UNEP

United Nations Environment Programme

Terminal Evaluation of the Project "African Rural Energy Enterprise Development II" (AREED II)

by

Brahmanand Mohanty

Evaluation Office

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Acronyms and Abbreviations

AECF	African Enterprise Challenge Fund
AREED	Africa Rural Energy Enterprise Development Programme
ASEF	Africa Sustainable Energy Facility
BRS	Regional Solidarity Bank, Senegal
CEEEZ	Centre for Energy, Environment and Engineering, Zambia Ltd.
DTIE	Division of Technology, Industry and Economics
EDS	Enterprise Development Support
ENDA	Enda Tiers Monde
EU	End-user
EUF	End-users financing
FI	Financial Institutions
FM	Fund Manager
GCSCA	Ghana Cooperative Susu Collectors Association
GEF SGP	Global Environment Facility Small Grants Programme
IO	Intermediary Organization
KITE	Kumasi Institute of Technology and Environment
MBS	Malian Bank of Solidarity
MDG	Millennium Development Goals
MFC	Mali Folkcenter
MFC-NF	Mali Folkcenter - Nyetaa financing
MFI	Micro finance institution
MTS	Medium Term Strategy
NGO	Non Governmental Organization
PIR	Project Implementation Report
PM	Project Manager
PoW	Programme of Work
RET	Renewable Energy Technology
ROtI	Review of Outcome to Impact
SE	Social Enterprise
Sida	Swedish International Development Cooperation Agency
SMEs	Small and medium enterprises
SSC	South-South Cooperation
TaTEDO	Tanzania Traditional Energy Development and Environment Organisation
ToC	Theory of Change
TM	Task Manager
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

Project Identification Table

Table 1. Project Summary

UNEP PIMS ID:	**CP/4040-07-13**	IMIS number:	**CPL 5070-3640-2647**
Sub-programme	**1. Climate change**	Expected Accomplishment/	**C** [1]
		PoW Outputs	**4**[2]
Expected Start Date:	**October 2007**	UNEP approval date:	**January 2008**
Actual start date:	**2008**	Planned duration:	**36 months**
Intended completion date:	**October 2010**	Actual completion date:	**December 2012**
Planned project budget at approval	**$2,053,931**	Secured budget:	**US$2,319,157**
UNEP contribution	**US$205,000 (In-kind contribution, including UNEP contribution**	Co-financing:	**US$2,319,157**
Mid-term review/ eval. (planned date):	**None**	Terminal Evaluation (actual date):	**February – October 2014**
No. of revisions:	**5**	Date of last Revision:	**30.5.13**

[1] *'That improved technologies are deployed and obsolescent technologies phased out, financed through private and public sources including the Clean Development Mechanism'.*

[2] *New climate finance instruments are launched, and first-mover financiers, lenders and investors make investments in clean energy.*

Executive Summary

Introduction

1. The African Rural Energy Enterprise Development (AREED) programme was initiated in 2000 by UNEP in partnership with non-governmental organisations from 5 African countries with the global objective to enhance access to modern, clean and reliable energy technologies and services for income generation by rural producers in Africa.

2. AREED II was launched in 2008 to address two core challenges identified in AREED I: (a) Lack of access to financing for rural producers; and (b) Lack of technical and financial support for entrepreneurs. The project duration was 3 years, but due to slow start, delay in staff recruitment and operational difficulties, it was extended by 2 years to end in December 2012.

Evaluation findings and conclusions

3. The overall objective of the terminal evaluation was to assess the project performance, and promote learning, feedback, and knowledge sharing through results and lessons learned.

4. **Strategic relevance:** AREED II was generally relevant as it contributed to the implementation of energy sub-programme 1 (climate change) and is aligned with UNEP's medium-term strategy (2010-2013). The project has addressed two of the expected accomplishments of UNEP in relation with climate change:

   a) Improved technologies are deployed and obsolete technologies phased out, financed through private and public sources;

   b) Countries making sound policy, technology, and investment choices that lead to a reduction in greenhouse gas emissions and potential co-benefits.

5. **Achievement of Outputs:** AREED II had 4 components with specific outputs. The Output 1 (Enterprise development services coupled with risk guarantee funding accessible to entrepreneurs seeking to start up or expand rural energy initiatives) was achieved partially because of the delay in launching Enterprise Development Support (EDS) activities. Workshops were organized for about 800 entrepreneurs, followed by hands-on EDS provided to more than 50 enterprises from 5 countries. More than 30 promising business models were identified. At least 15 proposals from 3 countries (Ghana, Mali and Senegal) sought financing, and loans were extended to 8 enterprises only against a target of 20.

6. The Output 2 (Existing MFIs direct part of their resources to an end-user credit facility that can be accessed by rural people for energy products and services) was successfully implemented. Extensive support was provided by UNEP to MFIs and altogether 44 end-user groups were financed in the 5 countries (11 in Ghana, 23 in Mali, 5 in Senegal, 2 in Tanzania, and 3 in Zambia).

7. The Output 3 (Local and national government agencies develop and implement policy instruments and strengthen institutions supporting enterprise-led provision of energy services in rural areas) was not achieved satisfactorily because of the limited activities of the project in this regard, resulting in insignificant changes in the overall enabling environment.

8. The Output 4 (Stakeholders understand and support replication of the AREED II approach in other areas within and beyond the target countries) has been implemented quite satisfactorily. AREED II experiences were shared with local and national governments and in several high-level policy dialogues. Articles were published for national and international audiences; entrepreneurs and their projects were presented at international meetings.

9. **Effectiveness:** The project objectives and expected results were achieved quite satisfactorily, at varying degree of success in the different countries. Seeds of change are already leading to some concrete results. However, there are challenges to be addressed prior to scaling up the AREED model. Some of the Intermediary Organisations (IOs) have benefitted from the AREED II activities. Provided with adequate resources as well as government policy support, there is likely to be an upscale of activities in the enterprise development arena.

10. **Sustainability:** The AREED scheme has garnered considerable support from various stakeholders. The AREED programme can in principle result in wide scale use of affordable and clean energy technologies, contributing to reduce greenhouse gas emissions. The EUF and EDS activities can potentially have positive impact on the rural poor, however there are a few factors that may adversely affect the sustainability of the initiative. The project has not been able to undertake sufficient policy support initiatives at the government level to ensure favourable business regulatory environment. In the absence of any public or private support, and with the limitation in funding from the banks and FIs, the financial sustainability of the AREED initiative will be a challenge. Hence the sustainability of the outcomes seems unlikely.

11. **Catalytic role and replication:** The programme has had catalytic effect on behavioural changes among beneficiaries but it has been less effective in contributing to policy changes. It has created a number of champions to catalyse change.

12. **Efficiency:** The project execution has been quite slow, compromising some of the expected outputs. The budget allocations were unbalanced and some budget lines have been underutilised. Hence the project efficiency is moderately unsatisfactory.

13. **Factors affecting project performance:** The factors affecting the project performances include preparation and readiness, project management, stakeholders' involvement, country ownership, UNEP supervision and backstopping, etc.

14. **Preparation and readiness:** The programme could have been better prepared in terms of planning and implementation by prior consultation with the IOs that were already involved in the earlier phase of the project. The recommendation from the evaluation of AREED I regarding government involvement should have been taken into consideration.

15. **Project implementation and management:** The implementation approach and project management has been satisfactory except for some lapses in the beginning and towards the end of the project.

16. **Stakeholders' participation and public awareness:** Stakeholders' engagement has been high except for the limited interaction with government officials. Some financial beneficiaries do not seem to have well understood the business model and have defaulted in loan repayment.

17. **Country ownership and driven-ness:** Governments from the participating countries have neither assumed any specific responsibility nor provided any support for project execution.

18. **Financial planning and management:** While financial reporting was systematic and regular, there were major deviations between the planned budget and actual expenditures. Funds were not made available to the IOs on time and the sums allocated were not properly reflected in the appropriate budget lines.

19. **UNEP supervision and backstopping:** UNEP supervision and guidance were effective and well appreciated, except for initial delays in recruiting project personnel and sub-contracting with IOs. Some deficiencies in financial management were noted.

20. **Monitoring and evaluation:** Though there is no clarity on how budgeting was done and funding allocated for M&E activities, the M&E was generally well designed. A medium term review could have helped in getting a better picture of what had been actually achieved in the project.

21. Based on the above, the **overall rating** of the programme is **moderately satisfactory**.

Lessons learned

22. Based on the findings of the evaluation, a number of lessons can be learned that can be of high relevance to future projects with similar goals.

Lesson 1: Cut your coat according to the cloth

23. The targets set by the project were ambitious for the available budget and the set time frame. The lessons learned from the previous phase of activities should have been considered in order to design the project in a more realistic manner and achieve more satisfactory results.

Lesson 2: Consult stakeholders for improving the quality of project design and ensure their active involvement

24. The success of a project depends a lot on the extent of understanding, commitment and involvement of the key stakeholders. If a project is designed without prior consultation with the key stakeholders, particularly the concerned government officials, they are likely to be less inclined to get actively involved.

Lesson 3: Do not expect NGOs to sustain the AREED business model

25. Non-governmental organizations (NGOs) were selected to play the key intermediary role in implementing the AREED business model by providing technical support to energy entrepreneurs as well local banks and FIs. NGOs are typically non-profit development organizations, hence it is unrealistic to expect such NGOs to sustain the AREED business model without any mechanism to finance them beyond the project life.

Lesson 4: Ensure that stakeholder play the role that suits their orientation and capabilities

26. Each organization should take up role and responsibility in tune with the organization's capabilities and orientation. Organizations with the primary focus on community development should not take up the mantle of commercially oriented enterprises or financial institutions.

Lesson 5: Allocate sufficient resources for developing the capacity of the key partner involved in implementing the project activities

27. The IO identified in each country was expected to support the development of EDS and EUF activities. The Project Officers (POs) of the IOs should have had the capacity to carry out such tasks efficiently. Due to staff turnover during the long project implementation period, some of the IOs were hampered by ineffective and inadequate staff capacity at the PO level. Sufficient resources should have been allocated in the project to train and upgrade the knowledge of the POs and familiarize them with the necessary tools and methods.

Lesson 6: Select energy technologies and services on the basis of rigorous techno-economic evaluation

28. The project implementation team should carefully consider market opportunity of such technologies and services in terms of country/location specific parameters such as the cost of conventional form of energy, income level of the population, opportunity for productive activities, etc. in order to ensure their acceptance and commercial viability.

Lesson 7: Accept that banks and FIs will finance only those clients with business acumen and competence to make "bankable" proposals

29. The poor response of banks and FIs in extending loans to energy enterprises cannot be solely attributed to their ignorance of the business potential for the provision of energy products and services in rural markets. Many energy enterprises interested in rural markets are not mature enough to attract investment by mainstream financial institutions because they lack business experience, do not have "bankable" business plans, and their balance sheets, risk profiles, collateral options and size are not in line with the investment criteria of the FIs.

Lesson 8: Involve government to help create conducive economic and regulatory conditions for scaling up the commercial success of energy enterprises

30. The commercial success of donor-backed pilot programmes for energy enterprises to provide clean energy products and services to needy beneficiaries does not guarantee the scaling up in the absence of conducive business and regulatory conditions which are in the realm of the government. Strong involvement and policy support of the government is key to sustainability of the business models beyond the funded phase. Government support is also critical to impose minimum performance standard for energy products and services, creating a level-playing field for energy entrepreneurs promoting quality products that last longer.

Lesson 9: Allocate more resources for M&E activities beyond the project life

31. Since the success of the project lies in the loans being repaid in full and timely manner by the energy enterprises as well as the energy end-users, adequate resources should have been allocated for monitoring of results and evaluation of progress towards the project objectives beyond the official closure of the project, particularly as the IOs involved in the project are in general not in a position to generate their own resources to cover such costs.

Lesson 10: Complement international expertise by mobilizing national experts to resolve the legal and contractual issues associated with lending by banks and FIs

32. The international financial consultant was instrumental in proposing suitable financing mechanism on the basis of experiences of similar initiatives elsewhere. National experts familiar with the local banking procedures should also have been mobilized to contribute to the development of financial structures that are well suited to the local context, thus saving considerable time and resources for the project.

Lesson 11: Facilitate market access for rural products and services

33. Rural people using energy for commercial activities have a fairly limited market access. Unless access for rural products and services is facilitated (as it is the case with the African Energy Challenge Fund), energy end-users may not be in a position to repay the loans for capital-intensive energy products and services.

Lesson 12: Communicate effectively not only the success stories but also the hurdles to be overcome for the success of the AREED business model

34. Effective communication of the hurdles to be overcome for the success of the AREED business model is as important as reporting success stories based on the outcome of rigorous monitoring and evaluation of the pilot initiatives. It is important to make potential stakeholders aware of the main reasons for the failures as well as the successes. The website can be an effective means for widespread dissemination of not only the project outcomes but also the tools and mechanisms developed for the project.

Recommendations

35. The following recommendations are made assuming that UNEP and the IOs are still motivated and engaged to move towards the ultimate impact of the AREED initiative:

Recommendation 1: Mobilize the IOs of the participating countries to update the exact status of the risk guarantee funds

36. In spite of the best efforts made during the project evaluation, it was not possible to get a clear status of the risk guarantee funds. It is recommended that UNEP shares a part of the residual risk guarantee funds with IOs of the participating countries so that they are able to undertake a rigorous monitoring and evaluation in order to get an update of the exact status of the risk guarantee funds. The IOs may wish to pursue or convince the entrepreneurs and/or energy end-users who have defaulted in loan repayments. The IOs should continue to monitor after the project life and a follow up outcome assessment activity should be foreseen for updating the evaluation.

Recommendation 2: Revamp the project website to ensure improved project visibility

37. Allocate a part of the residual risk guarantee funds for revamping the project website so that the project outputs and outcomes are shared widely in order to improve the project visibility and eventually contribute to scaling up of the AREED business model. Share all the tools and methods developed in the framework of the project so that others may be inspired to widen the AREED business model. Develop story lines to highlight the factors that have contributed to the success of some projects as well as the reasons for the failure of other projects.

Recommendation 3: Ensure government buy-in by renewing and strengthening relations, and support them in creating an enabling environment for the scaling up of AREED model

38. Put high priority on ensuring government buy-in by anchoring activity within the national setting, i.e. government. Undertake a rigorous exercise to initiate dialogue with local and national governments with the objective of convincing them to adopt right policies and action plans that can help to remove all barriers to the scaling up of AREED business model.

Recommendation 4: Ascertain the technical and economic viability of technologies and services aimed at rural population to ensure their acceptance and commercial viability

39. The technical and economic viability of the energy technologies and their market conditions should be ascertained by the project implementation team in order to ensure that the technologies and services aimed at rural population are suitable, reliable, mature, field-tested and proven.

Recommendation 5: Continue to monitor after project life and undertake assessment activity to update the evaluation

Ensure that the IOs continue to monitor the project performance after the project life and foresee an outcome assessment activity to update the present evaluation.

I. INTRODUCTION

40. In line with the UNEP Evaluation Policy and the UNEP Evaluation Manual, the Terminal Evaluation of the project "**African Rural Energy Enterprise Development Phase II**", or **AREED II**, has been conducted by an independent evaluator to assess the project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability.

41. The African Energy Enterprise Development (**AREED**) Program was launched in 2000 as a step towards overcoming barriers to clean and sustainable energy supplies in order to meet the energy needs of rural poor in five countries of Western and Southern Africa (Ghana, Mali, Senegal, Tanzania and Zambia). The first phase of the AREED project, known as **AREED I**, supported the development of new sustainable energy enterprises that employed clean, efficient and modern energy technologies to meet the energy needs of the under-served populations in rural areas, addressing socio-economic needs for quality of life improvement, income generation and environmental protection.

42. A core problem of AREED I was that although a combination of enterprise development support and seed financing was considered to be effective in expanding energy access, it was not adequate to get energy entrepreneurs focused on rural markets. A significant proportion of potential rural customers were unable to mobilize the capital needed upfront to pay for the products and services offered by AREED entrepreneurs. As a result, the majority of clean energy enterprises preferred to cater to well-off customers in urban and peri-urban markets.

43. As a follow-up of AREED I, AREED II was launched in 2008 with the same overall objective to improve access to modern, clean and reliable energy technologies and services for income generation by rural poor in Africa, but with the following improvements:

    a) To guarantee a more efficient allocation of scarce funds to economically viable energy projects that were most likely to make sustainable impacts, offer social entrepreneurs a combination of enterprise development services and start-up financing;

    b) To address the core challenge of financing gap of rural producers who are the likely beneficiaries of modern, clean and reliable energy technologies and services (termed as end-users), engage microfinance institutions and local banks in facilitating flows of end-user financing to rural beneficiaries of energy projects initiated by the social enterprises pursuing rural development objectives.

44. AREED II was managed by UNEP's Energy Branch of the Division of Technology, Industry and Economics (DTIE). The key local partners in the five participating countries were: Kumasi Institute of Technology and Environment, **KITE** (Ghana); Mali Folkcenter, **MFC** (Mali), Enda Tiers Monde, **ENDA** (Senegal); Tanzania Traditional Energy Development and Environment Organisation, **TaTEDO** (Tanzania); and Centre for Energy, Environment and Engineering, Zambia Ltd., **CEEEZ** (Zambia).

45. The financial institutions that collaborated by providing enterprise seed funding and/or end-user financing include: Ecobank Limited and Ghana Cooperative Susu Collectors Association (GCSCA) (Ghana); Malian Bank of Solidarity and Nyetaa Financing (Mali); Regional Solidarity Bank and Sen'Finances (Senegal); Twiga Bancrop (Tanzania); and MicroBankers Trust (Zambia).

46. Initially planned to start in October 2007 for completion within 3 years, the project activities were initiated after getting UNEP approval in January 2008 and got completed by December 2012. The planned budget at the time of approval was US$2,258,931 but later increased due to favourable exchange rates. By the time the project was concluded, a total expenditure of US$2,176,939 had been incurred, leaving US$142,218 as fund balance.

II. THE EVALUATION

47. **Objectives of the evaluation:** An independent terminal evaluation is an integral part of UNEP's M&E approach. The evaluation has two primary purposes:

    a) To provide evidence of results to meet accountability requirements; and

    b) To promote learning, feedback, and knowledge sharing through results and lessons learnt between UNEP and its partners.

48. In order to assess project performance and determine outcomes and impacts, the evaluation focused on a set of key issues, based on the project's intended outcomes:

a) Availability of enterprise development services and grant funding to social entrepreneurs and similar actors seeking to start up or expand rural energy initiatives;

b) Willingness of micro finance institutions (MFIs) in allocating part of their resources to end user credit facilities accessible to rural people (including low income households);

c) Engagement of the local and national government agencies in the participating countries in developing and implementing policy instruments and strengthening institutions to support social enterprise-led provision of energy services in rural areas;

d) The results of the above activities that can be credited as the contribution made by AREED II;

e) The replication of AREED II approach by stakeholders within and beyond the participating countries;

f) The increase in number of the rural population served by modern energies in participating countries; and

g) Identification of lessons of operational relevance for future engagement in energy SMEs and microfinance.

49. **Approach**: The inception report included the development of the Theory of Change (TOC) to guide the evaluation. It was based on:

a) A desk-based identification of the project's intended impacts, specifying the drivers and assumptions;

b) Review of the project's logical framework; and

c) Analysis and modelling of the project's outcomes-impact pathways.

50. The evaluation used a participatory approach whereby key stakeholders were kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods were used to determine project achievement against expected outputs, outcomes and impacts. The evaluation process took into account the varied state of response in the 5 countries in terms of factors such as *national characteristics, socio-economic conditions, maturity of the market, pro-activity of partner organizations in identifying "clients", forging alliances with the financial institutions, etc*. Although field studies could be conducted only in two countries due to resource constraints, all 5 countries have been considered and treated evenly in the evaluation.

51. The findings of the evaluations were based on desk review, questionnaires designed and sent to IOs, field visits and evaluations of the technical aspects of the projects that have been implemented, e-mail exchanges and Skype interviews with the project management team as well as key stakeholders during field missions in Senegal and Tanzania, and telephone/Skype interviews with stakeholders in the remaining three countries. Other country-specific documents related to the main theme of the AREED programme available in the public domain were also consulted prior to and after the field mission.

52. The desk review included relevant background documentation related to the AREED programme, made available by the project stakeholders and through Internet search. The list of documents consulted for the desk review prior to and after the field missions is included in the Annexes.

53. **Limitations of the evaluation**: While the evaluation benefited from various sources of information and whole-hearted support from the key project stakeholders, the following limitations were experienced by the evaluator:

a) As the evaluation was conducted a year after the completion of the project, some of the key stakeholders involved in the project were no longer with the concerned organizations. This hampered the process of getting appointment with some key stakeholders and made it difficult to acquire a clear picture of the achievements as well as the status of lending made to both energy entrepreneurs as well as end-use beneficiaries, especially in the countries that were not visited by the evaluator.

b) As the evaluation was undertaken after more than 6 years from the launching of AREED II, the change in staffing within the IOs over the years had resulted in loss of "institutional memory" and posed a major challenge to get the "whole story" of what exactly happened and why things happened differently than what was initially planned in the project document. Relevant data asked for by the evaluator was not always available for sharing from the project officers of the IOs. Inconsistencies were noted among the progress and final reports, mainly because of the lack of continuity of the key personnel involved in the project.

c) The process of gathering information for the desk review was slow due to the difficulty in establishing contact with the UNEP project management team which was no longer in place after the project ended and the key staff had moved on. Based on the limited information shared initially by UNEP, the desk review completed by the evaluator prior to the field missions was not sufficient to fathom the deviation between project document and the ground realities.

d) The website dedicated to the project (www.areed.org) could not be accessed during the desk review and the field mission due to technical difficulties faced by ENDA, a key AREED partner which had assumed the responsibility to manage and maintain the website beyond the project life. The website was later restored after the project evaluator pointed it out to ENDA. While the website states that AREED II was addressing the barrier of upfront payment required from end-users for the relevant products and services, the contents of the website are essentially focused on energy entrepreneurs.

e) Some of the important project documents (progress and financial reports, mission reports, meeting minutes, relevant correspondences, etc.) were finally made available only after the completion of field missions because several unanswered questions were raised following the field missions. Had the documentation list for the evaluation been shared in a timely manner, the time spent in the field could have been utilised in a more effective way for getting a clearer understanding of the changes observed in the field execution of the project. The overall evaluation timeframe got delayed because of the time lost due to unavailability of documents and the evaluator was not able to complete the report on time due to other prior professional obligations.

III. THE PROJECT

III.A. Context

54. More than 70% of the African population lives in rural areas. The energy needs of this vast majority of the population remains unmet due to the largely inadequate energy supply. The AREED project was one among the various international initiatives to address the persistent problems of energy poverty afflicting the majority of rural population in Africa. During the formulation of the project, the per capita energy consumption in sub-Saharan Africa, especially in rural communities, was the lowest in the world, only around 0.3 – 0.6 toe/person or about 25 - 30 times less than their North American counterpart. Africa’s energy balance was largely in favour of biomass that accounted for two-thirds of total household energy consumption. Sub-Saharan Africa had the least developed market for electricity in the world, with rural electrification levels that were routinely below 5%.

55. The situation was further exacerbated by the fact that the conditions for energy sector development were extremely difficult due to low levels of productivity in rural economies and low per capita incomes as well as poor access to credit facilities that could enhance access to productivity-enhancing energy and other essential services.

56. The projects initiated with international support had a common agreement that impoverished people can transform themselves and break out of the vicious cycles of poverty if they are empowered with proven, powerful and practical technologies. Field experiences also led to the conclusion that SMEs need to be supported for adopting alternative delivery models in order to become versatile service providers capable of reaching beyond the grid. These small energy enterprises could be assisted to better package small-scale energy technologies and services for enhancing productivity and incomes of rural populations.

57. While previous international actions were recognized to have made substantial progress in terms of energy access, there was an urgent need for more coordinated action among stakeholders at global, national and local levels in order to maximize impacts against energy poverty and underdevelopment in Africa. Results of AREED I concluded that while a combination of enterprise development support and seed financing could be effective at expanding energy access, it was not adequate in getting entrepreneurs focused on rural markets. Commercially oriented enterprises tend to avoid reaching deeper into rural markets because of the high transaction costs and the risk involved in working with potential users not capable of paying upfront for products and services.

58. Therefore, social enterprises had to be supported to develop and implement sustainable projects that supply clean energy products and services to final beneficiaries at reasonable and affordable prices. While the social entrepreneurs were expected to play a central role, other partners with equally important roles had to be involved, such as local NGOs, financial institutions and government.

59. The capacity of the local NGO partners had to be strengthened so that they could support prospective energy enterprises in delivering enterprise development services effectively. Additional financing had to be leveraged from local banks and microfinance institutions to assist people in rural Africa start productive and income-generating ventures using modern, clean and reliable energy technologies. The capacity of government officials and agencies had to be strengthened so that they could better formulate and implement policies supportive of energy SMEs. Lastly, an effective communication and outreach strategy had to be adopted for disseminating AREED lessons and tools.

60. The choice of the 5 countries from Western and Southern Africa was based on these countries being representative of sub-Saharan Africa where less than 10% of the population had access to modern energy services. These same countries were considered for AREED II as it was a continuation of the AREED I initiative.

61. Over the last couple of decades, several rural energy initiatives and energy access programs have helped millions of people to attain modern energy access. In spite of all the progress, recent data available from the International Energy Agency (World Energy Outlook, 2013) show that in 2011, nearly 700 million people in sub-Saharan Africa (or 79%) relied upon traditional use of biomass for cooking. Though the electrification rate of sub-Saharan Africa had improved over the last few years, still about 600 million people in sub-Saharan Africa lacked access to electricity, with a huge urban-rural disparity in electrification rate (55.2% of urban population versus only 18.3% for the rural population).

62. It is encouraging to note that there have been several new commitments and new actions towards the goal for achieving universal modern energy access by 2030. The UN Year of Sustainable Energy for All (SE4All) in 2012 has now made way for a "Decade of Sustainable Energy for All" which started this year. The United Nations has recommended the inclusion of universal access to modern energy services in the Post-2015 Development Agenda. The United States has launched a Power Africa Initiative, aimed at doubling electricity access in Africa over five years. However, the World Energy Outlook 2013 published by IEA projects that, in the absence of more investment than what has been mobilized in the past, nearly one billion people around the world would be without electricity and 2.5 billion people will still be without clean cooking facilities in 2030.

III.B. Objective and components

63. **Objective**: The overall objective of AREED II was to improve access to modern, clean and reliable energy technologies and services for income generation by rural producers in Africa.

64. **Components**: AREED II included 3 key components of the project: (1) Enterprise development, (2) End-user finance, and (3) Policy support.

65. Through enterprise development activities, technical support and targeted grant funding was to be provided to promising social enterprises, enabling them to implement financially sound and business-like energy services. This component was also meant *to provide targeted capacity building for local intermediaries, microfinance institutions and governments in developing their understanding and ability to design and implement effective rural energy projects and end-user financing packages*.

66. The end-user finance component was expected to focus on creating innovative rural credit facilities that enhance the ability of end-users to purchase energy products and services, especially for productive purposes. This was to be undertaken with the understanding that *income generated from such productive applications would enable end-users to pay for costs of financing improved energy,* thereby facilitating the diffusion of modern and clean energy services in rural economies. This activity also included *training and development focused on building the capacity of local institutions to effectively deliver consumer credit for modern energy, micro enterprises and associated income generating activities for rural end-users.*

67. In the policy support component, AREED II partners were expected *to take initiative and sustain multilevel policy dialogue with senior ministries and other relevant agencies* with a view to: (1) identifying the types of clean energy products and services that SMEs can deliver more effectively than conventional energy suppliers in the participating countries; (2) presenting the energy enterprise development approach and the enterprise models that have proved most promising to date; and (3) engaging policy makers in a dialogue as to what policy interventions were needed to scale-up the role of social enterprises as clean energy service providers in rural areas.

68. As the success of AREED II would depend to a large extent on how well stakeholders and the rural communities perceived AREED II as making a contribution to meeting their immediate needs as well as broader developmental goals, a fourth component was added *to undertake communication, dissemination and outreach activities as strategy for wide-scale replication of AREED II*. During the course of the project, UNEP and its partners were expected to

communicate the AREED II approach and share its results with local and international audiences, including donors, developmental agencies, climate change policy makers and colleagues within and outside the UN.

III.C. Target areas/groups

69. By the end of the project, the target was set for supporting the development of 15 to 20 social enterprises, each capable of serving at least 10,000 people, that would be delivering energy services to meet the real development needs of rural population in Ghana, Mali, Senegal, Tanzania and Zambia, through income generation and poverty alleviation.

III.D. Milestones /key dates in project design and implementation

70. Table 2 presents the milestones and key dates in project design and implementation:

Table 2. Milestones and key dates in project design and implementation

Milestones	Completion dates
1. Enterprise development	**Months 3-24**
1.1. REED toolkit adapted for use by social entrepreneurs	Month 3
1.2. Workshop conducted for social entrepreneurs and most promising proposals selected	Month 24
1.3. Social enterprise development services and subsidy application system implemented	
1.4. Pipeline of rural energy proposals built and maintained	
1.5. Hands-on enterprise development services provided to selected social entrepreneurs	
1.6. Start-up grants provided to qualified social entrepreneurs	
2. End-user finance	**Months 1-21**
2.1. Credit enhancement scheme designed and implemented in partnership with MFIs	Month 9
2.2. Support provided to MFIs participating in the end-user finance scheme	Month 21
3. Policy support	**Months 4-36**
3.1. Database on energy and development policy stakeholders built and maintained	Month 36
3.2. Government agencies provided with tools and support for social enterprise-led rural energy projects	Month 36
4. Communication, dissemination and outreach	**Months 1-36**
4.1. Communication strategy prepared for local, national and international audiences	Month 3
4.2. AREED II experience shared with local and national governments, UN and donor agencies, development agencies and foundations	Months 12, 24 and 36
4.3. Three articles on the AREED II project published	Month 36
4.4. Social enterprises presented at international meetings	
4.5. Project status reports prepared and disseminated	

III.E. Implementation arrangements

71. UNEP DTIE, through its Energy Branch managed AREED II in close cooperation with IOs and participating MFIs. The following implementation arrangement was proposed for AREED II:

a) AREED II Management Committee to ensure the successful and credible operation of AREED II Fund and End-user facility;

b) AREED II Fund/Facility Management Unit (FMU) to exercise overall decision-making oversight on grant applications. In each of the countries, a local intermediary organisation would work under the supervision of FMU to identify prospective social enterprises, provide enterprise development services, conduct in-country due diligence, prepare and submit formal applications on behalf of grant applicants to the FMU for consideration;

c) AREED II Advisory Committee to advice on social enterprise development and micro financing issues, rural energy project development, operations and improvements.

III.F. Project financing

72. The total budget of AREED II was estimated as US$2,258,931, including the programme support cost of US$97,806 and the in-kind contribution (including UNEP contribution) of US$205,000. The Swedish International Cooperation Development Agency (Sida) was expected to contribute an amount of US$2,053,931.

III.G. Project partners

73. The project partners identified by AREED II included the following:

a) Rural end-users for whom the energy is a means to productivity improvements, income and quality of life gains;

b) Local community-based organisations (CBOs) and local and national social entrepreneurs,

c) National Intermediary Organisations (IOs)

d) Local and national credit providers and financial institutions,

e) Private sector equipment and service providers, and

f) Government officials in the various Energy ministries or rural electrification agencies.

74. UNEP's DTIE, through its Energy Branch, was expected to manage the AREED II efforts in close cooperation with the GEF Small Grants Programme (SGP) and participating MFIs.

III.H. Changes in design during implementation

75. Changes were made in the project design during implementation by taking into account the challenges faced and delays in project implementation due to significant changes from the original programme. In particular, the role of E+Co in AREED I was replaced in AREED II by local banks and MFIs, and the financing mechanisms had to be reassessed to include both enterprise development support (EDS) and end-user financing (EUF) initiatives.

76. The project commenced in 2008, however recruiting a substantive project manager took much longer than expected. It also took some time to identify a financial expert for establishing the new financing mechanisms required by the EUF component. Designing a pilot financing mechanism that suited the individual country's legal aspects and prevailing policy environment was lengthy.

77. Though AREED II was specifically conceived to focus on rural poor in Africa, it was agreed during the first workshop held in Senegal in April 2008 that end-user financing (EUF) will be offered to *not only rural but also peri-urban clients* to enable them to access clean energy services. Moreover, it was also decided to develop differentiated financial products for *productive purposes and domestic applications.*

78. The EDS component was initially designed to offer grant funding to social entrepreneurs and similar actors. During the first stakeholders' workshop, a scheme was proposed which consisted in using the AREED funds for EDS fees of US$6,000 during the first year and this amount was to be progressively reduced as net revenue from financed enterprises was generated. When the EDS scheme was implemented in 2011, the financial mechanism for EDS

was altered and the model adopted consisted of UNEP providing risk guarantee fund to the local banks that would finance SMEs for the development of project pipeline.

79. A management decision was taken early in AREED II to focus on Ghana and Mali for the development of new EUF financing mechanism, though Senegal was also included later. The project duration was extended by 12 months by taking into consideration the delays caused by the unexpected changes in financial institution partnerships in Ghana and Mali and consequent delays in the implementation of EUF activities in those two countries. EUF investments started in Ghana and Mali in September 2009 and in Senegal in January 2010.

80. It was decided from the beginning of AREED II that *EDS activities should not be conducted independently but should rather follow EUF*. Since the EUF activities were delayed, it led to further delays in initiating EDS activities and the project had to be extended by another 12 months. Workshops to provide EDS support to enterprises could only be held in or after March 2012. Due to the unexpectedly long consultations required with local banks and MFIs, it was decided not to provide start-up grants to entrepreneurs in Tanzania and Zambia and limit the activities to EDS training only.

III.I. Reconstructed theory of change of the project

81. The Review of Outcomes to Impacts (ROtI) has been conducted in three distinct stages:

a) Identifying the project's intended impacts;

b) Review of the project's logical framework; and

c) Analysis and modelling of the project's outcomes-impact pathways.

82. **Stage 1 -** Referring to the "objectives" statement in the project document, the ultimate impact of the project is to increase per capita incomes and living standards. Access to modern energy technologies and services can help rural producers to generate income, and it is possible to calculate the benefits in terms of increase in per-capita incomes. Using the yardstick of the Millennium Development Goals (MDG), it is also possible to see to what extent the living standards of the rural population has been improved through better access to modern energy technologies.

Table 3. Global objective and key performance indicators set by AREED II

83. **Global Objective**	84. **Key Performance Indicator(s)**
The overall objective of the project is to increase access to modern energy technologies and services for income generation by rural producers in Africa.	Per-capita incomes and living standards

87. **Stage 2 –** The broader outcome defined in the logical framework is clear and can be verified by keeping track of how many people have benefitted from access to modern energy services, by cross-checking the social enterprises who have extended benefits to rural people who, in turn, have benefitted from the end-user credit facilities extended by existing MFIs or banks.

Table 4. Broader outcomes and key performance indicators for AREED II

Broader Outcome	**Key Performance Indicator(s)**
Innovative social enterprises are delivering energy technologies and services that meet the real development needs of rural people, particularly income generation, poverty alleviation and other Millennium Development goals	Decreases in population unserved by modern energy services (at least 10% by 2010) in participating countries

88. Further, the immediate project results leading to the broader project outcome are specified in Table 5 along with the verifiable indicators. These appear logical and the work plan in section 5 indicates the schedule of activities to be undertaken to ensure project outputs.

Table 5. Immediate project results and key performance indicators for AREED II

Immediate Project Results	Key Performance Indicator(s)
1. Enterprise development services coupled with grant funding are offered to social entrepreneurs and similar actors	1. 15-20 social enterprises providing modern energy services and products in rural markets
2. Existing MFIs direct part of their resources to an end-user credit facility that can be accessed by rural people seeking to acquire modern energy equipment and services for productive activities	2. 35% of small rural businesses and households able to afford modern energy services in target areas (increase in per capita energy consumption, off-grid electricity and financing leveraged from MFIs by a ratio of 2 or 3 to 1)
3. Local and national government agencies have developed and implemented policy instruments and strengthened institutions to support social enterprise-led provision of energy services	3. Number of social enterprise-friendly policies/regulatory recommendations implemented, and number of government programs influenced through AREED II
4. Stakeholders understand and support replication of the AREED II approach in other areas within and beyond the target countries	4. Citation of AREED II as a best practice model of energy service delivery in rural markets

89. It is understandable that the project faced some initial difficulties and challenges, both in terms of recruiting key project personnel and identifying willing and enthusiastic local banks and financial institutions for the implementation of the key project activities.

90. Contrary to the proposed schedule in the work plan, it is not clear when and why *it was decided that Enterprise Development Support (EDS) activities should not be conducted independently but rather follow End-User Financing (EUF).* The first stakeholder meeting held in Senegal at the beginning of the project discussed the role of energy entrepreneurs in relation with end-user financing mechanism and concluded that energy entrepreneurs will play a key role in market development. Hence in respecting the proposed project implementation time frame of 3 years, both EDS and EUF activities could have been pursued in parallel. During the same meeting, participants agreed to differentiate between two types of end users in the design of the finance mechanism: *end-users who need energy services for either productive purposes or household applications.*

91. **Stage 3 -** The assessment of the theory of change led to the identification of the impact pathways and specification of the impact drivers and assumptions, as summarized below:

92. Two Intermediate States have been identified between the project outcomes and the intended impacts. Four key drivers and three assumptions are identified to move from the project outcomes to the first set of Intermediate States:

a) *Drivers:* (1) IOs strengthen the capacity of entrepreneurs to do business and banks show willingness to lend them capital under favourable conditions in order to ensure that innovative entrepreneurs are delivering clean and cost-effective energy technologies and services to rural producers; (2) IOs facilitate market linkage with rural producers in order to ensure that rural producers are using technologies and services to increase income and pay off loans; (3&4) National governments develop policies that induce MFIs to extend credits to rural producers, and national governments support technical agencies and R&D organizations in order to ensure that technical organizations are developing rural entrepreneurship skills and R&D organizations are innovating efficient and affordable energy technologies.

b) *Assumptions:* It is assumed that (1) more entrepreneurs will be attracted to run rural energy business thanks to more effective financial intermediation and improved functioning of value chains, and (2) MFIs will support end-user credit facility; (3) International community will be sensitized to extend support for the AREED model.

93. The Intermediate State 2 has been identified as *increased access to modern energy services for income generation by rural producers in the 5 countries where AREED was implemented*. Two key drivers and one assumption have been identified for the move from Intermediate State 1 to 2:

a) *Drivers:* (1) States will support the creation of organizations to help develop technical and business skills for rural entrepreneurship so that they adopt mechanisms to the advantage of poor people, smallholders and rural households; and (2) States will also support R&D organizations to innovate efficient, affordable and well-tested energy technologies.

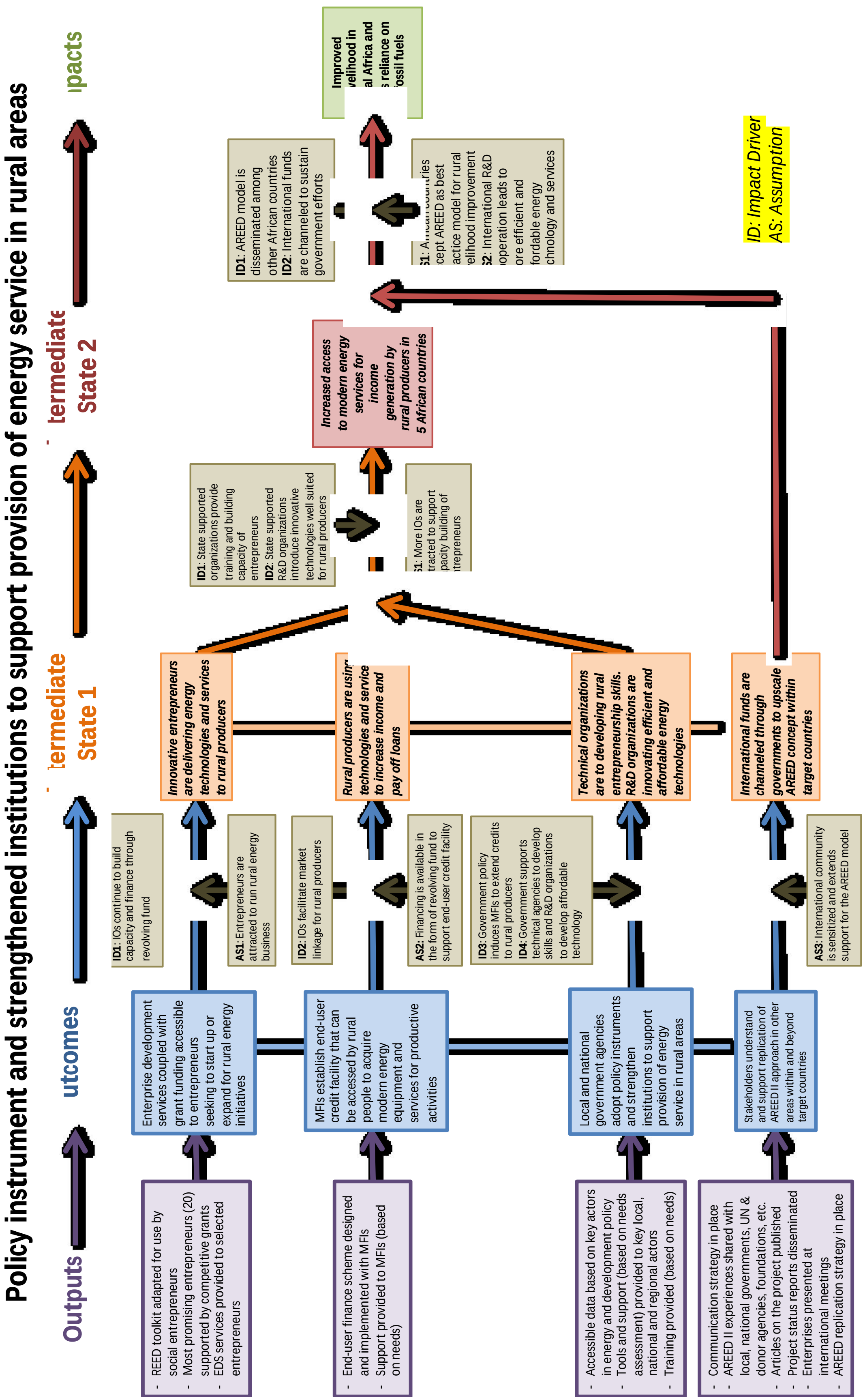
b) *Assumption:* It is assumed that more IOs will be involved in strengthening the technical and business management capabilities of entrepreneurs.

94. Finally, two key drivers and two assumptions have been identified for the move from the Intermediate State 2 to the ultimate impacts.

a) *Drivers:* To ensure the dual impacts of improved livelihood in rural Africa and less reliance on fossil fuels, (1) AREED model is disseminated among other African countries, and (2) national governments mobilize international funds to sustain their own efforts.

b) *Assumptions:* It is assumed that (1) African countries accept AREED as the best-practice model for rural livelihood improvement thanks to the widespread acceptance and replication of profitable business ideas, and (2) international R&D cooperation leads to the emergence of more efficient, mature and affordable energy technologies and services.

95. A schematic “impact pathway” for the provision of energy service in rural areas of Africa is presented below, highlighting the outcomes and intermediate state, impact drivers and assumptions.


Policy instrument and strengthened institutions to support provision of energy service in rural areas
Outputs
utcomes
termediate State 1
termediate State 2
pacts
- REED toolkit adapted for use by social entrepreneurs
- Most promising entrepreneurs (20) supported by competitive grants
- EDS services provided to selected entrepreneurs
- End-user finance scheme designed and implemented with MFIs
- Support provided to MFIs (based on needs)
- Accessible data based on key actors in energy and development policy
- Tools and support (based on needs assessment) provided to key local, national and regional actors
- Training provided (based on needs)
- Communication strategy in place
- AREED II experiences shared with local, national governments, UN & donor agencies, foundations, etc.
- Articles on the project published
- Project status reports disseminated
- Enterprises presented at international meetings
- AREED replication strategy in place
Enterprise development services coupled with grant funding accessible to entrepreneurs seeking to start up or expand for rural energy initiatives
MFIs establish end-user credit facility that can be accessed by rural people to acquire modern energy equipment and services for productive activities
Local and national government agencies adopt policy instruments and strengthen institutions to support provision of energy service in rural areas
Stakeholders understand and support replication of AREED II approach in other areas within and beyond target countries
ID1: IOs continue to build capacity and finance through revolving fund
AS1: Entrepreneurs are attracted to run rural energy business
ID2: IOs facilitate market linkage for rural producers
AS2: Financing is available in the form of revolving fund to support end-user credit facility
ID3: Government policy induces MFIs to extend credits to rural producers
ID4: Government supports technical agencies to develop skills and R&D organizations to develop affordable technology
AS3: International community is sensitized and extends support for the AREED model
Innovative entrepreneurs are delivering energy technologies and services to rural producers
Rural producers are using technologies and service to increase income and pay off loans
Technical organizations are to developing rural entrepreneurship skills. R&D organizations are innovating efficient and affordable energy technologies
International funds are channeled through governments to upscale AREED concept within target countries
ID1: State supported organizations provide training and building capacity of entrepreneurs
ID2: State supported R&D organizations introduce innovative technologies well suited for rural producers
S1: More IOs are tracted to support pacity building of trepreneurs
Increased access to modern energy services for income generation by rural producers in 5 African countries
ID1: AREED model is disseminated among other African countries
ID2: International funds are channeled to sustain government efforts
S1: African countries cept AREED as best actice model for rural elihood improvement
S2: International R&D operation leads to ore efficient and fordable energy chnology and services
Improved velihood in al Africa and reliance on ossil fuels
ID: Impact Driver
AS: Assumption

IV. EVALUATION FINDINGS

IV.A. Strategic relevance

96. AREED II was expected to contribute to the implementation of energy sub-programme 1 (Climate Change) by making a tangible contribution to strengthening the ability of the countries to integrate climate change response into national development processes. The high interest for implementing this project in two phases for more than a decade confirms the project's relevance to the 5 countries representing sub-Saharan Africa.

97. AREED II is aligned with UNEP's medium-term strategy (2010-2013). In the area of *climate change mitigation*, UNEP is committed to support countries to make a transition towards societies based on more efficient use of energy, energy conservation and utilization of cleaner energy sources, with a focus on renewable energy. AREED project is making contribution to two of the Expected Accomplishments of UNEP in relation with climate change:

    a) *Improved technologies are deployed and obsolete technologies phased out, financed through private and public sources*: Through the EDS scheme, AREED II funds used to provide risk guarantee have leveraged investments from local banks for lending to targeted enterprises that have successfully improved energy access and contributed to income generation activities in rural and peri-urban areas. The types of technologies deployed for improving energy access include LPG ventures (stoves, ovens and refrigerators) and solar home systems, solar water pumping, solar lanterns for lighting, improved cook stove, etc. The types of technologies deployed to stimulate income generation ventures include using hybrid (solar, electricity, thermal) systems for diverse purposes (e.g. ice making), solar dryers for vegetables and fruits, food mill grinders, biomass baking oven, sewing machine, welding machine, energy efficient equipment, improved refrigerators, etc.

    b) *Countries making sound policy, technology, and investment choices that lead to a reduction in greenhouse gas emissions and potential co-benefits:* Though the project aimed to also accomplish this, the results so far seem to have achieved partial success due to some barriers. The financial intermediation has not been very effective and local financial institutions perceive risks inherent to the market and energy business models; hence they tend to apply high interest rates and place difficult conditions on collaterals. Also, during the implementation of the project, the business regulatory environment in the participating countries was not found to be that conducive. Moreover, in the absence of any clear and common strategy to sensitize and interact with local/national public decision makers concerned with SME promotion and access to decentralised energy in rural areas, there is little evidence of the AREED model influencing national policies though there is some evidence of governments in two AREED countries being receptive to the idea of creating conducive economic and regulatory environment for clean energy SMEs.

98. The objective of the project was to address the persistent problems of energy poverty afflicting the majority of rural population in Africa. The project recognized the fact that vast majority of the people are using forms of energy that are not appropriate for the required energy services, be it for productive purposes or improving their living conditions. In the long run, AREED II is aiming to contribute to the broader goals of poverty eradication and achievement of Millennium Development Goals in Africa. AREED II has complementarity with other UNEP projects such as "African Green Business" and "Financing renewable energy in developing countries: Drivers and barriers for private finance in sub-Saharan Africa".

99. The project's objectives being consistent with global and regional environmental issues and needs as well as UNEP's MTS 2010-2013, the rating on the above is **highly satisfactory**.

100. AREED II was being developed as a follow-up of AREED I which had proven that a combination of enterprise development support and seed financing could be effective in expanding energy access. While the project recognized the need for end-user financing, there

seemed to be *poor distinction between rural producers and end users*. A clean energy product can improve usage efficiency but not necessarily result in income generating activities (e.g. efficient cook stove or LPG cylinder); in such a circumstance, end-user financing can be challenging. Secondly the project did not seem to have taken into account the limited access to market for the rural producers and the role of facilitating market access of rural products. The African Enterprise Challenge Fund (AECF) is supporting businesses that "sell to and buy from" rural households. As a result, the number of households benefitting from AECF projects has grown from 185,266 households in 2009 to 688,427 by the end of 2012 (detailed can be found at: http://www.aecfafrica.org/impacting-development/results/household). One should however note that the budget for ACEF grew from US$34 million in 2009 to US$190 million by 2012 whereas the budget allocated for AREED II was rather limited to achieve the ambitious targets.

101. Based on the experience of AREED I, the proposed timeframe of 3 years appears unrealistic, especially when there were several challenges to be addressed, such as entrepreneurship development, policy formulation and communication. Selection of suitable candidates and their capacity building is time-consuming, considering their lack of experience to develop bankable proposals and the legal aspects involved in contracting in the absence of suitable policy framework. It was observed in AREED I that a minimum of 5 years were needed to identify entrepreneurs with business potential and assist them in gaining the various competences needed to develop bankable business plans that meet the investment and due diligence criteria of banks, and accompany them during the loan repayment phase.

102. Changing the business regulatory environment is a crucial issue that lies in the realm of the government and communication is vital for the replication of profitable business ideas. In both these domains of policy support and communication/dissemination/ outreach, project activities were unlikely to produce the intended results because inadequate resources were allocated to ensure policy formulation and communication.

103. The evaluation of AREED I had highlighted the fact that the activities related to "enterprise development" had small effect in terms of sustainable energy enterprise developed or financial institutions investing in clean energy business. In fact, the majority of enterprises were found not mature enough to attract co-financing/2nd stage investment by mainstream financial institutions because their balance sheets, risk profiles, collateral options and size were just not in line with the investment criteria of these FIs. Since the number of activities in AREED II were more while the budget was less in comparison to AREED I, it would have been prudent to limit the project activities to those countries where AREED I had met reasonable level of success than to consider the participation the same partner countries in AREED II, thus distributing the limited financial resources more thinly across the countries and reducing the chance for the success of the project.

104. Considering the time and budget allocated to the project, the baseline situation and the institutional context in which the project was to operate, the individual rating regarding the project objectives is **satisfactory**.

105. The overall rating of the strategic relevance is **satisfactory**.

IV.B. Achievement of outputs

106. The following table summarizes the project's success in producing the programmed outputs and milestones that were provided in the Project Document and Project Logical Framework.

Table 6. Evaluation of the project's success in producing the programmed output and milestones

Component	Outcome	Output	Status at the end of the project
Enterprise Development	Enterprise development services coupled with grant funding accessible to entrepreneurs seeking to start up or expand for rural energy initiatives.	REED toolkit adapted for use by social entrepreneurs.	Completed (refer to Activity Delivery Report from October 2007 to February 2008)
		Workshops for social entrepreneurs organized and promising proposals selected	Workshops organized for about 800 entrepreneurs (final report)
		EDS and funding application review process implemented	More than 30 promising business models identified (final report)
		Pipeline of rural energy project proposals (60) submitted by social enterprises	At least 15 business proposals sought financing in 3 countries (Ghana, Mali and Senegal)
		Hands-on enterprise development services provided to selected social entrepreneurs	Support provided to more than 50 enterprises in the 5 countries (final report)
		Grant support provided to 20 rural energy initiatives	Loans given by local MFIs to 8 enterprises in 3 countries with project fund as risk guarantee (Ghana, Mali and Senegal)
End User Finance	Existing MFIs establish end-user credit facility that can be accessed by rural people to acquire modern energy equipment and services for productive activities.	End user finance scheme designed and implemented with MFIs.	Successfully operated in all AREED countries (final report). Altogether 44 end-user groups were financed in the 5 countries (11 in Ghana, 23 in Mali, 5 in Senegal, 2 in Tanzania and 3 in Zambia)
		Support provided to MFIs (based on needs).	Extensive support provided by UNEP to all AREED II partners (final report)
Policy Support	Local and national government agencies adopt policy instruments and strengthen institutions to support provision of energy service in rural areas.	Accessible data based on key actors in energy and development policy	There is no reporting on data being accessible on key actors in energy and development policy
		Tools and support (based on needs assessment) provided to key local, national and regional actors.	There is no reporting on tools being provided to key local, national and regional actors.
		Training provided (based on needs)	No specific training has been reported by UNEP or project partners
Communication, dissemination and Outreach	Stakeholders understand and support replication of AREED II approach in other areas within and beyond target countries.	Effective communication strategy in place.	Country-specific approach was agreed and AREED II partners have implemented their communication strategy on their own.
		AREED II experiences shared with local and national governments, UN and donor agencies, foundations etc.	AREED II mechanism presented in several high-level policy dialogues and ministerial discussions in partner countries
		Publish 3 articles on the AREED project for national and international audiences with focus on private sector, development and energy/climate change.	Articles have been published on AREED II project. Apart from UNEP publications, most other publications reported are from Senegal.
		Project status reports disseminated.	AREED II partners have shared progress reports to UNEP
		Entrepreneurs and their projects presented at international meetings.	AREED II has been presented in several UN conferences and AREED financed entrepreneurs have widely spread the AREED model
		Strategy for replication AREED II in place.	All partners have agreed on creating an investment facility out of the AREED reflux funds: the African Sustainable Energy

			Facility (ASEF). Business ideas to be funded would be based purely on bankability and on merit.

107. **Outputs leading to Outcome 1:** Table 6 compares the expected outputs against the status at the end of the project. As one can observe, because of the delay in launching EDS activities, *the project was able to extend loans to only 8 enterprises in 3 out of the 5 countries against the target of 20*. As mentioned in paragraph 80, this delay could have been avoided as both EUF and EDS activities could have been conducted in parallel rather than EDS following EUF activities.

108. The individual rating based on the outputs achieved, given in the context of the resulting impacts of the TOC, is given as **moderately satisfactory**.

109. **Outputs leading to Outcome 2:** As far as EUF component is concerned, the results have been considered by the project manager as very satisfactory. While 44 end-users groups have benefited from the EUF scheme, the AREED project manager has estimated that EUF has facilitated access to 400,000 energy end-users in Africa. The enterprises that were commercially most successful are those involved in marketing of LPG, efficient cook stoves and off-grid solar PV systems, particularly in countries where there was relative scarcity of biomass in urban and peri-urban areas and the electricity price was relatively high due to the country's dependence on imported primary energy sources.

110. For the two countries where field visits were conducted, the corresponding numbers of energy end-users could not verified. In Senegal, for instance, the project final report mentions 350,000 users of LPG in Senegal whereas the final report of AREED partner in Senegal has reported 20,000 households having gained access to modern cooking fuels. However, according to the AREED partner in Senegal, every household had 10 members, hence they have reported 200,000 beneficiaries. And this was possible through the lending of US$266,666 to an established company that conducts its main business in urban and peri-urban zones[3]. The risk guarantee extended by the project for this loan amounted to US$62,222, showing a leverage of 4.28 times from the financial institution. The Activity Delivery Report of the IO dated December 2013 mentions that the deadline for the repayment of loan was 28 December 2012 and by that date, the enterprise that had borrowed the capital had reimbursed US$175,254 or less than two-third of the loan.

111. During the field visits, the feedback received from some of the stakeholders seems to conclude that a few technologies adopted by entrepreneurs or marketed by enterprises to rural households were not always perceived to be suitable and affordable. However, this may not be the sole reason for the high default rate in loan repayment by some enterprises as well as end-users but *mature and affordable technology seems to be a key to the cost savings that rural communities could achieve by adopting low cost clean energy solutions*.

[3] *In the GNESD Country report for Senegal entitled "Energy poverty in developing countries' urban poor countries: assessment and recommendations", the concerned LPG company (LMDB) is reported to have 8% of the LPG market share in Senegal. The study recognizes that the low-risk financial strategy adopted by AREED has been effective in increasing the availability of LPG in peri urban zones of Dakar by strengthening LMDB distribution network.*

112. In Tanzania, on the other hand, a careful scrutiny of the two women groups of EUF beneficiaries led to the conclusion that only 5 women were actually involved in the income generation activities in comparison to the 20 women cited in the project report. When asked, the project manager responded that the number quoted in the report was based on what was provided by national project partners. It is possible that while the loan was extended to women groups, not all members of the groups were actively involved in income generation activities.

113. The individual rating based on the outputs achieved, given in the context of the resulting impacts of the TOC, is given as **moderately satisfactory**.

114. **Outputs leading to Outcome 3:** As for policy support, a decision was taken to delegate the responsibility to AREED II partners.

115. The project progress report prepared in 2011 recognized that the policy component had been unintentionally marginalized due to the Project manager's heavy workload of dealing with the EUF and EDS aspects. Instead of being treated as a sub-component under the project manager's responsibility, it should have been considered as a separate component with adequate budget line and dedicated staff.

116. The IO in Ghana is reported to have supported a statement on the floor of the Parliament calling for a total import tax waiver on not only solar systems but also other associated components. However the 'struggle' seems to be still on and it has been championed by the Association of Ghana Solar Industries and the Sustainable Energy Network of Ghana.

117. The IO from Mali is reported to have worked with the national agency for Rural Electrification (AMADER) to promote the productive use of energy in rural electrification by sharing tools and practices with other financial institutions (banks and MFIs) but the IO was unable to share any further details.

118. In Senegal, a ministerial department was established to support the development and registration of SMEs. However, this has not led to any significant changes in the enabling environment for energy SMEs because the institutions created by the government do not necessarily provide services to match the specific needs of energy SMEs.

119. The project manager admits in the final report that though some minor initiatives had been taken in this regard, there has not been "any significant changes in the overall enabling environment"; hence "there is no evidence of AREED model influencing policy processes". There is no evidence of the involvement of government representatives in any of the participating countries.

120. The individual rating based on the outputs achieved, given in the context of the resulting impacts of the TOC, is given as **unsatisfactory**.

121. **Outputs leading to Outcome 4:** Finally, as far as communication, dissemination and outreach activities are concerned, it has been reported that UNEP as well as the IOs have developed communication strategies. A dedicated website was created and the results of the project activities were uploaded for general viewing, including a video explaining the overall principle of the AREED II model and modalities of its implementation.

122. A careful review of the website shows that the information shared was rather narrow in its outlook. AREED II focused on EUF but the website is mostly limited to EDS activities. The website does not share any chronological evolution of the project, toolkits developed and refined, or the key outcomes at the different stages of project implementation.

123. In the report of the mission to Mali during March 2009, UNEP reports that IOs will each contribute US$5,000 into a common account for the purpose of supplementing AREED budget for communication and outreach. There is no further reference to this decision.

124. Considering the fact that many of these communication events were reported before the actual initiation of EUF and EDS activities in 2010 and 2012, respectively, such communications could not have shared the real experience from AREED II and the lessons learnt.

125. The IO from Mali confirms having shared the AREED approach and strategy during Berlin-MicroEnergy International 2013 and Addis Ababa Africa-Europe Energy Partnership in 2014.

126. The individual rating based on the outputs achieved, given in the context of the resulting impacts of the TOC, is given as **moderately satisfactory**.

127. AREED II became operational in 2008 and all activities were expected to be completed by the end of 2010. The fact that EDS guarantee funds were disbursed around the middle of 2012 and the final reports by the project partners were submitted well before December 2012 shows that the project activities could not be completed in a timely manner and there was not adequate time for the project to learn from the EDS experience. Further, the field evaluation of the project in February 2014 showed that since the official completion of the project in December 2012, most IOs had not followed up the status of the capital lent by the local banks/FIs. During meetings held with the concerned banks/FIs, it was learnt that in the absence of any close follow-up by the IOs as well as the banks/MFIs, borrowers had defaulted on their payments of dues.

128. The above discussion shows that while AREED II has achieved some good results against all odds, namely the delay in getting suitable staff to run the project, identifying motivated financial partners and addressing the legal issues of establishing partnership, the experience of AREED I could have contributed to a better formulation of the project implementation path, making this very challenging but interesting initiative more useful and effective.

129. The **overall rating** on delivery of activities/outputs as a whole is **moderately satisfactory**.

IV.C. Effectiveness: Attainment of project objectives and results

a. Direct outcomes from reconstructed TOC

130. As discussed in III.I (Reconstructed TOC), from the 4 sets of outputs, the project sought to achieve outcomes that are supposed to lead the project towards its overall objective. The evaluation of the effectiveness is based on the extent to which the objectives were achieved, especially keeping in view the TOC developed for the project.

131. Based on the logframe indicators for the different outputs, the project has partially achieved what was targeted and at varying degrees of success in the different countries. Countries such as Ghana, Mali and Senegal have experienced greater success in achieving the objectives because of institutional advantages and better entrepreneurial culture.

132. The energy enterprises seem to have made a more lasting impact and presence in Ghana and Senegal by demonstrating commercial success in the LPG, cook stove market because of the high demand and mobilization of mature technology. Both governments have encouraged the use of such technologies. Moreover, there was both significant demand at the household level and wholesale supplies available for distribution. The IOs have also made efforts to engage the government, thus raising the profile of the enterprise model approach among the decision makers.

133. In Senegal, the high electricity tariff and the relative scarcity of biomass fuel in urban and peri-urban areas were the key reasons for the rapid growth of LPG, cook stoves and off-grid solar PV markets. The country appears to have a strong SME sector and many energy enterprises were already in operation in the country. Also, the microfinance sector seems more mature, providing loans to businesses and households to purchase clean and modern energy technologies, helping to develop more energy entrepreneurs. In Mali, the government has been particularly keen to mobilize energy enterprises to provide energy services in those areas where grid connectivity still remains a major challenge.

134. In Tanzania and Zambia, the focus seems to be more on innovative technologies as opposed to supporting strong entrepreneurs. Also, there is a lack of clear energy policies and targets and

government support. Many energy entrepreneurs are largely dependent on their own savings to either establish or expand their businesses.

135. However, mainstreaming of the lessons learnt through communication and policy support at the national levels were not as effective as proposed in the logframe. It is partly due to the limited human and financial resources allocated during the project designing stage.

136. The rating for the achievement of direct outcomes is **moderately satisfactory**.

b. Likelihood of impact using RoTI and based on reconstructed TOC

137. It is recognized that the effective mainstreaming of the lessons learnt would depend on each country's context and the project duration may have been rather limited to easily influence changes. Based on the reconstructed TOC, there are indeed a number of challenges to scale up the lessons learnt from the AREED model, both institutional (lack of policy support) and structural (lack of an entrepreneurial culture, limited purchasing capacities of end-users, inadequate access to funds by the banks for long term investment, higher perceived financial risk of investing in energy SMEs and end-users, etc.).

138. However, seeds of changes sown by AREED are already leading to results in some of the more recent programmes that seem to have been influenced by the AREED experience. One such example is the GroFin program which, with committed capital in excess of US$320 million, has adopted some of the AREED approach in its strategy to assist entrepreneurs and business owners in over a dozen countries in Africa to access tailored finance and experienced business support to start and grow successful businesses, creating jobs and driving socio-economic development.

139. It is also encouraging that the AREED and many other similar initiatives in least developing countries have helped to create a certain level of awareness among the international community, leading to several new commitments and new actions towards the goal of achieving universal modern energy access by 2030, many of them targeting less developed African countries.

140. However, the project's intended outcomes were not fully delivered. While innovative enterprises are delivering energy technologies and services to rural and peri-urban producers, many of who have been able to increase their income and pay off loans, the project has failed to contribute much to the adoption of policy instruments and strengthening of institutions for supporting the provision of energy services in rural areas. Hence the outcome rating would be C. As far as progress towards intermediate state is concerned, it can also be rated as C as measures designed to move towards intermediate states have started, but have not produced results. For more background on the ratings, please refer to Annex 7.

141. Hence the overall rating for the 'Overall likelihood of impact achievement' is **moderately unlikely** (CC).

Table 7. Results rating of the project

Results rating of project entitled:	**African Rural Energy Enterprise Development II (AREED II)**						
Outputs	**Outcomes**	Rating (D – A)	**Intermediate Steps**	Rating (D – A)	**Impact**	Rating (+)	Overall
- REED toolkit adapted for use by social entrepreneurs. - Workshops for about 800 social entrepreneurs organized and promising proposals selected - More than 30 promising business models identified	**Enterprise development services coupled with grant funding accessible to entrepreneurs seeking to start up or expand for rural energy initiatives**	**C**	**Increased access to modern energy services for income generation by rural producers in 5 African countries**	**C**	**Improved livelihood in rural Africa through increased access to modern energy technologies and services**	**-**	**CC**

- At least 15 business proposals sought financing in 3 countries - Hands-on enterprise development services provided to 50 social entrepreneurs in 5 countries - Loan given to 8 enterprises in 3 countries with project fund as risk guarantee							
- Altogether 404 end-user groups were financed in the 5 countries - Extensive support provided by UNEP to all AREED II partners	**MFIs establish end-user credit facility that can be accessed by rural people to acquire modern energy equipment and services for productive activities**						
- There is no reporting on data being accessible on key actors in energy and development policy - There is no reporting on tools being provided to key local, national and regional actors - No specific training has been reported by UNEP or project partners	**Local and national government agencies adopt policy instruments and strengthen institutions to support provision of energy service in rural areas**						
- Country-specific approach was agreed and AREED II partners have implemented communication strategies on their own - AREED II mechanism presented in several high-level policy dialogues and ministerial discussions in partner countries - Articles published on AREED II project. Apart from UNEP publications, most other publications reported are from Senegal - AREED II partners have shared progress reports to UNEP - AREED II has been presented in several UN conferences and AREED financed entrepreneurs have widely spread the AREED model	**Stakeholders understand and support replication of AREED II approach in other areas within and beyond target countries**						
	Justification for rating:		**Justification for rating:**		**Justification for rating:**		
	The project's intended outcomes were partially delivered, but were not designed to feed into a continuing process after project funding.		The measures designed to move towards intermediate states have started, but have not produced results.		Project has not achieved documented changes in environmental status during the project's lifetime.		

c. Achievement of project goal and planned objectives

142. The partially successful achievement of the project objectives can be attributed to a number of factors, namely the ownership and active involvement of the IOs, and the networked approach adopted by them to learn from each other's experience contributed to the successful achievement of the objectives. Some of these partners have achieved greater success than the others due to the improved functioning of value chains, better business regulatory environment, and more effective financial intermediation.

143. AREED I was mainly driven by the Fund Manager. Enhancing the capacity of the IOs to institutionalize the enterprise-centred approach in AREED II was probably the most effective contribution of the project. Some of the IOs seem to have learnt from AREED II activities but are handicapped by the limited means to carry the initiative forward. Provided with adequate human and financial means as well as appropriate government policy support, these IOs are likely to upscale their activities in the enterprise development arena.

144. The rating for the achievement of project goals and planned objectives is **moderately satisfactory**.

145. The overall rating on the project effectiveness is **moderately satisfactory**.

IV.D. Sustainability and replication

a. Sustainability

146. **Socio-political sustainability:** The IOs from the participating countries have demonstrated their commitment and enthusiasm to adopt and propagate the AREED model by being very actively engaged with the programme for more than a decade. They have demonstrated their deep involvement and their keen interest to get the AREED model recognised in their respective countries and scaling it up so that the model can be widely replicated and benefit the whole African region.

147. The social conditions surrounding the communities where the SMEs are located impinges upon the ability of consumers to pay upfront for energy services rendered or procure particular types of energy devices for income generating activities. The ability of the EUF component to make energy services accessible in unserved areas has demonstrated the potential to contribute positively to the living conditions and livelihood activities. This has led to the development of a niche market for the entrepreneurs because the demand for clean energy systems and services justifies the need for the EDS component (technical and financial support to capitalise businesses, service loans and guarantee the growth of energy SMEs).

148. Based on the results achieved so far, one can identify some important factors that are likely to influence negatively the sustenance of project results.

149. In case of the high default rate of loan repayment by the beneficiaries of productive energy use applications, one can expect the AREED initiative to fail due to lack of adequate financial resources for the IOs to retain staff for monitoring loan performance and ensuring loan repayment. Some loan beneficiaries had most likely stopped repaying the loans after the project ended with the belief that the loan was made through donor support and there was no compulsion on them to repay the loan. Ensuring sufficient resources for M&E activities to continuously assess the quality and performance of the initiative, and urging the borrowers to reimburse their loans in a timely manner can address this problem.

150. Barring a few successful SMEs with past experience of doing business, most energy entrepreneurs willing to serve the rural end-users were found to have weak technical and managerial abilities and needed continuous support to develop bankable business plans and succeed in their businesses by timely repayment of loans.

151. Unwilling to take any risks associated with the above issues, the local banks are unwilling to lend for longer duration and favourable rates, which in turn adversely affect the capability to pay back loans.

152. It was also observed that some IOs, with primary focus in community and social development, were keen to take up the mantle of commercially oriented financial institutions to fill in the void. It may not be a good idea because each organization should take up role and responsibility in tune with its capabilities and orientation.

153. The absence of political commitment by the governments to improve the business environment, bring about effective financial intermediation and allocate the needed resources is likely to adversely affect the programme's sustainability.

154. Based on the above, the socio-political sustainability is rated as **moderately unlikely**.

b. Financial resources

155. **Financial resources:** The partners from the 5 participating countries had access to funds for two purposes: creating loan guarantee funds for both EUF and EDS schemes and cover their operating costs associated with all activities of the project.

156. The loan guarantee fund was meant to leverage funding from the local banks/FIs and address any possible risks associated with the repayment of loans. Senegal was the only country where high leveraging ratios were achieved. In all other countries, the local bank and FIs were unwilling to take any financial risk and lend more than the project's risk guarantee funds. Some

IOs complained that the funds available through AREED were too little to leverage the inflows of much larger funds to support the energy SMEs.

157. Tanzania and Zambia were the two countries which benefited only from the EUF guaranteed funds and the amount actually loaned for EUF represented *a paltry 4% or less* of the loan risk guarantee fund.

158. In principle, if the loans were repaid without any default and the borrowers came up with further bankable business proposals, the banks and FIs would be in a position to make further loans against the loan risk guarantee funds. Since no additional funds have been mobilized or secured beyond the limited amounts contributed by the project (US$610,000), this mechanism would not facilitate the scaling up of EUF and EDs activities. In fact, the default rates of some of the loans were found to be high, which would mean erosion of loan guarantee fund to compensate for the losses incurred by the local banks and FIs. A case in point is the EDS loan in Senegal: 47.7% of loan remained unpaid as of February 2014.

159. A common complaint among the IOs was that they did not have the means to maintain a team and follow up with the borrowers, banks and FIs more than a year after the project ended. From UNEP perspective, funds were allocated in the sub-contracts for monitoring activities. However the IOs had engaged these limited funds on staff expenses due to the delay in the project implementation,. When the project ended, the EDS scheme had barely started and the IOs were unable to retain their staff long enough to monitor the loan performance or mobilize additional funds to sustain the initiatives.

160. Some IOs, notably from Ghana and Senegal, have remained more active by mobilizing their own resources, identifying enterprises or end-user groups through MFIs in order to make further disbursements of EDS and EUF. However, they were not successful in getting any further contracts signed beyond the official closure of the project either because the local banks or the financial institution did not approve the contracts or because the beneficiaries found the loan terms and conditions unattractive. In Ghana, for example, the loan terms were rather harsh (high interest rate and very short loan tenure). The only EDS beneficiary who had taken a loan in October 2012 for a short duration of 6 months had reimbursed only around 38% of the capital borrowed, without taking into account the unpaid interest amounts.

161. Taking the above into consideration, the sustainability in terms of financial resources is rated as **unlikely**.

162. **Institutional framework:** As highlighted in the TOC, suitable institutional framework for ensuring improved business regulatory environment is crucial for the sustainability of the project objective. A larger platform is needed to facilitate and catapult the AREED pilot initiatives, and governments have the mandate and the resources to push for the acceptability and successful replication of AREED model by adopting relevant policies and creating conducive business environment.

163. The evaluator of AREED I had also emphasized the need for addressing institutional barriers to the sustainability of AREED model by suggesting the inclusion of ministerial representatives in the national structure of the programme to raise their awareness. AREED I evaluation was concluded in January 2009 whereas AREED II was started in January 2008. The evaluator's recommendations were obviously not considered in AREED II designing and implementation.

164. The initial proposal of assessing the needs and providing information and tools to inform decision making at the local, national and global levels was abandoned in the very early stage of project execution and the IOs were expected to develop their own dynamism and strategy to carry out this task.

165. As conceded in the final report of the project, there was no evidence of AREED model influencing policy processes during the project implementation. This was also confirmed during the meetings held with officials from the two countries visited during the evaluation mission. Judging by the present status and performances of the EUF and EDS loans, the project does not

seem to have contributed significantly to improving business regulatory environment or making the financial intermediation more effective.

166. As pointed out in paragraph 138, there is evidence of the AREED model influencing similar initiatives in Africa to mobilize SMEs for the provision of improved and affordable goods and services in rural areas. Such ventures have mostly contributed to addressing market failures, making effective financial intermediation through funding and risk sharing. But there is no clear evidence of institutional policy changes or governance structure to scale up such initiatives.

167. In spite of the positive role played by the IO from Ghana in reducing tax on imported solar products (see paragraph 116), access to solar products is still very limited due to the high upfront costs. The IO from Ghana also deplores that government offers subsidized solar products to communities or extending grid electricity to areas where AREED enterprises are active, thus adversely affecting their business prospects. This is an example of the lack of adaptive management.

168. In countries with very low level of electrification rates, governments are generally keen to achieve high level of electrification by extending the national grid to unserved areas. However, governments tend to provide heavy subsidies to fulfil this goal, often with the assistance of international donors and development banks, at the detriment of the entrepreneurial initiative to improve energy access in unserved areas.

169. The Malian IO acknowledges the support provided by the government to promote clean energy services and products by tax and duty exemptions and to facilitate the development of energy business by providing investment up to 80% for the production of energy in rural areas. While these steps are positive, it is not clear how such mechanisms will become sustainable in the absence of any viable business models.

170. The sustainability in terms of institutional framework is rated as **unlikely**.

171. **Environmental sustainability:** The environmental sustainability of the AREED program is fairly clear as the wide scale use of affordable clean energy technologies and solutions will contribute to reducing greenhouse gas emissions.

172. However, some concerns were raised regarding the choice of technology being promoted and their effectiveness in reducing the environmental emissions while ensuring that the project was indeed financially viable to make the loans bankable. As an example, while the technology for fish smoking in Senegal was expected to save considerable amount of firewood and recover the investment in a very reasonable timeframe of a couple of months, the actual adoption of the technology was poor, resulting in uncontrolled combustion and the fish getting burnt in the process.

173. The environmental sustainability is rated as **likely**.

174. The overall rating of the programme sustainability is **unlikely**.

b. Catalytic role and replication

175. **Behavioural changes:** In AREED II, the IOs were involved in reviewing and adapting tools developed in AREED I to train and build the capacity of the enterprises interested in providing rural energy services. All IOs recognize the catalytic effect of the AREED model in strengthening their capacity to assist with the identification of appropriate business ideas and entrepreneurs at the local level, and extend business development services to selected entrepreneurs before, during and for several months after investment.

176. Another important factor that has been well appreciated is the role played by the project to leverage financing from local banks and microfinance institutions, showing their willingness to take more risks for the rural people who could access modern energy equipment and services for income generating activities. Thanks to the AREED initiative, those end-users with limited capital were able to access clean technologies to enhance productivity and product quality.

177. **Incentives:** In AREED I, the fund manager played a key role and the IOs had limited role in terms of financial appraisal and follow-up with selected enterprises. The incentives provided by AREED II included the sharing of toolkits and provision of greater responsibility to the IOs so that they could institutionalize the enterprise centred approach into their activities, thus playing a crucial role locally in implementing the AREED model and developing other similar activities.

178. The other important incentive extended by the project was the proactive engagement with local banks and financial institutions by sharing new skills and financial risks, thus helping them identify promising business opportunities so that they could facilitate financing to end-users and to clean energy enterprises.

179. **Institutional changes:** Banks and MFIs are traditionally shy to invest in small energy enterprises that are considered to have an inherently high risk profile associated with the low level of entrepreneurial capacity, high risk of default, higher transaction costs for supplying to dispersed rural market and the capital-intensive clean energy technologies. In spite of the fact that there were some cases of loan defaults due to inadequate monitoring after the project ended, AREED II has contributed to institutional changes by demonstrating that supporting businesses by sharing risk can allow business to innovate and take on higher risk ventures.

180. The institutional changes also included leveraging financing from MFIs for rural energy end-users, either for domestic or productive uses, allowing greater penetration of clean energy technologies into rural and peri-urban markets that energy enterprises tend to avoid.

181. **Policy changes:** The evaluation of AREED I had highlighted the importance of interaction with government institutions to raise their awareness and the need for establishing a formal body including both private and public stakeholders in order to create an enabling environment for the scaling-up of energy access. The project document had suggested that there will be collaboration with various government agencies for creating appropriate policy environment, but it was later decided that each IO would be responsible for mainstreaming policy activities.

182. However, much of the project time and efforts of UNEP as well as the IOs were channelized to engage with local banks and MFIs for facilitating financing to clean energy enterprises and end-users. During the project life, the project team was unable to have adequate credible enterprise performance data and development impacts to disseminate among governments, financial institutions, donors and the general public in the country in order to influence policy changes and business regulatory environment.

183. **Catalytic financing:** Apart from the funds mobilized from the Swedish International Development Cooperation Agency (Sida), the project has not received any other follow-on financing from governments, private sector, donors, etc.

184. The first UNEP mission report had outlined the strategy to be adopted for the implementation of AREED II programme. According to this report, 2 or 3 of the most promising mechanisms in terms of early success and impacts would be supported in the first phase. This would be paralleled by intensive fund raising efforts, backed by a communication and outreach strategy showcasing the viability of the mechanisms. Implementation mechanisms in the remaining countries would be contingent on successful mobilization of additional funding. UNEP does not seem have made any headway with this strategy later in the project.

185. In Senegal, the risk guarantee fund allocated by the project has leveraged capital from the local bank and MFI for supporting energy entrepreneurs and end-users. However, the mechanism to monitor and evaluate the loan performance has not been that effective. As a result, the initial fund created to provide loan guarantee is likely to erode after compensating for the loan defaults.

186. **Champions to catalyse change:** The project has created a number of champions who strongly believe in the effectiveness of the AREED model in reaching deeper into rural and peri-urban markets that commercially oriented enterprises usually seek to avoid due to the associated risk

and perception of unlikely returns on any investment. These include the IOs who have learned from the process and dedicated their efforts in providing technical support to energy entrepreneurs and collaborating closely with banks and MFIs for delivering high quality business development services. For example, the IO from Ghana recognizes that most of their social enterprise-led initiatives now feature the use of AREED toolkit for business plan development and enterprise development support services.

187. The IO in Mali has established an energy incubator centre to train potential entrepreneurs to develop their business ideas, offer advisory services, business information, eventual financing, etc. This organization in Mali has cooperated with IOs from Ghana and Senegal and identified potential technologies and common interest in financing similar technologies in the 3 countries. The IO from Tanzania has been influenced by the project to develop a similar technical centre and has studied specific technologies to adapt them to local conditions.

188. The IO in Mali facilitated the transfer of technology to Tanzania for the promotion of multi-function platform as a source of mechanical and electrical energy in grid-independent locations. The same IO also facilitated exchanges between entrepreneurs in Mali and Ghana for the promotion of energy-efficient light bulbs.

189. Some of the energy entrepreneurs and MFIs have also benefited immensely from the project, and are strong believers of AREED model as an effective mechanism to overcome the financial barriers. In Ghana, for example, the success story of SODIGAZ has inspired several entrepreneurs to start LPG businesses with support from some banks. Similarly, one of the entrepreneurs promoting improved cook stoves was able to get carbon finance with gold standard. These successes were also, to some extent, due to the involvement of well-proven and mature technologies that could pay for themselves within a reasonable time frame.

190. **Replication:** The AREED model appears suitable for replication because it proposes solutions to overcome barriers to the access of clean energy solutions to rural enterprises and households, particularly in the context of the sub-Saharan Africa. The project was designed to provide technical advice and enterprise development services, and mobilise seed capital for lowering the risks perceived by the local banks and MFIs associated with lending to energy enterprises and households.

191. As pointed out in paragraph 138, there are examples of other larger commercial initiatives inspired/influenced by the AREED model being implemented successfully in the African continent, but not addressing specifically the same goal and target groups as that of AREED II (access to clean energy by rural households for domestic and productive uses).

192. The results achieved so far lead to the conclusion that while the solutions proposed by the AREED model are necessary, they are not sufficient to guarantee the final results, especially in less-developed countries faced with structural issues such as the lack of entrepreneurial culture and business skills, relatively high transaction costs of investing in energy SMEs, longer time needed to recover investment in capital-intensive clean energy technologies, high risk of default, etc. The prerequisites for the successful scaling up of the AREED experience include the important role of government in:

a) Creating an enabling environment for energy enterprises to conduct thriving business;

b) Supporting the market development of mature and clean energy technologies that are well suited to the local conditions.

193. In view of the above, the catalytic role and replication is rated as **moderately satisfactory**.

IV.E. Efficiency

194. The project was initially planned for a 3-year duration but took 5 years to complete. It underwent five revisions. The 4th revision was done in May 2011 to extend the duration of the project from December 2011 to March 2012 to ensure effective delivery of the project outputs and to enable the implementation of the activities funded by the donor contributions.

195. The final revision to the project was done only on 30th May 2013, to extend the duration of the project from March 2012 to December 2012 for closing purposes only. The main reason for this delay was the late start of the EDS activities for which training sessions were conducted only in March 2012 and risk guarantee contracts were signed with local banks and MFIs later, with the exception of Senegal where the EDS scheme started as early as 2010.

196. The reasons for the delay in project execution have been dealt in Section III.H along with the changes made in project activities and timeline. As mentioned in paragraph 80, in Tanzania and Zambia, only EDS training was conducted and no start-up grant was provided for entrepreneurs. Some of the time delays could have been avoided with a little better planning and better coordination among UNEP and the IOs, especially as AREED II was built upon the achievements of AREED I and involved the same IOs.

197. Though the project duration was extended to the end of 2012, IOs submitted their final reports between July and December 2012. In the absence of any structured mechanism for monitoring and evaluating loan performances for both EUF and EDS activities, there has been no further meaningful interaction between UNEP and the IOs beyond the project life.

198. During the field missions to Senegal and Tanzania, the evaluator tried to assess the status of loan repayments. It became clear that there had not been any follow-up because the members of the project team had either quit or were involved in other activities. On the other hand, the local banks and the MFIs believed it was the responsibility of the IOs to play the role of intermediary between them and the beneficiaries (both entrepreneurs and households) and ensure that the loan dues were paid on time. The local banks and MFIs were not much concerned about loan defaults as they could claim the unpaid loan from the loan risk guarantee funds created by the project, except in Senegal where the loan risk guarantee fund had leveraged much higher amounts of loans from the local financial institutions.

199. The project was designed such that the IOs would take the lead role with UNEP mobilizing a project manager to facilitate the project implementation. Accordingly, around two-thirds of the budget were allocated for IOs to implement EUF and EDS activities, and about 20% of the budget were for project coordination activities. UNEP later realized the need for hiring additional consultants to assist the IOs. Due to this, as well as the extended project life, the project personnel cost doubled. On the other hand, less than 60% of the budget EUF and EDS could be engaged as risk guarantee funds. In Tanzania and Zambia, no funds were engaged for EDS activities and the local banks were only able to lend only about 3 to 4% of the risk guarantee funds provided by the project.

200. By the time the project ended, there was still a fund balance of US$142,218. Some of this balance could have been allocated to the IOs for putting in place an effective and efficient mechanism of monitoring and evaluating EUF and EDS performances after the project ended, feeding back lessons learned, and seeking government intervention and support for removing barriers to energy enterprise development and growth.

201. The overall rating for efficiency is **moderately unsatisfactory**.

IV.F. Factors affecting performance

a. Preparation and readiness

202. As a follow-up of an earlier phase, AREED II was formulated with the idea of collaborating with the same IOs to whom more responsibility would be devolved. Hence the capacities of these executing agencies were considered when the project was designed. Two additional elements added to this second phase were an end-user financing component and provision of enterprise support and seed financing to commercial enterprises as well as non-commercial entities that could have more reach into rural areas.

203. AREED I was initially planned for implementation within 3 years but it finally took more than double the time to be completed without any changes in the objectives, affecting the activities that were carried out and the budget allocated. Considering the fact that AREED II was to focus more on rural areas and include newer activities of identifying and collaborating with local banks and MFIs, the initial project duration of 3 years was too ambitious, especially as there was also a component of monitoring and evaluating EUF and EDS performances in order to gain experience, create awareness and engage policy makers in a dialogue regarding policy measures for scaling up AREED model.

204. As pointed out in paragraph 163, the recommendations of the evaluation of AREED I was not taken into consideration in AREED II designing and implementation.

205. Following the experience of the previous phase, it was also planned to provide grant support to selected social enterprises or similar organizations for rural energy initiatives. However, the first project workshop provided the forum for discussion with project stakeholders and the roles and responsibilities were negotiated. As elaborated in paragraphs 77 to 80, some of the decisions taken during this workshop differed from the initial project document, showcasing adaptive management.

206. The budget needed for the project was secured from the donor prior to the launching of AREED II. The counterpart resources were defined on the basis of the activities they were expected to undertake. Though the IOs were actively engaged in the project in 2008, funds for staffing and implementing EUF activities were engaged more than one and half years after the start of the project, only after a substantive project manager could be recruited.

207. In the project design, no separate budget was allocated for hiring a financial expert who would assist in designing pilot financing mechanism. However, during the project implementation, UNEP decided to hire a financial expert. The time needed to identify a financial expert and design pilot financing mechanism took much longer, thus delaying the implementation of the EUF component. Even the EUF component took longer because of the difficulty in convincing the local banks and MFIs and negotiating lending terms and conditions; this led to delays in the implementation of the EDS component.

208. The preparation and readiness rating is given as **moderately unsatisfactory**.

b. Project implementation and management

209. Though the project management arrangement was well defined in the project document, the AREED II operating structure consisting of Management Committee, Fund Management Unit and Advisory Committee does not appear to have been formally adopted. There is no reference to these operating structures in any of the project outputs and reports. The only reference to a committee can be found in the mission report of May 2010 undertaken by the project manger in Senegal; it is stated that the investment committee at UNEP needs to be put in place to evaluate the business proposals.

210. The project document refers to the support received from the GEF Small Grants Programme (SGP) and proposes to create AREED II Management Committee made up of 1 representative each from UNEP and GEF-SGP, 1 representative from the intermediary organizations in participating countries and 1 international energy/development expert. There is no further mention of the involvement of GEF-SGP throughout the project duration.

211. There is no evidence of a Fund Management Unit being put in place and the specific role it played in terms of receiving and accepting applications submitted by IOs related to EUF/EDS activities.

212. There appear to be some lapses in project management, especially towards the end of the project. The fourth revision to the project was made in May 2011 to allow for the extension of the project duration from December 2011 to March 2012. However, the project continued to operate beyond March 2012, and according to the country reports submitted in the second half

of 2012, some of the loans were made even after mid-2012. The fifth/final revision was only made in May 2013 in which the project duration was extended retroactively from March to December 2012.

213. In the final report prepared by UNEP, it was stated that local partners were responsible for ensuring repayment of the loans in the short term and to report back to UNEP. Also, local partners will re-use the guarantee funds for attracting more co-financing from local banks and MFIs. However, in reality no clear mechanism was put in place beyond the project life. This could be one of the causes of some of the entrepreneurs and energy end-users defaulting in loan repayment as there was no systematic monitoring and reporting once the project ended.

214. The project manager was recruited in June 2009, one and half years after the starting of the project. From the reports available, one can trace only 3 field missions undertaken by the project manager to only 3 of the 5 participating countries. This would mean that the project manager did not have an opportunity to visit all countries, meet the key stakeholders and witness the ground realities and challenges faced by the IOs.

215. Based on the interviews with the project manager as well as representatives from the five IOs, it was evident that the project manager was in regular contact with the IOs, was very much proactive and willing to support and assist them, and encouraged them to complete the assigned tasks in time-bound manner. All IOs appear to have maintained a very cordial relationship with UNEP and the project manager during the project execution, and appreciated very well the support extended to carry out the tasks.

216. The project partners met in Senegal right at the beginning of the project in April 2008 on the occasion of the energy end-users finance workshop. The second partners' meeting was held during the launch of End-User Finance Programme in Ghana in March 2009. After the recruitment of the project manager, only one partners meeting was held in Tanzania in July 2011 to discuss lessons learned, challenged faced and delays in the operation. These were the three main occasions for the IOs from the 5 countries to meet, interact and learn from each other's experiences.

217. The project implementation and management is rated as **moderately satisfactory**.

c. Stakeholder participation and public awareness

218. At the country level, the IOs interacted more actively with the following groups of stakeholders: entrepreneurs interested in providing rural energy services, end-user groups, local banks and financial institutions. They also interacted, but to a lesser extent, with government and other institutional stakeholders. For example, during the first stakeholders workshop held in Senegal in April 2008, no representatives from government were invited to participate in the discussions and deliberations.

219. At the country level, none of the IOs seem to have included public stakeholders in activities related to enterprise development and micro financing issues. The only occasion when government representatives were invited was during the launch of the AREED II End-User Finance Programme in Ghana in March 2009. It was meant to create national public awareness and an exhibition of clean energy products was organized by selected AREED enterprises.

220. Having worked closely with several energy entrepreneurs during AREED I, the IOs were quite familiar with the energy entrepreneurs and some of the entities representing the interests of rural households. However, they had no/limited experience of interacting with local banks and financial institutions that could support the AREED model of energy business development.

221. During the field visits and meetings held with a number of stakeholders, it was in general evident that the energy entrepreneurs as well as MFIs had well understood the overall AREED mechanism and appreciated the initiative of UNEP as well as the active role played by the IOs. The same could not however be said about the institutional partners as well as some of the

energy end-users. Some government representatives met during the mission were not well aware of how AREED functioned.

222. The energy end-users met during the field missions to Senegal and Tanzania did not seem to grasp the idea that they were expected to pay back the loan from the savings accrued from the use of efficient clean energy technologies, especially when the lending was meant for productive activities. For example, they were not keeping track of the monetary benefits they were getting by switching over from the traditional to the clean energy alternative. Those energy end-users who had defaulted in loan repayment were not able to explain clearly why they were not able to pay back the loans. Those who had stopped paying back the monthly instalments after a few months of regular payments explained that they had used the savings as capital to expand their business activities. They neither seem to be well aware that they had an obligation to pay back the loan in a timely manner nor was there any regular follow up by the local banks to recover the amount lent.

223. Considering the lack of government involvement and lack of stakeholder awareness, the rating for stakeholder involvement and public awareness is given as **moderately unsatisfactory**.

d. Country ownership and driven-ness

224. Based on the project reports and impression gathered during the field mission, neither did the governments in the five participating countries assume any specific responsibility for the project nor did they provide any support to project execution. In spite of the recommendations of the evaluation of AREED I, there were no conscious efforts made by the project partners to involve government representatives in the decision making process.

225. As mentioned in paragraph 219, government representatives were invited to the launching of the EUF pilot programme in Ghana. During the delivery of keynote address, they recognized that the EUF programme was in line with the government's programme to enhance access to modern energy services, hence the AREED model would receive full support from the government. Such public announcement appears more of rhetoric than real commitment; apart from reducing tax on imported solar products, government initiatives had not brought any significant changes in business regulatory environment in Ghana.

226. As there were no conscious efforts made by the project proponents to involve government representatives in order to sensitize them about the likely impact of scaling up AREED schemes, the IOs generally seem to have been less effective in stimulating country ownership of the project and policy recommendations.

227. The country ownership and driven-ness is rated as **unsatisfactory**.

e. Financial planning and management

228. The project underwent 5 revisions for the following reasons:

a) To reflect the actual cost for the year, and to rephase the unspent balance of the year into the same object expenditures or to reallocate funds between budget lines in order to meet the needs of the project;

b) To reflect an increase in the cost of the project due to exchange rate gains; and

c) To extend the project duration to ensure effective delivery of the project outputs.

229. The estimated and actual costs as well as the expenditure ratio (actual/planned) of the project are summarized in Table 7.

230. As one can observe in the table, the actual project cost was only about 6% higher than the estimated cost at design. Because of the foreign exchange changes in favour of the project, even after account for the 6% additional costs, the project was left with a surplus of US$142,220.

231. The rows of Table 7 highlighted in yellow colour were not part of the initial project budget. These budget items were included later based on the needs rising during the execution of the project. However, these budget lines were not reflected in any of the five revisions during the project life.

Table 8. Project costs

Component/sub-component			Estimated cost at design	Actual cost	Expenditure ratio (actual/planned)
10. Project personnel component					
	1100 Project personnel				
		1101 Project manager	411,375	563,128	1.37
		1102 Expert	-	122,906	
		1199 Total	411,375	686,034	1.67
	1200	Consultants			
		1201 Consultant LA	-	40,990	
		1299 Total	-	40,990	
	1300	Administrative support			
		1301 Admin assistance AL	-	73,290	
		1399 Total	-	73,290	
	1600	Travel on official business			
		1601 Travel + DSA for project manager	36,000	112,868	3.14
		1699 Total	36,000	112,868	3.14
	1999	*Component Total*	*447,375*	*913,182*	*2.04*
20. Subcontracts					
	2200 Subcontracts with supporting organizations				
		2201 Base contracts for EDS - 5 country partners	96,750	-	0.00
		2202 Performance fees: Country partners	190,000	-	0.00
		2203 Enterprise Seed Funding	600,000	361,500	0.60
		2204 End-user Finance Scheme	485,000	755,560	1.56
		2205 Communications and outreach	20,000	-	0.00
		2299 Total	1,391,750	1,117,060	0.80
	2999	Component Total	1,391,750	1,117,060	0.80
30. Training and Meetings/Conferences					
	3300	Meetings/Conferences			
		3301 One stakeholder meeting	30,000	42,447	1.41
		3302 Two management Committee meetings	30,000	-	0.00
		3399 Total	60,000	42,447	0.71
	3999	*Component Total*	*60,000*	*42,447*	*0.71*
50. Miscellaneous Component					
	5200	Reporting costs			
		5201 Five Rural Energy Market Barrier Assessment Reports	20,000	-	0.00
		5299 Total	20,000	-	0.00
	5300	Sundry			
		5301 Miscellaneous	2,000	586	0.29
		5399 Total	2,000	586	0.29
	5500	Monitoring and Evaluation			
		5501 Mid-term Evaluation	15,000	-	0.00
		5502 Final Evaluation	20,000	-	0.00
		5599 Total	35,000	-	0.00
	5999	*Component Total*	*57,000*	*586*	*0.01*
Total cost of the project			**1,956,125**	**2,073,275**	**1.06**
		UNEP Programme support (5%)	97,806	103,664	1.06
Total Expenditure			**2,053,931**	**2,176,939**	**1.06**

232. The rows of Table 7 highlighted in green colour show zero actual costs because no expenditures were made against those budget items. The project budget included an item to cover the costs associated with mid-term evaluation but there was no mid-term evaluation done for the project.

233. The actual cost of the budget item “End-user Finance Scheme” was 56% higher than the estimated cost at design. This is because sub-contracts made between UNEP and IOs for this specific budget item also included the costs of other budget items that show zero actual costs. For example, the two budget lines corresponding to base contracts and performance fees for the 5 IOs were not utilized at all. The same holds true for communication and outreach, reflecting zero actual cost.

234. The actual cost of the budget item “End-user Finance Scheme” was 56% higher than the estimated cost at design. This is because sub-contracts made between UNEP and IOs for this specific budget item also included the costs of other budget items that show zero actual costs. For example, the two budget lines corresponding to base contracts and performance fees for the 5 IOs were not utilized at all. The same holds true for communication and outreach, reflecting zero actual cost.

235. Only 60% of the budget allocated for EDS was utilized because the EDS lending program did not take off in two of the five countries.

236. There was a budget of US$30,000 allocated for conducting two management committee meetings but at the end, the actual cost for this budget item is shown as zero.

237. The total budget allocated for EUF and EDS activities amounted to US$1,085,000 but the actual cost for both items was US$926,000, including several other costs. A careful verification of the details in the sub-contracts showed that only US$625,000 or 58% of the estimated costs were allocated as risk guarantee funds for both EUF and EDS activities, the remaining US$316,000 covering several other items such as base contracts, performance fees, communication and outreach, workshops, etc.

238. On the other hand, the actual project personnel cost was more than double the estimated cost at design. The additional cost was due to the hiring of personnel who were not accounted for in the initial project costs and the extended duration of the project in spite of the fact that the project manager was recruited one and half years after the start of the project. The higher actual cost of project personnel component was possible because of lower than the estimated cost of sub-contracts signed with supporting organizations.

239. The yearly balance sheet of the project shows that donor funds were made available right from the beginning of the project. However, there were practically no funds disbursed to supporting organizations during the first one and half years of the project. This could be because of the delay in recruiting project manager who was instrumental for the preparation and negotiation of sub-contracts. This meant that during the initial project implementation phase, the partner organizations had to cover their own costs of participating in the project activities. This could also be the reason for their difficulty in achieving less than expected results till the signing of sub-contracts with the IOs.

240. The income and expenditure statement of the project shows that the total income came from the voluntary contribution of Sida, amounting to US$2,318,157. No other co-financing from other donors, governments, NGOs, foundations or communities has materialized in the project.

241. The local banks and MFIs have given loans for EUF and EDS activities against the risk guarantee funds created by UNEP for the 5 countries. With the exception of the participating bank and MFI in Senegal, and to a very small extent for the EUF activities in Mali, local banks in the remaining countries were not willing to take any risk by lending more than the risk guarantee fund of the project. These loans cannot be strictly considered as co-financing because the participating banks and MFIs were expecting to recover the loans within a limited time frame that was sometimes as brief as half a year. However, it should be recognized that without these loans, the project’s ultimate objective could not have materialized.

242. The financial planning and management is rated as **moderately satisfactory**.

f. Supervision, guidance and technical backstopping

243. As pointed out in several paragraphs, there were delays in terms of recruiting key project personnel, sub-contracts with IOs, project revision, etc., which have undoubtedly affected the project outputs and outcomes to some extent.

244. Looking back at all the efforts made by UNEP prior to the recruitment of the project manager, and later by the project manager, one cannot doubt the sincerity of the project personnel as well as the engagement of the IOs to ensure the success of the project. However, the adequacy of the project supervision plans, inputs and processes may be questioned because the project reporting in the initial period of the project did not always fully capture the difficulty and the challenges in putting the EUF scheme in place. Apart from the institutional barriers, one should not overlook the fact that contrary to the project plan, no base contract was established with the IOs due to delay in the recruitment of project manager. It is difficult to say how effective were the IOs in supporting the development of EUF scheme in the absence of a base contract that would have provided them the financial means to hire staff and ensure progress and continuity.

245. The project was faced with the challenge of developing a EUF model that would suit the specific technical, financial, social and institutional situation in each of the five participating countries. The urgent need for hiring an international financial expert was felt and EUF activities could not progress satisfactorily due to the delay in recruiting the international expert. The international financial expert was able to propose business models based on past experiences, however the proposed business model did not work out satisfactorily because some of the local banks and MFIs showed unwillingness to follow the agreement drafted by the project and wanted to approve loans only according to their standard terms. It is not understood why the project did not also consider involving local finance and legal experts who were familiar with the prevailing business culture in their respective countries and could have suggested business models and measures well suited to the local conditions.

246. As explained in paragraphs 209 to 211, the different guidance and backstopping bodies do not appear to have been created; if they were created, there is no mention of the role they played in supervising and providing guidance to the project.

247. However, the above deficiencies cannot be attributed to project management alone because of the complex nature of the project and the ground realities in the participating countries, particularly in terms of the institutional challenges presented in paragraph 179. UNEP project team has been sincere in the efforts and has attempted to provide maximum support and guidance to all the stakeholders.

248. The rating of UNEP supervision and backstopping is **moderately unsatisfactory**.

g. Monitoring and evaluation

249. **M&E design:** The M&E is designed according to UNEP's standard monitoring and evaluation procedure. The project log frame included objectively verifiable indicators of achievements, sources and means of verification for the project objective, outcomes and outputs. The indicators used in the logframe, though ambitious for the project timeframe and budget, are measurable and relevant to the objective. The time frame to achieve the ultimate objective would depend very much on the impact drivers and assumptions to move from project outcomes towards project impacts.

250. The monitoring and reporting of the programme is also included in the project document. This includes activity delivery report, annual progress report, final report, and quarterly expenditure report.

251. The baseline information is presented in the project document in a clear manner. The data sources and data collection instruments are appropriate. Arrangements for monitoring have been well defined and specific targets have been specified for project outputs.

252. The M&E design is rated as **satisfactory**.

253. **M&E Plan Implementation:** The M&E system was operational and facilitated timely tracking of results and progress towards project objectives throughout the project implementation period. The project manager assured the operationalization of the M&E system based on the feedback received from the IOs. The information provided by the M&E was used to improve project performance and to adapt to changing needs.

254. With the exception of the quarterly expenditure report, all other reports were prepared and were made available for the evaluation. In the first phase of the project, reports appeared fairly complete but did not necessarily give a clear picture of the ground realities and the reasons for the slow take-off of the project. The candid nature of reporting by the project manager in the later phase of the project helped to understand the status of the different activities as well as the achievements made, and the challenges to overcome. Field visits and discussion with relevant stakeholders show that some of the indicators of achievements communicated by the IOs were exaggerated. Had the medium term review been carried out as planned in the project, it could have helped in getting a better picture of what had actually been achieved by the project and not just as reported by the project partners.

255. The M&E plan implementation is rated as **moderately satisfactory**.

IV.G. Complimentarity with UNEP strategies and programmes

256. **Alignment with Bali Strategic Plan:** The focus of AREED II was on capacity building in developing countries and dissemination of clean and sustainable energy technologies and practices that lead to improved livelihood and reduction in greenhouse gas emissions and potential co-benefits. The project's objective is highly relevant to and consistent with the BSP for Technological Support and Capacity Building which aims at a more coherent, coordinated and effective delivery of capacity building and technical support at all levels and by all actors, in response to country priorities and needs.

257. **Gender:** The project document has considered the benefits of energy access for women who are often most adversely affected by the lack of modern energy services. To enhance the contribution and ownership opportunities for women, it had proposed to adopt a gender-sensitive strategy, make special efforts to reach potential women entrepreneurs, and provide technical assistance tailored to their needs.

258. However, there does not appear to be any specific effort made to ensure a gender balance in the project team, partners and selected social entrepreneurs. A couple of IOs confirmed that conscious efforts had been made to be gender-sensitive, both in the recruitment of the team to manage the project as well as in the selection of beneficiaries for each of the project activities except in circumstances where women showed very little interest in the programme.

259. No specific strategy seems to have been adopted to make AREED II products gender-specific although some of the women's groups have indeed benefitted from the EUF scheme. Considering the fact that it is most often the women in rural areas who have to face the drudgery and hardship due to the lack of access to clean and modern energy services, some efforts could have been made to make the products more gender-specific.

260. **South-South Cooperation:** By taking the lead for the implementation of AREED II, the IOs from the 5 participating countries have proved their strong commitment for learning and sharing in order to scale up and replicate the AREED scheme in a sustainable manner. The project promoted and benefitted from the exchange of technology and knowledge between 5 participating countries. For example, an effective financial mechanism was established in

Senegal in consultation with the IO. As the results were deemed successful, the mechanism was replicated in Mali, Tanzania and Zambia after adapting it to the local conditions.

261. As mentioned in paragraph 187 and 188, energy incubator of Mali has benefited IOs from Ghana and Senegal, and the technology centre created in Tanzania have helped in technology dissemination. The project has provided a platform for entrepreneurs from Mali and Ghana to exchange ideas related to the promotion of energy-efficient light bulbs.

262. All partners agreed to create an investment facility out of the AREED reflow funds: *the African Sustainable Energy Facility (ASEF)*. Thanks to the initiative of the IO in Senegal, ASEF has been formally registered as a foreign association on 2nd April 2013. The IOs envisage funding of business ideas based purely on bankability and on merit but there is no mention about the source of funds to sustain this initiative.

V. CONCLUSIONS AND RECOMMENDATIONS

V.A. Conclusions

263. The global objective of the AREED programme was to enhance access to modern, clean and reliable energy technologies and services for income generation by rural producers in Africa so that they can improve their livelihood and reduce their reliance on fossil fuels. AREED II was launched in 2008 to address two core challenges: (a) Lack of access to financing for rural producers who are the likely beneficiaries of energy services; and (b) Lack of technical and financial support for social entrepreneurs interested in starting up or expanding energy business in rural areas.

264. The terminal evaluation has two main objectives: (a) To assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability; and (b) To promote learning, feedback, and knowledge sharing through results and lessons learnt between UNEP and its partners.

265. A careful Review of Outcomes to Impacts (ROtI) of the AREED programme has allowed to trace the key “impact pathways” that link project outcomes to impacts, and identify the “drivers” and “assumptions” that support the process involved in the transformation of outputs to outcomes to impacts through intermediate states.

266. The overall intended impacts of the project are improved livelihoods and less reliance on fossil fuels for the African population deprived of modern, clean and reliable energy technologies and services. These are consistent with global and regional issues and needs. The project is therefore aligned with UNEP’s MTS 2010-13 as it is contributing to two of the Expected Accomplishments of UNEP in relation with climate change.

267. Despite delays in project staffing and implementation, the activities planned and implemented during the execution of the project have achieved the outputs partially, both in terms of quantity and quality.

268. The project aimed at developing new skills among the various project stakeholders. The project collaborated with IOs from the partner countries in order to strengthen their capacity to support prospective energy entrepreneurs in delivering enterprise development services effectively, and prospective energy end-users in getting financial credits to acquire modern, clean and reliable energy technologies and services. These IOs have played an important role in carrying out the tasks with the support of UNEP in order to achieve the planned outputs.

269. The IOs were instrumental in reaching out to very large number of potential energy entrepreneurs, providing assistance to a selected number of innovative and committed enterprises in developing promising business plans, and getting loans for the bankable proposals against risk guarantee fund provided by the project.

270. The IOs also played a catalytic role in mobilising local banks and MFIs in the participating countries and providing them technical support as well as risk guarantee fund against which they could finance energy end-users as well as clean energy SMEs. Using their existing networks, the IOs were able to create awareness among MFIs and associations working for the benefits of end-users, and facilitate matchmaking with banks willing to extend credits.

271. The project has been less effective in engaging local and national government agencies in developing and implementing policy instruments and strengthening their capacity to support enterprise-led provision of energy technology and services in rural areas. Instead of adopting a common strategy to address the issue of mainstreaming policy initiatives, the project devolved responsibility to IOs without clear strategies and resources, both human and financial.

272. The project efficiency suffered due to delays in project staffing and sub-contracting, and the difficulty in putting the EUF scheme in place. Also, the decision not to launch both EUF and EDS schemes in parallel resulted in the late start of EDS activities and less loan disbursement.

273. Another cause of the reduced efficiency was the insufficient budget allocation for M&E activities to continuously assess the quality and effectiveness of EDS and EUF schemes, particularly after the official closure of the project. There was no mechanism adopted for the IOs to follow up on the repayment of loans and report back to UNEP, and to reuse the risk guarantee funds for attracting further co-financing from local banks and MFIs.

274. The project's sustainability is likely to be in jeopardy unless: (a) adequate financial resources are mobilised to increase the risk guarantee funds and to support IOs in sustaining the various activities they are supposed to carry out for scaling up the AREED scheme; (b) capacity of the entrepreneurs is strengthened so that they are able to develop bankable business and satisfactory investment criteria; (c) Effective monitoring and loan repayment mechanism is put in place to minimize the loan default rate; and (d) strategic measures are adopted to sensitize and influence local and national governments to contribute effectively to the realisation of the intended impacts.

275. Based on the outputs of the project and interaction with the different stakeholders, the project has undoubtedly played a catalytic role in creating an enabling environment and contributed to behavioural changes among beneficiaries. The project has also created a number of champions who strongly believe in the effectiveness of the AREED scheme.

276. There is evidence of other large commercial initiatives influenced by the AREED model being implemented in the African continent, but not addressing the same goal and target groups. The solutions proposed by AREED model do not appear to be sufficient to achieve the expected impacts, especially in less developing countries with structural challenges such as the lack of entrepreneurial culture and business skills, relatively high transaction costs of investing in energy SMEs, longer time needed to recover investment in capital-intensive clean energy technologies, insufficient government support for research and development on efficient and affordable energy technologies, high risks of default, etc.

277. The project budget was modest compared to the scope of activities to be undertaken and geographical coverage. Though there was no appreciable difference between project budget and actual spending, significant variations in budget lines were noted.

278. Ratings of the individual criteria are given in Table 8. The overall rating for the project based on the evaluation findings is moderately satisfactory.

Table 9. Evaluation criteria, summary assessment and ratings

Criterion	Summary Assessment	Rating
A. Strategic relevance	*AREED II objectives were consistent with global and regional environmental issues and needs. It was fairly well aligned with UNEP MTS 2010-13 and PoW 2010-11 and 2012-13.*	***S***
B. Achievement of outputs	*Some outputs were achieved quite satisfactorily except that related to policy support.*	***MS***
C. Effectiveness: Attainment of project objectives and results	*The project objectives and expected results were achieved quite satisfactorily. There are some challenges to be addressed prior to scaling up the AREED model.*	***MS***
1. Achievement of direct outcomes	The project has partially achieved what was targeted and at varying degree of success in the different countries.	**MS**
2. Likelihood of impact	There remain a number of challenges to overcome but seeds of change sown by AREED are already leading to some concrete results.	**MU**

3. Achievement of project goal and planned objectives	Some of the IOs have benefitted from the AREED II activities. Provided with adequate resources as well as government policy support, there is likely to be an upscale of activities in the enterprise development arena.	**MS**
D. Sustainability and replication	*The overall rating of this criterion is based the lowest rated criteria below*	***U***
1. Financial	In the absence of any public or private support, and with the limitation in funding from the banks and FIs, the financial sustainability of the AREED initiative will be a challenge.	**U**
2. Socio-political	AREED scheme has garnered considerable support from various stakeholders. The EUF and EDS activities will have positive impact on the rural poor, but a few factors that may adversely affect the sustainability of the initiative have been identified.	**MU**
3. Institutional framework	The project has not been able to undertake sufficient policy support initiatives at the government level to ensure favourable business regulatory environment	**U**
4. Environmental	The AREED programme will result in wide scale use of affordable and clean energy technologies, contributing to reduce greenhouse gas emissions.	**L**
5. Catalytic role and replication	The programme has had catalytic effect on behavioural changes among beneficiaries but has been less effective in contributing to policy changes. It has created a number of champions to catalyse change.	**MS**
E. Efficiency	*There has been considerable delay in the project execution, compromising some of the expected outputs. The allocated budget has not been balanced and it has been underutilized in some instances.*	***MU***
F. Factors affecting project performance		
1. Preparation and readiness	The programme could have been better prepared in terms of planning and implementation by prior consultation with the IOs which were already involved in the earlier phase of the project.	**MU**
2. Project implementation and management	The implementation approach and project management has been satisfactory except for some lapses in the beginning and towards the end of the project	**MS**
3. Stakeholders participation and public awareness	Stakeholders' engagement has been high except for the limited interaction with government officials. However, some of the financial beneficiaries do not seem to have well understood the business model and have defaulted in loan repayment.	**MU**
4. Country ownership and driven-ness	The governments in the countries involved have not assumed any specific responsibility in the project and did not provide any support for project execution.	**U**
5. Financial planning and management	While financial reporting was systematic and regular, there were major deviation between the planned budget and actual expenditures. Funds were not made available to the IOs on time and the sums allocated were not properly reflected in the budget lines.	**MS**
6. UNEP supervision and backstopping	UNEP supervision and guidance were effective and well appreciated, except for initial delays in recruiting project personnel and sub-contracting with IOs. There were deficiencies in financial management.	**MU**
7. Monitoring and evaluation	Overall rating is based on the M&E design and plan implementation.	**MS**
a. M&E Design	The M&E design presented in the project document is well designed.	**S**
b. Budgeting and funding for M&E activities	There is no clarity on how budgeting was done and funding allocated for M&E activities.	**MS**

c. M&E plan Implementation	Medium term review could have helped in getting a better picture of what had been actually achieved in the project.	**MS**
Overall project rating		**MS**

V.B. Lessons learned

279. Based on the findings of the evaluation, a number of lessons can be learned that can be of high relevance to future projects with similar goals.

Lesson 1: Cut your coat according to the cloth

280. The targets set by the project were ambitious for the available budget and the set time frame. When an activity is included, adequate budget should be allocated. For example, there was no specific budget line for policy support in the ProDoc. The project should have taken into account the lessons learned from the previous phase of activities in order to design the project in a more realistic manner and achieve more satisfactory results. More sectoral focus (for example rural agro-food processing sector) as the target for energy technologies and enterprises is a way to success and for the creation of government buy in.

Lesson 2: Consult stakeholders for improving the quality of project design and ensure their active involvement

281. The success of a project depends a lot on the extent of understanding, commitment and involvement of the key stakeholders. If the project developer designs the project without prior consultation with the key stakeholders, particularly the concerned government officials, they are likely to be less inclined to get actively involved. It is also important to maintain high project visibility through regular contact with and involvement of the relevant stakeholders, government, private sector and academia where relevant.

Lesson 3: Do not expect NGOs to sustain the AREED business model

282. Non-governmental organizations (NGOs) were selected to play the key intermediary role in implementing the AREED business model by providing technical support to energy entrepreneurs as well local banks and FIs. NGOs are typically non-profit development organizations working at the local, national or international level. Hence it is unrealistic to expect such NGOs to sustain the AREED business model without any mechanism to finance them beyond the project life.

Lesson 4: Ensure that stakeholder play the role that suits their orientation and capabilities

283. Each organization should take up role and responsibility in tune with the organization's capabilities and orientation. Hence organizations with the primary focus on community development should not take up the mantle of commercially oriented enterprises or financial institutions.

Lesson 5: Allocate sufficient resources for developing the capacity of the key partner involved in implementing the project activities

284. The IO identified in each country was expected to support the development of EDS and EUF activities. The Project Officers (POs) of the IOs should have had the capacity to carry out such tasks efficiently. Due to staff turnover during the long project implementation period, some of the IOs were hampered by ineffective and inadequate staff capacity at the PO level. Sufficient

resources should have been allocated in the project to train and upgrade the knowledge of the POs and familiarize them with the necessary tools and methods.

Lesson 6: Select energy technologies and services on the basis of rigorous techno-economic evaluation

285. The project implementation team should carefully consider market opportunity of such technologies and services in terms of country/location specific parameters such as the cost of conventional form of energy, income level of the population, opportunity for productive activities, etc. in order to ensure their acceptance and commercial viability. The IOs should be trained to carry out techno-economic assessment of specific technologies and due diligence on the field performance of technologies.

Lesson 7: Accept that banks and FIs will finance only those clients with business acumen and competence to make "bankable" proposals

The poor response of banks and FIs in extending loans to energy enterprises cannot be solely attributed to their ignorance of the business potential for the provision of energy products and services in rural markets. Many energy enterprises interested in rural markets are not mature enough to attract investment by mainstream financial institutions because they lack business experience, do not have "bankable" business plans, and their balance sheets, risk profiles, collateral options and size are just not in line with the investment criteria of the banks and FIs.

Lesson 8: Involve government to help create conducive economic and regulatory conditions for scaling up the commercial success of energy enterprises

286. The commercial success of donor-backed pilot programmes for energy enterprises to provide clean energy products and services to needy beneficiaries at reasonable and affordable prices does not guarantee the scaling up in the absence of conducive business and regulatory conditions which are in the realm of the government. Strong involvement and policy support of the government is key to sustainability of the business models beyond the funded phase. Government support is also critical to impose minimum performance standard for energy products and services, creating a level-playing field for energy entrepreneurs promoting quality products that last longer. Hence renewing and strengthening relations with government should be a more central part of project design.

Lesson 9: Allocate more resources for M&E activities beyond the project life

287. Since the success of the project lies in the loans being repaid in full and timely manner by the energy enterprises as well as the energy end-users, adequate resources should have been allocated for monitoring of results and evaluation of progress towards the project objectives beyond the official closure of the project, particularly as the IOs involved in the project are in general not in a position to generate their own resources to cover such costs. The outcome assessment carried out after AREED I is an example of useful way of increasing learning.

Lesson 10: Complement international expertise by mobilizing national experts to resolve the legal and contractual issues associated with lending by banks and FIs

288. The international financial consultant was instrumental in proposing suitable financing mechanism on the basis of experiences of similar initiatives elsewhere. National experts familiar with the local banking procedures should also have been mobilized to contribute to the development of financial structures that are well suited to the local context, thus saving considerable time and resources for the project.

Lesson 11: Facilitate market access for rural products and services

289. Rural people using energy for commercial activities have a fairly limited market access. Unless access for rural products and services is facilitated (as it is the case with the African Energy Challenge Fund), energy end-users may not be in a position to repay the loans for capital-intensive energy products and services.

Lesson 12: Communicate effectively not only the success stories but also the hurdles to be overcome for the success of the AREED business model

290. Effective communication of the hurdles to be overcome for the success of the AREED business model is as important as reporting success stories based on the outcome of rigorous monitoring and evaluation of the pilot initiatives. It is important to make potential stakeholders aware of the main reasons for the failures as well as the successes. The website can be an effective means for widespread dissemination of not only the project outcomes but also the tools and mechanisms developed for the project.

V.C. Recommendations

291. While the project has officially ended at the end of December 2012, the following recommendations are made assuming that UNEP and the IOs are still motivated and engaged to move towards the ultimate impact of the AREED initiative:

Recommendation 1: Mobilize the IOs of the participating countries to update the exact status of the risk guarantee funds

292. A sizeable chunk of the project budget was used as risk guarantee fund for the realization of both EDS and EUF activities. In spite of the best efforts made during the project evaluation, it was not possible to get a clear status of the risk guarantee funds. It is recommended that UNEP shares a part of the residual risk guarantee funds with IOs of the participating countries so that they are able to undertake a rigorous monitoring and evaluation in order to get an update of the exact status of the risk guarantee funds. To the extent possible, the IOs may wish to pursue or convince the entrepreneurs and/or energy end-users who have defaulted in loan repayments. In cases where beneficiaries are genuinely unable or unwilling to repay the loans, such loans should be written off and banks and FIs compensated for the unrecovered capital loans. The IOs may be asked to record the whole process and make distinction between those projects that have been implemented successfully and those that have been less successful.

Recommendation 2: Revamp the project website to ensure improved project visibility

293. Allocate a part of the residual risk guarantee funds for improving the project website so that the project outputs and outcomes are shared widely in order to improve the project visibility and eventually contribute to scaling up of the AREED business model. Share all the tools and methods developed in the framework of the project so that others may be inspired to widen the AREED business model. Develop story lines to highlight the factors that have contributed to the success of some projects as well as the reasons for the failure of other projects.

Recommendation 3: Ensure government buy-in by renewing and strengthening relations, and support them in creating an enabling environment for the scaling up of AREED model

294. Put high priority on ensuring government buy-in by anchoring activity within the national setting, i.e. government. Undertake a rigorous exercise to initiate dialogue with local and national governments with the objective of convincing them to adopt right policies and action plans that can help to remove all barriers to the scaling up of AREED business model.

Recommendation 4: Ascertain the technical and economic viability of technologies and services aimed at rural population to ensure their acceptance and commercial viability

295. The technical and economic viability of the energy technologies and their market conditions should be ascertained by the project implementation team in order to ensure that the technologies and services aimed at rural population are suitable, reliable, mature, field-tested and proven.

Recommendation 5: Continue to monitor after project life and undertake assessment activity to update the evaluation

296. Ensure that the IOs continue to monitor the project performance after the project life and foresee an outcome assessment activity to update the present evaluation.

Annexes

A.1. Response to stakeholder comments received but not (fully) accepted by the evaluator

Paragraph/Ref	Comment	EO comment	Evaluator response
General comments	Each organization should be allowed to document success stories and failure stories which led to successful performance or poor performance	Each organization should have been given an opportunity to do this through the evaluation process. If any organization feels that there an important 'story' untold, they should please send it to us. No action for evaluator – unless you feel someone was excluded from the process and want to follow up.	
General	Some small grammatical/ spelling errors have been corrected using track changes.	Evaluator to look at the text and revise.	Done.
General	Characterization of the IO partners. Change wording from NGOs/to non profit develop organisations. AREED is not a business model -it's a development model. (project team). Would be interesting to think about partner choice – benefits of working with large/small organisations.	Consider revising sections on financial sustainability, preparation/readiness section and Lesson 3. Comment on partner choice in stakeholder section?	Done.
Paragraph 111	LMBD has fully repaid the loan during 2013. This information can be verify through the	Evaluator to look at the text and revise.	The text was based on what was reported by

Paragraph/Ref	Comment	EO comment	Evaluator response
	ORABANK records.		ENDA in the report prepared in December 2013 and shared with the evaluator. Made changes and removed one sentence.
Paragraph 117	Unless this was captured in one of our progress reports, I don't remember having said this in my interview with the Evaluator. The partial reduction in taxes on imported solar systems couldn't have been due a statement on the floor of parliament because it predates the AREED programme. What we probably may have reported on was our quest to get a complete waiver on all solar products.	Please consider this comment and revise the paragraph if necessary.	This is based on the written feedback from KITE received in March 2014, responding to a set of questions sent by the evaluator Reflected the feedback received from Ghana.
Lesson 1 para 281	Do you have any specific tips to help those involved in project design to be more realistic (this lesson is coming up a lot!). For example ground truthing the project proposal with key stakeholders or perhaps peer organization? EO	Consider adding to this lesson.	When an activity is included, adequate budget should be allocated. For example, there was no specific budget line for policy support in the ProDoc
Lesson 2	Who is this lesson directed to? Would you say it was particularly important for a particular type of project?	Consider adding to this lesson.	The lesson is directed to Project Developer.

Paragraph/Ref	Comment	EO comment	Evaluator response
	EO		
Lesson 6	How can this be facilitated in a future project. Is it about training IOs or screening technologies centrally? Can we be more specific? EO		Training IOs on the techno-economic assessment of specific technologies and due diligence on the field performance of technologies
Lesson 8	Do you have any specific recommendations on how this could have been better done?	Add comment on preparing for political cycles – change of people in power, and plans to maintain relationships?	Involvement of the government representatives and more dialogue with them
Lesson 9	This is a very important issue and relevant to many projects. I would be interested to discuss it further with the project team.	Add note on the outcome assessment carried out after AREED I as an example of useful way of increasing learning.	Done.
Recommendation 1 paragraph 293	My concern on this recommendation is the issue of only three countries to sharing the remaining funds. In the process of implementing AREED II. A consultant was hire to look at the implementation of the end-user component only worked in the three countries (Ghana, Senegal and Mali) it was for this reason that the process was much slower in the two other countries, Zambia and Tanzania). A	Evaluator to consider and revise if necessary. (Discuss with project team).	Changed to IOs of all countries.

Paragraph/Ref	**Comment**	**EO comment**	**Evaluator response**
	consideration should be made for Zambia and Tanzania. Opportunities are still available except there MFI did not have fund form projects we recommended for funding. (Lilian)		
Recommendation 2	Include discussion of successes and failures on the website.	Add something on this in the recommendation.	It is already reflected in the recommendation 2.
Recommendations	Add recommendation on the need to continue monitoring and evaluation beyond the project life. Possible second phase of the AREED 1 outcome study? (Project team)	Consider adding a recommendation.	Added a recommendation.

A.2. Evaluation TORs (without annexes)

Terminal Evaluation of the UNEP project
"African Rural Energy Enterprise Development Phase II"

PROJECT BACKGROUND AND OVERVIEW

Project General Information

1. Table 1. Project Summary

UNEP PIMS ID:		**IMIS number:**	CPL 5070-3640-1111
Sub-programme	Climate change	**Expected Accomplishment/**	C [4]
		PoW Outputs	4[5]
Expected Start Date:	October 2007	**UNEP approval date:**	October 2007
Actual start date:	2008	**Planned duration:**	36 months
Intended completion date:	December 2011	**Actual completion date:**	December 2012
Planned project budget at approval	$2,258,931	**Secured budget*:**	2,053,931 USD
UNEP contribution*	205,000 USD	**Co-financing*:**	$1,956,150[6]
Mid-term review/eval. (planned date):	None	**Terminal Evaluation (actual date):**	December 2013 – March 2014
No. of revisions:	5	**Date of last Revision:**	30.5.13

4 'That improved technologies are deployed and obsolescent technologies phased out, financed through private and public sources including the Clean Development Mechanism'.

5 New climate finance instruments are launched and investments in clean energy are made by first-mover financiers and lenders and investors.

6 From Project LFA, Final report states US$2,320,000 funded by SIDA

ACRONYMS

AREED	**African Rural Energy Enterprise Development Programme**
CEEEZ	**Centre for Energy, Environment and Engineering, Zambia Ltd.**
DTIE	**Division of Technology, Industry and Economics**
EDS	**Enterprise Development Services**
FI	**Financial Institutions**
GEF SGP	**Global Environment Facility Small Grants Programme.**
KITE	**Kumasi Institute of Technology and Environment**
MTS	**Medium term strategy**
NGO	**Non Governmental Organisation**
PoW	**Programme of Work**
RET	**Renewable Energy Technology**
ROtI	**Review of Outcomes to Impact**
SME	**Small and Medium Enterprise**
TaTEDO	**The Tanzania Traditional Energy Development and Environment.**
ToC	**Theory of Change**
UN	**United nations**
UNEP	**United Nation Environment Programme**
UNDP	**United Nations Development Programme**

2. Project rationale

1. The Africa Rural Energy Enterprise Development (AREED) project seeks to address energy poverty in rural areas of Africa. Energy supply remains largely inadequate relative to the

identified needs, especially in the rural areas. Per capita energy consumption in sub-Saharan Africa, especially in rural communities, is the lowest in the world: 0.3 to 0.6 toe[7]/person, compared with 7.5 to 9 in North America (a ratio of I : 30). Moreover, Africa's energy balance continues to be dominated by biomass which accounts for two-thirds of total rural household energy consumption. Sub-Saharan Africa has the least developed market for electricity in the world, with rural electrification levels that are routinely below 5%. For the most part, effective demand for, and supply of modern energy services is limited almost entirely to urban areas. These shortcomings are compounded by macro-economic and social profiles that translate into extremely difficult initial conditions for energy sector development, including low levels of productivity in rural economies, and low per capita incomes and poor access to credit facilities that could enhance access to productivity enhancing energy and other essential services.

2. Unmet energy needs of rural people in Africa include: I) modern fuels for those who currently rely on biomass for cooking whether for household or commercial purposes; 2) electricity for such services as domestic and commercial lighting, refrigeration, information and communication technologies, water treatment and supply; 3) mechanical power and process heat for productive uses in agricultural, industrial and service sectors.

3. The first phase of the AREED project was launched by UNEP in 2000. Its goal was to overcome the barriers to clean and sustainable energy supplies by creating a business oriented environment to meet the energy needs of the rural poor in five countries of Western and Southern Africa: Ghana, Mali, Senegal, Tanzania and Zambia and in doing so to contribute to the sustainable development and prosperity of these nations. Specifically the programme aimed to promote new sustainable energy enterprises that use clean efficient and renewable energy technologies (RET) to meet the energy needs of under-served populations in rural and peri-urban areas while reducing the environmental and health impacts related to current energy patterns. The key objectives of AREED I were:
    - To assist UN agencies to develop and internalize a new methodology for promoting private sector driven, clean energy technology adoption.
    - To build the capacity of national/regional NGOs to identify and support small and medium size energy enterprises through the critical start-up phase.
    - To assist regional and national financial institutions to better understand and ultimately invest in this sector.

4. These activities aimed to promote increased capacity of entrepreneurs to start and develop energy businesses, increased capacity of NGOs to support this, the development of cooperating financial institutions and supportive policy for SME development. In addition the project planned to disseminate experiences and lessons to catalyse change beyond the five target countries.

[7] Tonnes of oil equivalent.

5. The Terminal Evaluation found the goal of AREED programme as well as the "business development model" relevant to the needs of under-served populations and development priorities identified in national policy documents as critical for the continent's development. Finally AREED programme is aligned with the UNFCCC and other strategic programmes, particularly in the areas of energy, environment and to some extent to health impacts mitigation. In terms of *the achievement of planned outputs and activities*, in spite of considerable difficulties faced by the programme management during the launching period and limitations in the RET investment approval process, overall performance was satisfactory. Four of six outputs were achieved during the programme lifetime. The AREED training tools that form the basic resource materials were developed with NGOs and adapted to national circumstances as documented in many reports. Besides, capacity building of Government institutions on integrating AREED model in their policies supportive of SMEs in the delivery of clean energy services has produced significant results in countries like Senegal, Mali and Ghana. In light of the above, the *overall rating* for the project was *satisfactory*, as set out in detail in the Conclusions and Ratings section of this report.

6. A central lesson of AREED I was that although the combination of enterprise development support and seed financing can be effective in expanding energy access, it was often not enough to get entrepreneurs focused on rural markets. Without end user financing a significant proportion of potential users, who could not afford to pay upfront for the products and services offered by AREED entrepreneurs, could not be reached. This end user financing gap led to the majority of clean energy enterprises supported under AREED I gravitating to more well off customers in urban and peri-urban markets.

7. Phase 2 of the project was designed to address this core problem by reaching deeper into rural markets. To do this it planned to:
   - Identify and provide enterprise development services and target grant support to development focused IOs/social entrepreneurs seeking to initiate and manage sustainable rural energy projects or enterprises.
   - Engaging with microfinance institutions and local banks to facilitate flows of end user financing to ultimate beneficiaries of energy projects initiated by the social enterprises pursuing rural development objectives.

8. The project would work through:
   - Local community-based organizations and local and national social entrepreneurs;
   - Non-governmental organizations especially local and national;
   - Local and national credit providers or other financial institutions;
   - Private sector equipment and service suppliers;
   - Government at the local, provincial or state and national level such as Rural Energy
9. Agencies/Rural Energy Funds;
   - Relevant (and on-going) bilateral and multilateral programs and specialized institutions (particularly the GEF Small Grants programme (SGP); and
   - Last but not least, the rural end-users for whom the energy is a means to productivity improvements, income and quality of life gains.

10. Building on AREED I, the legislative authority for AREED II stemmed from Agenda 21, Chapter 38 (Creating Capacity for Sustainable Development); UNEP GC 16/33 (promoting ways and means to facilitate access to ESTs); UNEP GC 16/41 (assisting developing countries in identifying climate friendly technologies and technology needs); UNEP GC 17/32 (requesting UNEP's Executive Director to implement Agenda 21); UNEP GC 20/29 (policy and advisory services in the key area of economics, trade, and financial services) and UNEP GC 20/40 (functioning of UNEP's specialized offices).

11. AREED II would contribute to the implementation of sub-programme 1: UNEP's efforts to promote regional and international cooperation regarding global climate change and to UNEP's umbrella project 3 (stimulating private sector provision of cleaner energy goods and services). It relates most closely to expected accomplishment C: New climate finance instruments are launched and investments in clean energy are made by first-mover financiers and lenders and investors, and to the Programme of Work Output 4: [1] *'That improved technologies are deployed and obsolescent technologies phased out, financed through private and public sources including the Clean Development Mechanism'.*

12. More specifically, AREED II would (i) allow UN agencies to develop and internalize a new methodology for promoting SME-driven, clean energy technology adoption; (ii) build the capacity of national and local NGOs and social enterprises in Africa to identify and support small and mid-sized enterprises through their critical start-up phase; and (iii) help regional financial institutions better understand and ultimately invest in this sector.

3. Project objectives and components

13. The overall objective of AREED II was to improve access to modem, clean and reliable energy technologies and services for income generation by rural producers in Africa.

14. The specific objective was that by the end of the project, between 15 and 20 social enterprises, each capable of serving at least 10,000 people, would be delivering energy services to meet the real development needs of rural people, particularly income generation and poverty alleviation in Tanzania, Zambia, Ghana, Senegal and Mali.

15. The success of AREED II would depend to a large extent on how well stakeholders and the rural communities perceived AREED II as making a contribution to meeting their immediate needs as well as broader development goals. For this reason, the methodological framework of AREED II included a communication, dissemination and outreach plan that would be informed by a series of intermediate evaluations of the economic, social and environmental impacts of the social enterprises as providers of clean energy services and products.

Table 2. Summary of project components, outputs and objectives. (from Project document and Project Logical Framework Annex 2 of Project Document)

Component	Output	Outcome
Enterprise Development	REED toolkit adapted for use by social entrepreneurs. Most promising entrepreneurs (20) supported by competitive grant. EDS services provided to selected entrepreneurs.	Enterprise development services coupled with grant funding are accessible to social entrepreneurs and similar actors seeking to start up or expand rural energy initiatives.
End User Finance	End user finance scheme designed and implemented with MFIs. Support provided to MFIs (based on needs).	Existing MFIs direct part of their resources to an end-user credit facility that can be accessed by rural people seeking to acquire modern energy equipment and services for use in productive income- generating activities.
Policy Support	Accessible data based on key actors in energy and development policy. Tools and support (based on needs	Local and national government agencies develop and implement policy instruments and strengthen institutions supporting social

	assessment) provided to key local, national and regional actors. Training provided (based on needs)	enterprise-led provision of energy services in rural areas.
Communication, Dissemination and Outreach	Effective communication strategy in place. AREED II experiences shared with local and national governments, UN and donor agencies, foundations etc. Publish 3 articles on the AREED project for national and international audiences with focus on private sector, development and energy/climate change. Project status reports disseminated. Entrepreneurs and their projects presented at international meetings. Strategy for replication AREED 2 in place.	Stakeholders understand and support replication of the AREED II approach in other areas within and beyond the target countries.

4. Executing Arrangements

16. AREED II was managed by the DTIE, Energy Branch, finance unit, working in close cooperation with the GEF Small Grants project (SGP) and participating MFIs. The intent of UNEP and SGP was to incorporate, where appropriate, the management of the grant for social entrepreneurs into SGP's existing activities and infrastructure over the long term, thus reducing the time and cost devoted exclusively to setting up and operating them cost-effectively. A similar dialogue was to be held with the MFIs, with the intent of leveraging funds from these organizations to support the end-user finance component of AREED II. NGO partners from the AREED I programme, along with new partner organizations-especially community-based organizations (CBOs) and government officials in the various Energy ministries or rural electrification agencies (such as AMADER in Mali or the REA in Uganda), would continue to play an important role in the AREED II effort.

17. In each participating country, AREED II would partner with one or two financial institutions and one local intermediary organization. Participating financial institutions would be offered some cost and/or risk sharing support from AREED II, in return for which they should commit to providing end-user financing for specified rural energy technologies. Once an end-user financing scheme was agreed and in place, specific project opportunities would be elicited through regularly published calls for tender, asking a broad range of social enterprises to submit proposals for delivery of specified energy technologies and services.

18. The key IOs in the five participating countries were: (KITE (Ghana), Mali Folkecenter (Mali), ENDA (Senegal), TaTEDO (Tanzania) and CEEEZ (Zambia). The role of these partners was:
    - To assess needs and provide hands-on technical capacity of local MFIs, potential entrepreneurs and end users
    - To build awareness and provide training on AREED finance mechanism
    - to implement AREED finance mechanism.
    - identify potential business ideas
    - provide hands-on enterprise development services.
    - To identify end users in need of microcredits to access clean energy

- to liaise between entrepreneurs, LFIs, UNEP and end users and to follow up and evaluate projects on the ground.
- To consult/discuss with local governments on policy barriers affecting investments from SMEs on clean energy.

19. The enterprise development process would be funded through an AREED II grant.

20. The AREED II operating structure was to include:
    - **AREED II Management Committee**: made up of 1 representative each from UNEP and GEF-SGP, I representative of intermediary organizations in participating countries (AREED II country partners); and 1 international energy/development expert.
    - **AREED II Fund Management Unit -** A Facility Management Unit (FMU), located at the UNEP Energy Branch in Paris and headed by a UNEP Programme Officer would exercise overall decision-making oversight on grant applications. In each of the countries where AREED II was active, a local intermediary organization would work under the supervision of the FMU to: identify prospective social enterprises; provide enterprise development services; conduct in-country due diligence; prepare and submit formal applications on behalf of grant applicants to the FMU for consideration.
    - **AREED II Advisory Committee -** a small committee of advisors would be established to advise on social enterprise development and micro financing issues, rural energy project development, operations and improvements. The committee was to be composed of individuals from the target countries and stakeholder groups.

21. The monitoring, reporting and evaluation systems of the proposed project was designed to meet the requirements of the UNEP/DTIE, as well as any specific monitoring and reporting needs of the Swedish International Development Agency (Sida). The project reporting would include: i) quarterly progress reports and ii) the final report. Copies of these reports would be disseminated to the members of the Management and Advisory Committees, Sida and to Country partners. The UNEP/DTIE would organize an independent evaluation after the completion of the project.

22. Each of the five country partners (would submit activity reports within 30 days of the mid-point of the annual progress reporting period (or as at 30 June, depending on the annual reporting cycle).

5. Project Cost and Financing

23. The estimated project cost at design was US$2,053,931 including Programme Support Costs of US$97,806 (see Table 3 below). Funds for this project were provided by SIDA.

Table 3. Estimated project cost

1 **Components**	2 **Estim. cost (US$)**
3 Project personnel component	4 411,375
5 Subcontracts (EDS, seed finance scheme, end user finance scheme, communication etc.).	6 1,391,750
7 Training and meetings/conferences	8 60,000
9 Miscellaneous	10 57,000
11 **Total project cost**	12 **1,956,125**
13 UNEP programme support (5%)	14 97,806
15 Cost to Cooperating Agency (SIDA)	16 2,053,931

6. Implementation Issues

24. Problems identifying a financial consultant who could design a financial mechanism to the project led a late start and delay in implementing EDS and EUF (end user fund) components

of the project. The delay resulted in a withdrawal of interest by the partner bank in Mali and need to negotiate a relationship with an alternative bank. The project negotiated a no budget extension up to December 2012 to compensate for the late start in some project activities.

25. The project also experienced problems negotiating favourable credit terms for entrepreneurs and end users with local finance institutions. With the exception of Senegal, finance institutions demanded high levels of interest and collateral.

26. Despite the intention to focus on rural areas, the project focus continued to be in urban, semi-urban areas. This was due to low levels of entrepreneurial capacity, higher transaction costs for supplying a dispersed rural market and demand side barriers for capital intensive RETs[8].

II. TERMS OF REFERENCE FOR THE EVALUATION

(1) OBJECTIVE AND SCOPE OF THE EVALUATION

27. In line with the UNEP Evaluation Policy[9] and the UNEP Evaluation Manual[10], the Terminal Evaluation of the Project "**African Rural Energy Enterprise Development Phase II"** is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and its partners. The evaluation will identify lessons of operational relevance for future engagement in energy SMEs and microfinance It will focus on the following sets of **key questions**, based on the project's intended outcomes, which may be expanded by the consultants as deemed appropriate:

1) Are enterprise development services and grant funding available to social entrepreneurs and similar actors seeking to start up or expand rural energy initiatives in the participating countries?

2) Are MFIs in the participating countries directing part of their resources to end user credit facilities accessible to rural people (including low income households)?

[8] Energy SMEs in sub-Saharan Africa: Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia p 73

[9] *http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx*

[10] *http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx*

3) Are local and national government agencies in the participating countries developing and implementing policy instruments and strengthening institutions to support social enterprise-led provision of energy services in rural areas?
4) To what extent are the above activities the result of AREED II outputs?
5) Are stakeholders within and beyond the participating countries replicating the AREED II approach?
6) Has there been an increase in the rural population served by modern energies in participating countries?
7) If 6 has occurred, have living standards and incomes improved in rural areas of participating countries as a result of access to modern energy technologies and services?

(2) OVERALL APPROACH AND METHODS

28. The Terminal Evaluation of the "**African Rural Energy Enterprise Development Phase II**" project will be conducted by independent consultants under the overall responsibility and management of the UNEP Evaluation Office in consultation with the DTIE office, Energy Branch and UNEP Risoe Centre.
29. It will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used to determine project achievements against the expected outputs, outcomes and impacts.
30. The TE should take into account the varied state of response in the 5 countries. Some countries experience a high degree of activity with regard to end-user support and involvement of MFIs, while in in other countries the activity was at a very low level. The TE should aim to account for this in terms of such factors as national characteristics, socio-economic conditions, maturity of the market, pro-activity of the Centres in identifying "clients" forging alliances with the financial institutions, etc. The choice of target countries should be made so as to assess both successes and failures. There should be even treatment of the 5 countries, although because of resource constraints, field studies may only be available in 2 countries.
31. The findings of the evaluation will be based on the following:
    a. A **desk review** of:
        - Relevant background documentation, inter alia Energy Subprogramme, UNEP Medium-term Strategy 2010-2013 and Programmes of Work, AREED I Final Report and Terminal Evaluation report.
        - Project design documents; logical framework and budget.
    b. Annual Work Plans and Budgets or equivalent, revisions to the project.
        - Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence etc.;
        - Final report
        - Papers produced by the project (see final report)
        - Project website (www.areed.com)
        - Energy SMES in sub Saharan Africa – Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia, study.
    c. **Interviews (individual or in group) with**: (see list of interviewees in Annex 8).
    d. Project management – present and former UNEP staff.
    e. UNEP Fund Management Officer;
    f. AREED centres (KITE (Ghana), Mali Folkecenter (Mali), ENDA (Senegal), TaTEDO (Tanzania) and CEEEZ (Zambia)).
    g. Participating banks/MFIs

h. Supported NGOs/SMEs
i. Meetings with Key stakeholders in 2 selected countries
j. Phone/email interviews with stakeholders in the remaining countries.

(3) KEY EVALUATION PRINCIPLES

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

33. The evaluation will assess the project with respect to **a minimum set of evaluation criteria** grouped in six categories: (1) Strategic Relevance; (2) Attainment of objectives and planned result, which comprises the assessment of outputs achieved, effectiveness and likelihood of impact; (3) Sustainability and replication; (4) Efficiency; (5) Factors and processes affecting project performance, including preparation and readiness, implementation and management, stakeholder participation and public awareness, country ownership and driven-ness, financial planning and management, UNEP supervision and backstopping, and project monitoring and evaluation; and (6) Complementarity with the UNEP strategies and programmes. The evaluation consultants can propose other evaluation criteria as deemed appropriate.

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

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

36. As this is a terminal evaluation, particular attention should be given to learning from the experience. Therefore, the "*Why?*" question should be at front of the consultants' minds all through the evaluation exercise. This means that the consultants need to go beyond the assessment of "*what*" the project performance was, and make a serious effort to provide a deeper understanding of "*why*" the performance was as it was, i.e. of processes affecting attainment of project results (criteria under category F – see below). This should provide the basis for the lessons that can be drawn from the project. In fact, the usefulness of the evaluation will be determined to a large extent by the capacity of the consultants to explain "*why things happened*" as they happened and are likely to evolve in this or that direction, which goes well beyond the mere review of "*where things stand*" at the time of evaluation.

(4) EVALUATION CRITERIA

A. STRATEGIC RELEVANCE

37. The evaluation will assess, in retrospect, whether the project's objectives and implementation strategies were consistent with global and regional environmental issues and needs.

38. It will also assess whether the project was aligned with UNEP's Medium-term Strategy 2010-2013 and Programmes of Work 2010-2011 and 2012-2013. The UNEP MTS 2010-2013

specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. The "**African Rural Energy Enterprise Development Phase II"** project was located under the Energy sub-programme 1. The evaluation should comment on whether the project makes a tangible contribution to any of the Expected Accomplishments specified in the UNEP MTS. The magnitude and extent of any contributions and the causal linkages should be fully described.

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

B. ACHIEVEMENT OF OUTPUTS

40. The evaluation will assess, for each component, the project's success in producing the programmed outputs and milestones as presented in Table 2 above, both in quantity and quality, as well as their usefulness and timeliness.

41. Briefly explain the reasons behind the success (or failure) of the project in achieving its different outputs and meeting expected quality standards, cross-referencing as needed to more detailed explanations provided under Section F (which covers the processes affecting attainment of project results).

C. EFFECTIVENESS: ATTAINMENT OF OBJECTIVES AND PLANNED RESULTS

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

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

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

    a. Evaluation of the **achievement of outcomes as defined in the reconstructed ToC**. These are the first-level outcomes expected to be achieved as an immediate result of project outputs.
    b. Assessment of the **likelihood of impact** using a Review of Outcomes to Impacts (ROtI) approach as summarized in Annex 6 of the TORs.
    c. Evaluation of the **achievement of the formal project overall objective, overall purpose, goals and component outcomes** using the project's own results statements as presented in the Project Document and Project Document Supplement (see Table 2). This sub-section will refer back where applicable to the preceding sub-sections (a) and (b) to avoid repetition in the report. To measure achievement, the evaluation will use as much as appropriate the indicators for achievement proposed in the Logical Framework (Logframe) of the project, adding other relevant indicators as appropriate. Briefly explain what factors affected the project's success in achieving its objectives, cross-referencing as needed to more detailed explanations provided under Section F.

D. SUSTAINABILITY AND REPLICATION

45. Sustainability is understood as the probability of continued long-term project-derived results and impacts after the external project funding and assistance ends. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of benefits. Some of these factors might be direct results of the project while

others will include contextual circumstances or developments that are not under control of the project but that may condition sustainability of benefits. The evaluation should ascertain to what extent follow-up work has been initiated and how project results will be sustained and enhanced over time. The reconstructed ToC will assist in the evaluation of sustainability, as the drivers and assumptions required to achieve higher-level results are often similar to the factors affecting sustainability of these changes.

46. Four aspects of sustainability will be addressed:

a. *Socio-political sustainability.* Are there any social or political factors that may influence positively or negatively the sustenance of project results and progress towards impacts? Is the level of ownership by the main stakeholders sufficient to allow for the project results to be sustained?
b. *Financial resources.* To what extent are the continuation of project results and the eventual impact of the project dependent on financial resources? What is the likelihood that adequate financial resources[11] will be or will become available to use capacities built by the project? Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?
c. *Institutional framework.* To what extent is the sustenance of the results and onward progress towards impact dependent on issues relating to institutional frameworks and governance? How robust are the institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. required to sustaining project results and to lead those to impact on human behaviour and environmental resources?
d. *Environmental sustainability.* Are there any environmental factors, positive or negative, that can influence the future flow of project benefits? Are there any project outputs or higher-level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits? Are there any foreseeable negative environmental impacts that may occur as the project results are being up-scaled?

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

a. *catalyzed behavioural changes* in terms of use and application by the relevant stakeholders of AREED tools and processes;
b. provided *incentives* (social, economic, market based, competencies etc.) to contribute to catalyzing changes in stakeholder behaviour;
c. contributed to *institutional changes*, for instance MFI provision of end-user finance;
d. contributed to *policy changes* (on paper and in implementation of policy;

[11] *Those resources can be from multiple sources, such as the national budget, public and private sectors, development assistance etc.*

e. contributed to sustained follow-on financing (*catalytic financing*) from Governments, private sector, donors etc.;
f. created opportunities for particular individuals or institutions ("*champions*") to catalyze change (without which the project would not have achieved all of its results).

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

E. EFFICIENCY

49. The evaluation will assess the cost-effectiveness and timeliness of project execution. It will describe any cost- or time-saving measures put in place in attempting to bring the project as far as possible in achieving its results within its programmed budget and (extended) time. It will also analyse how delays, if any, have affected project execution, costs and effectiveness. Wherever possible, costs and time over results ratios of the project will be compared with that of other similar interventions.

50. The evaluation will give special attention to efforts by the project teams to make use of/build upon the achievements of AREED I.

F. FACTORS AND PROCESSES AFFECTING PROJECT PERFORMANCE

51. **Preparation and readiness**. This criterion focuses on the quality of project design and preparation. Were project stakeholders[12] adequately identified? Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing agencies properly considered when the project was designed? Was the project document clear and realistic to enable effective and efficient implementation? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities) and enabling legislation assured? Were adequate project management arrangements in place? Were lessons from other relevant projects properly incorporated in the project design? What factors influenced the quality-at-entry of the project design, choice of partners, allocation of financial resources etc.?

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

    a. Ascertain to what extent the project implementation mechanisms outlined in the project document have been followed and were effective in delivering project milestones,

[12] *Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the project. The term also applies to those potentially adversely affected by the project.*

outputs and outcomes. Were pertinent adaptations made to the approaches originally proposed?

b. Evaluate the effectiveness and efficiency of project management and how well the management was able to adapt to changes during the life of the project.
c. Assess the role and performance of the teams and working groups established and the project execution arrangements at all levels.
d. Assess the extent to which project management responded to direction and guidance provided by UNEP.
e. Identify operational and political / institutional problems and constraints that influenced the effective implementation of the project, and how the project partners tried to overcome these problems. How did the relationship between the project management team and the collaborating partners develop?

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

    a. the approach(es) used to identify and engage stakeholders (within and outside UNEP) in project design and implementation. What were the strengths and weaknesses of these approaches with respect to the project's objectives and the stakeholders' motivations and capacities? What was the achieved degree and effectiveness of collaboration and interactions between the various project partners and stakeholders during design and implementation of the project?
    b. the degree and effectiveness of any public awareness activities that were undertaken during the course of implementation of the project; or that are built into the assessment methods so that public awareness can be raised at the time the assessments will be conducted;
    c. how the results of the project promote participation of stakeholders, including users, in decision-making.

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

    a. In how far have Governments assumed responsibility for the project and provided adequate support to project execution, including the degree of cooperation received from the various public institutions involved in the project?
    b. How well did the project process stimulate country ownership of the project outputs and policy recommendations?

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

    a. Verify the application of proper standards (clarity, transparency, audit etc.) and timeliness of financial planning, management and reporting to ensure that sufficient and timely financial resources were available to the project and its partners;
    b. Appreciate other administrative processes such as recruitment of staff, procurement of goods and services (including consultants), preparation and negotiation of cooperation agreements etc. to the extent that these might have influenced project performance;

c. Present to what extent co-financing has materialized as expected at project approval (see Table 1). Report country co-financing to the project overall, and to support project activities at the national level in particular. The evaluation will provide a breakdown of final actual costs and co-financing for the different project components (see tables in Annex 3).
d. Describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective. Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector.
e. Analyse the effects on project performance of any irregularities in procurement, use of financial resources and human resource management, and the measures taken UNEP to prevent such irregularities in the future. Appreciate whether the measures taken were adequate.

56. **Supervision, guidance and technical backstopping.** The purpose of supervision is to verify the quality and timeliness of project execution in terms of finances, administration and achievement of outputs and outcomes, in order to identify and recommend ways to deal with problems which arise during project execution. Such problems may be related to project management but may also involve technical/institutional substantive issues in which UNEP has a major contribution to make.

57. The evaluators should assess the effectiveness of supervision, guidance and technical support provided by the different supervising/supporting bodies including:

    a. The adequacy of project supervision plans, inputs and processes;
    b. The realism and candour of project reporting and the emphasis given to outcome monitoring (results-based project management);
    c. How well did the different guidance and backstopping bodies play their role and how well did the guidance and backstopping mechanisms work? What were the strengths in guidance and backstopping and what were the limiting factors?

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

    a. *M&E Design*. The evaluators should use the following questions to help assess the M&E design aspects:
        - Did the project have a sound M&E plan to monitor results and track progress towards achieving project objectives?
        - How well was the project logical framework (original and possible updates) designed as a planning and monitoring instrument?
        - SMART-ness of indicators: Are there specific indicators in the logframe for each of the project objectives? Are the indicators measurable, attainable (realistic) and relevant to the objectives? Are the indicators time-bound?
        - Adequacy of baseline information: To what extent has baseline information on performance indicators been collected and presented in a clear manner? Was the methodology for the baseline data collection explicit and reliable? Was there sufficient information about the capacity of country partners to collaborate with the project?
        - Arrangements for monitoring: Have the responsibilities for M&E activities been clearly defined? Were the data sources and data collection instruments appropriate? Was the time frame for various M&E activities specified? Was the frequency of

various monitoring activities specified and adequate? In how far were project users involved in monitoring?

- Arrangements for evaluation: Have specific targets been specified for project outputs? Has the desired level of achievement been specified for all indicators of objectives and outcomes? Were there adequate provisions in the legal instruments binding project partners to fully collaborate in evaluations?
- Budgeting and funding for M&E activities: Determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

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

- the M&E system was operational and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period;
- Half-yearly Progress & Financial Reports were complete and accurate;
- the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs.

G. COMPLEMENTARITY WITH UNEP POLICIES AND STRATEGIES

59. **Alignment with the Bali Strategic Plan (BSP)**[13]. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.

60. **Gender**. Ascertain to what extent project design, process, products and monitoring have taken into consideration possible gender inequalities at different levels:

    a. To what extend were efforts made to ensure a gender balance in project team, partners and selected social entrepreneurs?
    b. To what extent are the contents of AREED II products made gender-specific? To what extent is the communication of AREED II products made gender-specific, considering that people from different gender tap different information sources?

61. **South-South Cooperation.** How did the project promote and benefit from the exchange of resources, technology, and knowledge between countries? Briefly describe any aspects of the project that could be considered as examples of South-South Cooperation.

(5) THE EVALUATION CONSULTANT

62. The consultant who carries out this evaluation should have extensive experience in project evaluation, in particular of renewable energy projects/capacity building and rural finance/microfinance. He or she should be fluent in French and English. He/She should have at least a Master's degree, and 15 years of relevant working experience, respectively (or an equivalent combination of education and experience). Experience with other REED projects would be an advantage.

[13] http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf

63. The consultant will carry out field visits to Tanzania and Senegal. On route to Tanzania he will stop over in Nairobi to meet with the evaluation office and discuss the evaluation methodology and theory of change.

64. The consultant will coordinate data collection and analysis, and the preparation of the main report for the evaluation and will ensure that all evaluation criteria and questions are adequately covered.

65. By undersigning the service contract with UNEP/UNON, the consultant certifies that they have not been associated with the design and implementation of the "**African Rural Energy Enterprise Development Phase II"** project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units.

(6) EVALUATION DELIVERABLES AND REVIEW PROCEDURES

66. The consultant will prepare an **inception report** (see Annex 2(a) of TORs for Inception Report outline) containing a thorough review of the project context, project design quality, a draft reconstructed Theory of Change of the project, the evaluation framework and a tentative evaluation schedule.

67. The review of design quality will cover the following aspects (see Annex 9 for the detailed project design assessment matrix):

    a. Strategic relevance of the project
    b. Preparation and readiness Financial planning
    c. M&E design Complementarity with UNEP strategies and programmes
    d. Sustainability considerations and measures planned to promote replication and up-scaling

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

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

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

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

72. **The main evaluation report** should be brief (no longer than 40 pages – excluding the executive summary and annexes), to the point and written in plain English. The report will follow the annotated Table of Contents outlined in Annex 1. It must explain the purpose of the evaluation, exactly what was evaluated and the methods used (with their limitations). The report will present evidence-based and balanced findings, consequent conclusions, lessons and recommendations, which will be cross-referenced to each other. The report should be presented in a way that makes the information accessible and comprehensible. Any dissident views in response to evaluation findings will be appended in footnote or annex as appropriate.

To avoid repetitions in the report, the authors will use numbered paragraphs and make cross-references where possible.

73. **Review of the draft evaluation report**. The consultant will submit a zero draft report to the UNEP EO and revise the draft following the comments and suggestions made by the EO. Once a draft of adequate quality has been accepted, the EO will share this first draft report with the project manager, who will alert the EO in case the report would contain any blatant factual errors. The project manager will then forward the first draft report to the other project stakeholders, in particular the GEF SGP, SIDA, country partners and UNEP Risoe Centre for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. It is also very important that stakeholders provide feedback on the proposed recommendations and lessons. Comments would be expected within two weeks after the draft report has been shared. Any comments or responses to the draft report will be sent to the UNEP EO for collation. The EO will provide the comments to the evaluation team for consideration in preparing the final draft report.

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

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

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

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

> Director
> Division of Technology, Industry and Economics
> 15 rue de Milan
> 75441 Paris Cedex 09
> France
>
> Mr Eric Usher
> AREED Project manager
> Division of Technology, Industry and Economics
> 15 rue de Milan
> 75441 Paris Cedex 09
> France

77. The final evaluation report will be published on the UNEP Evaluation Office web-site www.unep.org/eou.

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

79. The UNEP Evaluation Office will assess the ratings in the final evaluation report based on a careful review of the evidence collated by the evaluation consultants and the internal consistency of the report. Where there are differences of opinion between the evaluator and UNEP Evaluation Office on project ratings, both viewpoints will be clearly presented in the final report. The UNEP Evaluation Office ratings will be considered the final ratings for the project.

(7) LOGISTICAL ARRANGEMENTS

80. This Terminal Evaluation will be undertaken by an independent evaluation consultants contracted by the UNEP Evaluation Office. The consultant will work under the overall responsibility of the UNEP Evaluation Office and will consult with the EO on any procedural and methodological matters related to the evaluation. It is, however, the consultant's individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The project manager will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the evaluation as efficiently and independently as possible.

(8) SCHEDULE OF THE EVALUATION

Table 4 below presents the tentative schedule for the evaluation.

Table 4. Tentative schedule for the evaluation

Milestone	**Deadline**
TORs finalized	November 2013
Consultants identified	December 2013
Consultant contracts signed	December 2013
Inception Report	January 2014
Evaluation Mission – Nairobi, Tanzania and Senegal	Travel to Nairobi
Zero Draft Report	February 2014
First Draft Report shared with project manager	March 2014
First Draft Report shared with stakeholders	March 2014
Final Report	April 2014

(9) CONTRACTUAL ARRANGEMENTS

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

81. This Terminal Evaluation will be undertaken by an independent evaluation consultants contracted by the UNEP Evaluation Office. The consultant will work under the overall responsibility of the UNEP Evaluation Office and will consult with the EO on any procedural and methodological matters related to the evaluation. It is, however, the consultant's individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The project manager will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the evaluation as efficiently and independently as possible.

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

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

84. The payment schedule for the consultant will be linked to the acceptance of the key evaluation deliverables by the Evaluation Office:

    a. Final inception report: 20 percent of agreed total fee
    b. First draft main evaluation report: 40 percent of agreed total fee
    c. Final main evaluation report: 40 percent of agreed total fee

85. In case the consultant is not able to provide the deliverables in accordance with these TORs, in line with the expected quality standards by the UNEP Evaluation Office, payment may be withheld at the discretion of the Head of the Evaluation Office until the consultant has improved the deliverables to meet UNEP's quality standards.

86. If the consultant fails to submit a satisfactory final product to UNEP in a timely manner, i.e. before the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultant's fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

A.3. Evaluation Programme and stakeholders consulted

AREED II Evaluation Mission Schedule - Tanzania

Date	Time	Activity	Place	Contact Person
Monday 17/02/2014	Evening	Arrival in Dar Es Salaam	J.K. NYERERE AIRPORT	
Tuesday 18/02/2014	Morning 09:30-12:30 Afternoon 14:00-17:00	Briefing meeting. Detailed discussion about AREED II implementation	TaTEDO HQ TaTEDO HQ	Mr. Estomih Sawe TaTEDO ED and AREED II team (Mr. Shuma, Mr. Mbonea and Mr. Gasper)
Wednesday 19/02/2014	Morning 09:30-10:30 Afternoon 10:45-01pm	Visit SEECO Beneficiary in pipeline improved cook stoves business Visit Sustainable Energy and Development Centre (SEDC)	Vingunguti Dar es salaam.	Mr. Frank. Gosowo2006@yahoo.com
	2:30-4:30	Visit Gosowo Group Flight to Kilimanjaro	Moshi Kilimanjaro	0713496207 Thomas Mkunda
Thursday 20/02/2014	Morning	Meeting with Thomas Mkunda And ESFRITA group	Moshi Kilimanjaro	0713496207 Thomas 0755869146 Mama Tarimo-ESFRITA group
	12h30-13h30 15h00-17h30 19h55-21h20	Meeting with Opportunity Tanzania, MFI Magadini SACCOS Flight to Dar Es Salaam	Ms. Julieth Lyimo (Loan Supervisor)	
Friday 21/02/2014	09h00-11h30 12H00-13H00	Debriefing meeting at TaTEDO office Meeting with Twiga Bancorp representative	Twiga HQ	Mr. J. Ndunguru 0713246334
	14h00-15h30 15h30-16h00	Meeting at the Ministry of Energy and Mines Meeting with Ms. Lilian Njuu	Ministry of Energy and Minerals Headquarters	Mr. Edward Leonard Ishengoma (Assistant Commissioner, New and Renewable Energy Mr. Paul M. Kiwele (Principal Forest Officer) Ms. Makwaya Nyoso (Energy Engineer) Mr. Shuma (TATEDO) Ms. Lilian
Saturday 22/02/2014	Afternoon	Departure from Dar Es Salaam		

AREED II Evaluation Mission Schedule - Senegal

Date	Time	Activity	Place	Contact Person
Monday 24/02/2014	Evening	Meeting with Mr. Secou Sarr, Director ENDA	ENDA HQ	
Tuesday 25/02/2014	Morning 09:30-12:30 Afternoon 14:00-17:00 Evening	Detailed discussion about AREED II implementation Meeting with PERACOD – FASEN Project Travel from Dakar to Fatick	ENDA HQ GIZ PERACOD Office	Mr. Ndour Abdou and Mr. Mamadou Cisse Mrs. Mireille Afoudji Ehemba
Wednesday 26/02/2014	Morning 08:00-15:30 Afternoon 15h30-17h00	Travel by boat and visit fish smoking activity Meeting with MEC LE SINE (MFI)	Bassoul and Thialane islands MEC LE SINE office at Fatick	Mrs Bintou Diop and Mrs Fatou SARR (Womens' group for fish smoking) Mrs. Sow (Solar credit)
	Evening	Return to Dakar		
Thursday 27/02/2014	Morning 09:00-10:00 10:30-12:30	Meeting with RSB (Bank) Meeting with Sen'Finances Foundation	RSB Bank Office Sen'Finances Foundation HQ	Mrs. Diallo, Office in-charge of AREED loan fund management Mrs. Denise Fatoumata Ndour (General Administrator) Mr. Moustapha Ndiye (Admin. and Finance Head)
	14:00-15:00 15:00-17:30	Meeting with Afric Building Services Group Meeting with Solar Energy Entrepreneur	ENDA HQ ENDA HQ	Mr. Ndongo Gueye (Director General) Mr. Bob
Friday 28/02/2014	09:00-10:30 11:00-14:00	Meeting with Senegalese Agency for Rural Electrification Debriefing meeting at ENDA office	ASER HQ ENDA HQ	Mr. Ousmane Fall Sarr Mr. Ndour Abdou and Mr. Mamadou Cisse
	Evening	Departure from Dakar		

List of project stakeholders consulted during the preparation of the project evaluation

Organization	Name	Position	Contact details
UNEP	Ms. Harriet Matseart Harriet.Matseart@unep.org	Evaluation Manager	UNEP Evaluation Office, NOF Block 2, Level 3 SW, P.O. Box 30552-00100 Nairobi, Kenya, E-mail: Harriet.Matseart@unep.org
	Mr. Eric Usher, Eric.Usher@unep.org	UNEP Task Manager	Finance Unit, Energy Branch, UNEP/DTIE, Stockholm, +33 (0)1 44 37 76 14
	Dr. Lawrence Agbemabiese	Project Initiator & Task Manager	Centre for Energy & Environment Policy, University of Delaware, Newark, USA
	Mr. Gordon A. Mackenzie goma@unep.org	Head, Clean Energy Development Programme	UNEP Riso Centre on Energy, Environment and Sustainable Development (URC), Riso Campus, TU Denmark, Frederiksborgvej 399, Bldg. 142, PO Box 49, DK 4000 Roskilde, Denmark
	Ms. Maria Milagros Morales mariamilagrosmorales@hotmail.com	Project Manager	
KITE, Ghana	**Ishmael Edjekumhene** iedjekumhene@kiteonline.net	Director	72 Olusegun Obasanjo Highway, Dzorwulu, Accra, P. O. Box AT 720, Achimota Market, Accra, Ghana. Tel: +233-30-2-256800 / 256 801 -4340531, Fax: +233-30-2-256 800
CEEEZ, Zambia	**Prof. Francis D. Yamba** yambafd@yahoo.com	Director	Plot # 176 Parirenyatwa Road, Suite B, Fairview, Private Bag E721, Lusaka, Zambia, Tel/Fax : +260 211 223118, Email: ceeez@zamnet.zm
Mali Folkecenter (MFC Nyetaa), Mali	**Ibrahim Togola** ibrahim.togola@gmail.com	Head Group Corporate Affairs (Rajasthan)	Mali-Folkecenter, FaladiŽ SEMA, Rue 800, Porte 1293, BP E4211, Bamako, Republic of Mali, T.: +223 2020 0617; +223 2020 6004, F.: +223 2020 0618
TATEDO, Tanzania	**Estomih Sawe** sawe_en@yahoo.com **Lilian Njuu** lilynjuu@yahoo.com Donasian Mbonea mbonea2001@yahoo.co.uk	Executive Director	TATEDO, PO Box 32794, Mpakani A, Plot No.: KJM/MPA/98, near Institute of Social Works, Dar Es Salaam, Tanzania, T: +255 22 2700438; 2700771, F: +255 22 277 4400; energy@tatedo.org
ENDA, Senegal	**Secou SARR** secousarr@endatiersmonde.org T: +221 33 822 24 96 Abdou Ndour abdou.ndour@endaenergie.org	Director, ENDA Energie, Environnement, Developpement	54, rue Carnot, BP 3370, Dakar, Senegal, T: +221 33 822 24 96; 59 83; F: +221 33 821 7595; E-mail: enda.energy@orange.sn

A.4. List of documents consulted

The following documents were consulted for preparing the inception report:

1. AREED II project document along with revisions to project document shared by the UNEP Evaluation office
2. AREED II Final report prepared by UNEP
3. AREED II Progress reports prepared by UNEP
4. AREED II Project documents and reports shared by IOs from the two countries visited (Senegal and Tanzania)
5. AREED II final reports submitted by IOs from 5 countries (CEEEZ from Zambia, TaTEDO from Tanzania, ENDA from Senegal, MFC from Mali and KITE from Ghana)
6. Fact Sheet AREED (December 2012)
7. Energy SMEs in sub-Saharan Africa – Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia, UNEP RISO Centre
8. AREED I Terminal Evaluation Report
9. UNEP MTS 2010-2013, Environment for Development
10. AREED Case study, E&CO
11. World Energy Outlook 2013, International Energy Agency
12. http://www.eu-africa-infrastructure-tf.net/activities/grants/africa-sustainable-energy-facility-IP.htm
13. http://www.aecfafrica.org/
14. http://www.unep.org/climatechange/finance/SeedCapital/SCAF/tabid/29555/Default.aspx
15. http://www.grofin.com/

A.5. Summary of statement of project expenditure by activity

Component/sub-component			Estimated cost at design	Actual cost	Expenditure ratio (actual/planned)
10. Project personnel component					
	1100	Project personnel			
		1101 Project manager	411,375	563,128	1.37
		1102 Expert	-	122,906	
		1199 Total	411,375	686,034	1.67
	1200	Consultants			
		1201 Consultant LA	-	40,990	
		1299 Total	-	40,990	
	1300	Administrative support			
		1301 Admin assistance AL	-	73,290	
		1399 Total	-	73,290	
	1600	Travel on official business			
		1601 Travel + DSA for project manager	36,000	112,868	3.14
		1699 Total	36,000	112,868	3.14
	1999	*Component Total*	*447,375*	*913,182*	*2.04*
20. Subcontracts					
	2200	Subcontracts with supporting organizations			
		2201 Base contracts for EDS - 5 country partners	96,750	-	0.00
		2202 Performance fees: Country partners	190,000	-	0.00
		2203 Enterprise Seed Funding	600,000	361,500	0.60
		2204 End-user Finance Scheme	485,000	755,560	1.56
		2205 Communications and outreach	20,000	-	0.00
		2299 Total	1,391,750	1,117,060	0.80
	2999	Component Total	1,391,750	1,117,060	0.80
30. Training and Meetings/Conferences					
	3300	Meetings/Conferences			
		3301 One stakeholder meeting	30,000	42,447	1.41
		3302 Two management Committee meetings	30,000	-	0.00
		3399 Total	60,000	42,447	0.71
	3999	*Component Total*	*60,000*	*42,447*	*0.71*
50. Miscellaneous Component					
	5200	Reporting costs			
		5201 Five Rural Energy Market Barrier Assessment Reports	20,000	-	0.00
		5299 Total	20,000	-	0.00
	5300	Sundry			
		5301 Miscellaneous	2,000	586	0.29
		5399 Total	2,000	586	0.29
	5500	Monitoring and Evaluation			
		5501 Mid-term Evaluation	15,000	-	0.00
		5502 Final Evaluation	20,000	-	0.00
		5599 Total	35,000	-	0.00
	5999	*Component Total*	*57,000*	*586*	*0.01*
Total cost of the project			**1,956,125**	**2,073,275**	**1.06**
		UNEP Programme support (5%)	97,806	103,664	1.06
Total Expenditure			**2,053,931**	**2,176,939**	**1.06**

A.6. Brief CV of the evaluator

Dr. Brahmanand Mohanty has both his master and doctoral degrees in the energy field. As the regional adviser for Asia for the French Environment and Energy Management Agency (ADEME) for over 2 decades, he has established institutional partnerships with several national energy and environment agencies for sharing experience, providing advisory services and capacity building in the areas of energy and resource management in industrial and commercial sectors. He has also been associated with the School of Environment, Resources and Development of the Asian Institute of Technology since 1986 as a faculty member, teaching subjects related to energy efficiency and management in the building and industry sectors. He devotes a part of his time to interact with NGOs and learn from challenges of access to energy in developing countries and sustainable energy and low carbon issues in the context of urban planning and development.

Dr. Mohanty has undertaken short- and medium-term energy-related consultancy assignments for bilateral and multilateral funding agencies in about a dozen countries to provide technical assistance. Agencies for which he has carried out consultancy work include the Asian Development Bank (ADB), the World Bank (WB) and the International Financial Corporation (IFC), the European Commission (EC), United Nations organizations (UN ESCAP, UN-DESA, UNDP, UNEP, UN-HABITAT, UNFCCC and UNIDO), GIZ and DANIDA.

A.7. Rating scale for outcomes and progress towards 'intermediate states'

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

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

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

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

In addition, projects that achieve documented changes in environmental status during the project's lifetime receive a positive impact rating, indicated by a "+".