United Nations Environment Programme

African Rural Energy Enterprise Development (AREED) Programme

Terminal Evaluation

Final Report

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Acronyms and Abbreviations

AMADER	Agence Malienne pour le Développement de l'Energie Domestique et l'Electrification Rurale (Malian Agency for de Development of Domestic Energy and Rural Electrification)
AREED	African Rural Energy Enterprise Development Programme
ASER	Agence Sénégalaise d'Électrification Rurale (Senegalese Agency for Rural Electrification)
DTIE	Division of Technology, Industry and Economics
E+Co	"Energy Trough Enterprise" company
ECOWAS	Economic Community of West African States
EDS	Enterprise Development Services
EE	Energy Efficiency
EEF	Energy Enterprise Financing
ESCO	Energy Service Company
FI	Financial Institutions
GEF	Global Environment Facility
NEPAD	New Partnership for Africa's Development
NGO	Non Governmental Organisation
PPO	Programme Partner Organizations
PV	Photovoltaic
RET	Renewable Energy Technology
SEED	Sustainable Energy Enterprise Development
SESME	Sustainable Energy Small and Medium Enterprise
SME	Small and Medium Enterprise
UN	United nations
UNEP	United Nation Environment Programme
UNDP	United Nations Development Programme
UNF	United Nations Foundation
UNON	United Nations Office of Nairobi
UCCEE	UNEP Collaborating Centre on Energy and Environment
URC	UNEP RISOE Centre

I. Executive Summary

1. The present section provides a summary of the findings of the terminal evaluation of the *African Rural Energy Enterprise Development* (AREED) programme undertaken on request of the UNEP Evaluation and Oversight Unit. The terminal evaluation of the AREED programme was carried out between June and December 2008.

2. The main objectives of the evaluation were to: (a) assess the achievement of the programme goals and objectives, highlighting key results of planned activities and outputs, (b) assess if the project has led to any positive or negative consequences, (c) determine if possible, the extent and magnitude of any programme impacts to date as well as the likelihood of future impacts, (d) assess performance of the overall programme and specify the results achieved in the areas of capacity building of entrepreneurs to start and develop sustainable energy businesses, NGOs' business services support as well as leverage of financing for establishment of viable/bankable energy enterprises, (e) identify innovative approaches used within the programme and clean energy projects developed, their related outcomes and (f) indicate to what extent the experience and lessons learned through AREED have been disseminated to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media.

3. In addition, the evaluation sought to address key questions related to the attainment of the programme's planned results, the sustainability of its outcomes, its catalytic effect, the achievement of planned outputs and activities, the programme's monitoring and evaluation system, and processes affecting the attainment of project results. The evaluation also points out the possible lessons to be learned from the design and the implementation experience of the AREED programme.

4. The AREED Initiative was launched by the United Nations Environment Programme (UNEP) with funding provided by the United Nations (UN) Foundation. The initial phases of the programme were undertaken from February 2000 to December 2002. The programme was reviewed and extended four times and has finally ended in December 2007 due to the unavailability of financial resources as well as the lack of willingness of donors to further support the programme.

5. The overall goal of the programme 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, namely Ghana, Mali, Senegal, Tanzania and Zambia in the aim to contribute to the sustainable development and prosperity of the participating nations.

6. The purpose of AREED programme was to develop 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 periurban areas, while reducing the environmental and health impacts related to current energy use patterns. The three specific objectives as described in the project document are to: (i) assist UN agencies to develop and internalize a new methodology for promoting private sector driven, clean energy technology adoption, (ii) build the capacity of national/regional NGOs to identify and support small and medium-size energy enterprises through their critical start-up phase, and (iii) assist regional/national financial institutions to better understand and ultimately invest in this sector.

7. The expected outcomes were: (i) Enhanced capacity of entrepreneurs to start and develop energy businesses (Enterprise Development Services, EDS), (ii) Improved capacity of local NGO Partners, (iii) Establish strong partnerships with Financial

Institutions (FI), (iv) Improved capacity of government officials and agencies to formulate and implement policies supportive of SMEs, v) Dissemination of AREED's experience and lessons.

8. AREED has used (E+Co)'s business development model, offering local entrepreneurs a combination of enterprise development services (EDS) and seed financing. This combined financial and technical support (called the AREED model) allowed entrepreneurs to build their business plans using a pragmatic approach and to structure their companies in a manner that prepared them to tackle the energy needs of the under-served communities. The AREED implementation framework included also national NGOs whose mandate were to support small and medium-size energy enterprises during their critical start-up phase and to assist also Governments as well local financing institutions to better understand the challenges related to energy poverty, an aspect of poverty often inadequately understood.

9. AREED was built upon UNEP *Energy and Ozone Action Programme* and addressed also issues related to the *United Nations Framework Convention on Climate Change* (UNFCC) such as greenhouse gas emission reduction and global warming through clean energy technology promotion.

10. The UNEP Risø Centre (URC) and the UNEP Division of Technology, Industry and Economics (DTIE) were the main implementing partners of the AREED Programme while the US-based E+CO was acting as the Executing agency.

11. The methodology used by the evaluator involved: i) a desk review of key reports and reference documents provided by UNEP including a review of the previous evaluations materials and annual reports; ii) telephone consultations with AREED Programme Officers within NGOs; UNEP Programme Manager, *E+CO Programme manager*, iii) an e-mail questionnaire sent to partner NGOs and to organisations that contributed to the implementation of the programme.

12. A special attention was given to the evaluation of the programme achievement over the last extension period starting December 2006 and ending December 2007 with the view of formulating recommendations for institutional and financial sustainability of AREED activities for the future.

Main findings

13. The following summarizes the conclusions from the evaluation and responds directly to the key questions outlined in the Terms of Reference.

How appropriate is the AREED model for meeting the energy needs of rural African poor?

14. The AREED model relies on team building with local partners which have a broader knowledge of the economic and cultural contexts in which the activities are carried out. In the first part of the strategy (clean energy enterprise development), the local project partners identified entrepreneurs with the potential to turn ideas into successful business-plans. This was a challenging process because AREED has worked with entrepreneurs who are often new to energy services business or unfamiliar with clean energy technologies. Most of these entrepreneurs need a great deal of assistance to meet the demands of developing a new business and satisfying customers.

15. The approach proposed by the AREED approach, based on the model developed by E+Co, goes beyond what is offered by a business incubator, which is the closest enterprise-development model that it could be compared to.

16. The model takes into consideration that when an entrepreneur decides to contact AREED programme partner with a business idea it is often based more on intuition and observation than a hard analysis of utilizing a particular energy resource or technology to satisfy energy needs of the rural poor in a specific market. In this particular situation, the AREED model relied on a “learning by doing” approach with great flexibility, without trying to comply with “sophisticated” models implemented in other contexts.

17. The willingness to overcome the early-stage financing barrier, combined with the provision of enterprise development services are the main positive aspects of the AREED business model. Further more, when the clean-energy company has reached a certain level of maturity, which is evaluated by the stable repayment of the loan from AREED Seed Finance and the positive evolution of business activities, AREED can assist the supported companies in raising second stage financing from commercial banks of other financial institutions. This was the case in Ghana, Senegal and Mali with the LPG business.

18. The main advantages brought by the AREED model is that “private entrepreneurs” are more committed to the success of their businesses than in “community-oriented” entrepreneurs as we can see in “Rural Multifunctional Platform Enterprise” model or in business incubators. Applying this business development model, however, was a big challenge for some project participants mainly local NGOs and the SMEs. Many of the entrepreneurs found the process of project approval too long while NGOs were calling for more responsibility in investment decision-making process.

19. Due to the limited capacity of the rural poor to pay for energy services in the absence of subsidies, the model has been applied more in urban and periurban areas than in rural areas. Project locations show that the “AREED model” has achieved commercial success in delivering energy services to urban poor rather than to rural poor.

If so, what improvements/modifications are required? If not, are there other alternative proven models that can be used more effectively and efficiently?

20. An improvement to the AREED model would be the inclusion of Business incubation components at the early stages of SME start-up. Business incubation is a support model that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. In the “incubator”, entrepreneurs who wish to enter a business incubation program must apply for admission. Acceptance criteria vary from program to program, but in general only those with feasible business ideas and a sound business plan are admitted. Most incubators offer their clients office space and shared administrative services, which help in reducing the operating expenses of young companies. This model has been proven effective in increasing the survival rate of new companies in the context of aggressive market competition and globalisation.

To what extent has the programme been successful in enhancing capacity of entrepreneurs to start and develop sustainable energy businesses?

21. Capacity building activities under the AREED project were designed to support local partners in providing training and initial enterprise development assistance to potential RET entrepreneurs through the *RET Company Start-up Tool-kit*. In relation to training activities for entrepreneurs, it can be said that the material and the scope of the abilities to be developed matched well the AREED model and the clients to whom it is addressed.

22. More than 77 small and medium-size enterprises have been supported by the Programme during the project timeframe. About 24 are currently in operation.

How useful have training, business services support and seeding capital for generating interest and establishment of viable/bankable energy enterprises been in each country involved in the AREED programme?

23. The evaluator considers that strong relationships have been built to serve the programme's objectives. This is based on the assessment of (1) capacity building activities completed within the programme time frame for enterprises development purpose from which NGOs as well as local entrepreneurs benefited, (2) results in terms of projects developed by SMEs or approved by E+CO and (3) the level of seed capital provided to SMEs for their business. Skills gained through training have effectively been used to develop the ability of NGO's to replicate the enterprise development approach beyond the life of the programme.

24. In West Africa, the three partner NGOs have achieved significant results in supporting national Governments and local SMEs in implementing energy services projects. The context is somewhat different in East Africa with limited project portfolios developed by AREED partners.

How successful has the programme been in developing strong partnerships with financial institutions in sustainable and renewable energy enterprise development? And, to what extent have such partnerships resulted in developing functional, sustainable and replicable models for renewable energy development and energy efficiency products and services in participating countries?

25. The support provided by AREED programme to regional and local financing institutions as well as to investment fund was aimed at developing a better understanding of the clean energy potential for reducing energy poverty in peri-urban and rural areas. Another objective was to initially bring the local financing sector into clean energy business to share the risk in new technology investments by co-funding with AREED a number of approved projects during the scaling-up phase.

26. AREED programme managers (E+CO and local NGOs partners) have entered into discussions with local financial institutions resulting in expression of interest made by these institutions to co-invest in clean energy services. Unfortunately, the AREED programme has had few successful examples of engaging financial institutions in clean energy projects investment. Evidence can be found in the summary table of project financing status provided by E+CO as per December 2005 and updated during the evaluation: i) Expected additional financing leveraged: $7 million to $10 million, ii) Co-financing leveraged: $0.4 million.

How effective and efficient have the SMEs been in delivering cost-effective clean energy and energy efficient products and services to rural and peri-urban consumers?

27. About 24 enterprises out of 77 are now in operation to deliver affordable energy services on a sustainable basis, based on renewable energy technologies: solar, wind, biomass, hydro and geothermal. The AREED initiative has successfully engaged some government agencies and NGOs to develop their skills to nurture new entrepreneurs. Part of AREED's success is due to "on-the-ground" partnerships with E+CO, a pioneer in the provision of seed capital, resulting in significant achievements by local SMEs in some countries, particularly in Ghana and Senegal.

To what extent has the programme been successful in assisting countries to formulate and implement policies supportive of SMEs which focus on delivering clean energy and energy efficiency services and products?

28. The AREED programme is supposed to assist Government ministries to formulate and implement policies supportive of SMEs which focus on delivering clean energy and energy efficiency services and products. To this extent capacity building activities on policy have been undertaken during the programme lifetime. Some NGOs such as ENDA or KITE have been closely involved in the formulation of the regional energy

access policy[1] for rural and peri-urban populations for poverty reduction in line with achieving the MDGs in countries involved. This experience is quite limited to a few countries, namely Ghana, Senegal and to some extent, Mali. The programme has had limited impact on policy formulation in Tanzania and Zambia.

To what extent have the experience and lessons learned through AREED been disseminated to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media?

29. The project's issues and outcomes were widely addressed at national and international meetings and at bi-lateral meeting with donors. However, the main efforts to disseminate the initiative to a wider audience came from the local partners. The communication methods included advertising in local press and media, distribution of AREED brochures at meetings of likely projects being held in vicinity (like the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) meeting in Kenya) and participation in smaller initiatives or research projects having common goals, like Senegal's ENDA contribution to the document "RE and Poverty Alleviation: Overcoming Barriers and Unlocking Potentials - Summary for Policy Makers" published by the Global Network on Energy for Sustainable Development (GNESD) of UNEP.

30. A number of review articles about AREED and its results were published by some specialized organizations like Renewable Energy World and Photon International, and even a renowned newspaper, the Economist, showed interest in the initiative and went on to publish an article on February 2001

Conclusion

31. The 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.

32. 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.

33. 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.

34. In light of the above, the *overall rating* for the project is *satisfactory*, as set out in detail in the Conclusions and Ratings section of this report.

[1] ECOWAS and UEMOA White Paper for a Regional Policy was adopted on January 12, 2006 by the Head of States

Lessons Learned for Future Programme Implementation

35. **Lesson 1.** The continuation of AREED model should focus on financial barrier-removal. Namely, the cooperation and interest of financial institutions should be actively sought. While the real financial risk pertaining to investments in energy services (demand-side or supply-side) can be attenuated with proper financial risk mitigation tools, the perceived risk has to be addressed through inclusion and awareness-raising. The workshop formula, as seen in April 2008 in Sali, Senegal, is a powerful means of reducing information asymmetry between NGOs, international actors and SMEs on one hand, and financial institutions on the other.

36. **Lesson 2.** The continuation of AREED model should also focus on institutional barrier-removal. Even if interaction with governmental institutions can sometimes be cumbersome, it is a necessary component of any structure that is meant to be perennial. Including ministerial representatives in the national structure of the programme or at least inviting them in high-level meetings is the most cost-effective way to raise their awareness.

37. **Lesson 3.** Stemming from the prior recommendations, a formal body at the national level (National Steering Committee) should be established to ensure the follow-up and involvement of local parties (both private and public). A local Follow-up committee under the leadership of the Ministry of Energy, for instance, could play a positive role in creating an enabling environment for the scaling-up of energy access.

38. **Lesson 4.** Concerning the relation between local actors, there is a need for further national capacity building. While NGOs were providing technical assessment to the Fund Manager and technical assistance to SMEs, the financial appraisal and follow-up was solely executed by the Fund Manager with little occasion for national entities to learn from the process. In the context of a replication of the AREED model, Micro-Finance Institutions (MFIs) should be included in the process from the beginning, albeit with limited responsibility (monitoring only, for which they would receive service fees from the Fund Manager, etc.). Thus, all the actors necessary to a successful exit strategy would be, in time, equally prepared.

39. **Lesson 5.** Given the novelty of the market-based approach of the AREED model, it is important that it is adequately publicised in both scholarly journals and in the development community at large. In AREED countries, many NGOs showed great capacity for research dissemination. This unique combination of local knowledge and involvement, international coordination and expert knowledge on market-based approaches to energy access should be exploited and supported. Moreover, the most important information and documentation about the programme should be assembled in a coherent manner on a UNEP-hosted website**.**

II. Introduction and background

II.1 Brief Description

40. The AREED initiative seeks to create a sustainable future to meet the energy needs of under-served populations of Africa by increasing the capacity of the private sector to offer energy services using affordable renewable energy technologies. AREED utilized the E+Co approach of energy enterprise development, offering energy entrepreneurs a combination of enterprise development services and start-up seed financing.

41. UNEP launched the AREED programme in 2000 as a step towards creating a sustainable energy future for the rural poor in five countries of Western and Southern Africa (Ghana, Mali, Senegal, Zambia and Tanzania). The purpose of AREED is to contribute to sustainable development in Africa by addressing socio-economic needs for quality of life improvements, income generation and environmental protection through utilization of renewable energy technologies.

42. The business development model used through AREED programme aimed to demonstrate that new businesses that apply "best-practice" approaches to the supply of modern energy services can be financially and technically viable in the African context.

43. The following are the specific objectives of AREED programme as outlined in the first Project document[2]:

- 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 partner NGOS to identify and support small and medium-size energy enterprises through their critical start-up phase; and
- to assist national/regional financial institutions to better understand AREED approaches and ultimately invest in this sector.

44. The expected results of the programme are listed below:

- *Enhanced capacity of entrepreneurs* to start and develop energy businesses;
- *Development of strong partnerships with financial institutions* and (NGOs) involved in rural energy development leading to increased capacity of NGOs and financial institutions involved in rural energy development and entrepreneurship;
- *Delivery of clean energy and energy efficiency products and services* to rural and peri-urban consumers by SME's supported by the programme;
- *Improved capacity of government officials* and agencies to formulate and implement policies supportive of small and medium size enterprises (SMEs) delivering clean energy and energy efficiency services and products; and
- *Experience and lessons learned disseminated* to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media.

45. The initial programme duration was from February 2000 – December 2002. However, the project was reviewed and extended four times and has finally ended in December 2007. The total estimated budget of the AREED programme is US$ 8,615,788 which includes in-kind contribution from Development Bank of South Africa (US$35,714) and UNEP (US$ 250,000) and E&Co (US$250,000) and leveraged financing from multi/bilateral institutions and other sources (US$ 2,330,000).

[2] Project Document approved by UNEP and UN Foundation as per January 2000

II.2 Context and rationale of the programme

46. Energy services are indispensable for economic and social development. The international community recognizes the centrality of energy services for achieving the Millennium Development Goals (MDGs). At its 9th Session held in 2001, the UN Commission for Sustainable Development concluded that: "*To implement the goal accepted by the international community to halve the proportion of people living on less than US$ 1 per day by 2015, access to affordable energy services is a prerequisite*." Indeed, wider access to affordable energy services is a necessary condition for meeting most of the MDGs as well as NEPAD targets that echo the MDGs in the African context.

47. In Sub-Saharan Africa, well under 10% of the rural population has access to modern energy services, a situation that significantly compromises their prospects for social and economic development. This is particularly true of women and girls living in rural areas who bear the greatest burdens of multiple human energy-intensive tasks that sustain rural livelihoods. Widening access to modern energy services can free up their time for social and productive activities, thereby serving as an engine for rural economic development, attracting private capital and expanding development prospects for the poor. To this end, NEPAD aims to increase modern energy access from 10% to 35% of the African population, i.e. an increase in access to energy from 60 million people to 300 million over the next twenty years.

48. Building on significant political momentum gained as a result of the last decade efforts of UN agencies to support the continent, UNEP proposed the AREED Initiative as a step towards improving access to clean energy technologies in Africa. The programme aimed at overcoming the energy-poverty barrier, in particular in rural and peri-urban Africa where families, particularly women and children, bear this burden disproportionately and spend increasing amounts of time collecting wood and other forms of biomass that both degrade the environment when they are harvested and cause health problems when they are burned. AREED programme intended also to induce private sector driven and policy changes for promoting clean energy technology adoption to drastically enhance access to energy services in the region.

49. Africa's current contribution to greenhouse gases (GHG) emission is modest, but would grow significantly if new investments in fossil fuel energy infrastructure proceed. Because so little energy infrastructure is in place, African countries have an excellent opportunity to bypass conventional fossil fuel energy systems with technologies that are clean, sustainable, and decentralized. These new investments in clean energy technologies can couple further economic development to both environmental improvement at the local and regional scale and the global desire to reduce GHG emissions.

50. Creating these new investment opportunities, however, is a difficult financial and political challenge for African governments who must often place the needs of concentrated urban populations ahead of citizens in dispersed rural areas. One of the best means to overcome this barrier - and expand the access to clean energy services in rural areas - is to involve the private sector.

51. In some developing countries, the private sector has already achieved commercial success marketing renewable energy technologies (RET) to rural areas. These technologies can both dramatically increase the efficiency of traditional appliances and supply energy via a renewable energy source such as wind, solar, biomass or hydro energy.

52. UNEP has been active in the evaluation and promotion of the RET sector, both assessing methodologies for successful technology transfer, as well as assessing national policies that can support the deployment of RET systems. To fully realize the environmental and social benefits of RET commercialization; UNEP's current mandate is to more fully integrate the private sector within UN projects, particularly with the finance sector.

53. UNEP's draft Strategy for Africa proposed efforts to secure additional financing for environmental initiatives from the African Development Bank and local financial institutions. However, the supply of energy services via renewable energy technologies is often considered as a "high risk" business area by conventional financial institutions. Although a number of new private sector RET businesses eventually secure bank financing, they must also obtain financial support in the same way as other businesses. For these new energy entrepreneurs, there has been a lack of early stage investment as well as guidance on how to obtain it, and this has often led to slow starvation of promising energy business start-ups.

54. One solution is to offer entrepreneurs a combination of business development 'hand-holding' and start-up financing. The ability to intervene early in the development of a business with both environmental venture funds and services that actually help new enterprises develop as businesses has the effect of significantly improving the performance of each activity. The result is that entrepreneurs can plan and structure their companies to make eventual co-investments by other partners less risky.

55. To do this, the capacity of national partners to offer business start-up support must be increased. Financial institutions in Africa who currently have little experience with these new investments also need to be strengthened to become both aware of the lending opportunities that exist and confident that lending to new small energy companies will be commercially viable.

56. The AREED initiative contributed to establishing new enterprises in participating countries by providing business development expertise and small amounts of start-up financing in the form of loans or equity. The initiative is also supposed to develop new skills within African partners (NGOs), local financial institutions and UN agencies to nurture new local energy enterprises that can accelerate the implementation of renewable energy projects. To that purpose African institutions have been fully involved in the detailed planning and execution of the project activities, adapting approaches and methods that have met with success in other parts of the world to the specific context in the participating countries.

57. The AREED initiative demonstrated, on a modest pilot scale, the commercial viability of renewable energy and energy efficiency projects by developing successful enterprises in the five participating countries as well as identifying projects for future investment by financial institutions and private investors. Although the AREED initiative has primarily focused on RET in rural and peri-urban areas, other environmentally-sound energy services have also been considered.

58. The project was implemented by the UNEP Risø Centre in close co-operation with the UNEP's Division of Technology, Industry and Economics, and the US-based E&Co. Important partners in the implementation effort were national partner NGOs: Kite (Ghana); Mali Folkecenter, ENDA (Senegal). TaTEDO (Tanzania) and the Centre for Energy, Environment and Eng. (CEEEZ Zambia).

III. Objective, Scope and Methods of the Evaluation

III.1 Objective, Scope and Questions

59. This terminal evaluation of the AREED programme has sought to determine the extent to which the programme objectives were achieved, or are expected to be achieved, and whether the project has led to any other positive or negative consequences.

60. The Terms of Reference (TORs) further called the evaluation to consider the following main questions:

1) How appropriate is the AREED model for meeting the energy needs of rural African poor? If so, what improvements/modifications are required? If not, are there other alternative proven models that can be used more effectively and efficiently? *This question relates to the evaluation of the extent to which the programme's first objective has so far been relevant in the African context.*

2) To what extent has the programme been successful in enhancing capacity of entrepreneurs to start and develop sustainable energy businesses? How useful have training, business services support and seeding capital for generating interest and establishment of viable/bankable energy enterprises been in each country involved in the AREED programme? *This question relates to the evaluation of the extent to which the programme's second objective has so far been achieved*.

3) How successful has the programme been in developing strong partnerships with financial institutions in sustainable and renewable energy enterprise development? And, to what extent have such partnerships resulted in developing functional, sustainable and replicable models for renewable energy development and energy efficiency products and services in participating countries? *This question relates to the evaluation of the extent to which the programme's third objective has been achieved.*

4) How effective and efficient have the SMEs been in delivering cost-effective clean energy and energy efficient products and services to rural and peri-urban consumers? *This question relates to the evaluation of the AREED programme's impact on the beneficiaries, particularly the SMEs to meet the energy needs of the poor.*

5) To what extent has the programme been successful in assisting countries to formulate and implement policies supportive of SMEs which focus on delivering clean energy and energy efficiency services and products*? It is presupposed that this question concerns an assessment of the AREED's results and outcomes at policy level, which feeds into the evaluation of attainment of the programme's global objective.*

6) To what extent have the experience and lessons learned through AREED been disseminated to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media? This question relates to the achievement of the programme's last output as mentioned in the AREED project document (Ref: Prodoc-Final-Nairobi.doc P.7/15).

61. The TORs for the evaluation can be found in the Appendix.

III.2 Methodology of the evaluation

62. The evaluation was carried out between June 9 and August 11, 2008. The methodology of the evaluation is based on a detailed desk review, personal interviews and telephone calls.

63. The desk review of the AREED programme is related to the materials gathered during the Steering Committee meeting in Paris held in January 2006 and data collected through e-mails exchange with national partners during the terminal evaluation period (a list of the documents reviewed is available in the Appendix section).

64. The terminal evaluation also follows-up on the findings of the mid-term evaluation carried out in the period between the 23 of January and the 5 of June 2006.

65. In addition, telephone interviews were undertaken with programme management staff and partner institutions as well as representatives of SMEs supported by the programme in three partner countries (Senegal, Mali and Ghana).

66. A questionnaire was e-mailed to the Programme Officer (PO) in each country based on the list of main questions provided by the TOR. Partner NGOs in Tanzania and Zambia were requested to, but did not provide information regarding the questionnaire.

67. For the purpose of the mandate, 11 parameters have been considered for rating the programme's performance: Attainment of objectives and planned results; Achievement of outputs and activities; Implementation approach; Stakeholders participation; Financial planning; Cost-effectiveness; Country ownership; Replicability; Monitoring and evaluation; Impact; Sustainability.

68. The UNEP DTIE and the UNEP Evaluation and Oversight Office provided detailed comments on a draft of this report.

III.3 Limitations and Issues Not Addressed

69. Although the evaluation of this programme benefited from various sources of information, the evaluator noted the following limitations:

- Budget constraints have limited the evaluation to only desk-review, telephone interview and e-mail questionnaires. No site visit was authorized to include discussions with Governments and local FIs representatives;
- Some AREED Programme officers were not available for providing the evaluator with relevant data when requested;
- The evaluator sought to compile available documentation and to collect additional information during the two-month period in the view to cover the maximum items as specified in the TORs. Indeed, due to the limitation of resources and to the lack of baseline information, the programme results/impacts at village level or environmental mitigation through reduction of greenhouse gas emission were difficult to assess.

70. Findings of the evaluation are presented in the section below. The evaluation makes several recommendations that are consistent with the willingness to replicate this programme in other developing countries.

IV. Project Performance and Impact

A Attainment of Project Objectives and Planned Results

A1- Effectiveness

Effectiveness: Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators".

Programme purpose: *The energy enterprise development approach to creating new clean energy SMEs is established, and the capacity to expand its use is in place locally.*

71. In assessing the effectiveness of the project in meeting its objective, one would ordinarily consider objectively verifiable indicators specified in the Project Document or in a Logical Framework. The Project logframe[3] set out two verifiable indicators:

    a) Number of new local SMEs selling reliable clean energy services: 15 – 20
    b) Number of stakeholders (local NGOs, development professionals, government organisations) actively using the AREED approach to support enterprise development.

72. Regarding the first indicator, Annex I provides a list of SMEs offering reliable clean energy services. For the period starting February 2000 to December 2005, 14 SMEs were operating on a sustainable basis. During the last extension period - December 2006 to December 2007 - 10 additional SMEs were in operation. The total SMEs operating on a reliable basis is 24 meaning that the success indicator has been reached satisfactorily.

73. The second indicator has no clear targeted value. This means the monitoring system adopted by the Project is not SMART[4]. However, the evaluation found that in most of the five host countries, partner NGOs are using the AREED approach to support enterprise development. The flow of SMEs supported by partner NGOs has reached the level of 60 at the completion of the programme, with a ratio of 30% in operation:

Table 1 - Achievement of Project Purpose

Period 1: 2000/2005	Ghana	Mali	Senegal	Tanzania	Zambia	Total
Active SMEs	**5**	**2**	**5**	**2**	**0**	**14**
Project work out	3	1	1	1	3	9
Loan approved but not disbursed	2	1	3	1	1	8
Written-off (Amount of loan uncollectible or lost)	0	1	0	0	4	5
Total 2000 / 2005	10	5	9	4	8	**36**
Last extension: 2006/2007	Ghana	Mali	Senegal	Tanzania	Zambia	Total
Active SMEs	**6**	**1**	**3**	**n/a**	**n/a**	**10**
Loan approved but not disbursed	15	12	4	n/a	n/a	31
Total 2006 / 2007	21	13	7	n/a	n/a	**41**
Total Active SMEs	**11**	**3**	**8**	**2**	**n/a**	**24**

n/a: data not available

[3] See the AREED programme associated logical framework in Annex --
[4] According to the TOR, the monitoring system should be "SMART": Specific, Measurable, Relevant and Targeted.

74. Besides, Government organisations in charge of rural electrification in Senegal (ASER: Agence Sénégalaise d'Électrification Rurale) and Mali (AMADER: Agence Malienne pour le Développement de l'Energie Domestique et l'Electrification Rurale) have integrated the AREED approach into their core business.

75. In the ***Policy paper*** for rural electrification[5] adopted on July 23, 2004, the Government of Senegal has clearly established the role of private operators in the development of modern energy services for the populations (See Box 2 below).

76. Another example can be seen in Mali where the World Bank approved new funding for energy services delivery in rural areas. This project aims to increase the number of communities with access to modern energy services, particularly in rural areas. The project funding intended primarily to support the efforts of local private operators through rural electrification initiatives to help the government in its effort to improve the provision of basic energy services to the poor to help stimulate economic growth and thus contribute to the reduction of poverty.

77. The energy services delivery component is based on a business model quite similar to the model adopted in Senegal and inspired by private sector oriented approach as in AREED model. The two Governments intended to use local SMEs capacity to scale up rural electrification projects and other energy services delivery investment.

78. Mali Folkecenter and ENDA[6], the two partner NGOs involved in AREED project implementation have been active in the preparation of AMADER and ASER rural electrification projects, providing inputs and ensuring the necessary advocacy to allow governments and their partners to adopt a business-oriented approach instead of the traditional approach to rural electrification in Africa.

Box 1: Mali - Household Energy and Universal Access Project: The Energy Services Delivery component would support the government's strategy of providing access to basic energy services in rural and peri-urban areas. It is based on an output-based approach (OBA), **using private operators**, and linking payments of subsidies to outputs. For the expansion of PV systems co-financed by the GEF, a fee-for-service model is adopted. This business model is more conducive for the expansion of PV systems for the following reasons: (i) it allows the most affordable payment schemes and can reach a larger client base; (ii) clients do not have to invest in systems but only pay for services provided by operators; (iii) clients do not have to worry about after-sales systems maintenance which is centrally provided by operators; and (iv) product standardization and quality assurance is easier as operators can obtain economies of scale in procurement and in the delivery of services. Investment costs would be funded by a mix of private equity, commercial bank loans, and grants for the subsidized portion of the capital expenditures, channeled through a rural electrification fund. The approach will build on the successful experience of two 'demonstration' schemes that have been in operation since 2000. http://www-wds.worldbank.org/PDF/multi0page.pdf	**Box 2: Senegal: New rural electrification strategy** The traditional approach to rural electrification in Africa, including Senegal, has entailed public utilities preparing technical feasibility studies for conventional grid extension for a preset number of connections and then procuring equipment and works. Customers are required to pay both high connection fees and internal installation costs. This approach has often failed because of public utilities' inadequate financial capacity and potential customers' limited ability to pay. In 2003, assisted by the World Bank, the government adopted the Rural Electrification Priority Program (PPER) to address the challenges posed by the traditional approach. PPER combines privately operated concessions with output-based subsidies to leverage private financial resources and overcome the barrier of high up-front connection costs, while ensuring quality connections. Under PPER, the country is divided into 18 rural electrification concessions. In addition to the 18 primary concessions, the program includes multisector energy projects (PREM) aimed at improving small business productivity and social service delivery. These PREMs link PPER with other sector programs whose results have been limited due to lack of access to electricity. By Christophe de Gouvello and Al. http://www.gpoba.org/docs/OBApproaches14_SenegalElectric.pdf

[5] Sénégal : Lettre de politique de développement de l'électrification rurale, Dakar 23 juillet 2004

[6] Dafrallah Touria, Enda Energie: L'Electrification Rurale au Sénégal: Rôle de la Petite et Moyenne Entreprise, Atelier sur l'électrification rural, 18-20 avril 2007, Yaoundé, Cameroun

79. As indicated in the table 1 above, annual reports, interviews and questionnaire data highlighted a wide range of actual uses of the AREED model in some countries. Twenty four SMEs are operating on a sustainable basis. The overall evaluation of the programme effectiveness is rated "***Satisfactory***".

A2- Relevance of the AREED Programme to UNEP Energy Strategy

Relevance: Conformity of Project Purpose and Overall Goal to the recipient countries' needs at the time of evaluation

80. In terms of formulation, the 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 the following policy documents as critical for the continent's development:

- World Summit on Sustainable Development in 2002[7],
- Millennium Development Goals[8],
- *New Partnership for Africa's Development (NEPAD)[9],*
- *Economic Community of West African States (ECOWAS) White Paper[10] for Regional Policy on energy access, etc*.

81. The AREED programme purpose, as outlined above, also addressed problems with effective implications on both, *policy, financing*, and *human capacity building* as well as *energy-poverty* and *environment nexus*, in which cooperation and regional integration at various levels can add value on the international efforts to accelerate energy access while mitigating climate change.

82. Energy access constitutes another serious constraint to Africa's efforts to attain sustainable and inclusive growth. Despite the continent's vast energy resources, its levels of energy access lag far behind the rest of the world. By developing and adopting a new business model based on private sector driven clean energy business expansion in Africa, AREED provided a relevant model that complies with the whole continent energy-access needs.

83. Finally AREED programme is aligned with the UN framework conventions and strategic programmes, particularly in the areas of energy, environment and to some extent to health impacts mitigation. The overall evaluation of the programme relevance is rated "***Satisfactory***".

7 The special needs of the African continent have been systematically identified there. URL: http://www.un.org/esa/sustdev/sdissues/africa/africa.htm

8 The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest. URL: http://www.un.org/millenniumgoals/

9 The NEPAD strategic framework document arises from a mandate given to the five initiating Heads of State (Algeria, Egypt, Nigeria, Senegal and South Africa) by the Organisation of African Unity (OAU) to develop an integrated socio-economic development framework for Africa. The 37th Summit of the OAU in July 2001 formally adopted the strategic framework document. URL: http://www.nepad.org

10 Member States of the Economic Community of West African States (ECOWAS) Region have decided to engage on an ambitious regional policy in order to increase access to modern energy services. In that process, their objective is to allow at least half of the population to have access to modern energy services by the year 2015. The White Paper, produced by ECOWAS with support from UNDP and the French ministry of Foreign Affairs, describes this policy and sets time-bound regional targets that are ambitions but necessary for the achievement of the MDGs.

A3- Efficiency

Efficiency: Extent to which Inputs are effectively converted into Outputs

84. Efficiency is a criterion concerning the relations between the project costs and its outputs. The main question asked here to judge the efficiency of the project is whether the degree of output justifies the costs, in other words, whether there was no alternative means of securing the same achievements at lower cost, or whether it was impossible to attain greater achievements at the same cost.

85. The project can be described as efficient if all stages, maturity, delivery, initiation and implementation are accomplished within the constrains identified at its beginning, in terms of workforce, cost, time and objectives.

86. Activities of the AREED initiative can be divided into three distinct phases. **Phase I** pools the experience and efforts of UNEP, E&Co, and local partner NGOs to develop and adapt project planning and training tools. This phase was completed in a timely manner within the first year through: i) the selection of the eligible countries; ii) the recruitment of local NGOs qualified in rural energy issues; iii) the setting up of the AREED Steering Committee; iv) the development of "RET company start-up tool-kit"; v) the finalization of "FI handbook on RET Investments"; vi) the adaptation of AREED training materials to the specific context of the target audiences. The evaluation found Phase I activities[11] have been executed within the timeframe leading to the expected output. For this reason the efficiency of this component is rated "***Highly Satisfactory***".

87. **Phase II** was dedicated to the capacity development of regional and local financial institutions and NGOs to introduce RET-based enterprises as profitable avenues for lending through the provision of relevant information and successful examples of rural energy enterprises to the target stakeholders. The training programs and support provided by E+CO to AREED regional and local partner NGOs have been conducted successfully in the timeframe of the programme (months 4 to 16). However, the training of local and regional financial institutions hasn't reached the expected level of FIs involvement in RET-projects evaluation and co-financing. For this reason, the efficiency of this component is rated "***Satisfactory***"

88. **Phase III**, the core of the AREED Programme, has identified project opportunities to be supported by AREED's environmental venture funds. Small amounts of enterprise start-up financing have been provided in the form of loans or equity to new entrepreneurs who submitted their business plan based on a commercially sound approach. Thirty-six (36) proposals were developed leading to only 14 active projects, meaning less than the planned target (15 to 20). The programme hasn't consumed the total budget and additional funds raised by the Programme allowed its extension.

89. Another aspect of the programme efficiency evaluation is related to the participation of local/regional financial institutions in the co-investment of projects submitted by RET entrepreneurs. The financial institutions have never been able to integrate RET into their lending portfolios during the project implementation period with the exception of one local bank in Mali. For co-financing, it is really difficult to say that the Programme was cost-effective since the level of expected amount has not been reached. For this reason, the efficiency of this component is rated "***Moderately Satisfactory***".

[11] All planned activities have been conducted with great success with the exception of financial institutions involvement as planned in the prodoc (page 8 – Activity 2).

90. ***Project management***: Proper time management of resources also signifies efficiency of the project, as resources arrive before they are required, this may lead to problems, deterioration, unexpected fluctuation in planned cash flows. The Steering Committee provided effective control of financial allocation in close relation with project's planned activities. In term of direct support to energy enterprises, the Programme can be seen as cost-effective with regard to economic impact, through job creation, and current business enforcement mainly with LPG companies in Senegal, Ghana and Mali.

91. In sum, given the fact that the project has been extended three times for implementing the major specified activities, it is somewhat easy to say that the project activities weren't achieved in a timely manner as expected initially. Even though, from that information which is available, it appears that most planned outputs and activities were achieved in a relatively cost-effective way, as noted in the E+CO 2006 annual report. The overall evaluation of the programme efficiency is rated "***Satisfactory***".

B Sustainability of Project Outcomes

Sustainability: Extent to which benefits gained through the project are sustained even after the completion of cooperation

92. While the AREED programme has been successful in enhancing the capacity of many African partner NGOs and rural electrification agencies[12] with which it worked directly or indirectly, the long-term sustainability for several outputs remain doubtful. In the case of Sub-Saharan economies, and taking into account the barriers[13] to maintain a high rate of SMEs that survive after the start-up phase, the accessibility to financing is central to sustaining the private sector oriented NGOs and their support to local SMEs.

93. Sustainability in "enterprise development services" is critical for AREED project's sustainability. Phase III should have helped financial institutions bring RET investments into their main lending operations. The goal was to help financial institutions create "windows" of investment opportunity or provide funds for RET projects through AREED financing mechanism. Without new risk mitigation mechanisms to facilitate investment in RETs and the increased capacity of local and regional NGOs to assist enterprise development, this initiative will only work in some countries. This is the reason the mid-term evaluation recommended to set up a financial risk mitigation mechanism at national level as well as to work with local micro-finance institutions. To this end, the remaining AREED financing resources should be conveyed into pilot "guarantee funds[14]" in the most active countries like Ghana, Senegal and Mali.

[12] In Senegal and Mali, AREED model has been adopted by ASER and AMADER. This model is also considered in the ECOWAS White Paper for Regional Policy for energy access

[13] The existing barriers relate to the unsophisticated nature of markets in Africa, particularly in fields that involve new technology such as energy and sustainable development, in particular when these are directed toward rural communities who possess few financial resources and little understanding of new technologies involved. These barriers are exacerbated by poor transport and telecommunications, as well as low capacity, inefficiency and corruption in governance and authority both at a local and national level. Once again these are barriers that face local business in a more concentrated manner than foreign capital which is encouraged by all governments in Africa keen for investment from outside. These dynamics impact on SMEs who find it almost impossible to break into monopoly markets dominated by western corporations. These corporations are able to source their capital and skills much more cheaply than local entrepreneurs. SMEs face extortionate rates of interest on loans that are rarely available, a lack of access to skills and experience, partly due to economic migration and partly because what skills exist locally are often monopolized by foreign capital offering higher wages.

[14] A Guarantee fund is a reserve account that is used to underwrite partial credit guarantees for FI loans to SME's. This instrument is only meant to help share project financing risks, marginally enhance credit and improve loan terms; they cannot solve systemic banking or credit problems.

Financial Sustainability

94. The AREED programme has been successful in attracting additional international funds leading to its extension four times. As an example, in recognition that AREED programme had produced significant outputs in the participating countries, the German Government entered into agreement with UNEP in September 2005 to further promote the development of clean energy enterprises for poverty reduction in Africa. About 400,000 Euros were provided by the German Federal Ministry for Economic Cooperation and Development (BMZ) to finance investment activities to be undertaken by E+Co. The BMZ committed an additional 450,000 Euros to the project in 2006.

95. As part of the overall work of transitioning AREED to a self sustained entity after United Nations Fund support, an AREED Partners meeting was held in Tanzania February 2007. Several partners expressed strong desire to establish formal "Sub-Funds" to sustain energy enterprise development work in their respective countries. To this end, it was agreed that: 1) Each interested partner will develop and submit a proposal to the existing AREED Investment Committee for approval; and 2) Approved Sub-Funds that meet agreed criteria will be partially financed by the existing AREED investment fund, estimated to US$ 1.7 million.

96. On the other hand, many efforts were undertaken by the Programme Implementing Agency and its partners to attract the local banking system at national and regional levels without any concrete result. The evaluator's opinion is that financial sustainability is not effective. For this reason, the existing resources leveraged at the international level should be dedicated to establish formal national RET funds as indicated above.

Socio-Political Sustainability

97. Energy services delivery is a key issue for all the participating countries. Given the commitment of all the Governments involved to develop Energy Access Programs with the main donors[15] and based on the ongoing national and regional Energy Access Policies, a good opportunity to minimize the socio-political risk exists.

98. Given the awareness activities undertaken by AREED partner NGOs within the national contexts, there was sufficient buy-in among project public agencies to ensure that AREED approach (based on business-oriented model) developed during the programme implementation timeframe is used or will find some uses in the future. As previously described, this includes awareness and commitment of national level government institutions, which is currently high compared to the situation at the beginning of the AREED Program.

99. We can mention other initiatives that contributed to reinforce the AREED program sustainability on the socio-political level. The first is the ECOWAS/UEMOA White Paper for a Regional Policy on energy access. In 2006, ECOWAS and UEMOA Member States have decided to engage on an ambitious regional policy in order to increase access to modern energy services. In that process, their objective was to support Governments to establish a socio-political commitment to increase access to modern energy services to reach the MDGs. The White Paper, produced with support from UNDP and the French Government, describes this policy and sets time-bound regional targets that are ambitions, including adapted frameworks that will contribute to reinforce the socio-political sustainability at the national level. The same process is being experienced in East Africa involving collaboration between the East African Community (EAC) and the UNDP through its Energy Poverty Regional Programme based in Dakar.

[15] See Table below

Table 2: Ongoing Energy Access Projects (including institutional and policy development component) with the World Bank Group in the participating countries

Country	Project Title	Project Components	Financing Institution	Implementation Period
Ghana	Energy Development and Access Project (GEDAP)	• Sector and Institutional Development • Electricity Distribution Improvement • Electricity Access and Renewable Energy	World Bank	2007-2012
Mali	Household Energy and Universal Access Project (HEURA)	• Capacity Development and Institutional Strengthening • Energy Services Delivery • Household Energy Development	World Bank	2003-2012
Senegal	Electricity Sector Efficiency Enhancement – phase 1	• Maintain and increase the electricity supply and the reliability of the services • Reduce the costs of the electricity services; • Enhance the performance of key energy sector institutions	World Bank	2005-2009
Tanzania	Energy Development and Access Expansion (TEDAP)	• Rehabilitation of transmission and distribution networks • Development of electricity access in rural, peri-urban and urban areas • Commercially oriented and sustainable energy service delivery for rural electrification.	World Bank	2007-2012
Zambia	Increased Access to Energy and Information and Communication Technology Services	• Zambia Electricity Supply Company (ZESCO) efficiency improvement • Access expansion • Technical assistance for both ZESCO and the Rural Electrification Authority (REA).	World Bank	2008-2013

Institutional Sustainability

100. Some of the changes seen in the energy sector institutional framework, such as the setting up of rural electrification agencies in all the participating countries, are long-term oriented. Besides in West Africa, donor's assistance results in the establishment of national rural electrification funds that is supporting the participation of some local SMEs in the provision of modern energy services to rural and peri-urban populations.

101. However, the partnership between private energy companies and the institutional sector is at its start-up phase and is not yet a common practice in all the participant countries. The work done to raise the awareness of the institutional sector did not result in increased participation of the private sector in all the decision-making process to reach the policy target.

102. The results of the AREED Program will be sustained to some extent within the Ministries of Energy and the Rural Electrification Agencies that have been more involved in the policy capacity development activities at the national level. There were few, national-level policies created as a result of the project in East Africa participating countries (Zambia and Tanzania) imputable to the AREED Program. In the long-term, the results of the project will only be sustained if the institutional frameworks for promotion private sector participation are further developed to ensure that the AREED capacity building tools ("RET Company Start-Up Tool-Kit" and "FI Handbook on RET Investments") developed are integrated in future energy access policy decisions.

Environmental Sustainability

103. Consistently with the ultimate purpose of the AREED initiative with regard to the protection of the environment, each of the projects developed and implemented under AREED Program are respectful of the environment and do not pose a threat to the given context of sustainability in the regions. In fact, most of the companies' created or supported are proposing products and services which are modifying the interaction between the served populations and their environment, reducing anthropogenic negative impact on the ecosystems in many cases. Examples of these products are the efficient stoves projects (distributed by Foyers Améliorés of Senegal), rural PV modules (commercialised by Safe Lec of Mali with a subsidy from the government through AMADER) and energy efficiency services (offered by Gladymanuel Limited of Ghana).

104. LP gas projects have had great success in countries such as Ghana, Mali and Senegal providing opportunities for women to shift from charcoal and wood fuel to modern energy for cooking. In the long term, a question of waste management could arise for a small part of the enterprises if the preventive actions are not taken in advance. One example of dangerous wastes is the efficient light bulbs (commercialised by EcoHome of Mali). These should be disposed off properly in order to prevent soil pollution with mercury.

105. In sum, the environmental sustainability of this Program has been demonstrated through the type of projects supported during Phase III activities. It was essentially renewable energy and energy efficiency projects that have been financed by AREED environmental venture fund. Both project types are recognized as the most important tools for delivering both climate and energy security whilst contributing to some extent, to the sustainable economic growth and environment protection in the participating countries. The success of LPG projects in West Africa with AREED Program support provided some objective evidence of project environment sustainability.

106. The overall evaluation of the programme sustainability is rated "***Satisfactory***".

C Achievement of Outputs and Activities

Achievement of programme outputs and results

107. As explained in the section dealing with parameter F (Preparation and Readiness), the framework of the project evolved through its implementation. At four occasions, for instance, the lifetime of the project was extended. In this section, we will only deal with the logical framework of the AREED programme provided by the Implementing Agency as it is described in the original (initial) project document.

108. Given the clear timeframe for almost all specified activities, it is easy to assess the extent to which the various project outputs were achieved in a timely manner.

- Phase I: Planning and Resource Assessment (Months 1 to 8)
- Phase II: Capacity Building (months 4 to 16)
- Phase III: Enterprise Development (months 6 to 36)

109. The programme results associated with the planned activities are the following:

- Three AREED training tools that form the basic resource materials for the initiative developed with African partners' participation (Phase I)
- Business-oriented NGOs and other development organisations have integrated energy enterprise development into their missions and are delivering enterprise development services (Phase II).
- Local, regional and national government agencies have developed and implemented policy instruments and institutions supportive of sustainable rural energy service provision by energy enterprises (Phase II).
- Regionally based financial institutions have opened windows in their portfolios for financing of rural energy enterprises (Phase II)
- Investments in renewable energy and energy efficiency enterprises targeting rural and peri-urban markets are increased (Phase III).
- Results of the programme, its experiences, and the lessons learned disseminated to a variety of audiences.

110. From information gathered during the evaluation, it appears that some critical outputs (Outputs 4, 5 and 6) weren't achieved in the timeframe in a relatively cost-effective way. The programme activities associated to these outputs took longer or cost more than was originally envisaged. These were mostly activities related to "Enterprise Development" in some countries such as Tanzania and Zambia that have had small effect in terms of sustainable energy enterprises developed or financial institutions investing in clean energy business.

111. Other activities appear to have been conducted in a timely fashion with respect to available budget. This is the case for activities related to planning and resources assessment as well capacity building of major stakeholders (Phases I & II).

112. The achievements in term of number of active SMEs, seminars and operators trained are convincing. The AREED entrepreneur's toolkit was developed jointly by E+Co and UNEP, with regular feedback from partner NGOs during Phase I. One partner NGO is operating in each participating country. Nearly 312 entrepreneurs have been trained according to E+CO reports related to capacity development activities undertaken.

113. Even if some difficulties have been noticed on the co-financing of RET proposals by local FIs, the number of projects successfully completed during the period (2000-2007)

covered by the evaluation have contributed in the programme success allowing the leverage of additional contribution from German Government in 2005 and 2006.

114. Some regionally-based financial institutions (Crédit mutuel du Sénégal,- Kafo-Jiginew, BDM and BMS of Mali-Bank of South Africa) considered participation in the project financing for rural energy enterprises, but a lot of work remains necessary to convince local banks in all the participating countries.

Project Activities Implementation Summary

115. The following tables summarize the evaluation of AREED achievement at Outputs and Activities levels based on the original AREED Project Document as of January 2000.

Table 3: Evaluation of Program Outputs

Project Document (Version as of January 2000 – P.16)		**Evaluation**	
Overall Objective Access of poorly served rural and peri-urban populations to affordable and environmentally sound energy supplies is improved.	***Objectively Verifiable Indicators*** Trends in number of customers served with clean energy technologies and services.	***Target planned***	***Actual achievement***
Outputs 1. **Output 1**. Business-oriented NGOs and other development organisations have integrated energy enterprise development into their missions and are delivering enterprise development services.	***Objectively Verifiable Indicators*** Number of local enterprise development organisations (3-5).	*3 to 5 local enterprise development organisations reinforced*	*5 private sector oriented NGOs have been reinforced within the project lifetime, namely: ENDA (Senegal); Mali Folkecenter; KITE (Ghana); TaTEDO (Tanzania) and CEEEZ (Zambia)*
2. **Output 2. Regionally based financial institutions have opened windows in their portfolios for financing of rural energy enterprises**	2.1 Number of financial institutions financing sustainable energy enterprises and projects (3-5) 2.2 Amount of co-financing leveraged per enterprise (2-4 times AREED investment). 2.3 Total amount of AREED co-financing ($4-6 million).	*3 to 5 financial institutions financing sustainable energy enterprises and projects*	*A total of 6 Financial Institutions have been contacted* *- Credit mutuel of Senegal,* *- Kafo-Jiginew, BDM and BMS of Mali* *- Bank of South Africa.* *Only one financial institution has approved a loan to Eco-Home in Mali.*
		2 to 4 times of AREED investment leveraged per enterprise as co-financing	• *5 active projects with co-financing leverage ratio less than expected* Project / Leveraged Ratio / Achieved Target 1) EcoHome Mali (2 – 4) 1.0 2) Biomass Tanzania (2 – 4) 0.50 3) LPG Ghana (2 – 4) 0.68 4) SHS Tanzania (2 – 4) 0.50 5) Solar PV Ghana (2 – 4) 0.84
		$4 million to $6 million is leveraged as total co-financing of AREED Investment Fund	*Loan Amount Approved (US$): 2,235,712* • *31 investments approved as at Dec. 2005* *Non AREED money: 536,432* *Leverage Ratio: AREED US$ 1 for US$ 0.24.*
3. Output 3. Local, regional and national government agencies have developed and implemented policy instruments and institutions supportive of sustainable rural energy service provision by energy enterprises.	3.1 Number of enterprise friendly policy / regulatory recommendations approved.	*Number of enterprise friendly policy / regulatory recommendations approved by local, regional and national government agencies*	*1) Ghana: 1* *2) Mali: 1* *3) Senegal: 1* *4) Tanzania: N/A* *5) Zambia: N/A* *Regional:* *1) ECOWAS White Paper for Energy Access* *2) ECA White Paper for Energy Access*
4. Output 4. Investments in renewable energy and energy efficiency enterprises targeting rural and peri-urban markets are increased.	4.1 Total investment in AREED-type enterprises delivering renewable energy and energy efficiency services.	*% of increase of investment in renewable energy and energy efficiency enterprises targeting rural and peri-urban markets*	*31 investments in 5 years totalling US$ 2,235,712 including $ 1,835,042 from AREED Environment Venture Fund*

Table 4: Implementation of AREED Program Activities
(Based of the initial Project Document – P.16)

Main Activities	***Targets planned***	***Actual achievement***
Output 1 Activities (Phase II)	Business-oriented NGOs and other development organisations have integrated energy enterprise development into their missions and are delivering enterprise development services	
1.1. Continue relationship building and initial training of NGO partners	4 NGO partners	5 NGO partners selected and trained
1.2. Identify other potential NGO partners and screen for possible cooperative EDS efforts	Seek partnership and secure commitment to learn EDS	Study tour by UNEP. 5 NGO partners committed to participate.
1.3. Implement the Enhanced Enterprise Development Capacity Building Process with selected NGOs that are committed to EDS service delivery. Stages 1 and 2 of the process will include active external support to NGO partners in:	(see rows below)	(see rows below)
1.3.1 Identification of new enterprise opportunities with productive use/income generation potential	*Not specified*	• *22 projects developed during the first period (2000-05) with productive use/income generation potential* • *20 projects during the second period (2006-07)*
1.3.2 Refinement of AREED Energy Entrepreneur Toolkit and curriculum as needed.	Periodic update of training materials	Improvement of the original documents, final edition completed in 2002
1.3.3 Implementation of 10 Entrepreneur Development workshops in each country per year	50 EDS workshops per year	18 entrepreneur training workshops during the evaluation period (2000-07)
1.3.4 Training of 250-300 Entrepreneurs on how to start a rural energy enterprise	250-300 Entrepreneurs to be trained	312 participants at workshops (E+CO annual reports).
1.3.5 Providing intensive enterprise development support to selected entrepreneurs (lasting anywhere from 3 months to 2 years each)	50-75 entrepreneurs to be integrated in the pipeline	78 entrepreneurs have been integrated to the pipeline
1.4. Assist NGOs in development of plan to integrate energy enterprise development into institutional strategy	All NGO have developed a plan to support ED into national/regional policies	• *ENDA (Senegal), Mali Folkecenter and Kite (Ghana) have developed plans to help* integrate energy enterprise development into national strategies • *No objective evidence regarding the situation in Tanzania and Zambia*
Output 2 Activities (Phase II)	Regionally based financial institutions have opened windows in their portfolios for financing of rural energy enterprises	
2.1. Implement Annual Workshops on Renewable Energy Finance for Finance Professionals	1 workshop per year	2 workshops held in Ghana and Tanzania. Source: AREED Annual report 2003
2.2. Implement information system for communicating/sharing rural energy enterprise investment opportunities with financial institutions	1 information system set up	No objective evidence.
Output 3 Activities (Phase II)	Local, regional and national government agencies have developed and implemented policy instruments and institutions supportive of sustainable rural energy service provision by energy enterprises	
3.1. Conduct regular consultations with Environment and Energy Ministries [and where necessary, other key agencies], as well as UNDP Resident Representatives	Periodic consultations with energy and environment institutions/agencies	Communication channels established and maintained in the 5 countries. Source: AAREED Annual report 2003
3.2. Design and implement AREED Policy Advisory Facility including procedure for diagnosis/specification of institutional	Policy Advisory Facility set up	1 policy support facility created. Source: Annual progress report July-December 2005

Main Activities	*Targets planned*	*Actual achievement*
bottlenecks to energy enterprise development, and implementation of government-endorsed policy interventions		
3.3. Carry out specific policy support projects with government ministries and agencies (e.g. restructuring rural PV programmes).	At least one policy project per country	7 AIAP proposals
3.4. Prepare a communication strategy for local and international audiences	1 communication plan	*The Information Bulletin for the UN Private Sector Focal Points has been used to disseminate information about AREED project*
3.5. Share AREED experiences with local and national Governments, UN and donor agencies working in-country	AREED experiences shared with stakeholders	NGO's form the 5 countries actively worked in sharing the experience Source: AREED Annual report 2003
3.6. Publish articles on AREED projects, both to local audiences. Focus on 1) business, 2) development and 3) climate change policy audiences.	30-40 articles published	No objective evidence on the number of articles published by AREED partners. However; some articles on AREED experience can be seen on various website: http://www.enewsbuilder.net/focalpoint/e_article000802484.cfm?x=b11,0,w http://www.enewsbuilder.net/focalpoint/e_article001055912.cfm?x=b11,0,w http://www.uneptie.org/energy/act/fin/docs/REEDreport.oct05.pdf http://kiteonline.net/docs/files/Reports/2001/2001%20KITE%20Annual%20Report.pdf http://www.eandco.net/newsletter/newsletter_s07_clara.php
3.7. Present AREED programme and projects at national Meetings. Assist local entrepreneurs and partners to attend/present at these events.	1 presentation at national meeting on energy access	3 presentations done in 2003 for kfW, JREC and the EUEI. Source: AREED Annual progress report 2003
3.8. Prepare / disseminate AREED Newsletter	Quarterly newsletter produced and disseminated	REED newsletter created Example: http://www.areed.org/docs/REED%20report_sept2005.pdf
3.9. Prepare / disseminate project status reports	Project status reports produced and disseminated	Partners meeting reports, annual reports and Management meetings reports were prepared
Output 4 Activities (Phase II)	Investments in renewable energy and energy efficiency enterprises targeting rural and peri-urban markets are increased	
4.1. Provide AREED financing to rural energy enterprises	20-25 enterprises financed	32 enterprises financed as of December 2005 Source: AREED Annual progress report 2005 10 new projects financed as of December 2007 (Mali, Ghana and Senegal)
4.2. Secure enterprise co-investment from local and regional financial institutions	3-5 institutions co-invested	3 institutions approached Source: E+Co final report
4.3. Develop co-financing arrangements with multi/bilateral programmes (e.g. with the UNDP/GEF Small Grants Programme	20-25 projects co-financed	No objective evidence.
4.4. Explore co-investment possibilities for AREED Investment Facility	At least, 1 co-investment opportunity	Co-investment fund by German BMZ and the KfW

Table 5: Implementation of AREED Program Activities
(Based of the revised Project Document)

Activities from revised Project Document:

Main Activities	***Actual achievement***
Co-financing through AREED Investment Facility, including ability of AREED to offer form of guarantee to secure local FI investment participation	Completed
Together with NGO's on enterprise development services, commencing with entrepreneurs identification and market opening and transitioning, over the course of the project implementation, to direct NGO's delivery of enterprise development services to entrepreneurs	No objective evidence
Assist in the development of governmental rural energy programmes (e.g. promoting private sector investment)	Completed 1) *Ghana: 1 (See* GEDAP: Ghana Energy Development and Access Project*)* 2) *Mali: 1 (See HEURA: Household Energy and Universal Access Project)* 3) *Senegal: 1 (See Senegalese Energy* Efficiency Project*)* 4) *Tanzania: N/A* 5) *Zambia: N/A*

Soundness and effectiveness of methodologies and tools for developing technologies

116. The methodological framework is found to cover all of the aspects which are relevant to the attainment of the outputs, namely:

- Capacity building of local partners, including partner NGOs, FIs and governmental bodies
- Seed financing of eligible entrepreneurs
- Enterprise Development Services
- Co-financing leverage
- Dissemination of experience and results

117. In every case, there is consistency on the activities to be carried out to achieve the expected results, and these activities are described precisely and are understandable. Furthermore, there is a clear statement of the needs of the end beneficiaries of the program, both rural and peri-urban poor populations and entrepreneurs.

118. However, dedicated activities for assisting the entrepreneurs in the development of the technology of their “business idea” could not be found. It is not possible to assess if the selection process had a component to evaluate the soundness of the technological choice of the entrepreneurs, and if the technology chosen could be candidate for ready improvement with help of an expert. It seems that the bulk of the activities catered to the commercial side of the ventures, and it is the evaluator’s belief that there might have been room for improvement on the technical aspects of the renewable energy products and services imagined by the entrepreneurs.

119. One example of possible failure due to poor performance of the technology was faced by TSADC Solar Ovens in Zambia. The ovens did not perform as expected in cloudy conditions, situation which could have been readily addressed with help from an engineer with appropriate experience. It seems that the pressure for improvement relied upon the entrepreneur only. This scenario puts the responsibility of the business survival in one single person with the risk of tarnishing the reputation of the young company and the possibility of economic failure of the venture.

120. From this point of view, the methodology suffered from too much of a business centered mentality, even though the implications of this statement cannot be easily measured since there is no information on the reasons for business failure of some of the companies.

121. Regarding the tools made available to the project participants. Most of those provided by E+Co were already proven effective elsewhere but still they were improved during the first 2 years of implementation. Additional training material was created which addressed specifically some of the RET (like solar drying for agricultural products, Ice production and cooling and Solar cooking) which have great potential in the targeted countries. Furthermore, the "Guide for Entrepreneurs on Income Generating Activities: Applications of Clean Energy Technologies for Productive Uses" was created to raise awareness about those types of energy services that have strong impact on the development of income-producing activities for entrepreneurs to consider those choices for their businesses.

122. The evaluator's opinion is that the tools were sound. However, there is no information to ascertain the effectiveness of these tools in the development of energy efficiency products since it can't be known if the companies nurtured under AREED chose any of the technologies on the basis of the information acquired from the workshops. Nevertheless, the evaluation is positive for the appropriateness of the tools for generating business development skills.

Scientific credibility of outputs to influence policy makers

123. Results achieved in the context of AREED are credible and straightforward. The model was conceived to deliver results in two different domains at the same time, these being environmental sustainability and poverty alleviation. These domains are extremely relevant to the scope of the governmental responsibilities in Sub-Saharan countries. Given the economic and socio-political situation in the host countries, characterized for the lack of wealth-creating activities and the uneven distribution of wealth, it is likely that any proven mechanism for economic development will be noticeable and attract the attention of governmental entities and non-profit organizations working for development.

124. Moreover, for the most part, the outputs are formulated to clearly show the influence of the project activities in terms of measurable results like the number of RET or SME's-promoting policies approved by the national governments, the amount of co-financing leveraged and the number of local NGO's trained. This information allows a quantitative analysis and a straightforward calculation of the project efficiency in relation to the allocated budget. The availability of clear indicators for each one of the phases of the project makes AREED's framework quite relevant for the policy-makers as it makes it possible to compare results and identify deficiencies, hopefully facilitating the identification of bottlenecks or insufficiencies in national legal frameworks that could be retarding or avoiding the delivery of results.

125. AREED's outputs have influenced policy makers in some host countries like Senegal and Mali. Increasing the participation of private sector in energy services development is considered as an asset in Senegal and Mali's rural electrification policies. In addition, the LPG deployment in urban and peri-urban areas is part of national policy in Sub-Saharan Countries efforts to reduce the impact of desertification. This can be considered as a good result of AREED project at national and regional level to influence policy makers.

Utilization of training tools and opinion of users

126. The original tools and handbooks provided by E+Co have gone through a process of refinement and adaptation by the partner organisations, mainly the enterprise development NGOs in the view to mainstreaming countries context. In this process, local partners have actively participated and their opinions led to the creation of additional tools. A good example is the tool for financial analysis, which was created to facilitate the evaluation, by the project officers, of the performance of the companies which were granted a loan by E+CO. Additionally, the AREED trainers manual and training program as well as the Project Officers Handbook were developed for the purpose of local partners' capacity building.

127. However, the report of the 4th Meeting of AREED Partners held on March 2003, concluded that some of the entrepreneurs were neither capable nor interested in using the toolkit that was provided. In the end, the training material remained a reference only for AREED Project Officers.

128. Regarding local and regional financial institutions, there is no objective evidence that the availability of the dedicated training tools through the AREED website has had a major impact in the achievement of project outputs for this focus group. Furthermore, E+Co's final report stated that the conclusions of the initial workshops offered to FI, and the one-on-one meetings that followed, were clear about the need to provide factual descriptions of successful projects developed by AREED in order to focus attention on the local financial sector.

129. The overall evaluation of the programme achievements is rated "***Satisfactory***".

D Catalytic Role of the Project

130. Based on the Project document, the provision of small amounts of enterprise start-up financing is the most significant innovative and catalytic component of the AREED initiative. The ability to couple this early stage support with enterprise development services to be provided by local partner NGOs has reinforced the effectiveness of the project activity. The approach proposed by AREED, based on the model developed by E+Co, goes beyond what is offered traditionally by a business incubator (as explained below), which is the closest enterprise-development model for entrepreneurial companies that it could be compared to.

131. Business incubation is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts. In the incubator model, entrepreneurs who wish to enter a business incubation program must apply for admission. Acceptance criteria vary from program to program, but in general only those with feasible business ideas and a sound business plan are admitted. Most incubators offer their clients office space and shared administrative services, which help in reducing the operating expenses of young companies. This model has been proven effective in increasing the survival rate of new companies in the context of aggressive market competition and globalisation.

132. AREED combines activities that focus on 3 different areas: 1) Private small and medium-size clean-energy enterprise development services, 2) Increasing the attractiveness by lowering the risk, as seen by the commercial financial institutions, to invest in such enterprises and 3) Increasing the awareness and knowledge of the

institutional sector about policy making as to support and encourage the market conditions in which these new enterprises can thrive.

133. To this end, it is noteworthy that the concept may also be replicable in other developing countries. Support for such replication of the concept, beyond the African context, was provided by E+CO to Brazil and China. Possibilities for other African countries will request adaptation of the model at two levels:

    i) Ensure a post seed capital investment support to beneficiary SMEs. This support should be granted in the same manner as in the first stage, meaning a hand-holding process where capacity is created by the delivery of structured training courses relying on academic material developed by experienced organizations (like E+Co's and its Entrepreneur Toolkit).

    ii) Develop a "Financial risk mitigation mechanism" available to the SME's for when negotiating with the local FIs and the Governments. This could be achieved by creating a national Renewable and Energy Efficiency Fund (REEF) or a "Guarantee Fund", accessible to the SMEs upon request and evaluation, which would allow them to consolidate all elements for a successful request for financing. This could be achieved through AREED II on permanent basis.

134. The overall evaluation of the Project catalytic role is rated "**Moderately *Satisfactory***".

E Project Monitoring and Evaluation Systems

M&E Design

135. The Project Document included an "Evaluation Plan" as well as a clear Reporting plan with an associated schedule. However, no clear Monitoring Plan is included to monitor results or measure progress in achieving the project's objective on a regular basis. No baseline data was established at community level nor were objectively verifiable indicators available for assessing progress either included in the Project Document or later developed or applied. As such, the project design did not meet the full requirements regarding project M&E described in this Evaluation's TORs (Annex 4).

Implementation of M&E Plan

136. As there was no clear M&E plan developed by the Project Document, it was not possible to assess how such plan was implemented on a timely manner. However, it should be noted that some M&E activities did take place under E+CO's supervision during the programme timeframe. E+CO annual reports provided updates to UNEP Programme Coordinator on project progress. Several progress reports covering the project's lifespan were viewed by the evaluator. In addition, NGOs annual reports also provided partial information of projects developed with local SMEs and preliminary information on project financing structure. These progress reports didn't follow a specific format to allow compilation of data regarding the achievements on the ground.

Budgeting and Funding for M&E Activities

137. The preliminary Detailed Project Budget included no specific funding for implementation of an M&E plan, consistent with the absence of such an explicit plan. However, the Budget did provide funding of independent evaluation at the end of the programme (Budget Line 6551). The funding provided for evaluation activities didn't cover mid-term evaluation. The budget appeared inadequate (US$15,000) and the timing designated for these funds inappropriate (year 3).

Long-term Monitoring

138. While the Project Document addressed the issues of long-term sustainability only vis-à-vis the selection of African NGOs through their interest in fostering the long-term development of private sector renewable energy companies, several long-term monitoring activities appear necessary to reach the programme final goal. The interviews conducted with partner NGOs as well as with SMEs, highlighted that the regular updating of loan repayment information will be necessary to ensure that AREED funds have produced the expected outcome. Indeed, the capacity to repay the start-up financing or the investment put in AREED second stage activities will be crucial to convince the private financial sector to take the lead after the UNEP's intervention.

139. The overall evaluation of the monitoring and evaluation systems in place is rated "***Moderately Satisfactory***.

F Preparation and Readiness

140. First of all, it should be noted that the project's original duration was unexpectedly extended four times for many reasons, namely, the availability of funds from bilateral and multilateral donors with regard to progress achieved after each period. The project objectives remained unchanged through all of the extension periods, but the activities to be carried out, and their budget allocation, did suffer some modifications. However, this was not properly reflected in new project document for each of the extension periods. Only two project documents were produced for this project:

    i) The original project document entitled : African Rural Energy Development (AREED) Initiative
    ii) A second proposal under the name of : Strengthening African Rural Energy Enterprise Development (AREED) Initiative

141. This situation makes it difficult to evaluate if the objectives were practically feasible within a timeframe that went through multiple modifications. However, if we restrict the analysis to the documents that do exist, there are some remarks to be made.

142. All of the project's objectives and components were clearly formulated in the initial and the second proposal. The targets to be reached are understandable and coincided with the participating countries' needs from an environmental and economic perspective. However, not all these targets were realistic and reachable (as an example: number of jobs created per enterprise; etc.) in the Sub-Saharan Africa context where the clean energy services enterprises are at their early-development stage.

143. It was also found that the formulation of some activities did not clearly reflect the extent to which the main barrier in Africa for enterprise development is "financing". For example, one of the activities in the original project document was stated as follows: "Secure enterprise co-investment from local and regional financial institutions". This statement does not clearly indicate the activities to be carried out. Another example of the lack of precision in the phrasing of the activities is: "Conduct regular consultations with Environment and Energy Ministries [and where necessary, other key agencies], as well as UNDP Resident Representatives". The activities mentioned remained unchanged in the second project document.

144. There were two main implementing institutions: UNEP Division of Technology, Industry and Economics and the UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC).

145. The capacity of these two institutions was clearly demonstrated, and the project was supported financially by new donors based in part on the management capacity of UNEP/DTIE and URC. The US-based NGO E&Co was also involved in the project implementation on a technical side, providing material and tools for RET business development.

146. On the local side, partner NGOs have been selected as counterparts and they did not need to have previous solid experience as the project was meant to develop this expertise. However, the choice of the local counterparts did see some problems of continuity, as one of the participant countries (Botswana) was finally dismissed and a new participant enrolled (Tanzania). There is no information as to judge the impact of this change of direction with respect to resources lost and the possible hindrance of the new participant. With the information available to the evaluator, it can be said that Tanzania was indeed lagging behind with only 4 projects in the pipeline.

147. The resources allocated to the operation of national partner NGOs were gradually adapted to the challenges of the project. In the majority of the countries, these were evaluated as sufficient.

148. Some concerns have been raised by national partner NGOs regarding the relationship with E&CO. The overall impression from the interviews with local project managers is that many projects were developed and submitted for approval to E&CO - the AREED fund manager - without any insurance about E&CO's reaction. From their point of view, this approval took too long in many cases, generating loss of trust in the mechanism and pipeline abandonment. As an example, during the last AREED project extension period (2006-2007), about 41 projects were approved in Ghana, Mali, and Senegal by SMEs, and only 10 were disbursed on time by E+CO. The consequence was that most of local entrepreneurs were disappointed, leading to a lack of confidence in the process.

149. The overall evaluation of the programme preparation and readiness is rated "***Moderately unsatisfactory"***

150. Country Ownership and "Driveness"Most of the activities implemented under UNEP's supervision have been successful in increasing environment and energy services awareness and supporting the start-up of private oriented activities. Consequently, the project has promoted ownership at country level, mainly by local energy enterprises and community-based artisans.

Relevance to national development

151. AREED activities have positive impact in the host countries through jobs creation and income generation. The Government of Senegal has used AREED approach to develop its national energy delivery programme in rural areas. The seed financing provided to LPG companies is contributing to national action-plan for environment protection and rationale use of biomass. AREED Initiative is relevant in connection with the national development programmes of the host countries involved. All the countries are committed to reducing poverty by improving access to energy services for the Poor. Energy is currently considered as key policy element of national strategy for poverty alleviation as found in the Poverty reduction Strategy Papers of the International Monetary Fund for each country. However, beyond the general policies in favour of SME, specific measures were needed for better development of a private energy products and services market.

Relevance to national environmental agendas and international agreements

152. All the host countries are parties to the United Nations Framework Convention on Climate Change (UNFCCC). The AREED achievements must be used to illustrate regional efforts made to mitigate the GHG emission and global warming. Furthermore, economic success of the enterprises nurtured under AREED could lead to the sustained development of renewable and clean energy production and utilisation in each of the host countries, hopefully allowing them to bypass the fossil fuel-based energy intensive development model of Annex I countries.

Country commitment to accept influence in decision-making

153. As discussed above, the project's impact on policy development is visible only in some countries, namely Ghana, Mali and Senegal. The evaluator can effectively confirm a direct impact on policy development and decision making in the following countries:

- A law has been enacted by the government of Mali that effectively reactivates and extends a tax exemption on solar PV systems to cover all renewable energy systems for the period 2002-2007. In addition, a 5-year MOU has been concluded between Mali-Folkecenter and the Ministry of Energy, forging a stronger link between AREED and the Malian energy policy and sector development process.
- In Ghana a new partnership was launched between LPG retailers and Ghana government for the development of policy instruments supportive of SME engaged in LPG business.
- In Senegal, an agreement between AREED and the National Fund for the Promotion of Youth was reached for co-financing projects proposed by young entrepreneurs.

154. However, the evaluator couldn't find any other examples to show that government agencies were actively involved in the project follow-up at national level. Nevertheless, the results achieved deserve a positive evaluation regarding the overall commitment of the countries to accept influence in decision making.

155. The overall evaluation of the country ownership and driveness is rated "***Satisfactory***"

G Stakeholder participation / public awareness

156. The level of stakeholder's participation is slightly positive. On one hand, the energy enterprises (private organizations) were effectively involved in energy services project development as well as the local partners. On the other hand, local banks, regional financing institutions and government entities were not very active in the project's implementation process.

Mechanism for national project partners

157. The mechanisms put in place by the AREED promoters for stakeholder identification and engagement worked very well regarding National Partner Organizations. Five local NGOs were selected after a study tour by UNEP to raise awareness among potential local organizations. Based on the information gathered during the mission at the time of the mid-term evaluation, the final selection of African NGOs was made on the basis of their technical and managerial capabilities, institutional soundness, interest in fostering the long-term development of private sector renewable energy companies, and willingness to contribute substantively to the project.

158. The weakness seen is the absence of competition among national active NGOs, which brought the feeling that there is no chance to improve the project's performance at national level when the local partners, selected for the long-term, do not follow the project rules.

Mechanisms for Banks and national government institutions

159. The involvement of local banks and national government institutions, other NGOs and civil societies is very weak. Nowhere (except in Senegal), have government institutions confirmed their participation in AREED Initiative. The banks were contacted during the project launching period but the Project Implementing Team wasn't very active in taking actions for the necessary follow-up and awareness activities. Later on, the Policy Support Facility of AREED was created, having as a first goal that of analyzing the policy situation in the five countries. The report of this first study was not available to the evaluator. As per the AREED Annual progress report covering activities from July to December 2005, the design and implementation of a more focused policy sector engagement strategy remained a goal to reach in the future.

Collaboration and interaction among programme partners and institutions

160. The degree of collaboration among international partners (UNEP, UNCCCEE, Donors, E+CO) is excellent considering the discussion with their representatives at the time of the mid-term evaluation. The coordination of project implementation activities by UNCCEE and UNEP can be considered also as excellent: the steering committee meetings took place on a regular basis each year.

161. The weakness observed is related to the relation between E+Co and some National Partner Organizations. Discussion with Mali Folkecenter and TaTEDO representatives during the mid-term evaluation brought some communication issues that have been solved. The two NGOs were complaining about the low responsibility given to national NGOs partners to participate in the decision made about project financing approval. As mentioned above, local partners NGOs in Mali and Tanzania are requesting a leading role in the project approval and management at country level; including investment approval and loan repayment follow-up (See: AREED partners meeting report, Paris, January 2006).

Public awareness activities

162. The project's issues and outcomes were widely addressed at national and international meetings and at bi-lateral meeting with donors. However, the main efforts to disseminate the initiative to a wider audience came from the local partners. The communication methods included advertising in local press and media, distribution of AREED brochures at meetings of likely projects being held in vicinity (like the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) meeting in Kenya) and participation in smaller initiatives or research projects having common goals, like Senegal's ENDA contribution to the document "RE and Poverty Alleviation: Overcoming Barriers and Unlocking Potentials - Summary for Policy Makers" published by the Global Network on Energy for Sustainable Development (GNESD) of UNEP.

163. Even though the planned results may have been achieved in completion (complete information to fully assess the achievements was not available to the evaluator), some of theses results are not useful for verifying the actual dissemination level to the global audience. Examples of this are the AREED newsletter and the project status reports

are not available (when consulted during the evaluation) in the AREED web page, which could have allowed to track the number of visits and downloads.

164. However, a number of review articles about AREED and its results were published by some specialized organizations like Renewable Energy World and Photon International, and even a renowned newspaper, the Economist, showed interest in the initiative and went on to publish an article on February 2001.

165. The overall evaluation of the programme achievements is rated "***Satisfactory***

H Financial Planning

166. Few documents relating to financial planning or reporting were provided to the evaluator, such that it is not possible to make a definitive assessment of whether the project applied appropriate standards of due diligence in the management of funds and financial audits.

167. The overall evaluation of the programme financial planning is rated "**Moderately Satisfactory**"

168. The summary of AREED programme financing including resources leveraged and final allocation is outlined below:

Table 6: AREED Programme Financing

AREED PROGRAMME FINANCING (Period : 2000-2007)		
	Amount	
UN Foundation	$ 4 320 000	
SIDA	$ 355 000	
BMZ (2006)	Euros 450 000	
Other		
Total		
BUDGET ALLOCATION		
	Total Amount	
RISOE Center	**$ 3 650 000**	
o Risoe support Cost	$ 220 000	
o Sub-contracts	$ 3 430 000	
Investment Fund	$ 2 266 558	
E+CO support cost	$ 1 163 442	
UNEP	**$ 1 025 000**	
o Sub-contracts	$ 220 000	
o Staff and travel	$ 585 000	
o UNEP support cost	$ 220 000	
Total		

I Implementation approach

169. The design of the AREED project went through many changes to the original conception. In the beginning, the project was meant to be completed by the end of 2002. It was extended four times, finally ending in 2007 as shown in the diagram below.

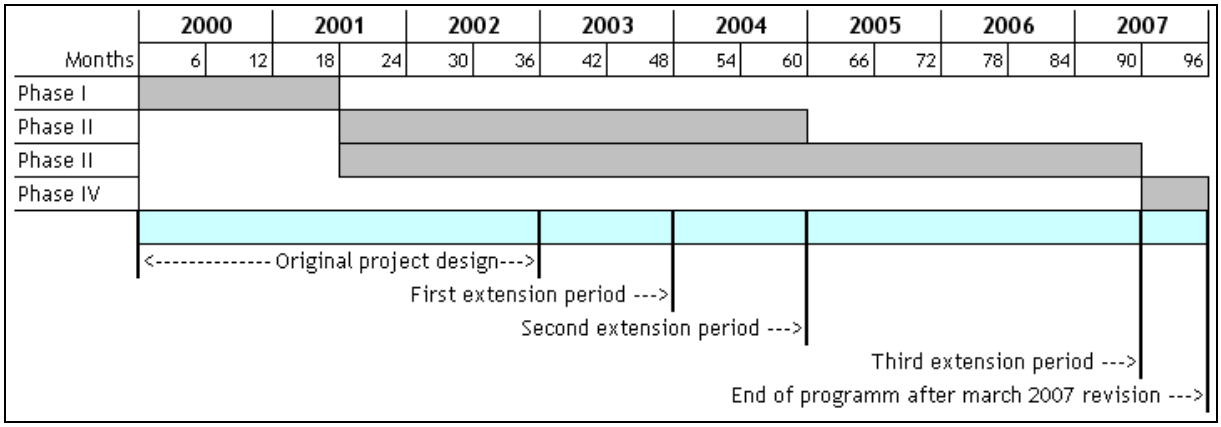

Figure 1: Evolution of the program lifetime

170. These changes responded mainly to the leverage of additional funding for the project and the need to restructure the activities according to the new budgets.

Compliance to the project document

171. The evaluator did not receive any evidence of the existence of new project documents for each one of the extension periods that were proposed. It could be said, for the two last extension periods, that neither additional activities nor specific outputs where planned to be achieved. It seems that, for the last extension period from March to December 2007, the continuation of the project was based only on the expenditure of the remaining budget, including the recently granted funds from BMZ.

172. The second project document (called Strengthening AREED initiative, 2001) is concise and clear when dealing with the energy development services and the capacity building for local NGO partners. The activities to be developed and the outputs expected are realistic and measurable, and now that the program has ended, the results can indeed be analysed and conclusions can be drawn. However, as mentioned in the section dealing with parameter F, the Government / Policy Interventions, the capacity building for Financial Institutions and the Enterprise Investment activities include some which formulation is not concise or which have no measurable indicators, like the following examples:

- “Conduct regular consultations with Environment and Energy Ministries in each country, as well as UNDP Resident Representatives”
- “Develop co-financing arrangements with multi/bilateral programmes (e.g., with UNDP/GEF Small Grants Program
- Secure enterprise co-investment from 3-5 local and regional financial institutions.

173. Following the recommendations of the Steering Committee, AREED Project Implementation Team agreed to support the launching of “AREED Partners Forum” which is a special platform for Representatives of African partners to exchange their

experiences and participate more closely in the decision making process and in the Management Committee. The Partners Forum was established in 2004 during the meeting VI in Paris. Two meetings have since been organized.

Evaluation of project management

174. The management approach in this project involving many stakeholders was adequate and the role played by each partner was clearly defined. However, limited financial resources have affected the coaching, on a day-by-day basis, of local NGOs working on this project. Some NGOs did not acquire sufficient experience in market-oriented business, resulting in a lack of international tutoring. Even if E+CO provided support for a regional bureau in South Africa, the lack of national representation reduced the benefits of the training sessions. This shortcoming was mostly felt in Eastern Africa. The technical assistance to national management teams should have tried to update the knowledge of local staff in order to cope with the consequences of rapid change of project's officers.

Usefulness of non-financial EDS

175. All the projects developed and submitted to the "Investment Committee" have been prepared using the EDS Toolkit. This is a result of the capacity building activities undertaken by E+CO and local partner organizations. Even the methodology for EDS promotion was new for the entrepreneurs, in some cases, the support provided by the team was crucial for the success obtained in some countries like Senegal and Ghana.

176. Even though they were very useful according to many operators for pre-investment as the companies began to implement their business plans, the material should have been improved for post-investment purpose. The needs expressed by entrepreneurs are more related to project management for micro and small enterprises.

177. The post-investment activities (project implementation follow-up; project monitoring; loan recovery, etc.) are mainly covered by E+CO. However, some local initiatives were taken by National partner organizations to provide a technical follow-up as requested by AREED. Most of them continued their support to entrepreneurs for monitoring only technical aspects of the projects, but not financial aspects which are only under the responsibility of E+Co.

178. The overall evaluation of the programme implementation approach is rated " **Satisfactory**"

J UNEP Supervision and Backstopping

Administrative supervision and support

179. URC and UNEP provided administrative and financial assistance to the AREED partners along the programme implementation period. Prompt actions were taken to establish partner's contracts, provide assistance for official meetings, carry out field supervisions as well as establish the Terms of reference for specific mandates like "Programme evaluation".

180. The UNEP and URC's supervision can be considered as very good although a closer follow-up should have been considered to improve the contractors' performance

(NGOs, E+CO). AREED Partners Meeting Reports show that there was at least one meeting held each year, alternatively, in Africa and in France: (i) Management Committee meeting in 2000 in Paris; (ii) All partners meetings in 2001 (Accra) and 2002 (Bamako) followed by a Management Meeting in Paris (2002); (iii) All partners meetings in 2003 (Meeting IV in South Africa and Zambia); 2004 (Meeting V in Accra and Meeting VI in Paris); All partners meeting in Paris (2005) followed by the AREED Partners Forum meeting.

181. The supervision mechanism consists also in requesting annual reports from all the technical assistance team (NGOs): E+Co and country partners. A list of annual reports was compiled during the mission and the most recent annual reports were requested during the terminal evaluation. In addition, the RISOE Center established reports on the project financing management for UNEP consideration.

Administrative, operational and/or technical problems and constraints

182. Administrative: National Partner Organizations considered that the budget allocation isn't adequate for their intervention (See Country partner's reports and PPO annual contracts). They are supposed to do a large part of EDS promotion at national level while the remuneration is not commensurate to their terms of reference. This is the main administrative problem the evaluator has noticed during the field mission of the mid-term evaluation and the phone interviews of this terminal evaluation.

183. Operational: The main findings are listed below: (i) The Project has suffered from changes in projects task managers at E+Co level as well as at National Partner's; (i) Delays were observed in project investment approval process in general; (iii) Communications difficulties occurred among Project partners during the first period (2001-2004), mainly between E+CO and some NGOs staff (Mali, Tanzania); (iv) Mobilisation of Banks and Governments entities were slow down after the series of launching seminars in the participating countries, resulting in a poor level of achievement in term of policy support and co-financing.

184. Technical: Lot of changes in project's technical officer brought difficulties in project development, for example, in Mali: experts working as National Officer for AREED aren't whose trained initially by E+CO. There is a need of updating the capacity of technical staff at National Partners Organizations level in Mali, Zambia and Tanzania.

185. The overall evaluation of UNEP backstopping is rated ""**Satisfactory**"

V. Conclusions and Ratings

Conclusion

186. With little access to modern energy services such as electricity, many countries in Sub-Saharan Africa rely heavily on biomass for basic needs. This is particularly true for the five participating countries, where more than 60% of households use wood as their main source of energy for cooking. The African Rural Energy Enterprise Development Programme (**AREED)** was designed to address the challenge of reducing energy poverty in rural and periurban areas through the provision of clean energy services to the poor.

187. The AREED programme has concretely supported the emergence of new small and medium-sized enterprises, particularly in West Africa, in renewable energy and energy efficiency sectors. The success of the programme relies on two factors: i) the provision of enterprise development services through national partners NGOs and ii) the availability of seed capital to pro-active energy entrepreneurs, that enable them to deliver modern energy services and products to targeted communities.

188. Approximately 24 enterprises are now in operation to deliver affordable energy services based on clean energy from solar, wind and biomass technologies. The AREED initiative has also successfully engaged government agencies, NGOs (except financial institutions) and other stakeholders in the private sector to develop skills and expertise to nurture new entrepreneurs. Part of AREED's success is due to "on-the-ground" partnerships with local NGOs and E+Co, a pioneer in the provision of seed capital to developing country's energy enterprises.

189. The degree of commitment of partner NGOs' toward the AREED program affected both (1) the way in which the project was implemented as well as (2) the way in which this evaluation was carried out. Successes in the programme are correlated to a strong involvement of NGOs, while drawbacks are correlated to a mild to low commitment of NGOs. In the evaluation process, the committed NGOs were collaborative and provided good feedback on the activities conducted. Inversely, the NGOs felt to be less committed provided little (if any) feedback.

190. Documentation gathered by the evaluator and questionnaire results indicate a wide range of actual and potential uses of the AREED modules by both state and non-state actors. The use of AREED model has impacted at least seven areas of interventions relevant to the development of renewable energy and energy efficiency business in the participating countries: i) institutional development, ii) policies and strategies, iii) energy project development, iv) technical capacity building and experiences sharing; v) advocacy and awareness raising, vi) reporting and monitoring activities, vii) project financing. However, limitations in investment approval process affected the overall performance of some implemented RET projects.

191. The role played today by energy access issues for poverty alleviation in the participating countries suggests reasonable potential for further uses of AREED model for the future to expand energy services to the rural and peri-urban poor. This is particularly true when considering the mainstreaming of energy access into countries' "*Poverty Reduction Strategy Paper*" or regional initiatives to increase energy access (cf. the cases of ECOWAS and the East African Community).

192. Despite the difficulties experienced during the first period of project implementation, overall performance ranged from moderately satisfactory to satisfactory with regards to the three main phases of the Project. Capacity building activities under the AREED project have succeeded in enhancing the capacity of local partners, particularly local

NGO partners as well as small and medium-sized enterprises. However, the capacity building portion dedicated to local and regional financial institutions has been weak.

193. The project document has been reviewed based on preliminary achievements, particularly, the number of business plans completed through "Enterprise Development" activities (phase III). In line with the extension of AREED project, the number of RET business has increased significantly with a concrete effect on the level of projects approved for financing by AREED environmental venture fund.

194. The economic and social challenges faced by SSA countries and the weak conditions of local SMEs have generated high perceived risks in lending for working capital and equipment in energy business which AREED failed to mitigate in order to capture subsequent investment from private investors. Even in West Africa countries, there is plenty of cash available from small and midsize banks, local FIs have so far not been able to bring RET investments into their core operations or create the expected "windows of investment opportunities" for AREED enterprises. The lending climate needs to be changed for small start-ups by providing "financial risk mitigation tools"

195. In the particular situation of Sub-Saharan economies, the AREED model has achieved significant results based on a "learning by doing" approach with great flexibility, avoiding complex business development models. For instance, due to the limited capacity of the rural poor to pay for energy services in the absence of subsidies, the model has been applied more in urban and periurban areas than in rural areas. Such flexibility of the AREED model replicates the successful results achieved in other contexts. The application of the model in urban and peri-urban areas has, in fact, generated more commercial successes than in rural areas.

196. On the positive side, three countries among five have gained valuable experience in RET business development during the successive extensions of AREED programme. The database of projects developed during the last two extension periods provides a clear evidence of the progress made by AREED partners, particularly NGOs and local SMEs, whose role was critical in the achievement of AREED's results. More could have been done to reach a higher level of accomplishment in these three countries if partner NGOs were more involved in decision-making during loan approval process and if investment approval were accelerated. What happened is that NGOs lost touch with local entrepreneurs who had the opportunity to deal directly with the AREED venture fund manager who is abroad.

197. Moving forward, considerable potential for replication of AREED model and further achievement exist. A number of public institutions as well as private sector entities, including local financing institutions, have been sensitized through workshops, conferences and direct contacts and are more receptive to tackle the remaining barriers to RET investment, namely, financing. In this regard, it is important to keep in mind that AREED was an innovative business-oriented programme in Sub-Saharan Africa context. The majority of planned outputs have been achieved but the project objective is not completely reached at this time, namely, "to increase access of rural poor of Africa to clean and affordable energy, which a clear will to produce ultimately, social, economic and environment benefits to them."

198. The ratings for the various parameters of the project evaluation are presented in the table below.

Table of Ratings

C. Achievement of outputs and activities	The project achieved almost all outputs and activities, even though some took longer than anticipated to complete. The weakest aspect of implementation related to Phase III activities is more in line with difficulties experienced in leveraging co-investment from local FIs.	Satisfactory	Satisfactory
D. Catalytic role of the Project	The project had the potential for replication in other SSA countries as well as outside the continent. There is evidence that the project results were relevant and of significant interest to other countries as demonstrated by E+Co through the establishment of REED programmes in Brazil (B-REED) and in China (C-REED). Even though, the Steering Committee has not adopted a clear replication strategy for Africa that has taken place after the completion of AREED I. Given various energy access programmes undertaken in the participating regions involved (see ECOWAS and EAC initiatives), it is possible to better coordinate with regional economic commissions to mainstreaming AREED approach into their policies.	Moderately Satisfactory	Moderately unsatisfactory (CREED and BREED were not a result of this project. They were implemented Simultaneously with this project.)
E. Monitoring and Evaluation (overall rating) Sub criteria (below)	The overall rating for this section is 'Moderately Unsatisfactory' as the overall rating cannot be higher than that of the M&E design.	Moderately Satisfactory	Moderately satisfactory
E1. M&E Design	The Project Document included an "Evaluation Plan" as well as a clear Reporting plan with an associated schedule. However, no clear Monitoring Plan is included to monitor results or measure progress in achieving the project's objective on a regular basis. No baseline data was established at community level nor were objectively verifiable indicators available for assessing progress (either included in the Project Document or later developed/applied). The project design did not meet the minimum requirements regarding project M&E described in this Evaluation.	Moderately Satisfactory	Moderately satisfactory
E2. M&E Plan Implementation (use for adaptive management)	Due to the fact that no clear M&E plan existed, it was not possible to assess how such plan was implemented on a timely manner. This rating is based on M&E activities that did take place under E+CO's supervision during the programme timeframe. E+CO annual reports provided updates to UNEP Programme Coordinator on project progress. Several progress reports covering the project's lifespan were viewed by the evaluator. In addition, NGOs annual reports also provided partial information of projects developed with local SMEs and preliminary information on project financing structure. These progress reports did not follow a specific format to allow compilation of data regarding the achievements on the ground	Moderately Satisfactory	Moderately satisfactory
E3. Budgeting and Funding for M&E activities	The preliminary Detailed Project Budget included no specific funding for implementation of an M&E plan, consistent with the absence of such an explicit plan. However, the Budget did provide for funding of independent evaluation at the end of the programme (Budget Line 6551). The funding provided for evaluation activities did not cover mid-term evaluation. The budget appeared inadequate (US$15,000) and the timing designated for these funds inappropriate (year 3).	Moderately satisfactory	Moderately satisfactory
F. Preparation and readiness	The project's was extended 4 times. However, the activities to be carried out, and budget allocation did suffer some modifications that were not properly reflected in new project document for each of the extension periods. Also important to note is the weak planning of barrier-removing activities regarding the participation local FIs (financial risk mitigation, for instance).	Moderately Unsatisfactory	Moderately unsatisfactory
G. Country	Most of the activities implemented under UNEP's supervision have been successful in increasing environment and energy	Satisfactory	

ownership / driveness	services awareness and supporting the start-up of private oriented activities. Consequently, the project has promoted ownership at country level, mainly by local energy enterprises and community-based artisans. The Steering Committee process provided for good involvement from the pilot countries, but the project's impact on policy development is visible only in some countries, namely Ghana, Mali and Senegal. The project impact appears more limited in East African countries.		Satisfactory
H. Stakeholder participation / Public awareness	The level of stakeholder's participation is slightly positive. On one hand, small and medium-sized entrepreneurs and local NGO partners were effectively involved in RET project development in close liaison with E+CO, the AREED fund manager. On the other hand, local banks, regional financing institutions and government entities were not very active in the project's implementation process. The project's issues and outcomes were widely addressed at national and international meetings and at bi-lateral meeting with donors. However, the main efforts to disseminate the results of the Programme to a wider audience came from the local partners. The communication methods included advertising in local press and media, distribution of AREED brochures at meetings of likely projects being held in vicinity, as well as publications.	Satisfactory	Satisfactory
I. Financial planning	The evaluator had little access to financial planning/reporting documents during the assignment period. It was impossible to make a definitive assessment of whether the project applied appropriate standards of due diligence in the management of funds and financial audits.	Moderately Satisfactory	Moderately satisfactory
J. Implementation approach	Due to the results achieved and the leverage of additional funding for the project and the need to restructure the activities according to the new budget, the project was extended four times. The project was implemented according to UNEP's procedures. The management approach adequately involved many stakeholders, and the role played by each partner was coherent with the Project Document. However, limited financial resources have affected the coaching, on a day-to-day basis, of local NGOs working on this project. In general, African NGOs did not acquire sufficient experience on market-oriented business so that the need for more international tutoring remained in East Africa. The technical assistance to national management teams should have tried to update the knowledge of local staff in order to cope with the consequences of rapid change of project's officers. All the projects developed and submitted to the "Investment Committee" have been prepared using the EDS Toolkit. This is a result of the capacity building activities undertaken by E+CO and local partner organizations.	Satisfactory	Satisfactory
UNEP Supervision and backstopping	UNEP and URC provided administrative and financial assistance to the AREED partners along the programme implementation period. Prompt actions were taken to establish partner's contracts, provide assistance for official meetings, carry out field supervisions as well as establish the Terms of reference for specific mandates like "Programme evaluation". From the available information regarding supervision and backstopping of the programme, it appears that UNEP supervision in the project design phase and in project management was "Satisfactory".	Satisfactory	Satisfactory
Overall Rating	The most prevalent rating in the table was 'Satisfactory'.	**Satisfactory**	**Satisfactory**

VI. Lessons Learned

Lessons for Project Design

199. The following lessons were learned regarding the project design:

- As per our experience, local financial institutions and energy sector agencies are much more concerned by rural electrification investment opportunities in a "business as usual" scheme rather than by innovative renewable energy business. Increasing awareness among financial institutions, in order to enable them to integrate RET investment opportunities into their core activities, remains a key challenge.
- Regional and multi-stakeholders-based projects are more successful when the design gives the adequate representation of government institutions and private entities into the Steering Committee as well as into the governance body regarding of the venture fund;
- In Sub-Saharan Africa, projects with NGOs as sole partners for the promotion of private sector are less likely to continue beyond the funded phase, even if other sustainability measures are integrated into project activities.

Lessons for Project Management and Oversight

200. The following lessons were learned from project implementation and management:

- The management approach in this project involving many stakeholders is adequate and the role played by each partner is clearly defined. However, limited financial resources have affected the coaching, on a day-by-day basis, of local NGOs working on this project. In general, African NGOs have yet to acquire sufficient experience on market-based tools, raising the need for more international tutoring. Even with E+CO providing a support to a regional bureau in South Africa, the lack of national representation has reduced the benefit of the training sessions. The technical assistance to national management teams should be improved by updating the knowledge of local staff due to the rapid change of project's officers.
- In terms of general administrative arrangements, the project has usually been efficiently handled at UCCEE. For UNEP, using the management skills provided by an institution such as the UCCEE seems to be essential to the implementation of this kind of regional project, allowing for the flexibility required by different national environments in the participating countries.
- The evaluation of this project suggests that AREED's procedures for the development and approval of projects could have been simplified to further empower local partner NGOs as well as government institutions and local FIs for sustainability. Difficulties faced during project implementation could have been minimized if national project follow-up committees had been established to support a broader involvement of key partners.
- The revised project document should have incorporated baselines for existing conditions, verifiable indicators of success and underlying assumptions, and procedures for data collection, the monitoring of results and evaluation of progress in achieving project objectives. More resource should have been dedicated for M&E during the project implementation course.

Lessons for Stakeholder Participation

201. Hereafter are some lessons learned regarding the partnership with financial institutions

- Aversion to risk is still a significant barrier for commercial banks and other financial institutions in host countries to scale-up the delivery of energy services (by financing or co-financing SMEs).
- Financial institutions' lack of familiarity with some of the project key elements (such as energy delivery systems, clean energy SMEs, etc.) does not amount to lack of interest. Some financial institutions see good business opportunities in engaging with AREED partners, but require more information to confirm their interest and actual participation in any financial mechanism. To involve financial institutions at the inception phases would thus appear to be a very cost-efficient way of securing their future participation.

202. The following is a lesson learned regarding the participation of governmental institutions

- The nonexistence of a strong national component (as opposed to international and local components) in the programme's structure is likely to result in a lack of governmental involvement and in subsequent difficulty to initiate a policy dialogue. As with financial institutions, early involvement in the decision-making process is the most cost-effective way forward.

Lessons for replication

203. The following lessons were learned project replication:

- Regarding positive lessons for replication, the results of the evaluation confirm the necessity to adapt the AREED model to integrate, at an early-stage, the participation of other project partners in a local Follow-up Committee process. This new organization should facilitate stakeholder buy-in and provide a means of better involving local financing institutions as well as government organizations in project developments and financing.
- Consistent with the above remarks, the application of AREED Enterprise Development Services model appears sound for replicating in other regions but this needs a better participation of other key partners in project implementation at national level.

VII. Recommendations

204. Since the AREED project is completed, it is not necessary to make recommendations about what the project should or should not do for the future. UNEP and other UN agencies who in the future, may wish to use the AREED model should consider the lessons provided in the evaluation report and the following recommendations.

- **Recommendation 1.** The continuation of AREED model should focus on financial barrier-removal. Namely, the cooperation and interest of financial institutions should be actively sought. While the *real* financial risk pertaining to investments in energy services (demand-side or supply-side) can be attenuated with proper financial risk mitigation tools, the *perceived* risk has to be addressed through inclusion and awareness-raising. The workshop formula, as seen in April 2008 in Sali, Senegal, is a powerful means of reducing information asymmetry between NGOs, international actors and SMEs on one hand, and financial institutions on the other.

- **Recommendation 2.** The continuation of AREED model should also focus on institutional barrier-removal. Even if interaction with governmental institutions can sometimes be cumbersome, it is a necessary component of any structure that is meant to be perennial[16]. Including ministerial representatives in the national structure of the programme or at least inviting them in high-level meetings is the most cost-effective way to raise their awareness.

- **Recommendation 3.** Stemming from the prior recommendations, a formal body at the national level (National Steering Committee) should be established to ensure the follow-up and involvement of local parties (both private and public). A local Follow-up committee under the leadership of the Ministry of Energy, for instance, could play a positive role in creating an enabling environment for the scaling-up of energy access.

- **Recommendation 4.** Concerning the relation between local actors, there is a need for further national capacity building. While NGOs were providing technical assessment to the Fund Manager and technical assistance to SMEs, the financial appraisal and follow-up was solely executed by the Fund Manager with little occasion for national entities to learn from the process. In the context of a replication of the AREED model, Micro-Finance Institutions (MFIs) should be included in the process from the beginning, albeit with limited responsibility (monitoring only, for which they would receive service fees from the Fund Manager, etc.). Thus, all the actors necessary to a successful exit strategy would be, in time, equally prepared.

- **Recommendation 5.** Given the novelty of the market-based approach of the AREED model, it is important that it is adequately publicised in both scholarly journals and in the development community at large. In AREED countries, many NGOs showed great capacity for research dissemination. This unique combination of local knowledge and involvement, international coordination and expert knowledge on market-based approaches to energy access should be exploited and supported. Moreover, the most important information and documentation about the programme should be assembled in a coherent manner on a UNEP-hosted website**.**

[16] When a request for policy change or regulatory amendment is issued by an NGO or by private actors, the responsiveness of governmental institutions is likely to be modulated by its feeling of participation in the process.

VIII. Annexes

Annex I: Status of AREED Investments (December 2007) (to be completed)

STATUS OF AREED INVESTMENTS			(All amounts shown here are in USD)														
LOAN TERMS AND PAYMENTS RECEIVED AS OF December 15, 2005				---------->													
LOAN TERMS AND PAYMENTS RECEIVED from 2006				---------->													
								Repayment History						Other (Income / Fees / Write-offs)			
	Enterprise	Status	Amount Financed by AREED	Terms	Interest Rate	Currency		Interest	Principal	Bank Charges / Wire Fees	Foreign Exchange Gain / (Loss)	Total Payments Received		Legal Fees Paid	Admin/Legal Fee Reimbursements Received*	Investment Write-offs	Principal Pymt Rec'd (from Written-off Inv)
Ghana	GTEL-Gladymanuel		70 000	3.5 years	7,50%	USD		13 200	62 601	(112)	-	75 689		-	-	-	-
	AB Management		122 400	5.5 years	12%	USD		43 599	69 332	(25)	-	112 906		-	2 400	-	-
	Anasset		38 000	4 years	7,50%	USD		7 000	23 462	-	-	30 462		-	760	-	-
	Translegacy		20 000	4 years	5,00%	USD		1 942	5 990	-	-	7 932		(307)	400	-	-
	Lambark		109 746	4 years	6,00%	USD		7 334	13 761	-	-	21 095		(865)	2 000	-	-
	M38		59 000	4 years	5,00%	USD		4 793	11 793	-	-	16 586		-	1 180	-	-
	Fee Hi Ventures		33 500	4 years	6,00%	USD		-	-	-	-	-		-	700	-	-
	Gladymanuel 2**		50 000	2 years	6,00%	USD		2 310	-	-	-	2 310		-	-	-	-
Dec 2006 | | | Dec 2007	RKA Limited	Active	104 080														
	Bansim Binara	Active	46 000														
	Abara Gas	Active	102 990														
	Wilkins Engineering	Active	127 000														
	Power World Ltd	Active	77 912														
	Toyola Ltd	Active	100 000														
	Nedrap Gas	factsheet completed															

	Mawuli Estate Gas	factsheet completed															
	Yedrass Gas	factsheet completed															
	Jachfarm Gas	factsheet completed															
	Best Solar	factsheet completed															
	Bioce Fuel Farms Ltd	factsheet completed															
	Kombeah Limited	factsheet completed															
	Santinos Limited	factsheet completed															
	Heaven Enterprise	factsheet completed															
	Lamais Resources Ltd.	factsheet completed															
	Wistech Solar	factsheet completed															
	B-Bovid Ltd.	factsheet completed															
	Jereseidu enterprise	factsheet completed															
	Lexflo Ventures	factsheet completed															
	Rehoboth Solar Systems Limited	factsheet completed															
Mali	USISS		19 665	5 years	12%	CFA		5 431	8 439	-	3 031	16 901		(771)	386	-	-

	Bagani		15 170	5 years	10%	CFA		-	-	-	-	-		(760)	298	(15 170)	-
	Eco'Home		135 762	Bank Guarantee		CFA		-	-	-	-	-		(1 073)	750	-	-
	Senagri		2 100	Technical Assistance		USD		-	-	-	-	-					
	Sodigaz I		183 088	5 years	9%	CFA		26 912	43 739	-	3 553	74 204		(3 666)	3 601	-	-
Dec 2006 – Dec 2007	SAFE LEC	active	234 545	3 years	10	CFA											
	SEECO-Mali-Sinsinso	Not approved. No guarantee fund	89 380	5 years	10%	USD											
	KATENE kadji	Approved by E+CO but not implemented. No co-financing	339 000	4 years	9%	CFA											
	SOM : société des oligineux du Mali	Not approved															
	UCIMA : Usine chinois-Malien Agroalimentaire	Not approved															
	SIGAZ	Not approved	1 068 293	2 Year	2%	CFA											
	TISSINA SARL	Not approved															
	Utraprolo	factsheet completed	29 268														
	RenergiePartenaire-Mali	Not approved but implemented with another local partner	219 512	5 years	10%	CFA											
	Allasany Boutique's	factsheet completed without AREED intervention	16 585			CFA											
	SOGES	Not approved	321 951			CFA											

	Energie Niger Sahel	Not approved. Still looking for financing	113 195			CFA											
	APCMM CV	Not approved	424 390			CFA											
Senegal	VEV		22 394	5 years	12%	CFA		4 927	4 206	(5)	4 839	13 967		(1 464)	350	-	-
	AME		41 563	3 years	11%	CFA		10 193	3 931	(23)	-124	13 976		(7 382)	800	(37 632)	46 553
	Energie R		28 380	3 years	10%	CFA		-	-	-	-	-		(1 840)	1 369	-	-
	Foyers Ameliorés		22 384	4 years	5%	CFA		653	489	-	-116	1 026		(1 505)	1 122	-	-
	FOPEN		1 092	T.A.		USD		-	-	-	-	-					
	LMDB		100 000	5 years	11%	CFA		-	-	-	-	-		(2 676)	2 467	-	-
	PROSOLEIL		24 063	5 years	8%	CFA		1 903	2 270	-	-99	4 073		(1 511)	1 542	-	-
Dec 2006 – Dec 2007	Motagrisol	active	117 551														
	APROCER	active	49 531														
	ACCESS ENERGY ET MEDIA	active	118 181														
	ARC-EN-CIEL	factsheet completed															
	FAPAL	factsheet completed															
	ENERGECO Afrique	factsheet completed															
	G. SERM	factsheet completed															
Tanzania	BETL		25 000	4 years	10%	USD		4 797	11 423	(100)	-75	16 045		(480)	500	-	-
	FADECO		0					-	-	-	-	-		(1 380)	-	-	-
	Mona Mwanza 2		50 000	3 years	7%	USD		4 132	14 101	-	-	18 232		-	1 000	-	-
	RESCO		63 240	3 years	7%	USD		-	-	-	-	-		(1 980)	1 240	-	-

Zambia	Rasma		20 000	Equity	NA	USD		-	-	(28)	-	-28		-	-	(20 000)	3 658
	Rasma T.A.		2 509	Technical Assistance		USD		-	-	-	-	-		-	-	-	-
	KPBS		75 300	5 years	12%	USD		-	-	-	-	-		(2 209)	1 506	(75 300)	-
	Mulembo Farms		2 000	Technical Assistance		USD		-	-	-	-	-		-	-	-	-
	RCI		8 482	3 years	5%	USD		741	-	-	-	741		-	240	-	-
	Ubwato		15 700	4.5 years	5%	USD		693	1 285	(242)	-	1 736		(1 633)	1 323	(14 415)	4 676
	CWV-Chavuma		22 300	2 years	12%	USD		669	-	(28)	-	641		(611)	450	(22 300)	-
	CWV-Chavuma II		42 992	8 months	12%+fees	USD		7 637	-	-	-1 324	6 313		-	-	-	-
	TSADC		10 389	4 years	5%	USD		639	-	(5)	-	634		(785)	200	-	-
			5 135 584					149 503	276 821	(567)	9 683	435 440		(32 897)	26 583	(184 817)	54 887
Investments Outstanding :			4 803 877	(Total amount financed by AREED minus principal payments).													
*This amount represents the Admin/Legal Fee charged at time the loan is disbursed (thus it is the amount deducted from loan before disbursement which is 2% in most cases)																	
**E+Co is preparing to refinance 50% of this AREED investment with other monies.																	

Annex II: CO-FINANCING AND LEVERAGED RESOURCES

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement(mill US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants										
Loans/Concessional (compared to market rate)										
Credits										
Equity investments										
In-kind support										
Other (*) BMZ										

Annex III: Minimum Requirement for Project M&E

The rating system below was included as an annex in the TORs for this evaluation.

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS UNEP projects and programs should monitor using relevant performance indicators. The monitoring system should be "SMART":

Specific: The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.

Measurable: The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.

Achievable and Attributable: The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.

Relevant and Realistic: The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.

Time-bound, Timely, Trackable, and Targeted: The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

Annex IV: Terms of Reference for the Terminal Evaluation

TERMS OF REFERENCE

Terminal Evaluation of UNEP Project "African Rural Energy Enterprise Development (AREED) Programme" MT/4040-00-02

PROJECT BACKGROUND AND OVERVIEW

Programme Rationale

With the support from the UN Foundation in early 2000, UNEP launched the African Rural Energy Enterprise Development programme (AREED) as a step towards creating a sustainable energy future for the rural poor in five countries of Western and Southern Africa (Ghana, Mali, Senegal, Zambia and Tanzania). AREED contributes to sustained development in Africa by addressing socio-economic needs for quality of life improvements, income generation and environmental protection through utilisation of renewable energy technologies. AREED utilizes the E+Co approach of energy enterprise development, offering energy entrepreneurs a combination of enterprise development services and start-up seed financing. This integrated financial and technical support allows entrepreneurs to plan and structure their companies in a manner that prepares them for growth and makes eventual investments by mainstream financial partners less risky.

The objective of the AREED programme is to develop new sustainable energy enterprises that use clean, efficient, and renewable energy technologies to meet the energy needs of under-served populations, thereby reducing the environmental and health consequences of existing energy use patterns. The overall expected results of the programme are:

- Enhanced capacity of entrepreneurs to start and develop energy businesses through: (i) the delivery of training and tools; (ii) enterprise start-up support in areas such as business planning, structuring and financing; and (iii) provision of seed capital for early stage enterprise development for bankable projects;
- Development of strong partnerships with financial institutions and non-governmental organizations (NGOs) involved in rural energy development leading to increased capacity of NGOs and financial institutions involved in rural energy development and entrepreneurship;
- Delivery of clean energy and energy efficiency products and services to rural and peri-urban consumers by SME's supported by the programme;
- Improved capacity of government officials and agencies to formulate and implement policies supportive of SMEs delivering clean energy and energy efficiency services and products; and
- Experience and lessons learned through the AREED would have been disseminated to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media.

More specifically, the AREED results are expected to be achieved at three levels:

At the Community Level:

a. Renewable energy technologies have partially replaced conventional, environmentally degrading energy supplies, thus mitigate indoor air pollution, land degradation, deforestation and green house gas emissions.
b. Rural families have gained access to affordable energy services.
c. Rural women and children spend less time on the arduous tasks imposed by a reliance on non-monetised energy sources.
d. Rural employment is improved through an increase in local economic activity, directly linked to energy enterprises.

At the Enterprise Level:

a. Entrepreneurs trained on how to start and/or scale up an existing renewable energy business.
b. Entrepreneurs trained in developing their own feasibility/business plans.
c. New or existing rural energy enterprises received financing, and commenced or expanded operations.

At the National/Sub-regional Level:

a. Regionally based, or local private sector focused NGOs operate an enterprise developers, either in conjunction with UNEP, URC and other partners in the implementation process, such as E+CO or independently. In addition, a number of trainers are trained in what? and training sessions held for who/where?.
b. Regionally-based financial institutions have a better understanding of the small-scale renewable energy sector, and begin to open windows in their portfolios for such investments.
c. A subset of such financial institutions who, to keep transaction costs low, are relying on AREED-trained intermediaries/enterprise developers to manage portfolios of small renewable energy investments.

However, for AREED to consolidate the enterprise-centred approach to energy services, it must convince a 'critical mass' of entrepreneurs, local development organizations, local financing institutions and policy makers that sustainable energy service companies can effectively meet a significant part of a nation's energy needs. By the beginning of 2005, the AREED programme had produced significant outputs in the countries of implementation, based both on an active portfolio of enterprises that were achieving commercial sustainability, and a group of increasingly capable local enterprise development organizations that were identifying and preparing entrepreneurs for investment. Most of the enterprises are performing well in terms of sales, returns on investments and prospects for attracting mainstream financial investors and partners.

In recognition of these results, the German Government entered an agreement with UNEP in September 2005 to build on lessons learned from the first half of the project implementation and to further promote the development of the "clean energy SMEs" for poverty reduction in Africa. The agreement established modalities for the expenditure of EUR 400,000 of the German Federal Ministry for Economic Cooperation and Development (BMZ) funds for operating and developing investment activities to be undertaken by E+Co. Since this work will extend the work of E+Co in providing enterprise development services and investment capital within UNEP's African Rural Energy Enterprise Development (AREED) programme, the funds were administered as a counterpart contribution to the AREED programme.

Legislative authority

The legislative authority for the AREED programme stems 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).

Relevance to UNEP Programmes

The AREED would contribute to the implementation of energy sub-programme 1: promoting renewable energy and efficiency technologies; and policies and UNEP's efforts to promote regional and international cooperation regarding global climate change, particularly mitigation measures. The programme would seek to increase the capacity of the African private sector to offer energy services using clean and renewable energy technologies. These energy systems would either have lower environmental impacts than those currently used or prevent new investment in unsustainable, fossil fuel-based energy systems. More specifically, it would (i) allow UN agencies to develop and internalize a new methodology for promoting private sector driven, clean energy technology adoption; (ii) build the capacity of African NGOs 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.

Executing Arrangements

The AREED programme was implemented by the UNEP Risoe Centre (URC) in close cooperation with the Energy Unit of the UNEP's Division of Technology, Industry and Economics (DTIE) and the US-based NGO E+CO. As of December 2005, the AREED programme was also executed through partner organisations in the countries of Mali (Mali Folkecenter), Senegal (Enda), Ghana (KITE), Tanzania (TaTEDO) and Zambia (CEEEZ). E+Co works with each of these organisations in providing enterprise development support to local entrepreneurs, and is the manager of the AREED Investment Facility.

AREED Activities

The initial programme duration was 35 months, from February 2000 – December 2002. However, the project was reviewed and extended four times and has finally ended in December 2007. Two main reasons were advanced for the final extension approved in March 2007:

1. The German Federal Ministry for Economic Cooperation and Development (BMZ) committed an additional 450,000 Euro to the project in 2006. These funds were to be used to:
    a. Identify new enterprise opportunities with productive use/income generation potential in both AREED and non-AREED countries within sub-Saharan Africa;
    b. Provide intensive pre-and post-investment enterprise development support to new entrepreneurs; and
    c. Provide AREED financing to qualifying rural energy enterprises. Where necessary and feasible, this additional support will also be extended to beneficiaries of previous AREED support.
    d. Due to unanticipated delays in the transfer of BMZ funds to UNEP, substantial amounts of these additional resources went unutilized during the initial time frame given.

2. As part of the overall work of transitioning AREED to a self sustained entity after United Nations Fund (UNF) support, an AREED Partners meeting was held in Tanzania February 2007. Several partners expressed strong desire to establish formal "Sub-Funds" to sustain energy enterprise development work in their respective countries. To this end, it was agreed that: 1) Each interested partner will develop and submit a proposal to the existing AREED Investment Committee for approval; and 2) Approved Sub-Funds that meet agreed criteria will be partially financed by the existing AREED investment fund (currently US$ 1.7 million). It was also recognized that several months will be needed to implement this process. An extension of the project to 31st December 2007 will provide sufficient time for the necessary steps to be completed.

In keeping with the original programme design, the bulk of the additional resources from BMZ are described as belonging to Phases II and III, specifically:

Under Phase II (October 2005 – March 2007):
- Continuation of NGO capacity building
- Government/Policy interventions

Under Phase III (January 2006 – March 2007)
- Enterprise investment
- Dissemination and outreach

Budget

The total estimated budget of the AREED programme is US$ 8,615,788 which includes in-kind contribution from Development Bank of South Africa (US$35,714) and UNEP (US$ 250,000) and E&Co (US$250,000) and leveraged financing from multi/bilateral institutions and other sources (US$ 2,330,000).

TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

The objective of this terminal evaluation is to determine the extent to which the project objectives were achieved, or are expected to be achieved, and assess if the project has led to any other positive or negative consequences. If possible the extent and magnitude of any project impacts to date will be documented and the likelihood of future impacts will be determined. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

- How appropriate is the AREED model for meeting the energy needs of rural African poor? If so, what improvements/modifications are required? If not, are there other alternative proven models that can be used more effectively and efficiently?

- To what extent has the programme been successful in enhancing capacity of entrepreneurs to start and develop sustainable energy businesses? How useful have training, business services support and seeding capital for generating interest and establishment of viable/bankable energy enterprises been in each country involved in the AREED programme?

- How successful has the programme been in developing strong partnerships with NGOs and financial institutions in sustainable and renewable energy enterprise development? And, to what extent have such partnerships resulted in developing functional, sustainable and replicable models for renewable energy development and energy efficiency products and services in participating countries?

- How effective and efficient have the SMEs been in delivering cost-effective clean energy and energy efficient products and services to rural and peri-urban consumers?

- To what extent has the programme been successful in assisting countries to formulate and implement policies supportive of SMEs which focus on delivering clean energy and energy efficiency services and products? Please give details of achievements as well as possible obstacles which might have impeded the project's success

- To what extent have the experience and lessons learned through AREED been disseminated to a wider audience, both within the UN system and to national policy makers, private sector entrepreneurs, academic institutions, NGOs and the news media?

The evaluation report will pay special attention to programme implementation over the period December 2006 – December 2007, and will also discuss and recommend possible options for AREED's future, including institutional and financial sustainability of AREED activities when UNEP involvement ends after December 2007. While covering the entire period February 2000 - December 2007 including all five countries (Senegal, Ghana, Mali, Tanzania and Zambia), the evaluation will also have to address a number of unresolved issues that were not fully addressed during the mid-term evaluation.

2. Methods

This terminal evaluation will be conducted as a in-depth desk review using a participatory approach whereby the UNEP Project Manager, representatives of the steering committee and other relevant staff are kept informed and regularly consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DTIE project Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DTIE Project Manager, representatives of the steering committee and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions.

The findings of the evaluation will build on those emerging from the mid-term evaluation report for this project which was carried out in 2006 and will be based on the following:

a. A desk review of project documents including the draft mid-term evaluation report,

b. Interviews with project management and technical support (names and contact details of all the key stakeholders are included in Annex 5).

c. E-mail and telephone interviews with intended users for the project outputs, AREED country partners and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organisations. As appropriate, these interviews could be combined with an email questionnaire.

d. Interviews with the UNEP/DTIE project manager and Fund Management Officer,

Key Evaluation principles.
In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions ***"what happened?***" and ***"what would have happened anyway?"***. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies 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 evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

3. Project Evaluation Parameters

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below:[17]

A. Attainment of objectives and planned results:
The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness:* Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators". In particular:
  - Evaluate whether and to what extent the results of this programme have informed national or sub-regional processes in formulating energy efficiency products and services through SMEs. Also, understand if these companies would have succeeded without the support of the AREED programme; how useful has the AREED financial support been for the development of the enterprises?
  - Ascertain the contributions of programme outcomes to date in building capacity for sustainable energy enterprise development.
  - Assess the extent to which programme outcomes to date resulted in sharing knowledge across national boundaries.
  - Determine the extent to which external scientific and technical information and knowledge have been incorporated and have influenced the execution of the programme activities.

[17] However, the views and comments expressed by the evaluator need not be restricted to these items.

- What is the strategy developed in the different partner organisations for identifying, promoting and supporting enterprise development? Is the strategy appropriate, successful and sustainable for all aspects of energy enterprise development after the end of programme?

- As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major 'channels' for longer term impact from the AREED project at the national and international scales? Evaluate any visible and/or identifiable immediate impact of the programme on scientific research and on policy development and decision making in the participating countries and other possible impacts. Also, evaluate the impacts of the AREED programme in socio economic terms, e.g. regarding gender, environmental impacts, job creation.

- *Relevance*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the UNEP energy sub-programme 1.
- *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Assessment of Sustainability of project outcomes:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time. In this case, sustainability will be linked to the continued use and influence of scientific models and scientific findings, produced by the project.

Four aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, and ecological (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustainability of project outcomes? What is the likelihood that financial and economic resources will not be available once UNEP assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support? What is the willingness of financial institutions to invest in AREED type enterprises; are there any completed or on-going negotiations for co-financing of specific enterprises? Have the terms and conditions of energy enterprise financing been appropriate for the type of enterprises supported?

- *Socio-political:* Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent is the sustainability of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

C. Achievement of outputs and activities:

The evaluator will have to assess the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness. In particular:

- Assess the soundness and effectiveness of the methodologies and tools employed for developing technologies for sustainable and renewable energy development and production of energy efficiency products and services in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.
- Evaluate to what extent the AREED training tools have been used in the development of the existing enterprises and what the partner organizations as well as the entrepreneurs think about them. Are additional training tools needed? If so, what kind of tools?

D. Catalytic role

The terminal evaluation will also describe any catalytic or replication effect of the project. What examples are there of replication and catalytic outcomes that suggest increased likelihood of sustainability? Replication approach, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment of Monitoring and Evaluation Systems:

- **M&E design.** Did the project have a sound M&E plan to monitor results and track progress towards achieving project objectives? The Terminal Evaluation will assess whether the project met the minimum requirements for project design of M&E and the application of the Project M&E plan (Minimum requirements are specified in Annex 4). The evaluation shall 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 M&E plan should include a baseline (including data, methodology, etc.), SMART (see Annex 4) indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.
- **M&E plan implementation.** Was an M&E system in place and did it facilitate tracking of results and progress towards projects objectives throughout the project implementation period. Were Annual project reports complete, accurate and with well justified ratings? Was the information provided by the M&E system used during the project to improve project performance and to adapt to changing needs? Did the Projects have an M&E system in place with proper training for parties responsible for M&E activities to ensure data will continue to be collected and used after project closure?
- **Budgeting and Funding for M&E activities.** Were adequate budget provisions made for M&E made and were such resources made available in a timely fashion during implementation?
- **Long-term Monitoring.** Is long-term monitoring envisaged as an outcome of the project? If so, comment specifically on the relevance of such monitoring systems to sustaining project outcomes and how the monitoring effort will be sustained.

F.Preparation and Readiness

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

G. Country ownership / driveness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the programme was relevant for national development and environmental agendas and to regional and international agreements
- Assess the level of country commitment to the generation and use of above mentioned information for decision-making during and after the project, including in regional and international fora.

H. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the UNEP administered project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses. Particular attention should be paid to the level of participation by national government institutions/ NGOs and civil societies.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

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

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing.
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNON/UNEP Fund Management Officer of the project (table attached in Annex 3 Co-financing and leveraged resources).

J. Implementation approach

This includes an analysis of the project's management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and UNEP.
- How useful has the non-financial Enterprise Development Services been for the development of the enterprises? Evaluate both the enterprise development support provided pre-investment and that provided post-investment, as the companies began to implement their business plans.

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DTIE.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The ***ratings will be presented in the form of a table***. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS = Highly Satisfactory
S = Satisfactory
MS = Moderately Satisfactory
MU = Moderately Unsatisfactory
U = Unsatisfactory
HU = Highly Unsatisfactory

Although the evaluator will be assisted throughout the evaluation activity by a UNEP project design specialist, ratings will be given only to the evaluator's work.

4. Evaluation report format and review procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities;
iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
iv) **Project Performance and Impact** providing factual evidence relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report and should provide a commentary on all evaluation aspects (A − F above).
v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative;
vi) **Lessons learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone and should:
    - Specify the context from which they are derived
    - State or imply some prescriptive action;
    - Specify the contexts in which they may be applied (if possible who when and where)
vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few

(only two or three) actionable recommendations. High quality recommendations should be actionable proposals that are:

1. Implementable within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contain results-based language (i.e. a measurable performance target)
5. Include a trade off analysis, when its implementation may require utilizing significant resources that would have otherwise been used for other project purposes.

viii) **Annexes** include Terms of Reference, list of interviewees, documents reviewed, brief summary of the expertise of the evaluator / evaluation team, a summary of co-finance information etc.. Dissident views or management responses to the evaluation findings may later be appended in an annex.

Examples of UNEP Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DTIE staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

All UNEP Evaluation Reports are subject to quality assessments by UNEP EOU. These incorporate EOU's Evaluation quality assessment criteria and are used as a tool for providing structured feedback to the evaluator (see Annex 3).

5. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief, Evaluation and Oversight Unit
UNEP, P.O. Box 30552-00100
Nairobi, Kenya
Tel.: (254-20) 7624181
Fax: (254-20) 7623158
Email: segbedzi.norgbey@unep.org

With a copy to:

Mark Radka, Chief, Energy Services, DTIE
39-43 quai Andre Citroen, Paris, 75739
France
Tel : 33 (0) 144371427
Fax: 33 (0)144371474
E-mail: Mark.Radka@unep.fr

Eric Usher, Head, Renewable Energy and Finance Unit, DTIE
39-43 quai Andre Citroen, Paris, 75739
France
Tel: 33 (0)144377614
Fax: 33 (0)144371474
E-mail: eric.usher@unep.fr

Lawrence Agbemabiese,
Programme Officer
Renewable Energy and Finance Unit, DTIE
39-43 quai Andre Citroen, Paris, 75739
France
Email: lawrence.agbemabiese@unep.fr

The final evaluation report will be printed in hard copy and published on the Evaluation and Oversight Unit's web-site www.unep.org/eou. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website. In addition, the final Evaluation report will be available on DTIE Professional Staff, The project's Executing Agency and Technical Staff. The full list of intended recipients is attached in Annex 5 which corresponds to list of contacts; for other recipients it will have to be available on line.

6. Resources and schedule of the evaluation

In accordance with UNEP policy, all UNEP projects are evaluated by independent evaluators contracted as consultants by UNEP Evaluation and Oversight Unit (EOU).

The contract for this evaluation will begin on or about 25th of March, 2008 and end on 22nd May, 2008 (23 days spread over 2 months). The consultant will submit a draft report to EOU on or before 16th April, 2008 for initial comments. Comments to the final draft report will be sent to the consultant by 14th, May 2008 at the latest, after which the consultant will submit the final report no later than 20th of May, 2008.

The evaluator will after an initial telephone briefing with EOU and UNEP/DTIE contact the various stakeholders via phone or/and e-mail. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the programme. The evaluator will be required to sign a statement confirming no conflict of interest in any form. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. He/she should be an international expert in energy efficiency and cleaner technologies and should have the following minimum qualifications: (i) experience with rural energy enterprises; (ii) scientific expertise in development of energy supply systems in rural areas; (iii) knowledge in SMEs financial support mechanism in Africa; and (iv) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Fluency in oral and written English is a must.

7. Schedule Of Payment

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount upon submission of a satisfactory 1st draft of the evaluation report. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is NOT inclusive of all expenses such as travel, accommodation and incidental expenses.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex V: List of Interviewees

Name	Position/Organisation
ENDA Senegal	
Secou Sarr	Project Manager
Aby Dramé	Project Officer
KITE Ghana	
Franck Owosu Attah	Project Officer
Harriette Amissah-Arthur	Project Manager
Mali Folkecenter	
Mahamadou Karamoko DIARRA	Programme Officer
Ibrahim Togola	Project Manager
TaTEDO	
CEEEZ	
UNEP DTIE	
Lawrence Agbemabiese	Project Coordinator
Other	

Annex VI: Documents Reviewed

The list of documents appended to this evaluation report includes:

(1) The REED Report, October 2005
(2) Rapport d'étape ENDA, 2005
(3) AREED 2005 Activity Report, ENDA, 2005
(4) AREED 2001 Annual Report, January 2002
(5) AREED Portfolio Status as at December 2005
(6) AREED Ghana Report 2005
(7) AREED Tanzania Report 2005
(8) Fatima Denton**,** First Draft, Synthesis Document, Analysis of Policies and Institutions and Linkages with Energy SME Development, February 2006
(9) AREED Recommendation for support, project 02-17F, March 7, 2003
(10) AREED Recommendation for support, project Motagrisol, March 3, 2004
(11) AREED Recommendation for support, project 02-09F, August 12, 2002
(12) AREED Recommendation for support, project 02-12F, September 20, 2002
(13) AREED Fact Sheet, project 02-03F, April 2002
(14) AREED enterprise Summary, AB Management
(15) AREED enterprise Summary, AME
(16) AREED enterprise Summary, Anasset
(17) AREED enterprise Summary, GTEL
(18) AREED enterprise Summary, KBPS
(19) AREED enterprise Summary, Rasma
(20) AREED enterprise Summary, Ubwato Enterprises
(21) AREED enterprise Summary, USISS
(22) AREED enterprise Summary, VEV (Water for life)
(23) Enterprise Development, Current status of projects that have received investment
(24) Enterprise Development, Monitoring and Evaluation Progress Report
(25) AREED Tools/Procedures/Team Building, Performance-based Enterprise Development Mechanism
(26) AREED Tools/Procedures/Team Building, Investment Documentation
(27) AREED Tools/Procedures/Team Building, EDS Tools
(28) Overall Project Management Documentation, Original Proposal to UN Foundation (1999)
(29) Overall Project Management Documentation, Second Proposal to UN Foundation (2001)
(30) Overall Project Management Documentation, Other Approved Proposals
(31) AREED Project Document Final
(32) AREED Partners Meeting Reports
(33) MOU Matrix of Responsibilities
(34) AREED Status Note, January to June 2001
(35) UNEP Project Report, June-December 2004
(36) E+CO, Final Report, May 2005
(37) UNEP, Annual Progress Report, July-December 2005
(38) AREED Evaluations and Analysis
(39) MEPC, Final Report, April 2003
(40) REED Social and Environmental Impacts of "Clean Energy" Enterprise Development, *Philip Napie-Moore*, November 2004
(41) AREED Policy Support Facility (PSF) Guidelines
(42) AREED Institutional Action Plan, 30 April 2001
(43) AREED Institutional Action Plan May 2002
(44) AIAP Report – MFC, 2001
(45) AIAP Proposal – CEEZ & E+CO, 2001
(46) AIAP Report – CEEZ & E+CO, 2001
(47) Proposal: AREED Policy Support Facility – KITE, 2001
(48) AREED Sustainability/Expansion, Strategic Planning Guidelines
(49) AREED Outreach Materials
(50) AREED Mali, Annual Report 2005
(51) AREED Mali, Annual Report 2005
(52) World Energy Assessment draft report.

(53) Ghana: Poverty Reduction Strategy Paper –International Monetary Fund – June 2006
(54) Mali: Poverty Reduction Strategy Paper –International Monetary Fund – February 2003.
(55) Senegal: Poverty Reduction Strategy Paper – International Monetary Fund – 2002
(56) Tanzania: Poverty Reduction Strategy Paper –International Monetary Fund – April 2006
(57) Zambia: Poverty Reduction Strategy Paper –International Monetary Fund – March 2002

Annex VII: Information on the Evaluator

Dr. M'Gbra N'Guessan is a senior expert with over 23 years of experience in the energy, environment and sustainable development sectors. He also has a great international experience in the development and implementation of projects and the mobilization of financing with international financing institutions.

Between 1996 and 1998, he was the coordinator of a major energy efficiency project for the United Nations Development Program (UNDP). During this project, he demonstrated his know-how in the technical and institutional sectors and in terms of establishing relationships with development partners, resulting in his appointment as Environment Director of Côte d'Ivoire in 1999. During his term, he participated in the definition of the "Plan d'appui à la gestion nationale de l'environnement (PAGNE)", and in the implementation in its operational programs.

His experience naturally led him to join Econoler's team in 2000 as Director for Sub-Saharan Africa. Over the last 8 years, he has worked in many energy-related sectors, including the performance of energy analyses, the setting-up and operation of ESCOs, the development and implementation of projects under the ESCO approach, the development of Demand-Side Management programs (DSM), the formulation of building codes and energy efficiency standards for various appliances, and the development and implementation of projects related to energy management at the institutional level.

His international experience has led him to work in more than 25 countries, on projects carried out or financed by international institutions such as the African Development Bank, the World Bank, the United Nations (UNDP, PNUE, UNDESA) and with bilateral or multilateral development organizations such as the Canadian International Development Agency (CIDA) and the l'Institut de l'énergie et de l'environnement de la Francophonie (IEPF).