECAP. The current status on REEECAP is that the project will be implemented by the Polytechnic of Namibia in 2006-2007, which will host the REEE

Institute, although not all the issues are fully resolved yet at this moment. A number of joint NAMREP-REEECAP activities have been shelved until 2006. It is likely therefore that Phase I (supposed to end by mid-2006) needs to be extended until the end of 2006.

In line with UNDP guidelines, a mid-term evaluation should have taken place roughly at the end of Phase I to examine its progress and achievements. Since the evaluation is also to provide input into the decision whether to extend NAMREP into a Phase II or not, it was decided to field a mission already in January/February 2006. This report is the outcome of the evaluation study performed by an international and a national consultant, which included two short missions of the international consultant to Namibia, one in November 2005 and one in February 2006. During the missions, discussions were held with several key stakeholders and a large amount of project documents and secondary literature was collected. A one-day workshop was held in Windhoek on 8 February 2006 to discuss with the stakeholders the results of the evaluation mission and the possible activities to focus on in Phase II of NAMREP.

Key **accomplishments** of the project have been:

Component 1 (Capacity building): About 100 technicians, and representatives of NGOs and GRN have been trained in four workshops. More technical, advocacy and entrepreneurial training workshops are planned for 2006. The PMU and the Resource Centre have been established and they are functioning. The formulation of the Off-Grid RE Master Plan was pending, awaiting the revival of REEECAP (as this activity was planned as a joint effort by MME and REEE Institute), but is now planned for 2006 .

Component 2 (Institutional barriers): This component has picked up slowly over 2004-2005 as it needed a longer preparatory/lead time. As a prelude to engaging in policy dialogue with relevant ministries, NAMREP thought it prudent to engage in sensitizing GRN and ECB personnel about RE issues and the need to bring in policy reforms, through a number of workshops, meetings and consultancies. Having laid the groundwork, the main activities will be carried out in 2006, such as the Strategic Action Plan (with MME) as well as regulatory issues (with ECB and MME) and convincing other ministries and public institutions to include renewable energy in their budgeting in a coordinated way.

Component 3 (Public awareness and social acceptability): As with component 1, most activities have been advancing well. Regional workshops, aimed at local awareness-raising, were held in 9 regions and so far have attracted a total attendance of some 350 people; these workshops, aimed at local decision-makers, will continue in 2006 in the other 4 regions not covered yet and be supplemented by campaigns to promote specific technologies (solar water heaters, solar PV pumping) and general awareness raising by talks and demonstrations of solar equipment at trade fairs, seminars and rural schools and clinics. In total, an estimated 4,000 stakeholders have been reached (up to the end of 2005). NAMREP has also assisted in the establishment of the Sustainable Energy Namibian Society (SENSE). The Society is already functioning and will be formalised in 2006.

Component 4 (Financial barriers): In the financial issues component, the Solar Revolving Fund has picked up under new management and, with PMU advice on managerial-financial issues, has already sold much more in 2005 than in any year since the Fund was set up in 1996. Very promising is that Bank Windhoek, a commercial bank, has signed an agreement on setting up financial schemes for small entrepreneurs and solar system users and other banks has shown interest in setting up such schemes as well.

Component 5 (Technical barriers): An agreement with one vocational training institute, WVTC on curriculum development and training of trainers has been signed and talks with other institutes are going on. Regarding the support to REEE Institute, this activity has been pending because of the delay in the Danish-funded REEECAP project (which is beyond the control of NAMREP).

Regarding project execution, the evaluation team has the following major **observations:**

- Good progress has been achieved up to now in the capacity building, awareness creation and financial barriers components (outcomes 1, 3 and 4). Activities have advanced less in the technical issues and policy-institutional components (outcomes 2 and 5), although some of the delays have been outside the control of the NAMREP PMU as part of the activities were supposed to be jointly implemented with the REEECAP project, which has been non-active up to now.
- The project framework of outputs and activities is laid down in the original project document and got revised in a participatory consultation with stakeholders in a project inception (2004) and a project planning workshop (2005. As such this framework is well-conceived and well-designed, addressing as much as possible the important challenge as far a expanding the market for solar energy technologies is concerned. If all the awareness creation, capacity building and institutional strengthening activities, planned for 2006, are successfully implemented, the Phase I of NAMREP will have prepared the ground for the successor Phase II, which will focus more on implementation through appropriate financing, delivery and maintenance mechanisms.
- Although only 1.5 year in operation we can see some positive trends to which NAMREP has been instrumental. Several RE small enterprises are reportedly being set up in rural areas, while trained solar technicians have become available, not only in Windhoek and other urban areas, but where their services are needed, that is, in the rural areas. Loan applications to MME's Solar Revolving Fund (SRF) have increased to about 300, in comparison with the average annual number of loan applications of 80 in the period 1996-2004. For the first time, solar water heaters and solar water pumps are included in the SRF. Encouraging also is that a commercial bank, the Bank of Windhoek has signed an agreement with MME on setting up financial schemes for small entrepreneurs and solar system users and that other banks have manifested interest as well. This bodes well for the sustainability of the project.

Important **recommendations** coming out of the evaluation study are:

- The Phase I should be extended up to the end of December (at no extra cost for the budget) to allow all activities to be implemented fully in 2006 and to avoid a possible gap in efforts and staffing should there be a delay in the initiation of Phase II.
- It is essential that the REEECAP project be revived as soon as possible. Given the fact that REEECAP forms an important part in the project's official co-financing that has not been forthcoming up to now, it is not likely that the GEF would approve a Phase II of NAMREP without proof of a functioning REEECAP.
- NAMREP and REEECAP should liaise closely and should be institutionally linked. For example, one way to harmonise the implementation of overlapping activities is to have some NAMREP PMU staff working part-time in the REEE Institute and vice versa; second, the Project Directors and/or project managers of REEECAP and NAMREP could sit in each other's Project Steering Committee. Third, another strategy to ensure cooperation between the two projects and to ensure stakeholder engagement in the projects' execution is the establishment of an Advisory Committee for both projects with participation of key governmental and non-governmental stakeholders.
- With Phase I preparing the ground by building technical, financing, institutional, policy-making and entrepreneurial capacities and awareness raising, Phase II of NAMREP will

focus more testing, refining and scaling up of various interventions as well as on the implementation of financing and product delivery modalities. More attention should also be given to the demand side, i.e., social and productive uses of energy and developing the rural market for energy services.

- Regarding institutional-policy issues, the team would like to stress that formulation of renewable energy and off-grid electrification plans is not and end in itself, but the first step of engagement in a policy dialogue with decision-makers in the Government and its ministries.

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1. INTRODUCTION

1.1 Background

Namibia with a land area of 824,269 km^2 and a population of only 1.8 million is a very sparsely populated country. It is a lower middle-income country with a GDP per capita close to US$ 1800 although this figure disguises that Namibia is also one of the countries with the most skewed income distribution. The majority of the population (65%) lives in rural areas, where living conditions are dominated by relative poverty.

The Namibian energy sector is dominated by grid electricity, petroleum energy and renewable energy sources. The latter sub-sector is still in its infancy stage in terms of development and application in comparison with the electricity and petroleum sectors. However, this is attracting high attention of late from government ministries, parastatal institutions, industries and the general public. For the last thirteen years, the government through the Ministry of Mines and Energy has put in place programmes to develop and implement renewable energy technologies in the country. As a result of this government decision various pilot projects are implemented throughout the country to test the technology in various levels of application.

Namibia has one of the best solar regimes in Africa, with the sun available throughout the year. The application of solar systems in Namibia started before the country's independence but with little or no support from the pre-independence government. The solar technologies with most scope in Namibia are solar home systems (SHS), solar water heaters (SWH) and photovoltaic pumps (PVP), the latter having more dominance in the agricultural sector. Three types of PVPs are available in Namibia, AC submersibles, DC submersibles and DC hammerheads. AC and DC submersibles are imported from USA, Europe or South Africa, while DC hammerheads are manufactured in Namibia[1].

SWHs are used in urban areas and in rural areas by clinics, hostels and commercial farms[2]. SWH have low maintenance and have a lifetime of 15 to 20 years. A SHS provides a basic electricity service for off-grid households and, depending on its size, can provide power for lights, radio, TV and small electric tools and equipment or even refrigeration[3]. There are over eight companies providing PV energy systems and components and over three SWH suppliers (2004 data). In addition, one manufacturer produces solar cookers, while also some camping equipment dealers provide solar cookers[4]. Currently, a supplier pays 16.5% VAT (and VAT upliftment) and sometimes an import duty[5].

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1 The cost of a PVP installed pumping at 50 m depth is USD 3050 (water delivery of 7,000 litres), USD 7000 (15,000 litres) and USD 14,000 (50,000 litres) respectively, including installation cost. The 2004 price data are taken from CSA (2005)

2 In 2004, costs of dual-cycle SWH varied from USD 890 (100 litres), USD 1,270 (150 litres), USD 1,400 (180 litres) to USD 1,780 (300 litres), according to CSA (2005), to which USD 250 of installation is added.

3 In Namibia DC systems are available at USD 860 (50 W_p, including the panels and the stand, a battery, controller, plugs and wiring and 4 lights), USD USD 1,380 (100 W_p, now including panels, two batteries and 8 lights), while AC systems come at USD 2,400 (150 W_p, three panels, three batteries, a AC/SC inverter, charge controller, 8 lights, plugs and wiring) and USD 3,330 (350 W_p, 5 panels, three batteries, 8 lights). Installation cost for the above systems varies from USD 65-210. A 105 A/h solar battery costs USD 95 (lasting 3-4 years), a 9 W fluorescent light costs USD 30

4 Costing USD 65-90 for box cookers and USD 70-100 for parabolic cookers (CSA, 2005).

5 Import duties are not charged within the Southern Africa Customs Union (SACU). Import duties from non-SACU countries are 0% (PV panels), 10-20% (batteries), 10% (inverters), 20% (lights) and 25% (refrigerators).

According to the 2005 Rural Electrification Master Plan, only 1/3 of Namibia's population has access to electricity (67% for urban areas and 10% for rural areas). Of Namibia's 2,855 rural settlements (260,000 households) about 2,400 are not electrified. Some 131 settlements are designated as off-grid by the Master Plan, meaning that some 27,000 households will not have access to the national grid for at least 20 years. There is a potential demand for SHS ranging from 50 W_p for basic household services to 350 W_p for small shops, such as grocery shops or *shebeens*. The off-grid areas also offer potential for solar-hybrid mini-grid systems. Regarding water pumping, PVP operate most cost-effectively as compared with diesel pumps on boreholes with a head not exceeding 150 metres with relatively low water delivery demand (up to 15 m^3 per day). Namibia has some 15,700 boreholes that fulfil this criterion and this is a significant potential[6]. However, of the around 8,500 water points installed by MAWRD, only 1% has PVP systems.

In 1996 MME established a Solar Revolving Fund (SRF) for the financing of SHS. This Solar Home Power programme, was managed by Premier Electric during 2001-2004 but it resulted in dropping annual loan applications and increasing defaults in repayment[7]. On 31-01-2005, Konga Investment took over the role of fund manager over from Premier Electric and, with technical advice from NAMREP, the SRF has been doing well in 2005.

There are over four companies in Namibia that provide PVP systems, some three SWH suppliers and about 8 companies providing SHS systems and PV components. Some small electro-technical companies are based in eastern, northern or southern parts of the country. The SRF introduced a supplier registration in 2004 and received applications from 7 suppliers, of which 6 are based in Windhoek and one in Tsumeb. According to CSA (2005), suppliers are generally very proficient in the technical issues regarding their products, but lack the finesse to actively capture new clients. Marketing by 'word-of-mouth' is often regarded as sufficient. However, the performance of the sector seems to contradict this. For the 14 suppliers interviewed in CSA (2005), the number of SHS sales has averaged around 190 annually during 1999-2004, including sales through the SRF. The sale of SWH saw a slight increasing trend from 91 in 1999 to 206 in 2004. The sale of PVPs, mostly by commercial farmers, showed a steady increase from 47 in 1999 to 174 in 2004. Solar cookers were sold at an average of 95 per year. According to the study, the suppliers are aware that a more coordinated approach to promoting renewable energy (RE) would be beneficial and the majority would support the establishment of a RE suppliers association.

The state-owned national power utility NamPower has been responsible for Namibia's electricity generation, imports and exports. The power sector is in the process of reform and power distribution is now in the hands of Regional Electricity Distributors (REDs).

1.2 Project description and objectives

Namibia, with its excellent solar regime and compact institutional environment has the possibility to provide a small but effective market for solar energy technologies. Recently, South Africa has been rationalising its power industry and this implies that power will be sold to Namibia at much higher tariffs.

[6] There are an estimated 30,000 wind pumps in Namibia, but according to CSA (2005) the technology is gradually being replaced by more reliable and relatively cheaper PVP technology.

[7] The numbers of SHS sold in 2001-02 were 390 (of which 81 through SRF), 302 in 2003-04 (of which 42 through SRF). The SRF received over 300 loan application in 2005.

The UNDP/GEF/MME project *Barrier Removal to Namibian Renewable Energy Programme (NAMREP)* was accepted by the GEF (Global Environment Facility) in 2001 and officially approved in April 2003 by agreement between the Namibian Government the United Nations Development Programme with an envisaged duration of 5 years. The "first phase" of the project has focussed on barrier removal activities started in February 2004 and will continue until the end of 2006. The "second phase" will focus on the acceleration of market development for renewable energy technologies (RETs) and on demonstration of adequate financing and product delivery models and is expected to start by the end of 2006 and go up to mid-2009.

The *global objective* of the project[8] is "to increase affordable access to sustainable energy services through the further development of a market for RETs in Namibia that contribute to climate stabilization by reducing CO_2 emissions through the removal of capacity, institutional, public awareness and social acceptability, financial and technical barriers.

Its *immediate objective* is to "To remove barriers to the delivery of commercially, institutionally, and technically sustainable RES including electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration), and water heating to the household, institutional, commercial, and ago- industrial sectors and to demonstrate the enabled environment through affirming demonstrations of the applications of the technologies".

The emphasis of the project is put on *six components*:

1. Addressing capacity barriers by building capacity in the government, renewable energy technology (RET) industry, non-governmental organizations (NGOs) and the Project Management Unit (PMU);
2. Addressing the institutional barriers by having new policies, laws, regulations and actions in support of RETs in place within Government ministries and relevant institutions;
3. Increasing public awareness and social acceptability of renewable energy technologies amongst stakeholders;
4. Reducing financial barriers by increased acceptability of RETs as a result of more affordable financing scheme(s) and policies/strategies to reduce costs;
5. Addressing technical barriers by means of the existence of well-equipped and capacitated institutions to undertake information dissemination, technical training studies.

During the inception of NAMREP, it was proposed that the sixth component "Demonstrations and Pilots" be postponed until Phase II. There was initially some misunderstanding about this component on demonstration. It was thought that demonstration meant to buy some systems and put them up at some sites, but GEF funds cannot as a rule be used to acquire hardware. Therefore, demonstration has to be interpreted as demonstration of the working of the barrier removal activities, i.e., testing, refining and demonstrating the practicality of the working of the barrier removal interventions as well as involves delivery and service modalities as well as scaling up of financing modalities..

A summary of the *budget* (as given in the original project document of NAMREP (Phase I) is provided in Table 1:

[8] As formulated in the Project Inception Report (September 2004)

Table 1 Budget of the NAMREP Phases 1 and 2

	Phase 1	*Phase 2*	*Total (USD)*
UNDP:			
- GEF	2,600,000	2,712,300	5,312,300
DANIDA	2,120,000		2,120,000
Government	990,000	4,526,200	5,516,200
NamPower		758,000	758,000
NGOs		552,000	552,000
	5,710,000	*8,548,500*	*14,258,500*

Source: Project Inception Report (2004). Not including the GEF PDF B contribution of USD 103,000

The total budget for Phase 1 is USD 5.7 million with US$ 2.6 contribution from GEF and co-financing from the Government and DANIDA (through the REEECAP and Gobabeb Training Centre projects).

1.3 Evaluation methodology and structure of the report

(*Item VII the Terms of Reference given in Annex A*)

The project work on Phase I started in February 2004. In accordance with regulations of the UN Development Programme (UNDP) and the Global Environment Facility (GEF), a Mid-Term Evaluation has to be carried out under the responsibility of the implementing agency, i.e. UNDP, of which the results are presented in this report. The purpose of the evaluation is to analyse and assess the achievements and progress made under Phase 1, identify factors that have facilitated or impeded the achievement of outcomes and the effectiveness, efficiency, relevance, impact and sustainability of the project. The evaluation is expected to result in lessons learned and recommendations for Phase I and II of NAMREP.

During the mission, the external evaluation mission drew up a table of contents that covers the issues to be addressed as mentioned in its Terms of Reference (see Annex A) and follows the structure of this report:

- Introduction (project description and evaluation method)
- Findings on project progress
  - Project's performance in terms of results (achieving objectives and outputs by means of realised activities and inputs used) and impacts, quantitatively and qualitatively measured by indicators (as set in the project document and the annual project review documents)
  - Description of project impacts
  - Evaluation team's assessment of the project design and execution
- Conclusions and recommendations
  - Conclusions taken into account sustainability and replicability issues
  - Lessons learned and recommendations

As part of the evaluation, the evaluation team will provide recommendations for the draft project brief for Phase II that will be submitted to GEF. Although Phase I will not end until mid 2006, it was decided to field the evaluation team already in January 2006 so that its recommendations could feed into the formulation of the Phase II Project Brief, the elaboration of which should start well before the end of Phase I. It should be noted therefore that this evaluation reports basically on the period up to December 2005 but tries to assess the planned for the last year of Phase II (2006) as well.

The mission team, consisting of two independent evaluators, Mr. Jan van den Akker (ASCENDIS) and Mr. Martin Heita (Tinda ESI Consultants), was fielded to Namibia from 9-14 November 2005 and 28 January - 10 February 2005 to undertake the mid-term evaluation. During the mission, extensive discussions were held with representatives from UNDP Namibia, the Project Management Unit (PMU), the counterpart Ministry of Mines and Energy (MME) and other stakeholders.

The consultants adopted the following methodology of evaluation:

i) Review of project reports (APR-PIR[9], project document, budget revision sheets, project papers and consultant reports; see Annex B)
ii) Interviews with UNDP and MME-PMU staff
iii) Discussions with stakeholders, aided by structured questionnaire (Annex B)
iv) Study of policy documents and general information regarding rural and renewable energy in Namibia

The report is divided into three sections. This first section provides general background of the project, purpose of evaluation, project implementation setup, partners/stakeholders and evaluation methodology. The next section dwells on findings from the reports and from interactions with stakeholders. These findings are described within the logical framework design of the project, as given in the Project Inception Report. In the third section, conclusions from the observations and findings are discussed in the context of project objectives. These also pertain to sustainability and replicability of project and lessons learnt. The section also provides generic recommendations for the direction of the Phase II.

1.4 Project set-up and project partners

(Item V, issue .3.1 in the ToR)

A Project Management Unit (PMU) has been created in MME for running the day-to-day operations of the project. The PMU is chaired by the MME Director of Energy acting as National Project Director (NPD)[10] and its activities are coordinated by the Chief Technical Advisor (CTA) and Deputy Chief Technical Advisor/National Project Manager (DCTA)[11], assisted by one project associate, two project assistants and one office assistant[12]. The NPD and project associate are MME energy professionals, while the other posts are paid by the project. In addition, the PMU appoints consultants and support staff on short-term contracts. The PMU was set up during February-May 2004.

A Project Steering Committee is chaired by the MME Permanent Secretary[13] and further consists of MME officials (Director and Deputy Director of Energy), PMU management (CTA and DCTA), representatives from UNDP and the Ministry of Environment and Tourism (the GEF focal point) and any other person, nominated by the PSC Chairperson. The PSC first met in August 2004 and has met five times up until February 2006.

9 APR-PIR: Annual Project Report – Project Implementation Report (for UNDP-GEF projects)
10 Ms. Selma-Penna Utonih
11 Prof. Prem Jain and Mr. Shimweefeleni G. Hamutwe, respectively
12 Mr. Noddy Hipangelwa, Ms. Leefa Ndilula, Mr. Veiko Nangolo and Mr. Talvi Ndevaetela, respectively
13 Mr. Joseph S. Iita

2. FINDINGS

2.1 Implementation: outputs, activities and accomplishments

(Item V, issue.1 in the Terms of Reference)

For each of the five objectives, as mentioned in paragraph 1.2, this section assesses the project's performance and implementation of the project, in terms of achieved outputs, and activities finalised.

The list of outputs and activities, as mentioned in the original Project Document was revised in the Project Inception Workshop of April 2004 and again in the annual work plans (termed Strategic Planning Matrix). The reader should note that in tables 2-6 in the main text below follow the structure of outcomes, activities and progress indicators as given in the Strategic Planning Matrices for 2005 and 2006, but makes references in the first column of each table to the list of key activities as given in Appendix I, Work plan and Budget of the Project Inception Report (September 2004).

2.1.1 Component 1 Capacity building (GRN, NGOs, private sector and the PMU)

Table 2 Key tasks, indicators and planned budget of component/outcome 1

Key tasks and activities	Indicators	Timeframe and budget
1.1 Holding training programmes and workshops for private sector and RET trainers (*activity1.1 of the Phase I Work Plan in the Inception Report)*, for GRN officers *(activity 1.3)* and NGO analysts *(activity 1.5)*	• At least 50 staff from GRN, NGOs involved in RET activities are trained	2004/4-2006/2 Budget: $ 165,000
1.2 Assist GRN in the development of the Off-Grid Master Plan *(activity 1.4)*	• A RET Master Plan is developed	2004/4-2006/2 Budget: $ 75,000
1.3 Promoting/establishing of decentralised RET businesses *(activity 1.2)*	• Increase in RET suppliers by 20% by the end of Phase I	2004/4-2006/2 Budget: $ 70,000
1.4 Set up and build the PMU *(activity 1.6)*	• PMU and Resources Centre established	2004/4-2006/2 Budget: $ 875000

Key task 1.1

The following tasks have been carried out:

- A 2-week practical Training Workshop for Solar Technicians was organised in Ondwanga (March 2005), at which a total of 36 technicians participated coming from different regions and representing different stakeholders (suppliers, NGOs, government);
- A Training guide for Solar Energy Technicians was finalised, based on the before-mentioned training course (which has been distributed to over 200 stakeholders);
- Development of a community-based Plan for sustainable management of SHS in Spitzkoppe;
- A NAMREP-supported series of seminars was launched in June 2005. At the first workshop, the Spitzkoppe Plan was presented. A second marketing and advocacy

workshop was held on 30-31 January 2006 and was attended by over 50 government, NGO and other personnel;
- Financial support in the form of grants and scholarship was provided to a number of MME and other staff, but the PSC decided in July 2005 that in principle, NAMREP, should not provide scholarships anymore.

The following activities are planned for 2006:
- Advanced technicians RET training workshop;
- Consultancy on business plan development for solar technicians (work has been started)

Key task 1.2

The development of the Off-Grid Master Plan has been delayed, because this activity was to be jointly undertaken with the Danish-funded REEECAP project that has not initiated its activities yet (as described in section 2.1.6). It is now planned for in 2006 (which will include two one-day workshops and subcontracting a consultancy firm to assist MME in its formulation)

Key task 1.3

The following tasks have been carried out:
- A 4-day RE Entrepreneurs Training Workshop was held in June 2005 at Ondangwa, organised by Cradle Consult. The workshop which covered various operations and management topics and in which 24 upcoming entrepreneurs participated
- An advanced business training workshop for entrepreneurs was held from 18-20 February 2006. It was attended by 35 entrepreneurs.

The following activities are planned for 2006:
- Look into tax breaks for new RET companies wishing to start operation in rural areas;

Key task 1.4

The following tasks have been carried out:
- Organisation of a Project Inception Workshop in July 2004 (to refine the activities plan and logical framework of NAMREP) a Strategic Planning Workshop in February 2005 (to define the annual work plan for 2005);
- Participation of PMU staff in international and regional conferences and meetings (one ore more PMU staff members attended about 15 workshops and meetings in Namibia and abroad);
- Field trips to visit existing renewable and hybrid energy installations and projects in Namibia (Spitzkoppe, Gobabeb, Terrace Bay, Tsumkwe, Lianshulu);
- Some 140 books on energy and climate change have been acquired and catalogued at the Resource Centre as well as journals and magazines. The Resource Centre will be further strengthened in 2006;
- The “Baseline Study: Barrier removal to Namibian Renewable Energy Programme’ was commissioned to Consulting Service Africa (CSA) in March 2005 and finalised in October 2005.

These general administrative and management tasks will continue to be carried out in 2006. Although Phase I is supposed to end by mid-2006, it might be proposed to extend it up to the end of 2006. A one-day workshop and formulation of the UNDP/GEF Project Brief for Phase II of NAMREP was held on 8 February 2006.

2.1.2 Component 2 Removal of institutional barriers

Table 3 Key tasks, indicators and planned budget of component/outcome 2

Key tasks and activities	Indicators	Timeframe and budget
2.1 Assist GRN and ECB in policy development and analyzing life-cycle: • interpret energy polices in the White Paper and to translate them into effective policy measures *(activity 2.3)* • build processes to assess life-cycle economic costs and benefits *(activity 2.1)* • assist GRN and ECB in creating a level playing field between RETs, grid and off-grid *(activity 2.4)*	• Line ministries and ECB have introduced at least two new policy measures in support of RETs	2004/4-2006/2 Budget: $ 140,000
2.2 Support and convince institutions to own, finance and implement projects *(activity 2.2)* and ensure effective involvement of grid electricity suppliers *(activity 2.5)*	• Utilities and other institutions financing and implement RET and RET promotion schemes	Budget: $ 75,000

Key task 2.1

The following tasks have been carried out:

- A meeting was held with ECB and MME to discuss policy and regulatory issues;
- A technical and economic cost-benefit assessment on replacing electric heaters by solar water heaters (SWH) was commissioned to EmCON in March 2005 and finalized in August 2005;
- A study on replacement of electric hot water systems with SWH was carried out by EmCON on request of the University of Namibia (UNAM) and was finalised in September 2005.

The following activities are planned for 2006:

- Based on the policy statements in MME's Energy White Paper (1998), the PMU will develop a Strategic Action Plan in 2006 with the RE Unit of MME;
- Consultancy to carry out a life-cycle and cost-benefit analysis on solar water pumps and diesel pumps.

Key task 2.2

The following tasks have been carried out;

- Informal meetings have been held with NAMPOWER, REDs, ECB and suppliers on policy and regulatory issues
- A presentation was made to UNAM on 30 November 2005 regarding the cost-benefit analysis of replacing its heavy fuel oil based boiler system with Solar Water Heaters. UNAM has since invited tenders for this purpose.
- A presentation was made to the GRN owned parastatal National Housing Enterprise (NHE) on the benefits of including SWH in its housing program.

The following activities are planned for 2006:

- Convince institutions and line ministries to coordinate RET activities (including implementation of projects and budgeting);
- Interactions with ECB to develop a regulatory framework to create a level-playing field between off-grid and grid electricity.

2.1.3 Component 3 Public awareness and social acceptability

Table 4 Key tasks, indicators and planned budget of component/outcome 3

Key tasks and activities	Indicators	Timeframe and budget
3.1 Developing and disseminating educational and training materials on RETs) : • SHS for communities *(activities 3.1., 3.2, 3.10 and 3.11)* • PV for commercial farmers *(3.2, 3.10 and 3.11)* • sensitization of non-MME government decision-makers *(3.4 and 3.5)* • on SWH *(3.6-3.8)* • on PV refrigerators *(3.14)* • training of consumer advisors on SHS *(activity 3.13)* • series of workshops across regions *(3.14)* • Demonstration the use of RETs (by means of mobile demonstrations of equipment at workshops, trade fairs, etc.)	• At least, 3000 people are reached through dissemination campaigns for educational and awareness materials and at least 300 through workshops and meetings • Number of customers enquiring about PV and SWH system from local dealer shops has increased with 20%	2004/3-2006/2 Budget: $ 570,000
3.2 Create and active network of stakeholders, i.e. suppliers *(activity 3.12)*	• By the end of Phase 1, one active network or association of stakeholders is in place	Budget: $ 5,000

Key task 3.1

The following tasks have been carried out:

- The PMU conducted one-day regional workshops in 8 regions; on average 35 people from each regions attended and 80% of the Regional Councillors (April-July 2005);
- Giving follow-up to queries from communities after the regional awareness projects;
- Advertisements on RETs and NAMREP in *Business Namibia* (Febr. 2005);
- Exhibition of RET equipment at trade fairs and agricultural shows (Ongwediva, August 2005; Caprivi, June 2005);
- Assistance to MME in purchase of solar demonstration kits for MME regional offices.

The following activities are planned for 2006:

- Continuation of 1-day workshop for local decision-makers in the remaining 5 regions;
- Continuation of general awareness creation (translating brochures in local languages, attend trade fairs, radio/TV and demonstration of equipment at events, schools, etc.);
- One-day workshop and consultancy to develop a SWH promotional campaign;
- One-day workshop and consultancy to develop a PVP promotional campaign;

- One-day workshop for PV refrigerator promotion.

Key task 3.2

The following tasks have been carried out:
- Publication of the *NAMREP Quarterly Review*, which has been published four times and sent to over 300 stakeholders;
- Supporting the establishment of the Sustainable Energy Namibian Society (SENSE), which will be formalised early 2006.

The following activities are planned for 2006:
- Networking with stakeholders to disseminate information (by given presentations at seminars and other events);
- Management of a database on stakeholders, suppliers, products and price updates;
- Continuation of NAMREP's *Quarterly Review*

2.1.4 Component 4 Financial barriers removed

Table 5 Key tasks, indicators and planned budget of component/outcome 3

Key tasks and activities	Indicators	Timeframe and budget
4.1 Developing strategy to reduce the first cost of RETs *(3.1)* • develop tools for the financing the purchase/manufacture, development of market plans for RETs and use of bulk lending and financial guarantee mechanisms for of RETs *(activities 4.4, 4.5 and 4.12)* • establish costs and benefits of RETs *(activity 4.7)* • fiscal mechanisms and support by GRN *(4.8, 4.9, 4.10, 4.13))*	• At least one new strategy/policy is in place to reduce the first cost of RETs	2004/3-2006/2 Budget: $ 263,000
4.2 Develop an effective loan financing scheme and assist in its implementation • design modalities and financial vehicles and guarantee schemes for RET purchase *(activities 4.2, 4.3, 4.6, 4.14)* • formulate strategy to make the MME Solar Revolving Fund more effective *(activity 4.11)*	• At least one effective scheme for RETs is available (as evidenced from the increase in n umber of solar systems sold)	2004/3-2006/2 Budget: $ 152,000

Key task 4.1

The following tasks have been carried out:
- Talks of PMU with NedBank and Bank of Windhoek to explore the possibility of setting up credit lines and/or guarantee schemes for assisting RET suppliers and technicians and financing schemes for customers (PV, SHS, SWH). A Memorandum of Understanding on loan financing for RE entrepreneurs and personal loans for solar systems was drafted between MME and the Bank of Windhoek, which is planned to be signed in February

2006. Talks have also been held the Ministry of Agriculture (MAWRD) on funding for solar water pumps;
- Talks with six solar products manufacturers in Europe to look into the possibility of investing in local manufacturing of solar components. However, the visit concluded that the Namibian market is too small;
- Technical advice was provided by Mark Hankins, an expert in financing of solar energy systems from Nairobi, in July 2005 on various financial and policy issues.

The following activities are planned for 2006:
- Assessment of duties and taxes on RET products (by PriceWaterhouseCoopers)
- Consultancy on the development of strategies to reduce first costs

Key task 4.2

The following tasks have been carried out:
- Technical assistance to the MME in introducing reforms in the Solar Revolving Fund (SRF), which got new management in January 2005. Reforms included performance-based (amount of loan recovered and not amount of loan managed, as well as sales) commission, setting minimum targets, introduction of SWH and PVP for the first time. NMAREP also provided adequate monitoring to assess with MME (and in cooperation with the new SRF manager, Konga Investments) problems experienced in the timely processing of loan applications and operational status of around 630 SRF clients as well as preparation of a list of local solar technicians, solar systems price guide and solar systems end-user guide.

The following activities are planned for 2006:
- Continuing technical support to the SRF and monitoring of its performance
- Facilitating and monitoring of two financing schemes, micro-financing for users and credit guarantee for renewable energy small and medium-sized enterprises (RE SMEs) with the Bank of Windhoek as well as exploring new sources of funding.

2.1.5 Component 5 Technical barriers/reduction

Table 6 Key tasks, indicators and planned budget of component/outcome 5

Key tasks and activities	Indicators	Timeframe and budget
5.1 Strengthen the capacity of the REEE Institute	• By the end of Phase I, a REEE Institute is capacitated to fulfil its mandate	2004/3-2006/2 Budget: $ 105,000
5.2 Assist REEE and vocational/training centres in developing training materials in RETs	• By the end of Phase I, at least one vocational training centre is capacitated and ready to provide technical training	

This component has been designed in such a way that it overlaps extensively with the Danida-funded REEECAP project, and the component 5 in the UNDP/GEF project contributes in filling up gaps and support the new REEE Institute. Unfortunately, the REEECAP project has met considerable delay, as is explained in the next section.

Key task 5.1

The following tasks have been carried out:

- Review by the PMU of the amended REEECAP project document that was revised in June 2005, emphasizing the need for close collaboration between REEECAP, the REEE Institute and NAMREP. Consultations were held with the Polytechnic of Namibia (PoN), the envisaged future implementing agency of REEECAP and host of the REEE Institute.

The following activities are planned for 2006:
- Assist in the establishment of the REEE Institute at the PoN;
- Assist in the development of Namibian standards and codes of practice.

Key task 5.2

The following tasks have been carried out:
- Meeting with the principals of some vocational training centres were held to check their interest in introducing training programmes. A MoU was signed with the Windhoek Vocational Training Centre (WVTC) in December 2005 to assist the WVTC through training, introducing solar energy technologies in its curricula and developing/procuring course material and equipment.

The following activities are planned for 2006:
- Assisting the WVTC and other vocational training centres in training and curriculum development, including the development of curriculum materials
- Training of trainers at these centres

2.1.6 REEECAP

The Danish government has been supporting two projects in Namibia that have been included as collaborating partner projects and sources of co-financing in the NAMREP Phase I project:
- "Gobabeb REEE Training and Research Centre Support" project (supported by Danida with DKK 6 million)
- "Renewable Energy and Energy Efficiency Capacity Building (REEECAP)" project (supported by DANIDA with DKK 9.45 million).

Implementation of the Gobabab project commenced in 2002 and was completed recently. REEECAP has met considerable obstacles, however. REEECAP was supposed to support and build capacity of the new R3E Bureau, an independent institute established in April 2002 as a means of outsourcing none-core activities of the Ministry of Mines and Energy (MME) with a view to coordinating and promoting RE and EE development and disseminating relevant information on these topics.

Implementation of REEECAP started in May 2004. However, the MME informed the Bureau and the Royal Danish Embassy (RDE, in Pretoria) that in fact the establishment of the Bureau was deemed illegal. Consequently, the Bureau was closed and the RDE froze further disbursement of funds to REEECAP in October 2004. A review of REEECAP and its future was done in June 2005 and the following recommendations were made:
- REEECAP should be resumed with a new REEE Institute as implementing agency to be established at the Centre for Applied Research and Technology (CART) of the Polytechnic of Namibia (PoN)
- Former R3E Bureau staff should as much as possible be involved in the Institute
- MME should assume the role as executing agency with overall responsibility for the flow of project funds
- A project Advisory Board should be established comprising key stakeholders inside and outside the government

- REEECAP and NAMREP should liaise closely and harmonise the implementation of overlapping activities.

Both the Danish as well as MME endorsed these recommendations, which resulted in a new project document (August 2005) and the envisaged re-start of REEECAP in January 2006. Up to now, activities of REEECAP have not resumed. The evaluation team took advantage of a two-day visit of a RDE representative to broker a meeting between him, the PMU CTA and DCTA and MME management. It was suggested to make a brief capacity evaluation of the Polytechnic after which REEECAP could be revived.

2.1.7 Summary of indicators of the results and impacts of NAMREP Phase I

The value of indicators of the outcomes/components 1 to 5 (baseline, mid-term and end-of-phase II values as well as actual achievement by the end of 2005) is summarised in table 7:

Table 7 Summary of indicators describing NAMREP's performance

Description	Baseline value (2004)	End-2005 value	Mid-term target value (end of Phase I, 2006)	End of Phase II target value (end of 2008)
Project objective				
1. Consumption of kerosene used for lighting is reduced by 80% in households using PV		Data have not been compiled	To reduce by 80%	To reduce by 80%
2. Total annual number of RETs increases	- SHSs: 144 - SWHs: 62 - PVPs: 191	Data have not been compiled yet. However, loan applications for SHS and SWH through SRF have increased from 40 (2004) to 303 (305)	- SHSs: 144 - SWHs: 62 - PVPs: 191	- SHSs: 144 - SWHs: 62 - PVPs: 191
3. Cost of equipment for end-users reduced	SHS: 50 W system: US$ 1250 SWH 200 litre: US$ 1875 PVP: US$ 5,469	No noticeable reduction	Reduction by 5%	Reduction by 20%
Outcome 1				
1. At least 50 personnel from GRN, NGOs and technicians are trained	0	About 100	50	50
2. A RET Master Plan is developed	No Master Plan	No Plan Yet	Master Plan developed	Master Plan developed
3. Increase in RET suppliers	4 main suppliers	5	6	8
4. PMU staff established and functioning	No PMU	PMU established and functioning	PMU functioning	PMU functioning
Outcome 2				
1. Ministries have introduced at least two new policy measures	0	Consultations and discussions, but no measures yet	Two new policy measures	At least two new policy measures
2. Utilities and institutions finance / implement at least two new projects in RETs	0	UNAM has invited tenders to replace its boiler system with SWHs; NHE is considering including SWHs in its Housing scheme	2	2
Outcome 2				
1. At least 3,000 are reached through dissemination campaign and 300 through workshops and meetings	0	- Dissemination campaigns: 4,000 - Workshops: 300	- Dissemination campaigns: 3,000 - Workshops: 300	- Dissemination campaigns: 3,000 - Workshops: 500
2. Number of customers enquiring about PV and SWH from local dealer shops increased by 20%	22	Exact data not known, but talks with suppliers and	26	33

		technicians shows a clear upward trend		
3. By the end of 2005, one active/network association in place	0	A Sustainable Energy Society is launched and being formally founded	1	1
Outcome 4				
1. At least one new strategy/policy to reduce cost of RETs is in place	No policy/strategy	No policy/strategy	One new policy/strategy	At least one new policy/strategy
2. At least one effective financing scheme is available	1 (SRF): Loans for 40 SHSs	SRF strengthened (300 loans in 2005) and 2 proposed schemes with Bank Windhoek (BW)	SRF and BW schemes operational	Loans for 200 SHS, 50 SWH and 100 PVP through these schemes
Outcome 5				
1. REEE Institute established and capacitated	No REEE Institute	No functioning REEE Institute	REEE Institute is set up and performing some functions	REEE Institute is fully functional
2. At least one vocational centre is capacitated	No centre is capacitated	Agreement with WVTC in curriculum development	One centre (WVTC) is capacitated	At least one centre is capacitated

Based on Inception Report, APR-PIR and data acquired during evaluation mission

2.2 Project implementation: impacts of the NAMREP project

(Item V, issue 2 in the Terms of Reference)

This paragraph provides an overview of the project impacts, as far as quantitative and qualitative data are available, since NAMREP Phase I has been in operation *de facto* for 1.5 years with still 1 year to go.

Reduction of technology cost trajectories

Data on cost reduction trends in RET equipment have not been collected yet. The baseline study CSA provides data on the cost and price history of SWH, PVP and solar cookers, which will be or is being supplemented by other studies and report elaborated under NAMREP, such as the SWH-electric geyser cost comparison study by EmCon (2005). The evaluation team has the impression that costs have not really gone down in 2005.

Expansion of business and supporting services for RETs

MANREP has trained 37 people in a RE technical workshop and some 30 upcoming RE entrepreneurs in an entrepreneurial workshop. All the technicians were given a basic solar kit and more trained solar technicians have become available in most of the Namibia's 13 regions. The workshops have informed solar technicians on how to plan their business properly for their own empowerment. Reportedly, some local technicians trained by NAMREP and rural electrotechnic businesses have expanded into solar equipment. A comprehensive list of solar suppliers and technicians is annexed to the CSA (2005) study and is available from NAMREP's PMU.

Increase of financing availability and mechanisms

The introduction of reforms in the SRF has resulted in a better functioning of the only real loan-finance facility in Namibia for solar technologies. The following figures on applications (and lending volumes) try to illustrate this. In 2001/02, 2002/03 and 2003/04 the number of SHS applications (and estimated loan amount) was 81 (US$ 200,000), 42 (US$ 100,000), 33

(US$ 80,000) respectively. Under new management of Konga Investments and advisory support by the PMU, the amount of loan applications increased to 303 in the year 2005, already more than in the 4-year period before[14]. Konga also successfully converted some 140 of about 320 dormant account (of a total of 643 SRF customers) into active loan-repaying clients. One element in the success of the new SRF may be that the fund manager, Konga, gets a fee according to loans recovered rather then the amount of loans administered.

An agreement was recently signed between the Bank of Windhoek and MME on providing financial services to small RE entrepreneurs (RE SMEs) as well as to individuals who whish to install solar systems. In the agreement, the Bank shall provide short-to-medium term financing of between N$ 20,000-250,000 to SMEs that are awarded contracts under the MME/NAMREP programme and personal loans with a maximum amount of N$ 20,000 for SHS or SWH and up to N$ 40,000 for PVP at attractive interest rates that are of 3%, for SMEs, and 5%, for personal loans, below the prime interest rates. This is made possible, because MME provides the Bank with guarantee of 70-80% of the total loan capital. Apart from Bank of Windhoek, other sources of financing will be explored in 2006. NAMREP will support MME in these initiatives by providing some US$ 300,000 of grant money.

Development of policy and regulatory framework

Given the fact that the fact that South Africa is rationalising its power industry and may even reduce power exports to Namibia, the government has indicated the possibility of sharp rises in grid electricity tariffs in the future. Thus, the Government views policies that support renewable energy (and energy efficiency) more favourably. The PMU is supporting MME in drafting a Strategic Action Plan for the implementation of the RE-related policies laid down in the White Paper on Energy. The consultants CSA have been appointed to develop the Strategic Action Plan, which will be completed during 2006. Also, NAMREP will pay for a consultancy firm to draft the Off-Grid Master Plan, which will complement the 2005 Rural Electrification Plan. Both Plans should form the basis of engaging in a policy dialogue with decision makers with MME and the Government. See also the text box A with additional comments from the PMU on the institutional-policy outcome.

Improvement of awareness and understanding of RETs among producers and users

According to the 2005 Annual Project report (APR-PIR), some 2000 people have been reached through capacity and awareness building activities, including the technicians' training workshop, the entrepreneurs' workshop, eight regional workshops and addressing questions from communities after these workshops as well as participation in trade fairs and other events. A list of 60 publications available on RETs in Namibia is annexed to the CSA (2005) report. According to estimates of the PMU, some 4,000 had been reached through capacity building and awareness raising activities, well above the target of 3,000 people (see table 7).

Installed RET systems and impacts on end-users; climate change impacts

With the real implementation to be carried out only in Phase II (2006-2008) it is too early to provide data on increased SWH, SHS and PVP sales that can be sensibly linked with NAMREP. Thus, it is difficult at this early stage of NAMREP to provide quantitative data on a number of impact indicators:

[14] Previously called the 'Home Power' programme, it was established in 1996, managed by the Namibian Development Corporation until 2001 when Premier Electric, a Nampower subsidiary took over. Since early 2005, Konga Investments administers the Fund. In the period 1996-2004, the average annual number of loans disbursed was 82.

- Installed capacity and energy delivered of the RETs (PVP, SHS and SWH)
- Amount of CO_2 emissions avoided (due to the use of
- Number of households affected by the RET technologies
- Number of social services (clinics, health services, boreholes) affected
- Number of people with improved income as a result of RET application.

Indirectly, the increase in the number of approved loan applications of the SRF (from annually 80 in 1996-2004 to 303 in 2005) gives an indication of a positive trend in number of households employing RETs that can be attributed to NAMREP's intervention (PMU's advice on how SRF should be managed).

The baseline study CSA (2005) provides quantitative information on the number of SHS, SWH, PVP and solar cookers sold annually and it provides useful data for each of Namibia's regions about water supply, number of livestock, income and expenditure and awareness. The study has also generated the information needed to quantify the baseline values of the project performance and impact indicators.

A similar study should be done at the end of Phase II to review the data and facts mentioned in the baseline study in order to quantify the indicators given in the annual project reports (APR-PIR) for the evaluation of the results and impacts of NAMREP. The APR-PIR actually requires such quantification of the project performance indicators on an annual basis to monitor progress.. A small survey or study should be organised every year to verify these indicators in qualitative and quantitative terms.

Box A. NAMREP Mid-term Evaluation: Comments on Institutional/Policy outcome by the PMU:

The institutional/policy outcome essentially involves two things: GRN policies in support of RETs, and implementation of RETs Projects by institutions.

On this outcome we adopted a gradual and cautious approach for achieving the best positive results. At the time of NAMREP inception, Renewable Energy was a marginal issue both for GRN and institutions. There was little receptivity for policy dialogues. A hurried approach of directly involving into policy issues in the early stages of the NAMREP project would most likely have back-fired. Therefore we thought it prudent to engage in the following tasks before beginning policy dialogues:

1. Systematic sensitization of the GRN and institutional officials through workshops, formal/informal meetings, presentations and awareness campaigns on the need and importance of RE issues.
2. Introducing policy statements in the speeches of GRN officials so as to test and increase their receptivity to the particular policy changes.
3. Conducting studies (e.g. Solar Water Heater study, UNAM boiler study) so as to get hard facts before arriving at decisions on some of the policies.

The result of all this approach is that there is far more receptivity, willingness and desire for engagement in policy dialogue from GRN now than ever before. I feel that acceptability and involvement of GRN in our policy related consultancies, which is there now, would not have been possible if they were initiated a year ago before the above 1-3 groundwork. Indeed, just an hour ago, following a presentation to the MME Hon Minister and Deputy Minister, we have been asked to prepare a cabinet memorandum for Solar Water Heater.

On the institutional Projects, following our study and presentation to UNAM on 30 November 2005, UNAM has decided to go ahead with changing its heavy-fuel oil based boiler system to Solar Water Heating System and has already invited tender for this purpose. This is surely a positive step towards an institution implementing a project in RE.

2.3 Implementation: assessment of the evaluation team

2.3.1 Project relevance and country drivenness

(Item V, issue 3.6 in the Terms of Reference)

Of Namibia's 2,855 rural settlements, about 2,400 are non-electrified. Some 131 settlements are designated as definitely off-grid by the Master Plan, meaning that some 27,000 households will not have access to the national grid for at least 20 years. The restructuring of the electricity supply industry driven by the Ministry of Mines and Energy and other stakeholders has in its approach to improve efficiency in services delivery and to encourage investment in the sector.

Namibia depends on power imports to meet its demand and about 50% of electric energy is imported from South Africa. Currently, power is imported from South Africa at around N$ 0.15/kWh. However, South Africa finds itself under heavy pressure from its own power demand, and the price of imported electricity in Namibia may double in the near future. Given the country's looming power generation deficit, the Government acknowledges the importance of development of indigenously available sources of energy, which is mainly renewable forms of energy, such as large hydro, wind power, solar energy, biomass and biodegradable waste.

2.3.2 Project conceptualisation and design

(Item V, issue 3.6 in the Terms of Reference)

With respect to the project design, the evaluation team has the following comments:

- *Whether the objectives and outputs of the project were stated explicitly and precisely in verifiable terms with observable success indicators and whether the relationship between objectives, outputs and activities are logically articulated*

  The objectives, outputs and activities are indicated in the original project document with success indicators and risk assumptions, based on the analysis of barriers, given in the same document. We noted, however, that, the list of outputs and activities has changed on two occasions in the early stage of NAMREP. At the Project Inception Workshop (July 2004), the list of outcomes, activities and indicators was revised into an updated logical framework. The Strategic Planning Matrix (annual work plan of NAMREP) still uses thus overall logical framework of outcomes and indicators, although with an updated list of activities. The evaluation team believes, by the way, that this is a more realistic list of activities for Phase 1 and has followed the structure of the annual work plans to describe the project's results in section 2.1.

  On the list of indicators (as given in the Project Inception Report, annual work plans and APR-PIRs), the evaluation team does cast some doubt on the usefulness of some of these indicators and how they can be verified, as detailed in the table 8 below. We recognise however that there is no scientific or objective way to define indicators.

Table 8 Comments of evaluation team on NAMREP's performance indicators

Indicator	Comment by evaluation team
Project objective	
1. Consumption of kerosene used for lighting is reduced by 80% in households using PV	This indicator only measures the impact of the use of SHS. Additional indicators are needed to measure the impact of PVP (reduction in diesel consumption) and of SWH (reduction in electricity consumption). Then the amount of CO_2 reduced or avoided can be calculated
2. Total annual number of RETs increases	Note: similar indicators are also used in the APR-PIR as impact indicators
3. Cost of equipment for end-users reduced	
Outcome 1 (Capacity building)	
1. At least 50 personnel from GRN, NGOs and technicians are trained	OK, but is there any rationale for the number of 50 or was this related to the number of workshops planned?
2. A RET Master Plan is developed	This activity should actually be under component 2.
3. Increase in RET suppliers outside Windhoek	This is a confusing indicator. Main suppliers will always have their office in the capital. One issue is whether some suppliers are willing to open branches or have representatives in other cities and a second issue is whether rural-based solar technicians (possibly the ones trained under indicator 1.1) have expanded into small RE businesses
4. PMU staff established and functioning	OK
Outcome 2 (Institutional barriers)	
1. Ministries have introduced at least two new policy measures	This is more an impact indicator than an output indicator, since it is not NAMREP but MME that proposes policy. The activities here included drafting a RE Plan and the Off-Grid Plan should have been included here. An indicator could have been 'two plans have been formulated' or 'assessment of duties and taxies done'. They do not finish NAMREP's responsibilities. Based on these documents, NAMREP needs to initiate dialogues with policy makers and do all what it can to end up with policy measures. Of course, NAMREP may not still succeed in it as ultimately it is in the hands of the policy makers.
2. Utilities and institutions finance / implement at least two new projects in RETs	This indicator is not so clearly defined. What are 'projects' in this case? . For example, NAMREP has motivated UNAM and if it goes ahead to replace its boiler system with SWHs, that will be one institutional project? Would similarly a guideline by NHE to put SWH count? Another indicator could refer to developing an inter-ministerial coordination structure.
Outcome 3 (Public awareness and social acceptability	
1. At least 3,000 are reached through dissemination campaign and 300 through workshops and meetings	This indicator was added in the Project Inception report. This is excellent, but how were the figures of 300 and 3000 defined? Should the end-of-project target values (given in the APR-PIRs) not be higher than the mid-term values?
2. Number of customers enquiring about PV and SWH from local dealer shops increased by 20%	This is a confusing indicator; first PVP should be included as well. The number of 22 is apparently based on the study CSA (2005), page 39, including PVP. Still, it is not very clear what 'enquiring' means.
3. By the end of 2005, one active/network association in place	OK
Outcome 4 (Financial barriers)	
1. At least one new strategy/policy to reduce cost of RETs is in place	Is this a government strategy…. Should the activity that not be listed under outcome 2?
2. At least one effective financing scheme is available	OK.
Outcome 5 (Technical barriers)	
1. REEE Institute established and capacitated	OK, but does this activity 'technical' or does it more refer to institution building (component 2)?
2. At least one vocational centre is capacitated	OK, although we believe that the whole activity is actually more of capacity building
	One output refers to formulation of codes and practices and standards, but there is no corresponding indicator

- *Whether the problem that the project addressed is clearly identified and the approach soundly conceived*

  The NAMREP project has been designed to target the issue of climate change through non-CO_2 emitting solar energy technologies and the development issue of off-grid electrification, while the issue of off-grid electrification has assumed higher prominence in recent years. The project has recognized at the outset that in order to achieve these larger goals, it was not sufficient to implement just technical solutions but also look at 'soft' issues like capacity building, national RE strategy formulation, institutional strengthening and financial issues to ensure long-term sustainability.

  In the PDF B phase an extensive analysis was made of the technical, policy-institutional, financial and public awareness and acceptability barriers. The original project document lists an impressive number of barriers that are categorised in capacity, informational, technical, institutional and financial barriers. The project document (and the subsequent project inception report) lists activities following the same categorisation, i.e. the *technical, capacity-building, financial and institutional components* with activities that remove barriers for the introduction of the three solar energy technologies.

  While this approach follows a logical sequence, it glosses over the fact that barriers (and thus the barrier removal activities) are inter-related and that barrier may be different for different group of end-users. Rather than looking at barriers in a *technology-oriented way*, another approach could have been to look at the issues and options in the various *product-market clusters*.

  The evaluation team distinguishes two main product-market clusters:
  - Market of urban households, public and private buildings and commercial farmers that are connected to the national power grid. Here the issue is substitution of an already existing energy services (electric geysers and diesel-powered water pumps) with sustainable energy options (solar water heaters and solar PV pumps). Here, the building owner and commercial farmers needs to be convinced that SWHs and PVPs are cost-effective technologies and, where the initial investment cost is a barrier, needs to be helped with a commercial loan facility
  - Market of rural households, services and enterprises that will not be connected to the grid in the foreseeable future. Here the issue is provision of new modern energy services with renewables, replacing existing low-quality services (e.g. kerosene lighting) or avoiding the future use of expensive conventional options (e.g. diesel pumps). The target group in general cannot easily afford the initial investment in the (renewable) energy technology.

  Each market has different needs in terms of capacity building and financial support and requires different approaches by the government and other institutions involved. One difference between the market-product groups is that in the 'urban/commercial' market-cluster, the 'distance' between the urban-based supplier and urban or peri-urban end-user is relatively small. In the 'rural' market-cluster, the distance between supplier and end-user is large, not only in geographical (distance) but also in cultural and income terms. Suppliers currently do not reach this market. In developing this product-market cluster, a supply chain needs to be set up, in which rural technicians/RE entrepreneurs play an important intermediary role between the suppliers, mostly based in Windhoek and the end-users in the remote rural areas.

NAMREP focuses very much on the supply side and does recognise the importance of solar technicians by providing capacity building and supporting the establishment of credit lines. But is focuses less on the demand side. Awareness building and setting credit lines for personal loans for rural people may not be enough. The target group in the 'rural' cluster general cannot easily afford any of the modern energy technologies (neither cash nor conventional loan schemes) nor will the SETs 'save money' in comparison with the baseline situation, except in cases where the SET generates income, such as the use of PV in agriculture (e.g. productivity increases by solar-powered irrigation) or small rural enterprises (cottage industries, small shops, *shebeens*). In other words, not only the barriers for the SETs need to be removed, but also the barriers for the demand for modern energy services and of rural development in general. This requires a detailed analysis of the energy and development needs in off-grid areas first and a definition of the possible social and productive uses of SETs in the rural areas. Once such analysis is made, it can be decided which financial and other development support instruments are appropriate.

- *Whether the stakeholders and beneficiaries are clearly identified*

  The NAMREP project aims at building local capacities and raise awareness on RETs among the end users, private sector (RE suppliers and financing institutions) and decision makers in government (MME, other GRN institutions dealing with RETs, utilities, ECB). NAMREP is expected to benefit a large number of local entrepreneurs through development of a small RE industry. These direct and indirect beneficiaries of the project were clearly identified in the project document and again in the project inception report. (A list of stakeholders is given in paragraph 2.3.4).

- *Whether the project started with a well-prepared work plan and the work plan was subsequently revised in a timely manner in the light of actual implementation of the project*

  Based on the project activities plan (as mentioned in the Project Inception Report), a detailed Strategic Planning Matrix (work plan) was drawn up for 2005 with activities split up into budgeted sub-activities. A similar work plan has now been formulated for 2006. *T*he evaluation team believes that these work plans have been well-prepared with sufficient detail on activities and the required inputs per activity.

2.3.3 Financial planning and delivery of counterpart inputs

(Item V, issues 3.2 and 3.3 of the Terms of Reference)

Table 9 provides an overview of the budget allocation per budget line as given in the work plan of the Project Inception Report and actual spending in the period July 2004 – December 2005. We note that, by the end of December 2005, about half of the Phase I project funds had been spent with one year to go. There has been slight under-spending therefore in the period July 2004 – December 2005. Reasons are that: (a) activities only really got started towards in the latter half of 2004, (b) joint activities with REEECAP were postponed due to the delays in REEECAP and (c) some activities planned for 2006, such as the Off-Grid Master Plan and some other consultancy studies, are more expensive than similar activities carried out in 2004/2005. Also some concern was expressed in the earlier PSC minutes of meetings that more activities should be initiated by the PMU and not necessarily be implemented by PMU staff members themselves but by way of outsourcing to consultancy and subcontracts. This latter approach, of which the PMU has taken course, has expedited the

Table 9 Planned budget of NAMREP Phase 1 and actual expenditures

Budget (Project Inception Report) in USD

	TOTAL	*Management*	*Comp. 1*	*Comp. 2*	*Comp. 3*	*Comp. 4*	*Comp. 5*	*Comp 6*
Staff, consultants and travel	1,295,000	660,000	120,000	110,000	185,000	165,000	30,000	25,000
Subcontracts	379,000		65,000	55,000	115,000	104,000	10,000	30,000
Grants	140,000		40,000	10,000		70,000	20,000	
Equipment and supplies	374,000	125,000	30,000	20,000	129,000	5,000	15,000	50,000
Miscellaneous	412,000	95,000	50,000	20,000	146,000	71,000	30,000	-
TOTAL	*2,600,000*	*880,000*	*305,000*	*215,000*	*575,000*	*415,000*	*105,000*	*105,000*

Amounts spent (government disbursement) 01/07/2004 - 31/12/2005 in USD

	TOTAL	*Management*	*Comp. 1*	*Comp. 2*	*Comp. 3*	*Comp. 4*	*Comp. 5*	*Comp 6*
Staff, consultants and travel	387,059	189,512	119,383	42,467	16,603	12,382	6,712	
Subcontracts	221,703	4,334	81,200	52,437	44,170	39,175	386	
Grants	11,170		11,170					
Equipment and supplies	53,191	29,529	11,842	9,794	101			1,925
Miscellaneous	148,427	42,130	37,727	14,079	41,702	222	12,567	
TOTAL	*821,551*	*265,506*	*261,322*	*118,777*	*102,576*	*51,779*	*19,664*	*1,925*

Amounts spent (UNDP disbursement) 01/01/2004 - 31/12/2005 in USD

	TOTAL	*Management*	*Comp. 1*	*Comp. 2*	*Comp. 3*	*Comp. 4*	*Comp. 5*	*Comp 6*
Staff, consultants and travel	300,517	300,517						
Subcontracts	5,569	5,569						
Grants	-							
Equipment and supplies	36,112	36,112						
Miscellaneous	2,288	2,288						
TOTAL	*344,486*	*344,486*						

Budget data are taken form the Inception Report's work plan, in which activity 1.6 of Component 1 is separately listed as 'PMU'

Amounts spent (government disbursement) are collected from the quartely Financial Reports and converted from Namibian into US dollars using the following exchange rates:

2004/04	0.16841
2005/01	0.17029
2005/02	0.15670
2005/03	0.15432
2005/04	0.15265

Planned budget for 2006

	TOTAL	*Management*	*Comp. 1*	*Comp. 2*	*Comp. 3*	*Comp. 4*	*Comp. 5*	*Comp 6*
Staff, consultants and travel	366,500	311,500	25,000		15,000		15,000	
Subcontracts	562,500	5,000	215,000	75,000	142,500	45,000	80,000	
Grants	322,500			20,000	2,500	300,000		
Equipment and supplies	63,500	30,500	7,000		25,000	1,000		
Miscellaneous	90,000	49,000	7,000		34,000			
TOTAL	*1,405,000*	*396,000*	*254,000*	*95,000*	*219,000*	*346,000*	*95,000*	-

Difference spent budget (2004-2006) and original budget

	TOTAL	*Management*	*Comp. 1*	*Comp. 2*	*Comp. 3*	*Comp. 4*	*Comp. 5*	*Comp 6*
Staff, consultants and travel	240,924	- 141,529	- 24,383	67,533	153,397	152,618	8,288	25,000
Subcontracts	- 410,772	- 14,903	- 231,200	- 72,437	- 71,670	19,825	- 70,386	30,000
Grants	- 193,670	-	28,830	- 10,000	- 2,500	- 230,000	20,000	-
Equipment and supplies	221,197	28,859	11,158	10,206	103,899	4,000	15,000	48,075
Miscellaneous	171,285	1,582	5,273	5,921	70,298	70,778	17,433	-
TOTAL	*28,963*	*- 125,992*	*- 210,322*	*1,223*	*253,424*	*17,221*	*- 9,664*	*103,075*

completion and implementation of Phase I, resulting in higher expenditures in the latter half of 2005 and in 2006. In fact, of the remaining budget for 2006, the amount of US$ 800,000 has already been committed in subcontracts.

With the planned budget for 2006 added to the expenditures during 2004-2005, most of the Phase I budget will therefore be spent by the end of 2006, as is indicated in table 9.

Of the US$ 3,010,000 of co-financing in Phase I, the following amounts will be spent during 2004-2006 (according to data provided by the PMU):

- Government co-financing: N$ 13.35 million, equivalent to US$ 2.172 million at the January 2006 exchange rate of 1 N$ = US$ 0.16267 (out of the US$ 990,000 figure given in the project document for Phase I):
  - Off-grid electrification support through the SRF: 80% (N$ 1.6 million balance in 2005 plus N$ 1.6 million contribution in 2006)
  - Renewable energy promotional activities: 4% (N$ 0.5 million)
  - Contribution to the REEE Institute: 7% (N$ 1 million)
  - Funding of the MME Renewable Energy Unit: 5% (N$ 0.7 million)
  - In-kind support (seconded staff, office space and support services): 4% (N$ 0.55 million)
- DANIDA co-financing: only the DKK 6 million, associated with the Gobabeb project, equivalent to US$ 0.97 million at the January 2006 exchange rate, has been spent up to January 2006 (out of the DKK 16 million mentioned in the project document as Danish co-financing) [15]. The REEECAP co-funding (DKK 10 million) has got delayed up to now (as is explained in section 2.1.6).

Despite the delay in REEECAP disbursement, the co-financing amount of US$ 3.14 million had actually been spent or committed at the end of 2005, more or less equivalent to the amount of US$ 3.11 million that is mentioned in the project document as Phase I co-financing.

The evaluation team is pleased to notice that most of the co-financing of the combined DANIDA-MME co-financing has actually been forthcoming both in terms of cash (especially through the SRF funds) and in-kind contribution. Assuming that REEECAP initiates in 2006, co-financing will then actually exceed the value given in the original project document.

2.3.4 Implementation approach

(Item V, issues 3.1, 3.4 and 3.5 of the Terms of Reference)

In terms of the project's performance we try to answer the following questions:

- *Whether project activities were properly monitored and success indicators used*

The progress in activities and the project's achievements are regularly reported and well-documented in the minutes of meetings of the PSC and in the quarterly progress and financial reports. The Annual Project Report (APR-PIR), drafted every year in July, discusses the project's achievements by following the logical framework of the project, as presented the annual work plans (Strategic Planning Matrix) for 2005 and 2006. As explained in section 2.2, the indicators of the project's performance and impacts have only been assessed qualitatively or not at all, which makes monitoring of the indicators difficult.

- *The role of project implementing organizations in backstopping the project*

Dedicated core staff (PMU) is facilitating the implementation of the activities. From the frequent regular meetings of the PSC and the production of quarterly progress and financial

[15] In 2002, DKK 16 million was equivalent to US$ 2.12 million, as mentioned in the project document, but due to exchange rate differences, would be equivalent to

reports, it can be concluded the monitoring of project performance and backstopping for the project by both UNDP and MME has been adequate.

- *Whether management arrangements were appropriate and effective partnerships with stakeholders were established (project's collaboration with stakeholders; partnership strategy)*

On overview of the institutional set-up and arrangements is given in paragraph 1.4. The project does not have a stakeholders' advisory committee, as is sometimes formed in other GEF projects. In practice, the opinion of stakeholders has been taken into account in the design stage, such as the Project Inception Workshop (July 2005) and the Strategic Planning workshop (Febr. 2005). Also, interaction with the stakeholders have taken place and at the various training, advocacy and awareness seminars. Nonetheless, the evaluation feels that such an advisory committee could be useful, especially now NAMREP shifts from a capacity building to an implementation phase.

NAMREP tries to establish effective partnership arrangements for implementation of PV, SWS and PVP technologies with RE entrepreneurs and technicians, financial institutions and stakeholders from the national and local government. NAMREP has encouraged the establishment of a solar energy association, called Sustainable Energy Namibian Society (SENSE). NAMREP works with the Bank of Windhoek and MME's Solar Revolving Fund on financial mechanisms and with entrepreneurs to look at reduction of investment cost in RET equipment

Table 10 List of stakeholders

Government and ministries: • Ministry of Mines and Energy (MME) • Ministry of Environment and Tourism • National Planning Council (NPC) • Ministry of Finance • Ministry of Agriculture, Water and Rural Development (MAWD) • Ministry of Trade and Industry • Ministry of Higher Education, Training and Employment (MHETEC) • Ministry of Works, Transport and Communications • Ministry of Women Affairs and Child Welfare (MWACW) • Solar Revolving Fund (managed by Konga Investments) • Regional Councils *Private sector:* • Private housing developers • RE suppliers (e.g., Solar Age, Soltec, NEC, Terrasol) • Solar technicians (a list of technicians is available from NAMREP and in the CSA (2005 publication) • Consultants (CSA, EmCon, Craddle) • Namibian breweries	*Financial institutions:* • NedBank • Bank of Windhoek • First National bank *NGOs and parastatals:* • Namibia Wildlife Resorts • NamWater • Telecom Namibia • Habitat Research and Development Centre (HRDC) • Agribank • Electricity Control Board (ECB) • NamPower • Regional electricity distributors (REDs) • National Housing Enterprise (NHE) *Capacity building organizations:* • Polytechnic of Namibia • University of Namibia (UNAM) • Windhoek Vocational Training Centre *End-u*sers (households, building owners, communal farmers, commercial farmers) *Donors:* • UNDP • Denmark, Finland

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

(*Item VI, issue 1 in the Terms of Reference*)

The following summarises the findings of the evaluation. Each of the points discussed below has been dealt with in more detail in the previous chapter 2.

3.1.1 Project execution

On project execution, we ask: "Has the project been well implemented?"

Up to the December 2005, the following summarises what has been achieved so far in each of the components and the outlook for 2006.

Component 1 (Capacity building): By February 2006, the target mid-term values of some indicators had already been met. About 100 people have been trained in four workshops (see indicator 1.1 in the tables 2 and 7) and more technical, advocacy and entrepreneurial training workshops are planned for 2006. Most main SET suppliers/importers are based in Windhoek, but some 5-6 smaller companies that supply one or more SETs are based outside Windhoek (indicator 1.3). The PMU and the Resource Centre have been established and they are functioning (indicator 1.4). The formulation of the Off-Grid RE Master Plan (indicator 1.2) was pending, awaiting the revival of REEECAP as this activity was planned as a joint effort, but is planned for 2006. The evaluation team believes that this activity should actually be grouped under component 2, because planning is more of a policy-institutional issue than a capacity building exercise.

Component 2 (Institutional barrier removal): This component has picked up slowly over 2004-2005 and the main activities are pending, but are planned to be implemented in 2006. This includes the Strategic Action Plan (under discussion with MME) as well as other policy-regulatory issues (with ECB and MME) and convincing other ministries and public institutions to include 'RE' in their budgeting in a coordinated way. This implies that both indicators (table 3 and table 7) have not been met yet.

Component 3 (Public awareness and social accepatability): Some activities have advanced very well; for example, up to the end of 2005, the regional workshops, aimed at local awareness-raising, have had a total attendance of some 300 people (indicator 3.1; see tables 4 and 7). These workshops, aimed at local decision-makers, will continue in 2006 in the other 5 regions not covered yet and be supplemented by campaigns to promote specific technologies (solar water heaters, solar PV pumping) and general awareness raising by talks and demonstrations of solar equipment at trade fairs, seminars and rural schools and clinics. In total, an estimated 4,000 stakeholders have been reached, thus exceeding the target value of indicator 3.1. The target indicator 3.2 will be met in 2006 with the formal establishment of the Sustainable Energy Namibian Society (SENSE).

Component 4 (Financial barrier removal): In the financial issues component, the Solar Revolving Fund is picking up and is expected to sell much more than at any time since the Fund was set up in 1996 (see paragraph 2.3 for more details). The Bank Windhoek is one private institution that has signed an agreement on setting up financial schemes for small

entrepreneurs and solar system users. Thus, the performance on indicator 4.2 (see tables 5 and 7) has exceeded expectations; the activities associated with indicator 4.1 (cost reduction options) are still pending.

Component 5 (Technical barrier removal): A MoU with one vocational institute, WVTC on curriculum development has been signed (meeting the target value of indicator 5.2', see tables 6 and 7) and talks with other institutes are going on. Regarding the support to REEE Institute (indicator 5.1), this activity has been pending in view of the delay in the Danish-funded REEECAP project. The status on REEECAP is that the project will be implemented by the Polytechnic of Namibia in 2006-2007, which will host the REEE Institute, although the issue is not fully resolved yet at this moment.

The component 6 (Demonstration and implementation) was postponed at the Project Inception Workshop for Phase II. There was misconception about the word "demonstration" in the early stage, interpreted as meaning 'buying equipment and putting them up' (for demonstration) for which purpose GEF funds cannot be used. Another interpretation by PMU is testing and refining the project activities as well as the design of delivery and maintenance modalities.

The evaluation team sees a clear overlap of the components 5 and 6 with the other components and suggest that, in Phase 2, the activities can be merged with the other components.

In giving a verdict on the project's performance, we have to take external factors and risks into account that have affected the implementation so far:

- *Continuous government support to renewable energy*
  On one hand, MME has shown support of the NAMREP project and in renewables in general as evidenced by its financial contributions to the SRF, the REEE Institute and the NAMREP project. On the other hand, there are indications that giving importance to renewable energy will be part of a process that will take longer than NAMREP's execution timeframe. First, the REEE Institute is still not functioning, while it is uncertain in how far the Government is willing to take NAMREP-supported outputs, such as the Off-Grid and RE Action Plans, as instruments to implement policies that favour RE and create a level-playing field for off-grid/RE in terms of budget allocation. Second, it has not really been tested yet in how far (non-energy) government ministries and institutions are willing to consider the economic (and environmental) benefits in using RETs in their planning.
- *Support by private sector and financial sector*
  Here it is very encouraging to see the willingness of financing institutions (Bank Windhoek and other) to set up new RET schemes and the willingness of private sector and institutional stakeholders (as evidenced by their continuing participation in NAMREP's capacity building and awareness creation activities).

Regarding NAMREP's performance our conclusion is that the project has performed highly satisfactorily in capacity building and awareness creation as well as in financial barrier removal, but marginally satisfactorily in the policy-institutional barrier removal activities (although due to factors outside the scope of direct influence of NAMREPs' PMU, such as the delay in establishing the REEE Institute)

The evaluation teams wants to emphasize that at the moment of evaluation about 60% of the Phase I activities have been implemented with most activities related to policy-institutional issues are planned for 2006. The project had a slow start in 2004, but picked up pace in 2005. If this dynamism continues in 2006, the evaluation team believes strongly that the

Phase I of the project will have performed more than satisfactorily. Therefore, NAMREP should be continued in a follow-up Phase II with a clear focus on implementation of financing and technology delivery and maintenance modalities.

3.1.2 Project design

On project design, we ask: "Has the project been appropriately designed for the perceived needs?"

As such, the conceptualisation of the programme as captured in the project document proves to be appropriate. The basic design of outputs and activities still holds, although the original list of outputs and activities has undergone a series of some modifications (project document, project initiation document, annual strategic planning matrix) and the structure of the budget has changed accordingly. Here we ask, on a critical note, if the activities to address the barriers should not have been more rationally defined in the original project document. On a positive note, that the project management (PMU) has acted well early 2005 by producing a more-to-the-point list of outputs and activities in form of the 2005 Strategic Project Planning matrix in consultation with the main stakeholders, an example of adaptive management.

Nonetheless, we notice that the project has been designed following a technology-oriented approach (removing barriers to SWH, PVP and SHS) that may gloss over the fact that there are two distinct market-cluster groups. A first group consists of urban households and building owners that mostly can afford SWH and commercial farmers that can afford PVP; employing these technologies actually saves them money under certain conditions in comparison with the conventional technologies (geyser, diesel pump). The second group consists of poorer farming households and small rural businesses that have do not access to electricity or modern energy carriers. This market group cannot easily afford the initial investment in any modern energy technology and the market for energy *services*, i.e. social and income-generating productive uses, needs to be encouraged simultaneously.

3.1.3 Project impacts

On project sustainability, we ask "how effective is the project contributing to market transformation?"

At the moment of carrying out this mid-tern evaluation, NAMREP has been under implementation for 1.5-2 years only with still 3-3.5 years to go. It is not possible therefore to judge and have a final say about the impact of the project on the transformation of the market for solar energy in Namibia.

We do note some encouraging trends however regarding project impacts under Phase I:

- *Expansion of business and technical support services*
  Through various workshops, solar technicians and upcoming RE entrepreneurs have been trained. Several RE small enterprises are reportedly being set up in rural areas, while trained solar technicians have become available, not only in Windhoek and other cities, but where their services are needed, that is, in the rural areas

- *Increase of financing for solar energy*
  Under new management since January 2005 and with PMU support, loan applications to MME's Solar Revolving Fund (SRF) have increased to about 300, in comparison with the

average annual number of loan applications of 80 in the period 1996-2004. Also, SRF has expanded in making loans not only for SHS, but for PVP and SWH as well. Very encouraging is the fact that a commercial bank, the Bank of Windhoek has signed an agreement with MME on setting up financial schemes for small entrepreneurs and solar system users and that other banks, such as NedBank and First National Bank, have shown interest as well.

On project replication, we ask "what is the contribution to replication and scaling up of solar RETs?"

Most solar energy technologies have their niche markets. Replicability hinges on NAMREP's ability to clearly demonstrate the financial and social benefits of solar technologies in Namibia. This implies showing that SWH is least-cost option for public and private building owners (e.g., in comparison with the conventional electric geyser alternative, SWH has a break-even point between 3.5 and 5 years). Similarly, PVP are competitive as compared with diesel pumps in low head and/or low water delivery situations. Solar cookers reduce the burdensome task of fetching wood. Given the fact that in the coming 20 years, conventional grid electricity will not be available in the many areas (let alone, the areas officially designated as off-grid), solar refrigeration may be an option for small shops wishing to sell cold drinks and solar home systems for lighting and small electric appliances.

Replication is promoted through the active dissemination of this and other RE-relevant information to a broad range of stakeholders, by means of public exhibitions, training courses, seminars, workshops and demonstration of solar equipment. In general, the local capacity built and awareness created so far by NAMREP among the stakeholders, in national and local government, private sector, NGOs and solar technicians, has already created some critical mass of constituency to support solar energy applications in Namibia.

However, the barrier of high initial cost of most solar energy technologies will mean that for most rural people, with incomes between N$ 300-4,500 per month, many solar technologies will be beyond their reach. Achieving universal access to electricity would require tremendous investment that the government simply does not have. However, MME does financially support the SRF and the new solar technology financing scheme agreed upon with the Bank of Windhoek, in the order of some N$ 2 million annually, so that small RE entrepreneurs and end-users have access to more affordable forms of finance. NAMREP has provided essential advice to MME on revising and setting up these schemes. The latest news is that in February 2006, the Finnish government pledged € 15 million for rural electrification in Namibia, of which € 2.5 million is destined for renewable energy.

The Strategic Action Plan and Off-Grid Electrification Plan, which will be elaborated with NAMREP support in 2006, should provide inputs into a future policy framework for project replicability. Here we want to caution that the elaboration of such plans is useful, but are not policy making themselves. The plans are a starting point for initiating a policy dialogue with decision-makers that should continue in Phase II. Also, we noticed that MME has limited human capacity to implement these policies and plans. Currently only a few people work in the RE Unit of the Ministry. It is important that the REEE Institute will be established (under the proper management and institutional arrangement) so that the Institute can take over the non-core functions from the MME (e.g., awareness creation and RE promotion and networking) with MME focussing on policy making.

3.2 Lessons learned and recommendations

(*Item VI, issues 2 and 3 in the Terms of Reference*)

3.2.1 Lessons learned

The progress and results of NAMREP till now reinforces some of the well-tested lessons to be learnt from experiences in promoting off-grid renewable energy, in particular solar energy technologies.

At the national level

- Capacity building projects, such as the UNDP/GEF/MME NAMREP project can make a difference in developing a market for solar energy by simultaneously lowering the technical, information and awareness, capacity, financial and policy barriers in a holistic approach. Although being only 1.5-2 years in operation, one can already notice some positive impacts of NAMREP in terms of off-grid policy development, sales of systems, availability of financial schemes and in terms of built capacity.

- In promoting solar energy, it is not important only to involve the usual energy sector stakeholders, but also stakeholders from related sectors that will apply the solar energy service in social, productive and household applications, such as stakeholders from rural development, agriculture, finance, infrastructural works, water, telecommunications and education sectors.

At the project level

- It is important to consult widely with a broad range of stakeholders from national government, local government, parastatals, RET suppliers, solar technicians, financial intermediaries and, last but not least, the end-users of the solar energy technologies both in the design stage of a project as well as during its implementation.

- When promoting transformation of rural markets, it is not only important to remove barriers for (renewable) energy technology (supply side), but to simultaneously remove barriers to the social and productive uses of energy (demand side).

- Internal political and legal aspects do play a role in project design. The start of the envisaged partner project of NAMREP, REEECAP, has now been delayed with 1.5 years. It is important to design appropriate institutional mechanisms to ensure that technical assistance projects get implemented.

- Realistic planning should be ensured to ensure the effective and timely implementation of the project, including a well-though-out logical framework of objectives, expected outputs and activities, a plan for monitoring and evaluation of the project's outputs and impacts and budget and timeline.

3.2.2 Recommendations for NAMREP – Phase I

Based on the review of the NAMREP project document and the discussions with some of the stakeholders, the following recommendations are put forward for Phase II of NAMREP for consideration of MME and UNDP.

Project duration

It may be necessary to extend Phase I up to the end of December 2006, to allow all activities planned for Phase I to be carried out fully and also to ensure that there will be no gap in time between the formal end of Phase I and initiation of Phase 2 should there be some delay in the latter's approval.

Activities in Phase I

The following activities should be included in 2006 in Phase I (as a preparation for Phase II):

- Survey on the market for SHS and other SETs in rural areas, looking into issues such as (a) opinion of rural persons regarding SETs (distinguishing between people that have and have not SETs), e.g. awareness, willingness/ability to pay, maintenance service and reliability, (b) identifying uses of energy (individual, social infrastructure and productive uses), (c) costs and benefits of SHS and PV, in particular their potential for income generation, (d) local entrepreneurial capacity and (e) establish costs and benefits of SETs for social and productive applications in rural areas.
- Study of international experiences with the financing and technology delivery models (in particular in the southern and eastern African region and of outcomes in other GEF-supported projects) and analysis of what modalities could work in Namibia for developing the market in rural areas for SETs and for strengthening the supplier – local technician/small entrepreneur – end user chain.
- In addition, some small study should be performed annually as a preparation for the APR-PIR project report to estimate values of the project's performance and impact indicators, using the verifiers as given in the logical framework (survey reports, reports from private and public organisations, reports from ministries and NAMREP's own technical reports and studies).

3.2.3 Recommendations for NAMREP – Phase II

Co-financing

It is essential that the REEECAP project be revived as soon as possible. Given the fact that REEECAP forms an important part in the project's official co-financing that has not been forthcoming up to now, the evaluation team was informed that GEF approval of Phase II of NAMREP would not be likely without REEECAP actually functioning. Even in the worst case scenario with a cancelled REEECAP, the evaluation team likes to make a case for continuing GEF support in Phase II, because (a) cash co-financing has been forthcoming well (even without the REEECAP part), (b) it is important not to loose the momentum created by the enhanced awareness and strengthened and expanded public and private financing schemes.

Institutional arrangements

NAMREP and REEECAP should liaise closely:

- One way to harmonise the implementation of overlapping activities is to have some NAMREP PMU staff working part-time in the REEE Institute and vice versa, or, at least, to have the Project Directors and/or project managers of REEECAP and NAMREP sit in each other's Project Steering Committee

- Another strategy to ensure cooperation between two projects and to ensure stakeholder involvement in the projects' execution is the establishment of an Advisory Committee for both projects with participation of key stakeholders, including other relevant line ministries (MAWRD, education, health, police) and the National Planning Commission, as well as representatives from private sector and NGOs.

Project activities in Phase II

With Phase I preparing the ground for strengthening of technical, institutional, policy-making and entrepreneurial capacities, Phase II of NAMREP will focus more on implementation and financing mechanisms. This implies that capacity building and awareness raising activities (components 1 and 2) will continue but with less intensity, while financing, technology delivery and maintenance modalities (components 4) would have more prominence.

Management, monitoring and evaluation

- As part of a sound monitoring and evaluation plan, a study similar to the CSA (2005) baseline study should be done at the end of Phase II to review the data and issues of the baseline study and to quantify the progress indicators as mentioned in the tables 2 to 8 (and those indicators added in the logical framework of forthcoming project document for Phase II). This should enable the evaluation of outputs and impacts of NAMREP intervention and of the progress in installation of RETs in general.
- An exit strategy should be designed for NAMREP on issues like continuation of PMU staff (within MME or REEE Institute), future of the RE Resource Centre at MME, viability and sustainability of financial and technology delivery mechanisms, ads well as of implementation of the Off-Grid Master Plan and other policy instruments.

Technical/entrepreneurial and institutional capacity building

- Continuing training activities for solar technicians and small RE entrepreneurs
- Training activities for local government (municipalities), NGO, community-based organisations, community leaders and parastatal staff
- Continuing support to the development of study materials and at vocational and training centres and support training of trainers
- Make a synopsis of donor-funded and/or RE-related courses and educational opportunities abroad.

Policy and institutional issues

- Ensure effective involvement of ministries and with grid suppliers (REDs), regional councils and other RET sector players and ensure a proper institutional anchoring of the RE sector (cooperation between government ministries and agencies) and of bundling rural services (water, communications, financial services, productive uses of energy)
  - Assess economic cost and benefits of RETs into the development planning processes at inter-sectoral level
  - Convince and support national institutions (Finance Ministry and other ministries) and Regional Councils in optimising their annual budget by making funds available for off-grid electrification within their budgets.
- Initiate a policy dialogue with decision-makers in order to implementing the Off-grid Master Plan and RE Strategic Action Plan (both elaborated in Phase I) and to organise the *political support* of the Government and its relevant ministries to adopt policies that promote RETs and to allocate budget to it. Examples of such measures are (a) provision of access to electricity with RETs to schools, clinics and main government institutions in off-grid areas, (b) making SWH compulsory for new public building that consume hot water, (c) setting RET and/or off-grid targets in national power supply, (d) definition of

incentives for off-grid RETs, (e) setting up of 'energy desks' in the relevant ministries, (f) integrating PVP in MAWRD's agricultural development programmes.

- Support the formulation of legal-regulatory framework for off-grid (quality of service, minimum standards, codes of practice; for exclusive off-grid provision, licensing and service contracts) with the ECB as regulator, or alternatively, self-regulation by the SE sector (in a participatory approach with RET suppliers, SENSE, ECB and REEE Institute)

Public awareness and social acceptability

- Continuation of awareness campaigns (radio, TV, trade fairs) and the dissemination of information materials (not only in English but also in local languages) on SHS, solar refrigerations (for *shebeens* and rural shops), PVP, SWH (policy, life-cycle costs, availability of finance and credit) in cooperation with the REEE Institute (to be established) in 2006. Target groups are: teachers and civil servants, school children, communal farmers, commercial farmers as well as public and private building owners
- Launch an aggressive campaign to promote the availability of sources of finance for SETs, such as SRF and the new Bank of Windhoek financing schemes
- Support the functioning of the Sustainable Energy Namibian Society (SENSE) and networking with local, regional and international lending organisations.

Financial and product delivery models

- Implementation of appropriate product delivery, maintenance and ownership modalities; the most appropriate delivery modalities in Namibia seem to be individually (or communally) owned RE technology[16], delivered by suppliers and serviced by local small RE entrepreneurs and (a) paid by cash right away or (b) over time with some dealer/supplier credit, (c) with personal consumer loans, (d) micro-finance loans or (e) loans through cooperative membership organisations. Other possible delivery modality would be (1) utility-owned and/or RESCO[17]-owned systems that sell units of energy (fee-for-services) or lease (hire-purchase) equipment or (2) mini-grid systems.
- Work with SRF, Bank of Windhoek and other (financial) institutions, e.g. other commercial banks, development banks, building societies, utilities and micro-credit organizations) in the design of financial mechanisms (with GEF grant support as seed money) that fit within the[18]:
  - Rural development needs and context (financing schemes for SHS and PVP)
  - Urban context (e.g., adding an increment to house loan limits if SWH is used)
  - Needs of small RE entrepreneurs/technicians (credit and/ort guarantee schemes, so that they have working capital to acquire materials, can render a good after-sales service to their client and explore new demand for SETs in their region)
- Explore the use of government fiscal and other support instruments in combination with any of the above modalities., such as full or part-value (subsidy) grants, loan guarantee schemes (such as Bank Windhoek) and fiscal instruments (VAT, tax breaks, etc.).

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16 Being modular in nature, PV systems can be expanded incrementally and purchased over time, although quality of the systems may suffer

17 (R)ESCO: (rural) energy supply company, could be formed by a regional electricity distributor (RED), community or local authority, NGO, or private sector entity. The SRF could establish links with such RESCOs. However, this method requires certain economics-of-scale and is sometimes implemented as a concession granting exclusive rights to a region for the RESCO. However, due to Namibia's low population and low population density this approach is deemed not feasible and pilot projects (such as in Ovitoto) have not been successful.

18 Financing tools include: (a) cross-subsidy or outright off-grid subsidy by national or local government, (b) risk guarantees from the government for commercial bank credit lines, (c) guarantees for micro-finance institutions, (d) grants to micro-finance and financial institutions, (d) government-managed credit fund (such as SRF in Namibia), (e) loan subvention by reducing interest rates, (f)

ANNEX A. THE EVALUATION TEAMS' TERMS OF REFERENCE

Terms of Reference – Short Term Consultants
Mid-term Evaluation - UNDP/GEF/MME Barrier Removal to Namibian Renewable Energy Programme (NAMREP)

I. Introduction

Namibia has per capita GDP close to US$1800 and is classified as a lower middle income country. The country is large and occupies an area of 824,269 km^2. With a population of about 1.8 million, a population density of about 2.2 persons per km^2, it is a very sparsely populated country.

The state-owned national power utility NamPower is responsible for Namibia's electricity generation, imports and exports and the electricity grid. NamPower is the only bulk electricity supplier in the country. A coal fired thermal power station near Windhoek (120MW), the hydro-electric plant at Ruacana (240MW), the diesel driven Walvis Bay Platus power station (24MW) and a 200 MW grid connection to South Africa provide the main sources of electric power. However, the majority of Namibia's population has yet to experience the conveniences of modern energy services. According to the 2005 Rural Electrification Master Plan, only about one third of Namibia's overall population (67% for urban areas and 10% for rural areas) has access to electricity. Over 27,000 households fall into off-grid localities, which will not have access to the grid for at least 20 years.

Namibia has one of the most favorable solar regimes in the world and a supportive energy policy. The country has the possibility to create a small yet efficient market for renewable energy technologies. However, there are a number of barriers that impede the increased utilization of solar energy. These can be classified into five categories: capacity, institutional, financial, awareness and technical. The NAMREP project intends to remove these market barriers and implement the Namibian Ministry of Mines and Energy (MME) White Paper strategy for Renewable Energy: *"Government will promote the use of renewable energy through the establishment of an adequate institutional and planning framework, the development of human resources and public awareness and suitable financing systems. It also seeks to meet development challenges through improved access to renewable energy sources, particularly in rural electrification, rural water supply and solar housing and water heating."*

II. Background

The NAMREP Project was officially approved in April 2003 with an Agreement between the Namibian government and the UNDP. The implementation of the project formally started in February 2004 with the recruitment of the Chief Technical Advisor (CTA) and the Deputy Chief technical Advisor (DCTA). The Project will be implemented in two Phases, each of 2.5 years duration.

The total budget for the Project is USD14.36 million, with US$5.3 million as contribution from GEF. This budget includes donor funding to RE sector through other projects (e.g. DANIDA supported REEECAP and DEGREEE Projects) and GRN funding to its various RE programs. The amount available to NAMREP for its first phase operations is USD2.6 million from GEF and USD 3.1 million as cofinancing from Danida and GRN. The first phase largely concentrates on the technical assistance required to remove/reduce barriers while the second phase will accelerate market development for renewable energy technologies.

III. Objective and Components:

The **development objective** (or goal) of the project is to increase affordable access to sustainable energy services through the further development of a market for Renewable Energy Technologies (RETs) in Namibia that contribute to climate stabilization by reducing CO_2 emissions through the removal of technical, financial, social, institutional, capacity, public awareness and social acceptability barriers.

The **immediate objective** is to remove barriers to the delivery of commercially, institutionally, and technically sustainable RES including electricity production (for off-grid lighting, radio, TV, water pumping, and refrigeration), and water heating to the household, institutional, commercial, and agro-industrial sectors and to demonstrate the enabled environment through affirming demonstrations of the applications of the technologies.

The first Phase of the Project focuses on the following 5 components:

- **Component1: Capacity building -** the capacity building component will focus amongst others on the training of Private Sector (PV industry), the NGOs staff, the Government and the PMU to create technical capacity in dealing with renewable energy issues.

- **Component 2: Policy and Institutional barriers -** the primary objective of this component is to influence GRN policies so as to make them more favourable/equitable to RETs. This will be achieved through removing barriers related to budgeting, subsidies, information and other institutional barriers.

- **Component 3: Public awareness and social acceptability -** the objective here is to create awareness throughout Namibia of RETs and advantages of their use, addressing the particular needs of the stakeholders.

- **Component 4: Financial barriers -** the primary objective of this component is to reduce/overcome the financial barriers to the supply, installation, purchase and maintenance of RETs including reduction of the price and ready availability of finance for the purchase and maintenance of systems.

- **Component 5: Technical barrier -** the main objective of the reduction of technological barriers is to facilitate, support and strengthen the Renewable Energy and Energy Efficiency Institute in Namibia, which will generate/provide detailed technical information and develop and apply appropriate norms, standards and codes of practice as required by the RET industry and their market.

The second Phase will concentrate on:

- **Component 6: Demonstrations and pilots:** the objectives of the demonstration component of this Project are two fold: to test the transformed market for Renewable Energy Systems and refine project activities to successfully complete the market transformation; and tangibly/visibly raising the profile of Renewable Energy Technologies (RETs) through affirming demonstrations of their appropriate applications throughout Namibia.

IV. Project Management

The MME is the National Executing Agency and the UNDP the Implementing Agency for the Project. The project is governed by a Project Steering Committee (PSC) chaired by the Permanent Secretary of the MME. Other PSC members include UNDP, GEF, Ministry of Environment and Tourism as the GEF focal point, the CTA and the DCTA. The PSC normally meets once in three months.

A Project Management Unit (PMU) has been set up for running the day to day operations of the Project. The PMU is chaired by the National Project Director (NPD), who is the Director of Energy of the MME. The NPD serves as the project overseer and supervisor on behalf of the National Executing Agency, i.e. the MME. The CTA/project Coordinator is responsible for overall coordination, advising on and directing all technical and management activities of the Project. Other members of the PMU include a DCTA, a Project Associate, one Project Assistant (economist), a Project Assistant (technical) and an office Assistant.

V. Objective and Scope of the Mid-Term Evaluation

A Mid-term evaluation is a mandatory requirement of UNDP/GEF Projects of this magnitude. The evaluation will analyze and assess the achievements and progress made so far towards achieving the original objectives of the Project. 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 Project. While a thorough assessment of the implementation to date is important, the evaluation is expected to also result in recommendations and lessons learned to assist in defining the future direction of the Project. As part of this process the evaluation will also provide recommendations for the draft project proposal for the second Phase of the Project that will be submitted to GEF for approval.

The evaluations will in particular, assess the following **issues:**

1. Project Design – review original project intervention strategy including objectives, outcomes, outputs and activities and assess quality of design for delivery of planned outcomes. The review should also include the updated logical framework matrix which was designed during project inception.
2. Project Impact – assess achievement of the project to date against the original objectives, outcomes and activities using the indicators as defined by the project document. Of particular relevance are the indicators that have been identified during project inception. Achievements should be measured against the indicators as described in the logframe.

3. Project Implementation – assess:

    3.1 Project management arrangements, i.e., effectiveness of UNDP/GEF, UNDP Country Office, MME and the Project Management Unit.
    3.2 Quality and timeliness of delivering outputs and activities.
    3.3 Financial situation (i.e., budget and expenditure status). *We might want to make it clear that this evaluation is not a financial audit. The financial audit is a separate process. If a financial audit was done the consultants should have access to the audit report.*
    3.4 Cooperation among partners including but not limited to: GEF, UNDP, Government counterpart Ministries, PMU and private companies.
    3.5 Responsiveness of project management to adapt and implement changes in project execution based on partner and stakeholder feedback.
    3.6 Conceptualization, design, effectiveness, relevance and implementability of the draft Project Proposal for the second Phase.

VI. Outputs Expected from Evaluation

Based on the above points, the evaluation should provide a document of approximately 25-30 pages indicating what project activities, outputs/outcomes and impacts have been achieved to date, and specifically:

(1) Assess the extent of the progress which the project has made to achieve its objectives and where gaps are evident,

(2) Draw lessons from the experiences of the project, in particular, those elements that have worked well and those that have not,

(3) Provide recommendations to strengthen the effectiveness, efficiency, impact, implementation, execution and sustainability of the project, which will be a key input for the proposal for the second phase.

VII. Methodology

The evaluation will be composed of three activities:

(1) Mission(s) to Namibia for (i) consultations, (ii) telephonic/personal interviews with Government representatives, PMU, UNDP/ GEF Regional Coordinator, UNDP Country Office and other stake-holders, particularly PV and SWH companies.

(2) Designing, distribution and synthesis of questionnaires distributed to key project stakeholders including project beneficiaries (e.g. suppliers, technicians, consultants and users), representatives from government agencies, UNDP/GEF, UNDP Country Office, PMU.

(3) Review of documents, including:

- Project Document
- Project Inception Workshop Report
- Project Logframe
- Work Plan and Annual Work Plans
- NAMREP Strategic Planning Matrix.
- Annual GEF Project Implementation Review (PIR)
- Minutes of the Project Steering Committee Meetings
- Minutes of the Project Advisory Committee meetings
- Minutes of the Project Management Unit (PMU) meetings.
- Activity Reports
- NAMREP publications (Technicians Guide, Quarterly Newsletter, etc.)
- Project Expenditure and Financial Reports
- Subcontractor Reports and Deliverables
- Solar Revolving Fund Administrator Reports
- Additional relevant documents and resources

Duty Station: Windhoek *Namibia*

VIII. Evaluation Team

The evaluation will be conducted by a team of two consultants including an International and local evaluator. The international evaluator will be the team leader.

Required profile of International evaluator: Extensive knowledge and experience of global renewable energy sector and linkages with environmental, institutional, financial and capacity development issue. Well conversant with GEF procedures, policies and institutional structure. Extensive experience of working in African countries particularly in developing, implementing, monitoring and evaluating renewable energy programmes. Experience with PV programs and evaluation techniques would be an advantage.

Required profile of the local evaluator: Namibian national. Extensive knowledge of renewable energy sector in Namibia and its linkages with environmental, institutional, financial, technical, capacity development and awareness issues. In-depth knowledge of national RE stakeholders within Government, NGO community, industry, private and public sectors. Experience in programme

development, implementation, monitoring and evaluation. Experience with PV programs and evaluation techniques would be an advantage.

IX. Timing

The evaluation should start about mid November 2005 and last for a period of 20 working days. The draft report must be submitted by 27 January 2006 and the final report by 10 February 2006. The proposed schedule for the evaluation is:

Activity	No. of days
Travel to Windhoek/outside areas	4
Visits and meetings with MME, UNDP Namibia, PMU.	1
Telephone briefings with UNDP/GEF Regional Office and interviews with some outside Windhoek stake-holders.	1
Designing, distribution and receiving questionnaires from stakeholders	2
Analysis and synthesis of questionnaires	1
Desk review of relevant documents	4
Review draft project proposal for the second Phase	2
Preparation of first draft report	4
Finalization of report	1
Total	20

Closing Date for Applications: 17 October 2005.

Method of Application: Send applications with curriculum vitae and quotation, giving full details of the fees/remuneration expected and other requirements to conduct the evaluation, to the following, from whom further details such as the ToRs and the Project Document can be obtained:

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Ministry of Mines and Energy, Private Bag 13297 Windhoek, Namibia.
E-mail: lndilula@mme.gov.na
Tel: +264-61-2848170, Fax: +264-61-2848173
Cell: +264-(0)81-1244175

ANNEX B. ITINERARY OF THE EVALUATION TEAM AND CHECKLIST OF ISSUES

B.1 Mission schedule

First mission, 23-25 November 2005

23/11	• Arrival Mr. Van den Akker • Meeting with PMU staff
24/11	• Meeting with UNDP • Meeting with PMU staff
25/11	• Meeting with Electricity Control Board • Meeting with National Planning Commission • Meeting with PMU staff
28/11	• Departure of Mr. Van den Akker

Second mission, 27 January – 10 February 2006

27/01	• Arrival Mr. Van den Akker • Meeting with PMU
28-29/01	• Drafting of evaluation report
30/01	• Participation in RE Marketing and Advocacy Workshop, Windhoek
31/01	• Telephone conversation with Mr. M. Krause (UNDP-GEF regional coordinator) • Meeting with PMU staff
01/02	• Meeting with NEC (RET supplier) • Meeting with Mr. Christopher Schumann (DANIDA contact person) • Meeting with PMU staff
02-03/02	• Drafting of evaluation report
04-05/02	• Field trip to Spitzkoppe solar village
06/02	• Drafting of evaluation report • Meeting with NamPower
07/02	• Meeting with UNDP • Workshop preparation; submission draft evaluation report to PMU, UNDP, MME
08/02	• Workshop: NAMREP Mid-Term Evaluation and Project Proposal Preparation for the Second Phase, Safari Hotel, Windhoek
09/02	• Meeting with PMU • Drafting of Phase II project document
10/02	• Follow-up meeting with PMU • Departure of Mr. Van den Akker

Note: the second mission of Mr. Van den Akker to Namibia for the mid-term evaluation (27 January – 3 February) was combined with the second assignment (4-10 February) to formulate the project brief for Phase II of NAMREP.

B.2 Checklist of issues

General questions and issues on NAMREP

1) Project design

   a) Do you think the project is designed well (objectives, outputs, activities)
      - Addressing the real problems and issues?
      - Focussing on target beneficiaries
      - Have the appropriate stakeholders/institutions been assisted?

   b) Do you think the project is relevant to the development priorities of the country?

2) Project implementation and performance

   a) Do you think NAMREP has produced the planned results?

      - Training for stakeholders (government officials, technicians, entrepreneurs)
      - Promotion of RET business
      - Assist the Government (MME and other ministries) in renewable energy and off-grid policy development
      - Support institutions and organizations to implement RETs and/or adopt RET promotion schemes
      - Dissemination of info on RETs (households, communal farmers, commercial farmers, building owners)
      - Promotion of networking of stakeholders
      - Development of financial schemes
      - Assist institutes and training centres in elaboration of training materials

   b) Do you think the project has been managed well?

      - in terms of achieving outputs in relation to inputs, costs and time
      - whether the project started with a well-prepared work plan and responsiveness of management (PMU) to changes
      - collaboration with stakeholders
      - delivery of Government counterpart inputs (cash, personnel, premises)
      - backstopping of the project by MME and UNDP

3) Project impacts

   a) How effective has to the project been in:

      - Promoting business enterprise and supporting services?
      - Elaboration of commercial viability and replication potential of RETs?
      - Increase of financing availability and mechanisms on RETs and/or off-grid?

   b) What has been the NAMREP contribution to evincing interest in and understanding of RETs among stakeholders:
      - Private sector (suppliers, technicians, financiers)?
      - NGOs and parastatals?
      - Government

- End users
- Training institutes
- Other stakeholders …

c) What has been the NAMREP contribution to the development of policy and regulatory frameworks:
- MME
- Other ministries
- Government agencies

4) Any lessons learnt?

5) Recommendations on issues and activities for inclusion in the:

a) Remaining part of Phase 1 (2006)

b) Phase 1 (2006-2008)

- Capacity building and training
- Institutional and policy frameworks
- Information dissemination and awareness
- Financial mechanisms
- Technical issues
- Implementation models

General questions on RET development in Namibia

1. How you understand the development of renewable energy technology in Namibia?
2. How these contribute to economic development of the country?
3. What must be done to promote RET in Namibia more efficiently?
4. How would your organisation contribute to the RET in your area of responsibility?
5. How do you view government efforts towards RET in Namibia?
6. What would you say are the challenges facing RET in the country?
7. What groups or communities in Namibia that should be considered for renewable energy application and implementation beneficiaries?
8. Who would you say should be responsible to finance RET in Namibia?
9. What would you say RET contribution to National Development goals?
10. Education and training are vital to human resources development. What must done to incorporate RET into our education system?

B.3 List of documents collected during the mission

Consulting Services Africa (2005)
Baseline Study: NAMREP, prepared for NAMREP – Ministry of Energy and Mines

Cradle Investments and Consulting (2005)
Entrepreneurial Trainees' Guide

EmCON (2005)
UNAM Hot Water System Investigation

EmCON (2005)
Assessment of Feasibility for the Replacement of Electric Water Heaters with Solar Water Heaters

Executive Board of UNDP and UNPF (2005)
Draft Country Programme Document for Namibia (2006-2010)

Government of Namibia and UNDP (2005)
Draft Country Programme Action Plan (2006-2010)

Government of Namibia, Ministry of Energy and Mines (1998)
White Paper on Energy Policy

Ministry of Mines and Energy (2001)
Developing Implementation Guidelines for Off-Grid Policies for Sustainable Electrification in Namibia

NAMREP Project Management Unit (2004)
Project Inception Report

NAMREP Project Management Unit (2004)
Project Inception Workshop Report

NAMREP Project Management Unit
NAMREP Quarterly Review

NAMREP Project Management Unit
Project Steering Committee, Minutes of First, Second, Third, Fourth and Fifth Meeting

NAMREP Project Management Unit
"Quarterly progress and financial reports"

NAM NAMREP Project Management Unit
Strategic Planning Matrix 2005 and *2006-02-19*

Solar Revolving Fund (2005)
Administrator's Report, February – June 2005

ANNEX C. MID-TERM EVALUATION AND NAMREP SECOND PHASE PREPARATION WORKSHOP

C.1 Workshop agenda

Date: 8 February 2006
Venue: Safari Court Conference Centre, Windhoek

Programme:

Time	Subject
08.00-08.30	*Arrival and Registration*
08.30-09.00	**Opening and introduction** • Welcome address and opening remarks - MME • Introductory Remarks - UNDP • Workshop Objectives - facilitator
09.00-10.30	**Mid-Term Evaluation** Results of mid-term evaluation of NAMREP – consultants Discussion
10.30-10.45	**Coffee and tea break**
10.45-12.30	**Experiences with renewable energy programmes**
	• Experiences in Kenya/region – Mark Hankins • GEF and renewable energy programmes - Consultant • Discussion
12.30-13.45	**Lunch break**
13.45-16.00	**Project activities in Phase II** • Briefing on work methods and expected outputs - Facilitator • Working group discussions • Reporting back and Plenary discussion
16.00-16.30	**Coffee break**
16.30-17.00	**Conclusions and suggestions** • Next steps and follow-up actions - Consultant • Closing remarks

C.2 Recommendations group discussions

Capacity building

- introduce renewable energy aspect in curriculum of educational institutions
- implement curricula for qualifications in PV industry
- wider coverage of RE in school curricula
- establishment appropriate institutions
- training at all VTCs in Namibia; establish more VTCs
- build institutional capacity at local/tregional level
- identify potential trainees from all 13 regions as well as constituency levels

- regional technicians be trained and assisted by the fund
- necessary human resources and capital
- sponsor technology transfer, training and networking
- municipalities to train and have RE technicians
- source funding from donors
- stakeholders (national and local government) must contribute to revolving fund
- capacity building on financial issues
- regional internship programme and incentives linked with it
- train students of WCTV on RE
- school curriculum in
- VTC – technicians – assembly/manufacturing – business/marketing

Awareness-raising

- educate & raise awareness in Directorates within line ministries and other decision-makers on the benefits of RETs (such as SWHs in government buildings)
- demonstration of equipment
- involve regional and local governments
- organise workshops seminars/consultancies
- link gender and water point committees to RE
- identify target groups and send clear message
- more interaction with target communities (seeing = believing)
- give demonstration kits to regional councils and during farmer union days
- train beneficiary on how SET to be used
- make TV documentary on RE
- introduce annual RE day and give annual RE award to person/company
- conduct promotional campaign in different languages on radio; inform public throughout the country
- introduce income-generating communal projects
- promotion through media, meetings with rural communities
- identify group that can afford electricity, their needs and available market
- go home-to-home, advertise and demonstrate
- source funding for awareness campaigns

Policy making and planning

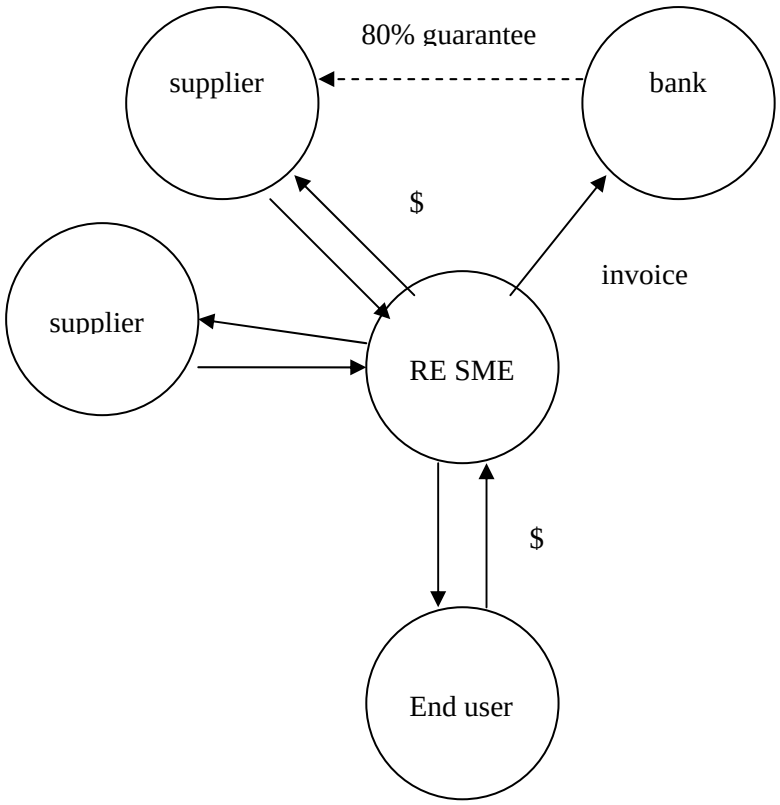
- establish RE subcommittee to strengthen National Energy Council
- establish sustainability of RE projects, programmes and policies
- establish institution to implement Kyoto
- integrated resources planning that includes RE
- regulatory frameworks for RETs
- government statement on RE as mainstream energy supply
- policy framework: RE White Paper
- have Strategic Action Plan and Off-grid master plans endorsed by cabinet
- incorporate RE into Vision 2030
- integrate RE in policies of other ministries
- establish a coordinated planning process for RE
- GRN to formulate regulations to enforce RETs in all public buildings

Technical institutional cap building

- REEE I, REEECAP, MME, NAMREP should closely cooperate
- REEE Institute should be up and running by May 2006 and not be dependent on projects only for its functioning; clarify role of REEE Ins
- RE to be compulsory part of existing curricula a educational centres (UNAM, PoN, VTCs, colleges)
-

Financing and delivery mechanisms

- Subsidise equipment (why not?....grid extension is also subsidised)
- pre-financing loan schemes
- continue current funds (SRF, BW credit lines for suppliers and for end users)
- in SRF: give 15% subsidy for people paying direct cash
- get supplier involved in credit line to strengthen supplier – SME – end user supply chain
- involve other banks/financial institutions and more financing schemes
- use donor money to subsidise equipment (as it is done in the industrialised countries)
- investigate ECB levy
- instead of bank loans set up system of (local) government bonds for investment in RET projects
- involve power sector (REDs, NamPower, ECB) into RETs
- actively attract (foreign) investment in RETs: investor's information packages, politically bankable projects



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