

# UNITED NATIONS ENVIRONMENT PROGRAMME

## GLOBAL ENVIRONMENT FACILITY (GEF)

### PROJECT DOCUMENT

#### SECTION 1 – PROJECT IDENTIFICATION

<b>1.1 Title of Sub-Programme:</b>	Climate Change - Renewable Energy	
<b>1.2 Title of Project:</b>	Renewable Energy Enterprise Development – Seed Capital Assistance Facility (SCAF)	
<b>1.3 Project Number:</b>	<b>PMS:</b>	
	<b>IMIS:</b>	
<b>1.4 Geographical Scope:</b>	Africa and Asia	
<b>1.5 Implementing / Executing Agencies:</b>	UNEP/Division of Technology, Industry and Economics, Renewable Energy and Finance Unit, African Development Bank: Private Sector Development Unit and Poverty Reduction and Sustainable Development Unit, and Asian Development Bank: Private Sector Operations Department	
<b>1.6 Duration of the Project:</b>	<b>6 years</b>	
	Commencing:	April 2007
	Completion:	December 2012
<b>1.7 Total Cost:</b>		US\$
<b>GEF:</b>	Full Project <sup>1</sup>	8,400,000
<b>Co-financing:</b>		
Cash:	United Nations Foundation	700,000
	Minimum Co-Finance <sup>2</sup>	50,900,000
In-kind:	Financiers	1,500,000
	UNEP/AsDB/AfDB	1,370,000
	<b>Subtotal Co-Financing</b>	<b>54,470,000</b>
<b>Total Project Cost</b> <sup>3</sup>		<b>62,870,000</b>

<sup>1</sup> Cost of full size project and PDFB to the GEF US\$8,700,00

<sup>2</sup> This worst case figure will be secured through contractual commitments with the cooperating funds. The best case co-financing figure is \$144 million, as shown in *Annex F2: SCAF Capital Mobilisation Calculations*.

<sup>3</sup> Total cost of full size project and PDFB (co-financing and GEF funds) is US\$63,320,000

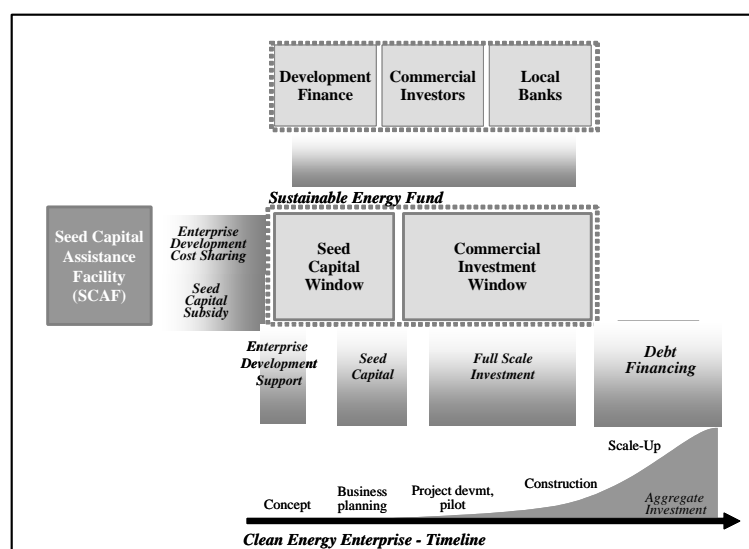
## 1.8 SUMMARY

The project proposes the creation of a Seed Capital Assistance Facility (SCAF) providing technical assistance to help sustainable energy entrepreneurs access enterprise development support and seed capital from mainstream energy investors<sup>4</sup>. By sharing the costs of preparing projects for investment and temporarily buying-up investment returns, the facility will help close the gap between what local sustainable energy project developers are able to offer in terms of returns on investment, and the up-front requirements of the investment community. By bridging this gap, the facility will help provide local enterprise with the sort of enterprise development assistance and early stage seed capital needed to plan and develop new sustainable energy (i.e., renewable energy, energy efficiency) projects, products and service offerings. GHG reductions resulting directly from assisted transactions will be 0.4 to 0.8 million tonnes while total emission reductions including later stage scale-up will be 2.3 to 6.1 million tonnes (see *Annex F2: SCAF Capital Mobilization Calculations*).

While there is increasing interest in the enterprise development<sup>5</sup> sub-sector, almost all of the support to date has come from foundations and donors, sources that are willing to take a lower rate of return in exchange for the broader developmental objectives of this form of early stage entrepreneur investing. Although these sources have been critical to the early development of the sub-sector, targeting public funding to attract more mainstream capital to seed stage investing is seen as the next step to realize the fuller potential of this form of investment activity.

Rather than waiting on the side-lines for the sustainable energy sector to mature on its own, through this project the finance community will learn to play a more direct role in accelerating growth of the sector by channeling appropriate forms of investment capital and business development support to early stage project developments. By building experience in this area, the clean energy finance community will begin to see early stage seed capital as a viable and cost effective strategy for developing a pipeline of full scale energy investment opportunities.

This project will build off of and help link ongoing activities in Asia and Africa through UNEP's Rural Energy Enterprise Development programs (REED), AsDB's Clean Energy and Environment Program and parallel fund investment activities, and the AfDB's FINESSE technical assistance programme and private sector investment activities.



SCAF Conceptual Structure

<sup>4</sup> Typically investment funds capitalized by development banks, local and regional commercial banks, national investment authorities, private investors, etc.

<sup>5</sup> The area of activity that combines enterprise development support with seed capital to help an entrepreneur test a new business model or prepare a project for full scale investment.

UNEP's REED programmes, and the related work of the public purpose energy investor E+Co, have shown that assisting entrepreneurs<sup>6</sup> to take risks, to innovate the way they deliver goods and services, and to experiment and refine their business models, is an effective way to gain public trust and broadly grow new sustainable energy markets. The development philosophy underlying these programmes has been to shift foundation resources away from older grant-based technology demonstration programmes to co-opting the seed capital investing business.

The African Development Bank is currently running several initiatives to promote the uptake of renewable energy and energy efficiency projects. Since 2002 the Bank is assisting its regional member countries in identifying and developing RE&EE projects through the FINESSE (Financing of Small Scale Energy Services) program providing technical assistance and capacity building for clean energy investments. The African Development Bank's Private Sector Development group is interested to follow the individual project investment opportunities that result from mature investments. Strong synergies exist to the work of AREED and through this project AfDB and UNEP will work to strengthen the enabling environments for clean energy SMEs in Africa.

Although the REED and FINESSE approaches are promising, they are unlikely to grow to the necessary scale if mainstream investment capital cannot be encouraged to more significantly participate at earlier stages of a sustainable<sup>7</sup> energy enterprise's development. New approaches are needed that better link the technical assistance by FINESSE and Africa REED to the more mainstream energy investment activities.

This project will build off of ongoing activities of the Asian Development Bank (AsDB), both broad country support efforts to improve enabling environments for the utilization of renewable energy and energy efficiency technologies and specific fund investment activities aimed at catalyzing private sector engagement. AsDB's Clean Energy and Environment Program includes the Renewable Energy and Energy Efficiency Capacity Building (REACH) initiative, the Energy Efficiency Initiative and a number of other related energy support activities aimed at helping countries ease growth in fossil energy demand, alleviate the upward pressure on energy prices, improve energy security, and reduce global emissions of greenhouse gases.

Through its Private Sector Operations Department, AsDB is also leading investors into clean energy in Asia, having already financed two private equity funds - one specifically energy focused and the other more broadly environment focused - and now looking to scale up its overall engagement in the sector. SCAF will be packaged alongside this new investment activity to offer fund managers a consolidated offering whereby they will be able to access AsDB capital and the SCAF support needed to set up dedicated seed investment windows that offer both early stage capital and associated enterprise development services.

In Africa, although they are not yet looking to invest in commercial energy funds, the AfDB's Private Sector Development group is interested to consider any investment opportunities that result from SCAF supported activities.

---

<sup>6</sup> *Examples of enterprises supported include crop drying, waste to energy and energy crops for co-firing manufacturing processes, biofuelled village milling platforms, industrial charcoal production, solar water heating, and various energy efficiency activities.*

<sup>7</sup> Sustainable energy here refers to both renewable energy and energy efficiency, although this project will mainly target renewable energy businesses.

In keeping with GEF Council comments, through partnerships with AsDB and AfDB the project will provide the direct technical assistance needed for training entrepreneurs and helping them access the seed financing needed to initiate clean energy projects or businesses. Note that GEF funds will not be invested as seed capital but rather will be used to cost-share incremental enterprise development gaps in ways that the experience of the REED programmes and the feedback<sup>8</sup> of mainstream financiers have shown to be effective. Small, temporary, smart incentives will encourage the technical assistance to be sustained, and the fund managers to invest at earlier stages of project development. This will accelerate the development of projects and over time will lead to overall increased finance volumes to the sector.

The project's expected outcomes are:

- Increased access to enterprise development support and seed financing for early stage sustainable energy projects and enterprises in target regions.
- Increased experience amongst financiers for investing in small scale renewable energy and energy efficiency projects.
- Mainstreaming of seed capital into conventional energy finance approaches, whereby seed portfolios become a pipeline development tool for later stage more commercial investing.
- A new breed of indigenous clean energy enterprises established achieving GHG mitigation through their projects, products and services.
- Improved energy services provided to un/under-served populations in target regions.

SIGNATURE:

For United Nations Environment Programme

.....  
Mr. David Hastie  
Chief,  
Budget and Financial Management Service  
UNON

Date: .....

---

<sup>8</sup> See letters of interest from fund managers FE Clean Energy, GroFin, Emerging Power Partners and E+Co, and from fund investors SNI, Al Tayer Energy and Finnfund.

## Table of Contents

<b>SECTION 1 – PROJECT IDENTIFICATION</b> .....	<b>1</b>
<b>BACKGROUND AND CONTEXT</b> .....	<b>8</b>
ENERGY AS AN INPUT TO SUSTAINABLE DEVELOPMENT .....	8
NEW OPPORTUNITIES FOR SUSTAINABLE ENERGY ENTERPRISE .....	9
ENERGY ENTERPRISE DEVELOPMENT.....	10
<b>PROJECT RATIONALE</b> .....	<b>13</b>
OBJECTIVE AND RATIONALE .....	13
RELEVANT GEF OPERATIONAL PROGRAMME .....	13
RELEVANT GEF STRATEGIC PRIORITY .....	14
<b>BARRIERS</b> .....	<b>14</b>
GENERAL BARRIERS TO INVESTMENT IN THE SUSTAINABLE ENERGY SECTOR.....	14
BASELINE CASE – INVESTOR COMMUNITY WAITS FOR PROJECT PIPELINES TO DEVELOP .....	17
ALTERNATE CASE – INVESTORS TAKE OVER THE SEED FINANCE BUSINESS FROM THE DONOR COMMUNITY .....	17
BENEFITS.....	19
<b>PROJECT ACTIVITIES AND EXPECTED RESULTS</b> .....	<b>21</b>
ACTIVITY 1: ESTABLISH THE FACILITY AND OPERATING MODALITIES.....	22
ACTIVITY 2: SUPPORT FOR THE DEVELOPMENT OF "SEED WINDOWS" IN NEW ENERGY FUNDS (TA).....	24
ACTIVITY 3: SCAF FACILITY OPERATIONS .....	25
ACTIVITY 4: MANAGEMENT REVIEW AND DISSEMINATION OF LESSONS LEARNED.....	27
<b>PROJECT MANAGEMENT AND COORDINATION</b> .....	<b>28</b>
<b>RISKS AND SUSTAINABILITY</b> .....	<b>29</b>
<b>CORE COMMITMENTS AND LINKAGES</b> .....	<b>31</b>
<b>OTHER GEF PROJECTS TO BUILD ON</b> .....	<b>32</b>
<b>STAKEHOLDER PARTICIPATION</b> .....	<b>33</b>
<b>INCREMENTAL COST AND PROJECT FINANCING</b> .....	<b>34</b>
INCREMENTAL COSTS .....	34
PROJECT FINANCING.....	35
<b>MONITORING, EVALUATION AND DISSEMINATION</b> .....	<b>35</b>
<b>SECTION 3 - WORKPLAN AND TIMETABLE, BUDGET AND FOLLOW-UP</b> .....	<b>37</b>
<b>SECTION 4 - INSTITUTIONAL FRAMEWORK AND EVALUATION</b> .....	<b>38</b>
<b>INSTITUTIONAL FRAMEWORK</b> .....	<b>38</b>
<b>EVALUATION</b> .....	<b>40</b>
<b>SECTION 5 - MONITORING AND REPORTING</b> .....	<b>42</b>
<b>MANAGEMENT REPORTS</b> .....	<b>42</b>
<b>TERMS AND CONDITIONS</b> .....	<b>42</b>

<b>ANNEX 1A - BUDGET IN UNEP FORMAT .....</b>	<b>44</b>
<b>ANNEX 1B - BUDGET BY ACTIVITY .....</b>	<b>48</b>
<b>ANNEX 1C - UNEP/GEF REPORT ON PLANNED AND ACTUAL CO-FINANCE RECEIVED .....</b>	<b>49</b>
<b>ANNEX 2 - WORKPLAN AND TIMETABLE .....</b>	<b>50</b>
<b>ANNEX 3A - FORMAT FOR HALF YEARLY PROGRESS REPORT .....</b>	<b>51</b>
<b>ANNEX 3B - ATTACHMENT : FORMAT FOR INVENTORY OF OUTPUTS/SERVICES .....</b>	<b>53</b>
<b>ANNEX 3C - ATTACHMENT TO HALF YEARLY PROGRESS REPORT .....</b>	<b>55</b>
<b>ANNEX 4 - FINAL REPORT .....</b>	<b>56</b>
<b>ANNEX A - INCREMENTAL COST MATRIX .....</b>	<b>58</b>
<b>ANNEX B - LOGICAL FRAMEWORK ANALYSIS.....</b>	<b>60</b>
<b>ANNEX C1 - STAP ROSTER REVIEW.....</b>	<b>63</b>
<b>ANNEX C2 - RESPONSE TO STAP ROSTER REVIEW .....</b>	<b>68</b>
<b>ANNEX C3 - RESPONSE TO GEF SEC REVIEW.....</b>	<b>71</b>
<b>ANNEX C4 - RESPONSE TO COUNCIL COMMENTS .....</b>	<b>72</b>
<b>ANNEX D - PIPELINE OF PROSPECTIVE SCAF FUNDS.....</b>	<b>77</b>
<b>ANNEX E - INDICATIVE FUND CONCEPT NOTES.....</b>	<b>81</b>
ANNEX E1 - CAMEROON RENEWABLE ENERGY FUND (CREF) .....	81
ANNEX E2 - FE CLEAN ENERGY GLOBAL-ASIA CLEAN ENERGY FUND .....	83
ANNEX E3 - PEMF 2 - ASIA SUSTAINABLE ENERGY INITIATIVE .....	84
<b>ANNEX F - ENERGY FUND MODEL .....</b>	<b>87</b>
ANNEX F1 - PRO FORMA ENERGY FUND MODEL .....	88
ANNEX F2 - SCAF CAPITAL MOBILIZATION CALCULATIONS .....	90
<b>ANNEX G1 - SCAF TERMS OF REFERENCE .....</b>	<b>93</b>
<b>ANNEX G2 - REGIONAL DEVELOPMENT BANK TERMS OF REFERENCE .....</b>	<b>102</b>
<b>ANNEX G3 – PROJECT MANAGER TERMS OF REFERENCE .....</b>	<b>103</b>
<b>ANNEX G4 – DUE DILIGENCE CONSULTANTS TERMS OF REFERENCE.....</b>	<b>104</b>
<b>ANNEX H - SCAF MONITORING, EVALUATION AND REPORTING .....</b>	<b>106</b>
<b>ANNEX I - STAKEHOLDER CONSULTATION SUMMARIES .....</b>	<b>110</b>
<b>ANNEX J.1 - EXAMPLE OF ENTERPRISES SUPPORTED BY AREED .....</b>	<b>114</b>
<b>ANNEX K1 - ASSESSING THE BENEFITS OF REED/E+CO INVESTMENTS .....</b>	<b>116</b>
<b>ANNEX K2 - AREED PORTFOLIO REVIEW .....</b>	<b>119</b>
<b>ANNEX L - UNEP DTIE SUSTAINABLE ENERGY FINANCE WORK .....</b>	<b>121</b>

## ***LIST OF ACRONYMS***

AfDB	African Development Bank
AsDB	Asian Development Bank
AREED	African Rural Energy Enterprise Development programme
B-REED	Brazil Rural Energy Enterprise Development programme
C-REED	China Rural Energy Enterprise Development programme
CREF	Cameroon Renewable Energy Fund
DTIE	(UNEP) Division of Technology, Industry and Economics
EE	Energy Efficiency
E+Co	Name of a public purpose energy investment company
FEGACE	FondElec Global Asia Clean Energy Fund
FINESSE	(AfDB) Financing Energy Services for Small-Scale Energy Users
GHG	Greenhouse Gas
IFC	International Finance Corporation
IIIEE	International Institute for Industrial Environment Economics
NIC	(Cameroon) National Investment Corporation
PEMF	Private Energy Market Fund
PSOD	(AsDB) Private Sector Operations Department
PMU	Project Management Unit
RE	Renewable Energy
REACH	(AsDB) Renewable Energy, Energy Efficiency and Climate Change initiative
REED	(UNEP) Rural Energy Enterprise Development programme
REFU	(UNEP) Renewable Energy and Finance Unit
SCAF	Seed Capital Assistance Facility
SME	Small and Medium sized Enterprise
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WB	World Bank

## **BACKGROUND AND CONTEXT**

### **Energy as an Input to Sustainable Development**

1. In regions where all but the wealthiest lack access to electricity and where the large majority of the population depends on dwindling supplies of traditional fuels for their vital energy needs, the provision of clean energy services will be a key challenge for future development.
2. In Sub-Saharan Africa, only 1 in 10 has access to electricity and an estimated 40% live in areas where extraction of biomass has exceeded the sustainable yield. In most of Asia the statistics are somewhat better; however the surging economic growth in some areas has still left many others behind.
3. Rural women and children are the population groups most affected by “energy poverty”, having to spend more and more time collecting firewood and other forms of biomass and being the part of the population most exposed to indoor pollution when these are burnt for cooking and heating purposes. In rural Sub-Saharan Africa, many women carry 20 kilograms of fuel wood an average of five kilometres every day. Furthermore, the World Health Organization estimates that annually 2.5 million women and young children in developing countries die prematurely from breathing the fumes from indoor biomass combustion<sup>9</sup>.
4. Besides its devastating effect on the development prospects of the rural poor, the lack of clean energy services is the cause of a multitude of other environmental problems including deforestation and the emission of greenhouse gases (GHGs).
5. Today, the contribution of GHG emissions in most developing countries is still modest, but would grow significantly if new investments in fossil fuel energy infrastructure proceeded. Because so little energy infrastructure is in place, nations now have an excellent opportunity to supplant conventional fossil fuel energy systems with technologies that are clean, sustainable, and decentralized. These new investments in sustainable 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.
6. In Sub-Saharan Africa the potential also exists to both modernise and scale-up the energy sector through new renewable energy and energy efficiency additions, although in most countries this is not happening. In Cameroon, for instance, despite being one of the sub-region’s most diversified economies<sup>10</sup>, the energy supply remains very traditional, with wood fuels and charcoal still the main cooking fuels. Electricity production is inadequate because of outdated equipment and is aggravated by poor rainfall. Distribution is also inefficient, with 32% losses. Electricity is mainly hydro-produced but thermal production has recently risen sharply – by 27% in 2002 and 32% in 2003 – in response to demand growth and hydro shortages.

---

<sup>9</sup> According to this estimate, indoor pollution has become the world’s 4th largest health risk.

<sup>10</sup> Cameroon has seen real GDP growth averaging 4.5% annually over the last six years.



7. In the Asian region, energy demand is undergoing rapid expansion and the current dependency on high priced imported fossil fuels creates an attractive market for sustainable energy investments. The Asian region is expected to account for 28% of global GHG emissions by 2010. One way of slowing this rapid growth rate in GHG emissions is increasing investment in renewable energy and other clean technologies. Many Asian governments have recently announced ambitious renewable energy targets. For example, the People's Republic of China (PRC) has pledged to increase its use of small hydro, wind, solar, and biomass power generation to 60,000 megawatts, providing 10% of its generating capacity by 2010. The Philippines wants to double the generating capacity from renewable energy sources by 2013 and Pakistan has announced their goal of a 10% renewable energy share in the total power sector. However, to date the implementation of renewable energy and other GHG mitigation projects across Asia lags behind both actual potential and other regions. For instance, only 2% of total electricity in Asia comes from renewables. For countries across Asia to meet these renewable energy targets, and slow GHG emissions growth, a much greater level of investment, in the order of billions of dollars, in these types of projects is required.<sup>11</sup>

8. The potential therefore exists in many countries to significantly increase sustainable energy production and use. But to do this will require shifting flows of investment towards these new energy technologies and systems.

## **New Opportunities for Sustainable Energy Enterprise**

9. Creating new investments is a difficult financial and political challenge for 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 sustainable energy services - is to involve new actors in the private sector.

10. It is increasingly acknowledged that in developing countries the centrally planned utility model is limited in its ability to deliver modern energy services that fully meet the needs of un/under-served populations. Although energy sector reform processes have come some way in helping state utilities improve their operations, they are often too supply side oriented and too focused on urban demand<sup>12</sup>. Liberalisation has in theory opened up new markets to the private sector, but besides privatization of many former state owned utilities, few investments in new capacity have been made.

11. In particular rural areas have mostly been ignored by private investors and drawn very little or no benefit from the market opening. In these areas the lack of improvement in electricity access has been compounded by a reliance on traditional wood fuels and kerosene for cooking and lighting, with their associated negative economic, health and environmental impacts. Significant development efforts have gone into improving the traditional energy supply system, with much work being focused on improved technologies (e.g., cookstoves) and non-commercial delivery channels (e.g., community based organisations). However

---

<sup>11</sup> *International Energy Agency. 2003. World Energy Investment Outlook, ©OECD/IEA. The International Energy Agency estimates that China alone will need to invest \$2.2 trillion over the next 25 years in their energy sector.*

<sup>12</sup> *Electricity supply in Cameroon does not meet demand and power cuts are common, particularly during periods of drought. Despite the privatization of the power utility, Société Nationale d'Electricité (SONEL) and the existence of a legal and regulatory framework liberalizing and introducing competition in the electricity subsector, the supply of electricity and the quality of service to the public in general still have huge shortcomings.*

little work to date has focused on the role and potential of the Small and Medium sized Enterprise (SME) to deliver modern sustainable energy products, projects and services.

12. Sustainable energy SMEs and project developers will never displace the need for centralised utilities, but there are many areas where independent entities can better and more efficiently develop new generating capacity and package small scale energy technologies and services for rural and peri-urban populations. Ranging from efficient lighting, to bioenergy systems, industrial waste-to-energy projects, small-hydro and wind IPPs/mini-grids, local sustainable energy enterprise can provide well adapted solutions that ideally complement the commercial and technological strengths and limitations of large utilities.

## Energy Enterprise Development

13. From the commercial perspective, the supply of energy services via renewable energy or efficient energy technologies is often considered “new” and dismissed as “too small and too risky” by conventional financial institutions. Therefore few private sector clean energy enterprises or project developers are financed by conventional banks and investors. The lack of early stage investment, as well as guidance on how to obtain and use what support is available, leads to the ‘capital starvation’ of promising energy start-ups and developments.

14. If SMEs and local enterprise more generally have a value added role to play in a country’s energy regime, then governments and the development community as a whole must assess whether existing commercial and legislative frameworks are appropriate for sponsoring their growth. If not, then alternative short-term interventions might be needed to help grow the pipeline of local clean energy enterprises and project developments to the point that the sector is mature and financially sustainable.

15. One solution is to offer entrepreneurs a combination of business development ‘hand-holding’ and start-up seed financing. Such an enterprise development model was pioneered by the Rockefeller Foundation in the early 1990s. Spun off in 1994 this “public purpose” investment company, E+Co<sup>13</sup>, has made over 128 energy enterprise investments in more than thirty developing countries in Latin America, Africa and Asia.

16. Most energy entrepreneurs need a great deal of assistance to gather information and prepare feasibility analyses, proposals and business plans; to develop contracts and collection mechanisms; and to identify financial and non-financial resources and to negotiate with investors and credit providers. E+Co’s enterprise development services provide the information, tools, consulting and direct assistance to entrepreneurs so that they can wisely use seed capital to start building a sustainable business enterprise or project development that can supply affordable, reliable and appropriate energy services to customers. It is the close coupling of enterprise development services and seed capital provision that clearly differentiates E+Co’s approach.

17. Since 2000, UNEP has been working to scale up this approach through a Rural<sup>14</sup> Energy Enterprise Development (REED) partnership involving E+Co, the United Nations

---

<sup>13</sup> See [www.energyhouse.com](http://www.energyhouse.com) for information on E+Co.

<sup>14</sup> The “R” in REED refers to both Rural and Renewable, although any sustainable energy SME can be supported in target countries. Although many of the best opportunities for sustainable energy enterprises involve renewable energy technologies, the strategy is not technology-specific, but rather structured to consider any option that involves a shift towards cleaner energy use patterns. For example, LPG is

Foundation, the Blue Moon Foundation (former W. Alton Jones Fund), the Dutch, Swedish and German governments, and a diverse group of local enterprise development partners<sup>15</sup>.

18. The African programme, AREED ([www.areed.org](http://www.areed.org)), is the most advanced to date with operations in the countries of Senegal, Mali, Ghana, Tanzania and Zambia. It has provided enterprise development services to hundreds of sustainable energy entrepreneurs and seed finance to 35 of them. These seed investments, ranging in scale from \$8,000 to \$175,000, have seeded businesses in the areas of solar crop drying, sawmill waste charcoal production, efficient cook stove manufacture, wind water pumping, solar water heating, LPG distribution and energy efficiency (see *Annex J.1: Example of Enterprises Supported by AREED* for a table of these investments). After four years, the AREED programme is demonstrating that 1) the approach can be applied even in the Least Developed Countries, and 2) that much of the enterprise development work can be carried out by local actors. In AREED the local enterprise development partners<sup>16</sup> are today taking the lead in identifying and preparing entrepreneurs for investment.

19. In Brazil, B-REED ([www.b-reed.org](http://www.b-reed.org)) has provided enterprise development support to a large number of entrepreneurs and invested in eight enterprises in the Northeast states in the areas of solar water pumping, crop drying, energy crops for co-firing brick manufacture, industrial charcoal production for steel plants, waste to energy co-generation, and solar thermal.

20. In China, a more recent CREED ([www.c-reed.org](http://www.c-reed.org)) programme has been initiated to provide enterprise development services and seed capital to newer, less mature enterprises as well as to more mature enterprises and clean energy projects in West China. Initial seed capital opportunities have been identified in the area of efficient cookstoves, biogas digesters and mini-hydro.

21. In recent years some other initiatives have begun to operate in the seed finance area, including GroFin, a Pretoria based commercial SME fund manager, and Verde Ventures, a UNDP/Conservation International joint venture providing seed finance to the biodiversity sector. GroFin receives support from Shell Foundation to cover some of their management and transaction costs, which positions it to raise commercial capital for an activity that investors would not normally consider financially viable.

22. The impact of these enterprise development focused activities can increase if they are linked with parallel efforts to help governments improve enabling conditions for sustainable energy enterprises. While in each country there are existing government programmes underway related to or influencing increased access and rural energy provision, often sustainable energy technology options and the role of the private sector are under-utilised. The introduction of enterprise development programmes in a country provides an opportunity to help ministries and utilities develop rural energy plans, concession or procurement policies that rely more extensively on commercially structured SME energy service provision. The UNEP sponsored programmes and those of AfDB FINESSE have

---

*considered clean because it has local environmental benefits such as avoided deforestation and household pollution.*

<sup>15</sup> A general background document on the REED programmes is “Open for Business: Entrepreneurs, Clean Energy and Sustainable Development” (<http://www.uneptie.org/energy/publications/files/openforbusiness.htm>)

<sup>16</sup> Including the Kumasi Institute of Technology and Environment (KITE) in Ghana, the Mali-FolkeCenter (MFC), ENDA-TM in Senegal, the Tanzania Traditional Energy Development Org. (TaTEDO) and the Centre for Energy, Environment and Engineering in Zambia (CEEEZ).

looked to provide decision makers with models of public-private partnership, and when needed can assist them in implementing the applicable approach for their country and can provide early stage capital to help the first innovators deliver these government sanctioned services.

23. The experience of UNEP's REED programmes has shown that besides significant technical assistance, several distinct stages of financing are needed for a modern energy enterprise to take a business concept forward to commercial implementation.

- **Enterprise Development Assistance and Seed Capital** (up to \$500,000): for companies or projects that have no significant track record and are therefore perceived by financiers as being prone to excessive risk and transaction cost. Seed Capital is used to prepare a larger project development, test a prototype or to prove the concept of an energy services company in a new market. The approach used to date has shown that through a combination of seed capital and business development support services many otherwise non-viable investments can mature to sound businesses and produce sustained financial and non-financial (energy access, energy savings, environmental improvement, etc) returns. Seed capital has to date been mostly provided by the foundation and donor community.
- **Growth Capital** in larger amounts (5 to 30 times the seed investment): for either the "implementation" stage of investment for enterprises with fully developed business strategies or for full scale planning/preparations of larger typically grid-connected projects. Some enterprises can skip this stage and directly access mainstream capital while others still require longer term ("patient") capital injections and usually continued support services to prepare for growth and prosper. Returns at this second stage of investments can improve to the point where the initial seed investment and the cost of enterprise development services become profitable.
- **Later Stage Investment Capital:** for proven businesses ready to expand or replicate business strategies or full scale projects ready for construction, typically provided by mainstream financiers or industry actors.

24. Underlying the REED approach has been a shift from older grant based technology demonstration programmes to the enterprise development/seed capital investing business. The growing list of practitioners and supporters of this work<sup>17</sup> firmly believe that assisting entrepreneurs to take risks, to innovate the way they deliver goods and services, and to experiment and refine their business models, is an effective way to broadly grow new sustainable energy markets.

25. The African Development Bank has also been focusing technical assistance efforts on small scale energy services through the Financing of Small Scale Energy Services programme. Strong synergies exist to the work of AREED and through this project AfDB and UNEP will work to strengthen the enabling environments for clean energy SMEs in Africa.

---

<sup>17</sup> E.g. UN Foundation, Shell Foundation, Oak Foundation, Blue Moon Foundation, Body Shop, Domini, Citigroup, the US, Dutch, Swedish and German Governments have been supporters of this work. AREED was recognized as a 'best practice' approach at the Bonn renewables2004 conference.

26. However, although the enterprise development / seed capital approach is promising, it is unlikely to grow to the necessary scale if linkages between the different stages of investment are not strengthened and mainstream investment capital cannot be encouraged to more significantly participate at earlier stages of a sustainable energy enterprise's development. New approaches are needed that better link the seed capital approach to growth and mainstream capital energy investment activity.

27. Through its Private Sector Operations Department, AsDB is leading investors into clean energy in Asia, having already financed two private equity funds - one specifically energy focused and the other more broadly environment focused - and now looking to scale up its overall engagement in the sector. The opportunity therefore exists to offer fund managers a consolidated offering whereby they could access AsDB capital and supplementary support needed to set up dedicated seed investment windows that offer both early stage capital and associated enterprise development services.

## **PROJECT RATIONALE**

### **Objective and Rationale**

28. The near term objectives of the project are to, first, increase in developing countries the flow of seed capital to sustainable energy enterprises and projects and, second, to convince the energy finance community that early stage seed capital investing is a viable and cost effective strategy for building long term commercial energy investment portfolios.

29. This project proposes the creation of a Seed Capital Assistance Facility (SCAF) dedicated solely to helping sustainable energy enterprises access enterprise development services and seed capital from mainstream energy investors. By sharing enterprise development costs and buying-up investment returns, the facility can help close the gap between what early stage sustainable energy entrepreneurs are able to offer in terms of returns on investment, and the requirements of the investment community. By bridging this gap, the facility will co-opt fund managers to provide local entrepreneurs with the sort of early stage risk capital they need to plan and initiate new sustainable energy projects, products and service offerings.

30. The underlying rationale of the proposed facility is that the seed capital approach offers a market solution for capital formation in the sustainable energy sector because it (1) helps indigenous clean energy entrepreneurs initiate businesses that can achieve viable financial returns; (2) demonstrates to investors and lenders waiting on the sidelines that these businesses are viable investment opportunities; and, (3) convinces these investors that the key is not to wait for others to make seed capital investments and to feed off the trickle of opportunities that result but rather to "seed" their own pipeline of opportunities.

### **Relevant GEF Operational Programme**

31. The proposed project is consistent with GEF Climate Change Operational Programme OP 6 "Promoting the adoption of renewable energy by removing barriers and reducing implementation costs." It will also contribute to a lesser degree to OP 5 "Removal of barriers to energy conservation and energy efficiency." Experience in AREED and C-REED shows a larger interest in renewable energy than energy efficiency. Sometimes the measures are combined.

32. The project is consistent with the development objectives of requesting countries to increase investment in the renewable energy sector, improve the efficiency of energy use, and to shift the overall energy mix to more indigenous sources of supply.

### **Relevant GEF Strategic Priority**

33. Given the local capital market formation focus of the project and the interest of the Asian Development Bank and African Development Bank, it can be classified mainly under strategic priority ‘Increasing access of clean energy projects to local sources of financing for renewable energy and energy efficiency’ (SP2). By helping new clean energy projects overcome the increased risk perceptions, the higher transaction costs and a general lack of awareness amongst investors, the project can bridge the main gaps between what entrepreneurs are able to provide, in terms of risk adjusted returns on investment, and what energy financiers are willing and able to assume in terms of increased engagement in the sector. The project is consistent with the newly established Strategic Objectives to promote on-grid electricity from renewable sources (CC4), to promote renewable energy for rural energy services (CC5) and to promote industrial energy efficiency (CC2).

## **BARRIERS**

### **General Barriers to Investment in the Sustainable Energy Sector**

34. Renewable energy and energy efficiency implementation represent a major step-change innovation as compared with existing energy-supply and energy-use options. In terms of scale, capacity, energy resource characteristics, points of sale for output, status of technology, size and number of transactions and a number of other factors, RE and EE technologies are markedly different from conventional energy systems. The differences are not lost on financiers, as financing, for example, a waste-to-energy project is different from financing conventional fossil-fuelled power plants and requires new thinking, new risk-management approaches, and new capital formation strategies.

35. Since financiers are typically averse to things that are new, the differences between RE/EE and conventional energy systems and the risk perceptions they imply may be the most significant barrier to investment, even for cleaner technologies that are cost-competitive with conventional energy-supply options. Considering investing in the sustainable energy sector for the first time is an investment in itself. To become more effective at placing capital in these markets, financiers must travel up a learning or experience curve. Market failures impede this learning process and create barriers to entry into the sector.

### **Specific Barriers to Scaling up the Seed Capital Sub-Sector**

36. While there is increasing interest in the early-stage seed capital sub-sector, almost all of the support to date has come from foundations and donor agencies, sources that are able to underwrite the broader developmental objectives – the non-financial returns - of seed capital investing. Although these sources have been critical to the early development of the seed finance model and will continue to play a role, attracting mainstream capital to seed stage investing is seen as a crucial step to realize the fuller potential of this area of investment.

37. The challenges in the immediate future are to go beyond individual transactions and small portfolios. Significantly expanding the approach will require:

- i. Increasing the experience base with sustainable energy enterprises and the human capacity to provide support services and investment capital to these firms;
- ii. Increasing the scale and scope of opportunities available to commercial investors; and
- iii. Increasing the volume of more commercially oriented capital available to this sector.

38. Other initiatives are currently underway, or in development (eg. SEF), to address the first challenge above. This project specifically looks to address the second and third challenges. The two largest hurdles to engaging mainstream or near commercial investors in seed capital stage investing are the higher enterprise development and management costs of smaller and less developed transactions and the lower returns of these investments.

### ***Seed Capital Barrier 1 – Higher Project Development and Transaction Costs***

39. Mainstream investors expect to pay an annual fee of not more than 2.5% to asset management firms to place and manage capital on their behalf, usually through closed-end investment funds. On a \$100,000 seed capital financing of an early stage renewable energy enterprise, a fee of \$2,500 annually is substantially below the real cost of sourcing, transacting and providing enterprise development services to the investment. Looked at as individual investments, the barrier of transaction costs seems insurmountable as it can actually cost between \$25,000 and \$50,000 to prepare and execute a \$100,000 seed transaction, and even the post-investment enterprise support costs can outweigh a 2.5% asset management fee.

40. There are some cost savings when approached on a portfolio basis. However linking seed capital investments with follow-on financing is the only realistic way to fully address this barrier in the long term. Linking the two means seeing the seed capital investment process as a deal origination strategy for growth and commercial capital investments. By investing seed capital in a portfolio of small investments, one can create the pipeline for subsequent growth capital or commercial capital investing. The \$25,000 to \$50,000 seed transaction cost is not that unreasonable if it reduces the costs of sourcing and transacting second stage capital investments (which might be in the \$500,000 to \$10 million scale).

41. However, until investors can see that such integrated investment strategies will work they will generally sit on the side-lines and wait for the pipeline of early stage enterprises to mature on their own – a slow and inefficient process from the global development perspective.

### ***Seed Capital Barrier 2 – Lower Returns***

42. Similarly, if seed capital investments are looked at in isolation, the risk adjusted returns demanded by investors cannot be met by early stage sustainable energy SMEs. Experience demonstrates that at the transaction level (before losses and costs) returns of 5-7% are realistic and returns of 10-30% (as demanded by investors) are not achievable. Again, if the focus is just on the individual seed transaction, the return requirement barrier seems insurmountable. However the work to date has shown that seed capital investing can achieve predictable base returns on a portfolio basis and that, when done as part of a multi-stage portfolio strategy, the higher returns might be achievable. A 5% return on a seed portfolio might be acceptable to mainstream investors if one in five investments in the seed portfolio later matures into a >15% return on a larger growth capital investment. Adopting such a

portfolio strategy can, in fact, achieve the base returns investors desire and lower overall portfolio risk.

### **Text Box 1: Assistance in Creating a Renewable Energy Fund in Cameroon**

The electricity sector in Cameroon faces new and ongoing challenges with respect to access to, and reliability of, electricity supply, particularly in rural areas. The sector is facing a rapid increase in demand while the generating capacity has not been renewed for 20 years.

The Cameroon Renewable Energy Fund hereinafter referred to as CREF, is an independent and financially autonomous investment facility in its fundraising stage. E+Co Africa (based in South Africa) is working with local investment institutions to raise financing for this \$14.5 million fund. It is expected that the National Investment Corporation (SNI) will be the anchor investor, having already signed a letter of intent to provide \$5 million to the fund.

The Fund's purpose is to increase the availability, and affordability of capital and knowledge required to foster the development of small and medium-sized (15 MW or less) hydroelectric and biomass electricity projects and businesses. The Fund will provide seed, early stage, or development capital to realize the growth potential of a project.

CREF will adopt a three-step investment strategy:

- “Early action” (pre-fund) investment in two or three projects to test the market and refine the investment methodology. The learning and demonstration effect of some successful investments will be crucial in this stage in order to leverage additional parallel or co-financing arrangements. E+Co will leverage its non-traditional finance base to cover these initial transactions.
- “Seed capital” and technical assistance window (within the fund) to credible but not yet mature projects. This covers ‘enterprise development’ tasks undertaken by potential clients to pilot early stage plants and to enable the development of full scale investment proposals. It is proposed that the UNEP/GEF Seed Capital Access Facility provide some of the underlying support for the operation of this seed window.
- “Direct investment” in project implementation. The Fund is expected to leverage resources by attracting additional private investment in co-financing.

The combined effect of these activities will be to “jump-start” hydro/biomass power projects by reducing initial market risks and promoting successful project replication through application and dissemination of lessons learned.

For this fund to succeed in making eight catalytic investments of \$1 million to \$1.5 million each (and thus truly transform the RE market in Cameroon), it will need to create a seed portfolio of somewhere between twenty and thirty early stage investments. Assuming an average seed investment size of \$150,000, then this portfolio will need to be financed from a \$3 to \$4.5 million seed capital window. The challenges involved with managing this seed window include both how to cover the elevated enterprise development costs needed to ready projects for consideration, and the difference between the expected returns (5% – 7%) and the minimum returns required by the investors in the fund (10%-12%).

**Enterprise Development Support** - The SCAF would tentatively negotiate a total enterprise development and transaction cost-sharing agreement of between \$200,000 and 300,000 to cover the incremental costs of working with entrepreneurs to prepare investments, and then transacting and managing a portfolio of small seed finance deals. This support would be paid out over 3 to 4 years in annual installments.

**Seed Capital Subsidy** - The Facility might provide an annual subsidy of 2.5% to 3.75% for each seed finance transaction taken over a period of three to four years. This payment would be made at the time of each individual investment. On \$3,000,000 in seed capital investments this subsidy would total between \$188,000 and \$355,000.

Thus, SCAF could foresee a commitment of between \$388,000 and \$655,000 to the Cameroon Renewable Energy Fund. More information is available in *Annex F1: Pro Forma Energy Fund Model*.



## **Baseline Case – Investor Community Waits for Project Pipelines to Develop Without their Intervention**

43. Seed finance provides the sort of ‘innovation’<sup>18</sup> capital that entrepreneurs need to develop and test new business concepts and services. Experience to date has demonstrated that the combination of enterprise development services and seed capital can be an effective means of helping grow a portfolio of small scale energy enterprises, some of which can mature into larger mainstream investments as the more successful seeded entrepreneurs take their businesses to scale.

44. However to date the energy investor community has not seen seed finance, and enterprise development more broadly, as an area they should be undertaking themselves. They applaud the efforts of E+Co, the REED programmes and other similar initiatives but, with the exception of some high net worth social investors, generally do so from the side-lines. Their only engagement with the seed finance sub-sector is as follow-on investor in the enterprises that mature into commercial investment opportunities.

45. Many donors and foundations have bought into the seed finance model, seeing it as a more effective model for fostering sustainable energy sector growth than grant based approaches. This additional support has allowed for a limited scale-up of the approach. However remaining dependent on the foundation and donor community has meant that growth has been slow, and the total impact will always remain small when viewed from the broad energy development perspective.

46. The baseline situation is that a limited amount of early stage seed capital is and will continue to be made available in specific regions, financed by foundations and the donor community. However the sub-sector will remain small and under-capitalised, and the large gap to next stage growth capital will continue to hamper enterprise scale-up, with only limited interest from these more commercial investors. Seed capital will remain a niche finance activity and will not become integrated into a larger multi-stage energy investment strategy.

47. What is needed is to demonstrate to the energy investment community that seed capital investing can be a cost effective part of an overall portfolio strategy. If this can be done, then the “lack of commercial investment pipeline” barrier should be solved - investors would see an avenue to develop their own investment pipelines, rather than waiting for others to do it for them. The entire sustainable energy sector would benefit, as would the un/under-served populations awaiting improved access to modern energy services.

## **Alternate Case – Investors take over the seed finance business from the donor community**

48. It is proposed to create a Seed Capital Assistance Facility (SCAF) to help bridge the gap between what early stage enterprises can provide, in terms of risk adjusted returns on investment, and what energy investors are willing and able to accept. The SCAF will do this by addressing the two largest hurdles - higher enterprise development and transaction costs and lower return expectations - which prevent locally grounded energy enterprises and projects from accessing early stage support from conventional energy financiers. The SCAF

---

<sup>18</sup> Typically referred to as risk capital in the commercial financial markets, although differing in that risk capital usually comes in the form of equity investment, whereas seed capital is usually in the form of debt.

would be structured to deal contractually with national and sub-regional energy investment funds, with seed capital support agreements negotiated with fund investors during – or in some situations after - a fund’s initial capitalisation phase, and dispersed only once these investment funds are operational, as per agreed terms and conditions.

49. SCAF will mostly focus on initiatives that integrate enterprise development services and seed investment windows into larger more commercially oriented clean energy funds. However it will also consider 1) proposals for creating standalone seed fund instruments, if the proponents also have more commercial capital under management and the case could be made that SCAF support would bridge the two into a multi stage investment strategy; and 2) proposals for creating clean energy seed windows within non-clean energy focused funds<sup>19</sup>.

50. The underlying rationale of the proposed facility is that the seed capital approach offers a market solution for capital formation in the sustainable energy sector because it (1) helps indigenous clean energy entrepreneurs initiate businesses that can achieve viable financial returns; (2) demonstrates to investors and lenders waiting on the sidelines that these businesses are viable investment opportunities; and, (3) convinces these investors that the key is not to wait for others to make seed capital investments and to feed off the trickle of opportunities that result but rather to “seed” their own pipeline of opportunities.

51. The first function of the SCAF will be to cost share with investors on a portfolio basis the

**Text Box 2: Expanding an Existing Asian Fund to Include Seed Capital**

The FE Clean Energy Group, Inc. has organized its third international private equity energy fund capitalizing on the growing demand for clean energy services in emerging markets. US\$64 million has been committed to the fund from a range of investors including Mitsubishi Corporation, the Chubu and Hokkaido electric power companies, JBIC, Proparco and AsDB. The target countries for the fund are China, India and Southeast Asia. A wide range of investments are under consideration, from heat recovery systems; public lighting and industrial energy efficiency enhancement; small and mid-sized cogeneration plants, and low-head hydro, wind, solar, bioenergy and other renewable energy facilities.

The fund does not presently have an explicit seed finance component, however it would consider the creation of such a window if the SCAF could cost-share some of the increased costs of building a pipeline of small scale entrepreneurs, working with smaller scale transactions, and realizing lower expected returns. The fund specifically expects that a seed finance window would help the fund manager develop projects in the energy efficiency (e.g. efficient lighting), biomass (e.g. bagasse) and biogas area (e.g. methane capture).

Enterprise Development Support - The Facility would tentatively negotiate a total enterprise development and transaction cost-sharing agreement of between \$250,000 and \$500,000 to cover the incremental costs of working with entrepreneurs to prepare investments, and then transacting and managing a portfolio of small seed finance deals. This support would be paid out over 3 to 4 years in annual installments through AsDB along side their own commitments.

Seed Capital Subsidy - The Facility might provide an annual investment subsidy of 1.5% to 2.75% for each seed finance transaction taken over a period of three to four years. This payment would be made at the time of each individual investment. On \$3,000,000 in seed capital investments this subsidy would total between \$113,000 and \$260,000 over the life of the fund.

Thus, SCAF could foresee a commitment of between \$363,000 and \$760,000 to the Global Asia Fund. More information is available in Annex E2.

<sup>19</sup> *In this way the seed window would help bias an overall energy fund towards renewables and efficiency projects.*

higher than “normal” costs to provide enterprise development support to, and invest in, less mature and smaller scale seed finance investments. On a pro forma basis, the enterprise development and subsequent management costs of investing in a portfolio of small investments can be estimated at about three times that of the cost of investing in one larger investment of equivalent financial scale. The SCAF will therefore offer to share all or part of these incremental costs.

The second function of the SCAF would be to help entrepreneurs meet the risk/return expectations of mainstream capital investors through a risk compensation payment. In effect, to compensate for taking on higher risk portfolios, the SCAF would provide a subsidy intended to equalize the perceived IRR difference over a set period of time (typically 3 to 4 years). By doing this the SCAF would attract investment capital into the seed finance area, essentially bringing the mainstream investment community up the finance continuum to earlier stage investment activity. The actual size of the payments would be negotiated as the funds are being capitalised based on the local context for investing in SMEs, and other factors. In return for these two types of support, mainstream capital investors would commit to providing enterprise development support to entrepreneurs and including a minimum share of smaller, earlier stage seed capital transactions within their more mainstream investment funds/portfolios. Over time these investors are expected to increasingly take on this multi-stage investment strategy themselves, without the need for further GEF support. Once this happens, investors will no longer see the ‘lack of commercial investment pipeline’ as a reason for not entering the sustainable energy sector.

## **Benefits**

52. The combination of enterprise development support services and early stage seed capital has been seen to be effective at stimulating sustainable energy enterprises in many developing countries. With an experience base in more than 30 countries, it has been shown that enterprise development services plus seed capital can deliver broad-based returns on investment, including direct returns (financial), indirect returns (energy access, job creation, environmental improvement) and induced returns (health benefits, industrial development through replication of successful business models).

### ***Financial Benefits***

53. E+Co’s experience of investing at the seed capital stage has shown to produce weighted average returns of between 5.1% (equity) and 7.4% (debt) on an internal rate of return basis. This calculation is based on an analysis and projection of 87 seed capital investments made between January 1998 and May 2004, taking into account the following: (1) average investment of \$101,000 for a portfolio of \$11.5 million; (2) write-off of almost 12%<sup>20</sup> for slightly more than \$1 million; (3) projections do not include the cost of enterprise development support services (i.e., the elevated transaction costs), a large portion of which has been recovered through contract revenues, fees and grants rather than through the investments. This \$11.5 million in seed capital investment has resulted in more than \$107 million of capital investment by others<sup>21</sup>.

---

<sup>20</sup> This number does not coincide with the percentage of write-offs resulting from the IFC’s due diligence of E+Co (which was about half of overdue loan receivables or 25% of total loan receivables). To reconcile the proposal with this more conservative view on future cash flows, the SCAF pro forma model was adapted accordingly and total write-downs on loan receivables were set close to 27%.

<sup>21</sup> The total investment in new sustainable energy generation capacity stimulated by the SCAF could exceed \$166 million if the best case build-out of portfolio investments is assumed.

54. From the development finance perspective, one important conclusion that can be drawn from this experience has been that even when expenses are taken into account the return on the seed capital stage is seen to be positive, thus effectively setting a financially self supporting stage for later, larger and more profitable investments in a portion of the portfolio thus “seeded”.<sup>22</sup>

55. At the seed fund level this project expects to spend between \$250,000 and \$350,000 of GEF funding to liberate \$1 million of seed capital<sup>23</sup> from co-operating SCAF funds and \$300,000 to \$1 million of entrepreneur capital. Once a stream of early stage projects are seed financed, a number will graduate into full scale 2<sup>nd</sup> stage investments that receive significantly more capital from the cooperating funds and others. In the worst case scenario the SCAF facility should secure 8.5 times co-financing from the co-operating funds (see *Annex F1: Pro Forma Energy Fund Model* and *Annex F2: SCAF Capital Mobilization Calculations*). The project’s overall co-financing target (complementing the full project cost of \$8.7 million and secured through contractual commitments with cooperating funds, and contributions from fund managers, entrepreneurs, UNF and UNEP, see *Annex 1B – Budget by Activity* for details) is \$54,620,000, or 6 times the GEF contribution.

56. The Seed Capital Assistance Facility’s two main support lines will be budgeted at the \$6 million level, which in turn will assist the creation of a number (between six and ten) of seed capital funds or windows within other funds. This will translate to between \$20 and \$42 million of immediate seed capital transactions, and from \$67 to \$177 million of investment in new clean energy generation capacity<sup>24</sup>. Since the ratios are quite high, the project need only assume a partial “causality factor” or impact influence on the cooperating funds to be cost-effective from a capital mobilisation and CO<sub>2</sub> mitigation standpoint.

### ***Non-Financial Benefits***

57. Aside from generating these tangible financial returns, seed investments can also generate less concrete but significant non-financial impacts. During the PDF-B preparatory phase a study was carried out to establish the nature, magnitude and distribution of such benefits that might be attributed to the successful operation of one or more energy enterprises in a given energy-economy. The ongoing work utilizes a set of test indicators developed through collaborative research involving REED country partners and researchers from the International Institute of Industrial and Environmental Economics (IIIEE) at Lund University, and the Said Business School at Oxford University.

58. The main non-financial impacts measured in the study included: GHG reduction, avoided deforestation (or reforestation), waste utilisation, avoided environmental impacts of traditional charcoal production, avoided health/environmental impacts of traditional fuel use, job creation, labour/time savings, increased personal/household income, electricity savings, cost savings, fossil fuel substitution, empowerment of women, electricity supply, and health benefits of reliable water supply and infrastructure improvement. A summary of the conclusions of this study is included in *Annex K: Assessing the Benefits of REED/E+Co Investments*. Also included in this annex is a typical enterprise study result for BETL, a waste-to-energy company operating in Tanzania.

---

<sup>22</sup> This conclusion was made as the result of an independent assessment carried out by IFC.

<sup>23</sup> This figure is fixed since it will be a condition for SCAF disbursement.

<sup>24</sup> Note that these figures include the \$6mn of SCAF support and therefore are not equivalent to co-finance or leverage figures.

## **GHG Reductions**

59. Assuming an installed cost from \$1200/kW to \$1800/kW and GHG reductions of 2,200 tonnes CO<sub>2</sub>e per MW per year, it can be inferred that the \$67 to \$177 million of total capacity investment mobilized via SCAF would equate to CO<sub>2</sub>e offset from projects/enterprises generating between 160 and 430 GWh of renewable energy per year. This would mitigate between 2.3 and 6.1 million tonnes of CO<sub>2</sub>e over a twenty-year period, at a cost to GEF of \$1.4 to \$3.8 per tonne. These figures combine ~0.4 - ~0.8 million tonnes of GHG reductions resulting from seed capital transactions and ~1.9 to ~5.3 million tonnes of emission reductions from later stages of scale up deployment for 80% of the same enterprises. Sustained activity with new or the same entrepreneurs by the fund managers would overcome any reduction in consideration of a partial causality. Replication could be foreseen in the possible establishment of similar seed windows in other funds but is not included and may involve additional GEF participation in any case. *Annex F1: Pro Forma Energy Fund Model* and *Annex F2: SCAF Capital Mobilization Calculations* provide the assumptions and calculations used to arrive at these figures.

60. The new capacity investments are funded by two sources: The first source of funds consists of the 20 to 30 percent of seed investments that successfully graduate to second stage investment and succeed in mobilizing additional cofinancing from SCAF cooperating funds. Assuming an average investment size of \$1.5 million, a total of \$40 to \$126 million will be raised for capacity investment during this stage.

The second source of investment in clean generating capacity will result from:

- a. Small-scale projects that do not succeed in raising additional capital, but remain financially sustainable on a small basis without growing any further.
- b. Projects that do not graduate to the second investment stage within the SCAF supported sustainable energy funds, however manage to raise second stage capital from other sources. For these projects, a lower overall rate of leverage of 5 to 1 is assumed.

Both the small scale projects and the projects obtaining capital from alternative sources are assumed to add up to an additional ~\$28 to ~\$53 million, resulting to a grand total capacity investment of between ~ \$67 million (worst case) and ~\$177 million (best case).

The estimates concerning average installed cost, specific GHG reductions, load factors and baselines are all based on UNEP and E+Co's existing project portfolio.

## **PROJECT ACTIVITIES AND EXPECTED RESULTS**

61. The project activities can be broadly divided into four categories, with each activity composed of specific outputs as described below. Collectively, project activities will aim at facilitating the investment in local sustainable energy enterprises by operating a Seed Capital Assistance Facility (SCAF), designed to stimulate the creation of specialised funds, targeted to sustainable energy niches where investment capital interest exists.

62. Management of the facility will be the joint responsibility of the AsDB, AfDB, and UNEP. The governance structure of the project includes a Management Committee, a Project Management Unit (PMU) and country consultations presented in Section 4.

## Activity 1: Establish the Facility and Operating Modalities

63. The operating modalities and procedures are designed to be coherent, efficient and reliable, providing the project team with the information it needs to take sound management decisions, but in a manner that also meets the private sector operating modalities of the SCAF cooperating funds.

64. Once operational, the SCAF will operate in two phases during the project period. Initially it will receive proposals from fund managers for support on an on-going basis, entering any promising proposal into the engagement process (see below) at any time. This initial engagement phase will last 2 to 3 years, depending on how quickly the available funds are committed to approved cooperating funds. Once all funds are committed or the first phase is completed, the SCAF will shift to the administration and monitoring phase, which is expected to last a further 3 to 4 years, the period of typical SCAF commitments.

65. The SCAF operating modalities include guidelines on seed finance provision and entrepreneur support services that will be required of any cooperating fund receiving SCAF support. The modalities also include the contractual procedures used to obligate SCAF funds. Any fund proposing to operate in a country that has not previously received GEF focal point approval will require an endorsement prior to SCAF engagement.

66. The SCAF qualification criteria detailed in *Annex G: SCAF Terms of Reference* defines:

- The type of support services that cooperating funds will need to provide to entrepreneurs in return for SCAF enterprise development support. These include training activities, one-on-one coaching for business plan development, and post investment support.
- The phase of clean energy sector development during which SCAF supported enterprise development and seed financing can be provided (i.e., support will only be eligible for sectors that are still in early stages of development in a country. Business-as-usual investments will not qualify);
- The maximum level of seed financing that can be provided to any one enterprise;
- The types of technologies that the SCAF supported enterprise development can be provided to<sup>25</sup>;
- The number of SCAF supported transactions that a cooperating fund can carry out in a specific technology area (i.e., the first investments are seen as learning transactions, that can only be repeated a limited number of times with SCAF support before they should be ready to be financed without SCAF support); and
- Whether a SCAF cooperating fund could operate in a country if other GEF supported activities are already taking place that offer similar enterprise development support or financing to the same prospective investments (which would disqualify SCAF support).

---

<sup>25</sup> The list of eligible technologies is adapted from the GEF OP5/6 Programme Objectives 5.8 and 6.10 as of 03/2003. RE investments will be the primary target.

- How SCAF support can not be used to finance the potential carbon finance components of a project.

67. Besides the qualification criteria, a process for coordinating SCAF supported activities with the other GEF implementing agencies is described in *Annex G: SCAF Indicative Terms of Reference* that ensures a smooth coordination of activities and to prevent projects ‘double-dipping’ from multiple GEF sources.

68. The engagement process for a fund to cooperate with SCAF will consist of the following steps:

- I) **Proposal** (*prepared by fund manager*)– the fund representatives (fund management company and/or investors) begin the process by preparing a proposal for SCAF consideration. This proposal will detail the investment fund entity under development, or already in implementation, and the specific plan for creating a seed capital window within it<sup>26</sup>. Clear proposal guidelines will be prepared by the PMU for this process. Proposals are not expected to be longer than 10 – 12 pages in length.
- II) **Selection of National Executing Agency** (for Africa only - prepared by PMU, in consultation with AfDB) – In Africa, public banks or investment agencies will be identified as the Executing Agency for administering the SCAF support to the cooperating fund entity. This institution will need to be an existing borrower or partner in good standing with the AfDB, or will need to undergo AfDB review to ensure minimum institutional capacity for administering the funds.
- III) **Proposals Screened and Terms and Conditions Negotiated** (*prepared by PMU*) – Proposal screening will be carried out based on clear qualification criteria. The terms of SCAF support are to be negotiated on a case by case basis depending on local economic conditions, the maturity of the targeted sustainable energy sector, the overall investment strategy of the cooperating fund and the impact these all have on expected enterprise development and transaction costs and returns on investment. The SCAF qualification criteria defines the conditionality for the support to be provided (in terms of enterprise development services offered, co-finance requirements, deal size, technology type, etc) but some flexibility will be allowed to tailor specific support contracts to local conditions (see *Annex G: SCAF Indicative Terms of Reference*). The qualification criteria will be somewhat flexible for first time fund managers and entrepreneurs in the clean energy sector.
- IV) **Due Diligence** (*prepared by external reviewer, contracted by UNEP or AsDB*) – a detailed audit of the fund management entity will be carried out by an external reviewer as a condition precedent for SCAF contractual engagement. This procedure will verify that the cooperating fund manager has the appropriate capacity, management systems and legal authorities to carry out the proposed investment activity and as well has the ability and systems in place to provide the proposed enterprise development support. Although a Letter of Intent may be provided in advance of a fund’s creation, the due diligence process will only be completed once the fund is registered as a legal entity and all fund documentation has been prepared.

---

<sup>26</sup> Or, as previously mentioned, SCAF will also consider proposals for creating standalone seed fund instruments, or RE/EE seed windows within broader energy funds.

- V) **Approval** (*prepared by PMU; approved by Management Committee*) – once the due diligence process has confirmed a valid seed fund concept and a qualified fund entity, the proposal package will be put forward to the Management Committee for approval.
- VI) **Contracting** (*administered by AsDB or African Executing Agency*) – the contractual arrangements with the approved cooperating funds will define the terms and conditions whereby SCAF support can be used, and will include the reporting, auditing and M&E functions. Contracting will be done through the relevant Executing Agency and therefore will need to meet both the SCAF and Executing Agency’s approvals, contracting and reporting process.
- VII) **Operating** (*undertaken by fund manager*) – once a SCAF contract is in place, the cooperating fund manager can begin to carry out enterprise development and seed investment activities. This operating process is described in Activity 3.3. The contractual agreement will involve annual disbursements to pay for enterprise development activities (reviewed and approved on an annual basis), as well as individual disbursements for each project seed financed by the fund (reviewed on a case by case basis, against set criteria).
- VIII) **Monitoring and Evaluation** (*fund manager / EA / PMU*) – the contractual arrangements with the cooperating funds will include commitments to regularly report on the indicators defined within the SCAF M&E plan, including numbers and types of investments made, GHGs mitigated and range of other measures. UNEP will be the conduit for M&E documents for GEF. A detailed monitoring plan for the Facility is included in *Annex H: SCAF Monitoring, Evaluation and Reporting*.

#### 69. Expected Outputs

- **Output 1.1** Governance structures for the management of the Facility and the project in place.
- **Output 1.2** Detailed operational parameters of the Facility confirmed, including the procedures and documentation related to the steps of: Proposal, Letter of Intent, Due Diligence, Approval, Agreement on Terms and Conditions, Contracting and Operating.

### **Activity 2: Support for the development of "Seed Capital windows" in new sustainable energy funds (TA)**

70. A preliminary component of SCAF will be to support the development of new clean energy funds. Project preparatory work and stakeholder consultations conducted during the PDF-B phase have identified a pipeline of prospective funds where the proposed SCAF could stimulate the creation of specialized seed windows targeted to early stage sustainable energy enterprises (see *Annex D: Pipeline of Prospective SCAF Funds*).

71. It is expected that a number of these initial fund concepts will fulfil the SCAF criteria and also mobilise the required investment capital to go forward. However, these funds represent only the initial batch of funds to consider. Others will also enter the pipeline once the SCAF becomes operational.

72. To this end, the SCAF will provide support and technical assistance to specialist fund management companies and other local entities to scope out, develop and capitalise new sustainable energy funds with a seed finance component.



73. This component will support a variety of activities, including:

- preparation and issuance of fund solicitation documentation
- exploratory costs for fund capitalisation
- set-up of enterprise development tools and support programmes
- training of fund/sub fund managers
- assistance with the development of investment pipelines

74. This technical assistance support will generally be provided as a sharing of the incrementally higher costs associated with clean energy fund development, with the fund proponents expected to cover the majority of the overall cost. Funds will not be available to cover fixed or payroll costs of the fund manager or proponents.

75. Expected Outputs

- **Output 2** New sustainable energy funds and seed finance windows created and capitalised and through them enterprise development support and seed capital provided to sustainable energy SMEs; Capital mobilized from new investors.

### **Activity 3: SCAF Facility Operations**

#### **SCAF Supported Seed Capital Investment Activity**

##### ***Enterprise Development Support***

76. The first SCAF support line will be for sharing incremental enterprise development and transaction costs<sup>27</sup>. A typical example (see *Annex F1: Pro Forma Energy Fund Model*) might involve a \$20 to \$50 million private equity investment fund which would agree to set aside 5% to 10% of its capital for earlier stage, seed investing in return for which the SCAF would cost-share some of the incremental costs associated with sourcing entrepreneurs, providing enterprise development services and transacting the seed scale investments. This technical assistance will be on the order of one twentieth of the projected total investment to be made by the cooperating fund.

77. As part of this arrangement the cooperating fund manager would commit to identifying and developing a pipeline of early stage clean energy projects, and providing enterprise development services to qualified local entrepreneurs. Each fund manager would offer a different set of services, based on the local context, however the common elements of these services would involve:

- identification and training of new ‘pre-commercial’ clean energy entrepreneurs and project developers;
- provision of enterprise support services including tools and assistance for project development, fact-finding and business planning<sup>28</sup>;
- assistance with market analysis, feasibility studies and financial models; and
- support with project implementation, product/service development, company scale-up.

---

<sup>27</sup> In the pro forma case, 1.5 \$ million in a portfolio of ten \$150,000 seed investments cost \$471,000 to prepare whereas one transaction of \$1.5 million only costs \$146,000 to prepare. Mean incremental costs are \$325,000 shared 50% with SCAF which would represent roughly 10% of the cooperating fund’s seed investment.

<sup>28</sup> See for example the REED Entrepreneur Toolkit (<http://www.ared.org/training/toolkit/index.htm>).

78. Enterprise Development support would come in the form of annual fees based initially on the amount of seed capital under management, and subsequently on the value of the seed capital portfolio. The cost sharing would be time limited to between three and five years, the period during which a seed capital investor provides the most enterprise support to the portfolio and the time it takes to graduate seeded enterprises to commercial capital investments, if/when this occurs. The seed fund manager will be obliged to meet an investment schedule failing which the annual enterprise development cost sharing fees would decrease. This is to prevent the moral hazard of funds being allocated to seed capital windows, but not being drawn down.

79. Transaction fees and other enterprise development costs are typically charged to the investee company either up-front or when an investment is approved, therefore the benefits of the SCAF enterprise development support will actually go to the local entrepreneur, in two ways. First the GEF support will share some of the costs that the entrepreneur normally has to bear when raising financing and, second, the support will provide the entrepreneur increased access to early stage financing. Offering this incentive is not an innovation per se but a calculated cost sharing arrangement, a form of public/private partnership. It is expected that each dollar of enterprise development support from SCAF will attract an equivalent amount from the cooperating fund manager.

80. Some broader policy support may be required in some African countries to strengthen the enabling environments for SMEs. The African Development Bank may provide additional technical assistance for building capacities of relevant country stakeholders. UNEP will provide support to these efforts, as appropriate, building off similar activities already underway through AREED.

### ***Seed Capital Incremental Cost Sharing***

81. Besides sharing some of the enterprise development and transaction costs of preparing early stage energy investments, the SCAF will also provide support to account for the higher risks of seed investments in clean energy projects. The Seed Capital Subsidy support line, paid on a project by project basis, would be designed to offset the hurdle of higher perceived risks and lower expected returns when dealing with early stage sustainable energy enterprises. Seed capital investments typically take a period of two to four years to mature into mainstream investment opportunities, if and when this occurs. The mechanism to be used is to offer project specific and time limited support to cover the incremental returns hurdle, the gap between what a portfolio of early stage enterprises are able to provide in terms of risk adjusted returns on investment, and what mainstream investors are able to finance.

82. For each approved SME that the cooperating fund provides seed financing to, the SCAF will provide a fixed (as % of IRR) subsidy payment that covers part of the lost returns over a 3 to 4 year period. Thus, if a fund manager needed to achieve a 12% return and each investment on average was only expected to provide a 7% return, the SCAF window could bridge part of the gap over a three to four year period through seed capital subsidy support. By the end of the support period, a portion of these seed investments should have graduated to fully commercial investment opportunities, offering higher risk adjusted returns and no longer in need of GEF support.

83. Even if only a small share of the investments seeded by a cooperating fund mature into truly successful commercial investments, the incremental return from these follow-on investments should more than compensate for the seed capital stage risk absorbed. For

example, in the Pro Forma case (Annex F) if only two of ten \$150,000 seeded investments mature such that \$3 million can be placed in a second investment round at 17%, then the combined return of the seed investments and the later stage investments can easily match the 12% benchmark, or even outperform it if more than 2 investments mature. Since a follow-on investment would be less risky than either the seed investment or a first investment in a commercial capital transaction (because of familiarity), it is believed that such positive experience will change the portfolio habits of mainstream investors.

#### 84. Expected Outputs

- **Output 3** Sustainable energy entrepreneurs trained and commercially viable projects and SMEs created to provide cleaner energy and energy services; Seed capital investments made in such enterprises; and Services and products offered by SMEs with direct (cleaner energy supplied) and indirect economic, environmental and social benefits.

### **Activity 4: Management Review and Dissemination of Lessons Learned**

85. In order to ensure effective management of the SCAF Facility, periodic management reviews will be conducted, focusing on the following two activities.

86. The first is to review SCAF facility operations, the respective seed capital windows supported, and the performance of the companies they've financed. This review will, amongst other things, analyse the level and performance of enterprise development services carried out by the respective fund managers. In addition to the indicators identified in the logical framework, a set of financial and operational performance indicators of the SCAF Facility will be refined by a contractor in consultation with the SCAF management team.

87. The second activity will be to share lessons learned from the review and the SCAF more generally to the energy finance community via workshops and other outreach channels. This should help facilitate the replication of seed capital investing by more mainstream investors. Part of the contracted agreement between SCAF and the participating funds will be a requirement for fund managers to provide information on each investment transaction supported. This information will be used to build a database of seed finance case studies for public dissemination and use.

88. The lessons to be learned from the project, including the investment case studies but also the broader experiences on seed finance approaches, will be disseminated through a wide range of outreach channels to ensure that maximum benefit can be gained from the project. One of the conditions of SCAF support to cooperating funds will be that they provide investment information that can be shared publicly and used in knowledge management activities<sup>29</sup>. The progress and results of these knowledge management activities will be regularly available through hard copy and a project website, etc. A publication addressing the best practices and lessons learned will also be produced, ensuring that valuable experience gained can be applied across the sector. As well, the executing agencies will work to feed these outputs into the GEF knowledge management activities, as and where appropriate.

---

<sup>29</sup> To ensure that this process does not disseminate confidential information the PMU and EAs will need to work with fund managers and, as needed, supported enterprises to 'clean' confidential information from the documents that are to be made public.

89. Carbon mitigation accounting will also form an important element of the M&E process. Direct investment as well as early indicators of indirect influence will be monitored and program requirements adjusted to best achieve targets.

#### 90. Expected Outputs

- **Output 4** Performance of the Facility and individual seed capital investment projects are monitored and evaluated; other impacts and benefits of the project monitored and evaluated; and best practices and lessons learned disseminated among key stakeholders.

## PROJECT MANAGEMENT AND COORDINATION

91. The Seed Capital Assistance Facility will be co-executed by UNEP DTIE, through its Energy Branch / Renewable Energy and Finance Unit<sup>30</sup>, the Asian Development Bank (AsDB), through its Private Sector Department, and the African Development Bank, through its Private Sector Development Unit. The intent is to incorporate Facility Management and Administration into existing activities and thus reduce the time and cost devoted exclusively to the Facility. The org chart for the project is shown below.

92. The SCAF operating structure will include:

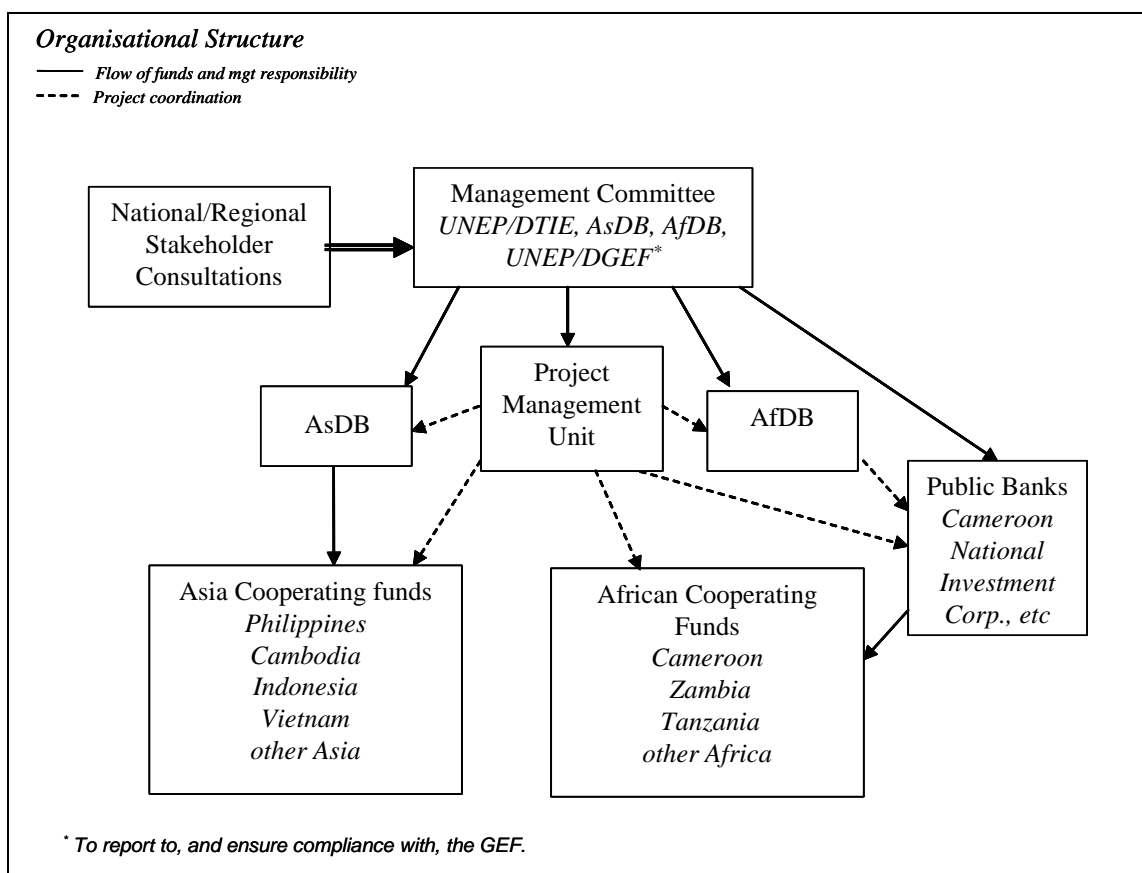
- SCAF Management Committee - to approve proposals to the SCAF facility, made up of three representatives from UNEP/DTIE, AsDB and AfDB, plus one representative from UNEP/DGEF to ensure compliance with GEF eligibility requirements and reporting. Unanimous agreement will be required of decisions involving SCAF policies, procedures and governance issues. AsDB and UNEP will approve proposals for Asia; AfDB and UNEP will approve proposals for Africa.
- SCAF Project Management Unit - to ensure the successful and credible operation of the Facility, a PMU will be established, reporting to the Management Committee, that will interact with SCAF cooperating funds and the relevant executing agency by region on a day to day basis. The SCAF PMU will include a Project Manager, an AsDB Investment Specialist (part-time) and additional consultant support, as needed. The PMU will screen proposals and identify the actions to be taken with individual cooperating fund support agreements.
- Formal documentation and review of seed capital transactions;
- Web-based information and communications;
- Formal monitoring and evaluation procedures at the transaction, fund and facility level; and
- Periodic internal evaluations as part of management review.

93. Execution in the regions will build off of and help further leverage activities already underway at the AsDB and AfDB. The AsDB is currently preparing to scale up their investment activity in commercial clean energy funds. The SCAF facility will be operated alongside this effort, whereby a fund manager will be able to access both forms of support through one application process and contractual agreement (i.e., SCAF support for the creation of the seed window, and AsDB investment capital for the commercial investment window). In Africa AfDB and UNEP will work together in coordinating the SME enterprise

---

<sup>30</sup> Information on the programme activities of this unit are available on-line at [www.uneptie.org/energy/finance](http://www.uneptie.org/energy/finance)

development activities of fund managers in target regions. Work in Africa might also involve improving the enabling environment for energy sector SME development. This will build off of existing AfDB FINESSE and UNEP AREED activities. Individual private sector investment opportunities will be of interest to the AfDB Private Sector Development Group.



## RISKS AND SUSTAINABILITY

94. SUSTAINABILITY AND REPLICABILITY. Compared to the total seed capital to be made available by the investors, the SCAF contribution will actually be quite small, less than 2% of the total outlay<sup>31</sup>, and it is clear that the investors themselves will pay much of the incrementally higher costs of the seed investing<sup>32</sup>. The investors therefore are getting involved not because of the availability of grants but rather because they are truly interested in the seed finance approach as a means of making their total investment portfolio succeed. In the Pro Forma case (*Annex F1: Pro Forma Energy Fund Model*, first worksheet) the box at the bottom of the page demonstrates how graduating only 2 of 10 seed investments to growth capital more than makes up for the true incremental costs and return losses of the entire seed portfolio. If the funds supported by SCAF prove that this graduation ‘rate’ can consistently be achieved, then it shouldn’t be that unreasonable that these investors, and others, are willing in

<sup>31</sup> For example, in the Pro Forma case we expect SCAF support to be in the \$300 - 500K range, for a \$1.5 - 2mn seed fund and a total capital formation of ~\$25 million, including both the investment and the return on this investment.

<sup>32</sup> As mentioned earlier, many of the ‘mainstream investors’ that we’re dealing with do in fact have a public mandate to promote energy sector growth, and therefore will be willing to take a lower return on a seed finance portfolio if it is seen as instrumental in catalysing overall energy sector development. In essence, they are willing to cover part of the incremental cost, usually for development reasons.

future to cover the entire incremental cost of the seed finance approach<sup>33</sup>. The prospect of improved ‘deal-flow’ from the successful entrepreneurs and projects will be the main incentive that keeps the fund managers engaged in using this approach over time, even after SCAF finishes.

95. The very nature of this proposal is to change the investment approach of investors and fund management entities: to prove the case for seed capital investing as a preferred alternative investing strategy for the modern energy sector. Success will be self-defining and self-replicating. If the one-time cost sharing and incentives improve the return on the fund or the efficiency of the fund management entity, this portfolio philosophy will be adopted as a preferred alternative or as a component of the investor’s strategy. If the incentives only produce a neutral or negative result, then the likelihood of self-replication declines. Since the project builds on successful foundation-backed seed finance activities and, based on this experience, is expected to be attractive to the mainstream finance sector, the project is designed to mainstream the concept in the investment community. The public supporters including GEF and cofinanciers will engage the mainstream finance sector through those market leaders willing to take up the challenge through the proposal process. These fund managers are expected to sustain the activity thereafter and others should adopt the approach having been exposed through the project’s information dissemination activities and public reporting.

96. It is unlikely that an \$8.7 million GEF project can, in itself, truly transform the energy finance business. However, if it supports the creation of seed windows within a number of high profile clean energy funds then it will help to bring a lot of visibility to this new portfolio investment strategy. If the individual funds are successful and are seen to ‘graduate’ a good number of their seeded enterprises into mature commercial investments then this visibility should translate into enhanced replication<sup>34</sup>.

97. RISK ANALYSIS. The underlying assumptions are that in spite of the high costs and risks associated with small-scale renewable energy projects, investment capital interest exists in the renewable energy markets in targeted regions and that SMEs and independent power producers are well positioned to develop viable enterprises and projects in these markets. The risks associated with the SCAF operation will be (1) inability of fund managers/proponents to capitalize funds with a seed capital component; (2) insufficient transactions under consideration; (3) fund managers attempting to “game” the system by seeking incentives for transactions that would be considered without incentives.

98. RISK MANAGEMENT STRATEGY. The most important risk management strategy is the alignment of the interests of participants. A strong promotional effort and coordination with such initiatives as SEFI will also assure a sufficient pipeline of fund activities. The key

---

<sup>33</sup> *When considering this argument it is important to remember that to be seen as successful the seed finance approach does not need to become commercially viable in itself, but rather it only needs to be seen as a cost effective pipeline development tool for a financiers’ more commercial investment activities*

<sup>34</sup> *Replication can occur in many ways, either as part of one fund managers strategy, for example E+Co’s ‘funds and affiliates’ growth model that targets the creation of a number of semi-autonomous affiliated funds, including those included in the SCAF fund pipeline. Replication can also occur by competitive forces. A former E+Co manager split off from the company in 2004 and set up a new fund management company called GroFin ([www.grofin.com](http://www.grofin.com)). UNEP has begun discussions with GroFin regarding fund developments they have underway in Africa and Latin America. Other replication is sure to occur in other ways that are difficult to predict in advance. UNEP will endeavor to facilitate this process, wherever possible.*

risk management techniques are: the hands-on involvement and enterprise knowledge of the Facility team in implementation; disbursing part of the SCAF support only at the time of seed fund transactions<sup>35</sup>; the partial nature of the incentives (risk sharing by fund managers); and, the greater and shared objective of improving fund performance and finding a successful investment strategy (the payoff on success makes the cash flow benefit small by comparison).

## CORE COMMITMENTS AND LINKAGES

99. UNEP promotes environmentally sound management and builds corresponding capacities in governments and industry. UNEP's Energy Work Programme has a core objective to bring together financiers, engage them to do jointly what they may have been reluctant to do individually, and coax them into public-private alliances in the sustainable energy finance area.

100. UNEP operates two initiatives specifically focused on finance sector engagement in the environment and clean energy. The UNEP Finance Initiative (UNEP FI - [www.unepfi.org](http://www.unepfi.org)) is a global partnership between UNEP and more than 200 financial institutions to develop and promote the links between the environment and financial performance. The UNEP FI partnership includes commercial banks, investment banks, insurance and reinsurance companies, fund managers, multilateral development banks, and venture capital funds. In 2003, the UNEP Renewable Energy and Finance Unit, part of the DTIE/Energy Branch, UNEP FI and BASE launched a Sustainable Energy Finance Initiative (SEFI - [www.sefi.unep.org](http://www.sefi.unep.org)), a platform providing financiers with the tools, support, and global network needed to conceive and manage investments in the changing marketplace for clean energy technologies. UNEP FI and SEFI provide the channels through which the SCAF team can engage finance industry participation in this GEF project, and disseminate lessons learned.

101. UNEP's Renewable Energy and Finance Unit also implements a number of energy finance projects in various developing country regions, mostly focused on helping financiers become more proactive in the sustainable energy sector ([www.uneptie.org/energy/finance](http://www.uneptie.org/energy/finance)). These include the REED work, credit support programmes, and a number of related activities.

102. The Rural Energy Enterprise Development programmes in five African countries (AREED—[www.areed.org](http://www.areed.org)), in Brazil (B-REED—[www.b-reed.org](http://www.b-reed.org)), and in China (C-REED—[www.c-reed.org](http://www.c-reed.org)) provide the early stage seed financing and associated technical support that entrepreneurs need to develop and commercialize new clean energy products and services. The African programme, AREED, is the most advanced to date with seed financing having been provided to 35 clean energy enterprises that provide rural and peri-urban customers with energy equipment and services such as solar crop drying, efficient cook stoves, solar thermal systems, wind powered irrigation, bio-fuels and other clean energy technologies.

103. For small scale clean energy sectors already commercialized on a 'cash and carry' basis, but where growth is constrained by a lack of end-user financing, UNEP has been helping local banks build dedicated loan portfolios. A partnership was launched in 2003 between UNEP and two of India's largest banking groups – Canara Bank and Syndicate Bank – that provides consumer financing for solar home systems at preferential interest rates. The

---

<sup>35</sup> SCAF Seed Capital subsidy line will only be paid out at the time of individual seed fund investments, therefore the minimum co-finance criteria will be guaranteed.

loan programmes are currently offered through over 2100 bank branches of both banks and seven regional Grameen banking networks. To date over 15,800 systems have been financed, with the market for credit provision now growing quickly even while the subsidy is being phased-out. A similar loan facility was launched in 2005 for domestic solar water heaters in Tunisia involving the national energy management agency ANME, the national utility STEG, and the local banking community. An interesting aspect of this initiative is that the loan repayments are channelled through customer utility bills, which lowers the credit risk for the banks and therefore the cost of system financing. 9,500 water heaters were installed in the first 9 months of operation. A number of other such programmes have been implemented elsewhere or are in preparation.

104. AsDB's Energy Policy is broadly supportive of renewable energy and GHG mitigation projects. However, these types of projects are perceived as inherently riskier, and/or tend to be small in terms of energy generation capacity, and therefore, in general, are not considered to be financially attractive by borrowers and project developers. Consequently, renewable energy and GHG mitigation projects do not make up a significant proportion of AsDB's lending portfolio at present. However AsDB is working to increase its focus in this area and has recently established the Clean Energy and Environment Program, under which a number of existing and new initiatives have been organized. The Clean Energy and Environment Program includes the Renewable Energy and Energy Efficiency Capacity Building (REACH) initiative, the Energy Efficiency Initiative and a number of other related energy support activities aimed at helping countries ease growth in fossil energy demand, alleviate the upward pressure on energy prices, improve energy security, and reduce global emissions of greenhouse gases. Through its Private Sector Operations Department, AsDB is also leading investors into clean energy in Asia, having already financed two private equity funds - one specifically energy focused<sup>36</sup> and the other more broadly environment focused - and now looking to scale up its overall engagement in the sector. Building off this experience, AsDB is looking to increase capital commitments to this sector. SCAF will be packaged alongside this new investment activity to offer fund managers a consolidated offering whereby they will be able to access AsDB capital and the SCAF support needed to set up dedicated seed investment windows that offer both early stage capital and associated enterprise development services.

105. The African Development Bank Financing Energy Services for Small-Scale Energy Users (FINESSE) Africa program assists countries in Africa, working through the Bank, to formulate appropriate policy and regulatory frameworks and to develop capacity to generate a pipeline of investment projects in renewable energy and energy efficiency. The Private Sector Department of the African Development Bank provides preferential finance or guarantees for private sector investments and has a strong interest in renewable energy.

## **OTHER GEF PROJECTS TO BUILD ON**

106. The Proposed project could prove complementary to a number of other GEF projects currently in implementation or in various stages of preparation.

107. The UNDP/GEF "First Regional Micro/Mini-Hydropower Capacity Development Project and Investment in Rural Electricity" has some complementarities with SCAF. It's

---

<sup>36</sup> In December 2003, AsDB's Private Sector Operations Division (PSOP) made a \$20 million investment into the FondElec Global Asia Clean Energy (FEGACE) Fund. This commercially managed investment fund finances energy services companies (ESCOs) in the energy efficiency and renewable energy area.



overall goal is to “remove the barriers impeding the development of micro-hydro technologies in much of Sub-Saharan Africa” by undertaking various activities that assess where and how potential hydro projects could be developed. This work will create awareness and in so doing will provide a pipeline of prospective entrepreneurs seeking investment, initially at the early stages (e.g., through SCAF supported seed finance windows), and eventually through more mainstream channels (e.g., the Cameroon Renewable Energy Fund). SCAF supported work will then help the UNDP/GEF project achieve its goal to “elicit the interest of economic actors and local banking institutions for the financing of micro-hydro power projects”.

108. The IFC has revised the previous GEF “Renewable Energy and Energy Efficiency Fund” project into a newer Sustainable Energy Fund, to give it a more targeted focus on seed capital investing through E+Co. The SEF will provide the resources needed to increase the experience base with sustainable energy enterprises and the human capacity needed to provide support services and investment capital to these firms. Having access to this core investment capital will help E+Co to refine the seed capital model. However it will not on its own help to close the gap between seed capital providers and the more mainstream financiers, and therefore will not increase the volume of more commercially oriented capital going into this sub-sector. The combination of SCAF and SEF could together provide the capital and the mainstream finance sector engagement needed to take projects from concept stage through to implementation and commercial investment. SEF does not operate in Africa and, no SCAF funds will be intermingled with IFC/SEF funding in Asia as per the Operating Procedures.

109. Although the SCAF will not be operating in Central America, UNDP has one GEF project there that could possibly be linked with. The “Accelerating Renewable Energy Investments through CABEI” project is an innovative approach to engaging a major lender in renewable energy project financing in the region.

## STAKEHOLDER PARTICIPATION

110. The concept of targeted incentives underpinning this proposal have been explored with a broad cross-section of interested parties, including potential investors, fund managers and other stakeholders involved with a number of the proposed fund developments that might eventually access the SCAF. Each of these is detailed in *Annex I: Stakeholder Consultation Summaries*, and summarized in the below paragraphs.

111. In **Africa**, the main stakeholders consulted where: the fund managers E+Co and GroFin, the African Development Bank- Private Sector Group, Cameroon National Investment Corporation (NIC); the Rural Electrification Agency AER; AES-Sonel, a subsidiary of the US utility; the Cameroon Power and Lighting Corporation (CPLC); ARSEL, the regulatory body; the Minister of Mines and Energy; the Special Fund for Equipment and Inter-commune Intervention (FEICOM); E+Co Africa, UNDP and the World Bank.

112. Discussions with stakeholders confirmed that there is strong support for a financing mechanism aimed at developing power generation and distribution and that including a seed finance window, if possible, is the way to develop the investment pipeline, which at present is promising but immature. Reasons for support include a need for increasing sources of supply, improving service quality, developing rural electrification, and promoting the involvement of the private sector in the electricity sector. There are many hydro/biomass projects that could

be developed in the short and medium term. Given the country's huge hydro potential, there is a lot of support for smaller, more diverse, off-grid hydro projects, although most of these would need to pass through a seed finance phase before being ready for full investment.

115. In the **Asian region**, the main stakeholders consulted were: the energy fund managers FE Clean Energy, China Clean Energy Fund, Energy Efficiency Project Investment Company Ltd, InterAsia Renewable Energy Fund, and the Electricity Authority of Cambodia, the Cambodian Ministries of Environment and Industry, Mines and Energy; SME Cambodia, an NGO active in Rural Electrification/IPP sector support; the World Bank- Renewable Energy Action Plan (Cambodia); the Agricultural Bank of China; the Thai Ministry of Energy – Dept. of Alt. Energy Dev. and Efficiency; Palang Thai, an NGO active in clean energy policy advocacy; the Asian Development Bank; the Philippine Private electricity utility Cepalco; many private project developers and RE companies; and UNDP.

116. With the increasing demand for electricity in many Asian states, along with the need to reduce energy supply risks and costs, the consulted stakeholders across the region showed a real desire for an increase in the flow of private sector equity and subordinated debt into the emerging private energy sectors of the countries. There was also a perception that additional support in the form of early stage capital, business services and specific technical skills pertaining to clean energy are needed. Renewable energy sources are widely available across Asia, and governments and industry are keen to identify and adapt technologies and put systems in place to take advantage of this potential in the near term.

117. All stakeholders were supportive of the concept of the creation of the proposed instruments and saw the need for such funds in their respective markets, although ideas on modes of implementation and terms for investment differed among the parties – mostly reflecting their institutional bias.

118. As part of its implementation, the Seed Capital Assistance Facility would continue these consultations and coordination. In particular, as negotiations with one or more parties proceed consideration would be given to organizing a more formal advisory body to the Facility, one that could bring forth ideas, suggestions and course corrections during implementation.

## **INCREMENTAL COST AND PROJECT FINANCING**

### **INCREMENTAL COSTS**

119. The baseline of the project includes the conventional energy investments that the project aims to divert from mainstream energy investors (ie development banks, national investment authorities, private socially oriented investors, etc) including those that are willing to subsidize part of the incremental cost of investing in the sustainable energy sector, but are assumed not to engage in lower return *seed capital investment* under the current circumstances.

120. Although the activities of the co-financing donor agencies are contributing to the alternative in terms of clean energy investments, they are considered baseline to this project since the alternative targeted is the accelerated and expanded engagement in small-scale seed capital investment on the part of the mainstream investment community. Thus, the baseline here may be included in the GEF alternative.

121. The incremental costs of this proposal equal the amount of money required to help overcome and remove specific transaction cost and return perception barriers to *seed capital financing* in the sustainable energy sector of the participating countries. This proposal intends to create incentives for mainstream capital to invest in seed fund windows, and through them to support the development of, and investment in, early stage clean energy enterprises and projects. It is expected that fund managers will provide significant in-kind contributions in raising capital for seed scale investing and for internalizing the operation of the seed capital window in their respective funds.

122. GEF funds would be used in two ways. First, GEF funds would be offered to cost share on a portfolio basis the higher than “normal” costs to provide enterprise development support and carry out transactions at the seed capital stage. The second function of the SCAF would be to help entrepreneurs “buy-up” the risk adjusted returns they offer to growth and commercial capital investors. In effect, to compensate for taking on risky seed portfolios, the SCAF would provide fixed (as % of IRR) subsidy payments for eligible investments intended to partially cover the return gap. By doing this the SCAF would share risks and attract investment capital into the seed finance area, essentially bringing the mainstream investment community up the finance continuum to earlier stage investment activity.

123. This project expects to spend \$8.7 million of GEF funding to liberate a minimum of \$50.9 million in investment co-financing from cooperating funds and \$3.7 million in cash and in-kind contributions from fund managers, UNF, UNEP, AsDB and AfDB. Thus the project co-finance target translates to a ratio of 6.3:1 averaged across several countries in two regions. See *Annex F2: SCAF Capital Mobilization Calculations* for calculations.

## **PROJECT FINANCING**

124. The project financing structure is detailed in the Table on Annex 1B.

## **MONITORING, EVALUATION AND DISSEMINATION<sup>37</sup>**

125. The project will follow all standard UNEP and GEF procedures for monitoring and reporting. UNEP will conduct a mid-term assessment and an end of project assessment. The Project Management Unit will closely monitor the indicators for outputs and outcomes against the Logical Framework to establish global and local benefits, both financial and environmental, accrued from the project.

126. The M&E plan will be reviewed by the Management Committee at the outset of the project, which will confirm the monitoring and verification activities and responsibilities to be undertaken during the project. This plan will serve as a baseline from which to measure project impacts and will establish efficiencies in the execution of the seed capital investment under the Facility.

127. Mid term assessment will be conducted based on the M+E indicators to inform mid-course progress as per the logframe and to advise on any needed modifications to maximize the impact during the remaining implementation process. A final evaluation will be conducted based on the available data to draw indicative conclusions on portfolio

---

<sup>37</sup> for detailed description of Monitoring, Evaluation and Reporting activities see *Annex H: SCAF Monitoring, Evaluation and Reporting*.

performance, SCAF success in mobilizing seed and subsequent growth capital to sustainable energy projects and SMEs, and the impacts of the facility on the financial sector in targeted regions.

128. The lessons to be learned from the project will be disseminated through a wide range of media to a number of targets to ensure that maximum benefit can be gained. The progress and results of these activities will be regularly available through hard copy and a project website etc. A publication addressing the best practices and lessons learned will also be produced, making sure that any experience gained can be applied across the rest of the sector.

## **SECTION 3 - WORKPLAN AND TIMETABLE, BUDGET AND FOLLOW-UP**

### **WORKPLAN AND TIMETABLE**

129. A Workplan and Timetable can be found in **Annex 2**.

### **BUDGET**

130. The grant will be used to finance the activities mentioned in Section 2. A detailed budget following UNEP format can be found in **Annex 1A** of this document.

### **ASSOCIATED FINANCING (US\$)**

132. UNEP's three Rural Energy Enterprise Development Programmes have received \$10.1 million in associated financing to the project from the UN Foundation, the German (BMZ), Swedish (SIDA) and Dutch (DGIS) Governments, and a number of other foundations and donors.

### **FOLLOW-UP**

133. Upon completion of the project UNEP's Renewable Energy and Finance Unit will continue to build on the outputs, based on its' overall mandate to influence investment patterns towards cleaner energy infrastructure and its specific activities in the enterprise development area. As well, it is expected that the AsDB and AfDB will continue to develop their activities in the area of clean energy investment, and in so doing to help mainstream the sector within bank operations.

## **SECTION 4 - INSTITUTIONAL FRAMEWORK AND EVALUATION**

### **Institutional Framework**

134. The project will be overseen by a Management Committee including AsDB, AfDB and UNEP (Section 2, paragraphs 91-93).

135. The Management Committee will be made up of four representatives, one each from UNEP/DTIE, AsDB and AfDB, as well as the Task Manager from UNEP/DGEF Coordination to ensure compliance with GEF requirements and conditions of approval. The main role of the Management Committee will be to review and approve the proposals coming from prospective cooperating funds. As each proposal moves through the engagement process (see a description of this process in paragraph 68), the PMU will work with the cooperating funds to define a specific enterprise development strategy (e.g. training and coaching programme) and implementation arrangement. Unanimous Management Committee approval will be required of decisions involving SCAF policies, procedures and governance issues. The specific cooperating fund support agreements will require approval of UNEP and the respective regional development bank (i.e., AsDB for funds in Asia).

136. UNEP, as the lead GEF Implementing Agency, will be responsible for overall project supervision to ensure consistency with GEF policies and procedures, and will provide guidance on linkages with related GEF-funded activities. The UNEP/DGEF Co-ordination will monitor implementation of the activities undertaken and will be responsible for clearance and transmission of financial and progress reports to the GEF.

137. The UNEP Division of Technology, Industry and Economics will be the co-executing agency with responsibility for project management, monitoring, and liaison with, and reporting to UNEP/DGEF Coordination on the technical assistance components and financial impact information as provided by the PMU and Implementing/Executing Agencies. Conformance with grant financial modality for GEF funds will be maintained while financial due diligence on assisted agencies will be a joint responsibility of the UNEP, AfDB and AsDB as the Management Committee.

138. The UNEP Energy Branch Renewable Energy and Finance Unit (REFU), Division of Technology, Industry and Economics will oversee the SCAF Project Management Unit (PMU). The unit will be staffed both from UNEP and the RDBs. The PMU will be comprised of a project manager, an investment specialist and part-time consultants, when needed<sup>38</sup>. Acting under the direct supervision of UNEP/REFU, the project manager will carry out project management tasks and will not undertake technical assistance activities. For the first three years of facility operations the labour requirement for project management will be nearly one full time equivalent in the PMU (67% of a project manager plus 20% of an investment specialist from AsDB (in-kind)) and one half time equivalent support staff in REFU. UN Foundation will share part of this cost. In the subsequent three years the labour requirements will decrease to one half time equivalent in the PMU and one quarter time equivalent in the REFU. Wherever necessary, energy and finance experts will be engaged to provide technical support to the co-operating funds to ensure the successful and credible operation of the Facility.

---

<sup>38</sup> For example, a consultant might be required to carry out an analysis of data from co-operating funds and their investments for reporting on indicators and conducting the knowledge management tasks.

139. In Asia, AsDB will act as co-Implementing Agency. In Africa, since the AfDB does not currently finance commercial investment funds, national public financial institutions that do so and are already active partners of AfDB or accepted by AfDB will be used as executing agencies. The executing agency's ability to execute GEF funds will be assessed as part of the due diligence process undertaken by the implementing and executing agencies. National public finance institutions could include, Cameroon National Investment Corporation, Development Bank of Southern Africa and others of a similar nature.

140. The final proposal prepared by the PMU for approval by the Management Committee will include: i) the enterprise development and seed finance activities that the cooperating fund proposes to implement; ii) the SCAF co-financing support package to be provided, including terms and conditions on disbursements and reporting; and iii) the due diligence report from the external auditor verifying that the fund entity has the appropriate capacity, management systems and legal authorities to carry out the proposed activities. It is expected that between 2 and 4 proposals will be submitted to the Management Committee per year.

141. In addition, consultation processes will be established when needed to advise on coherence with national policies and industry needs.

142. Any beneficiaries of the SCAF Facility will not be directly involved in the SCAF project management unit or the management committee. Care will be taken to ensure that funding decisions properly reflect the goals of the SCAF and the environment/clean energy mandates of the GEF, UNEP, AsDB and AfDB.

143. Executing Agencies will provide technical assistance and financing of seed capital investment. Local stakeholders including government agencies and the private sector will be consulted and made aware of the Facility and its achievements.

144. Prior to contracts, sub-contracts, or letters of agreement being entered into by UNEP/DTIE, UNEP/DTIE will submit to UNEP/DGEF Coordination copies of all these documents. Within ten working days, UNEP/DGEF Coordination will review, provide guidance and give UNEP/DTIE substantive clearance on the technical content of these contracts, sub-contracts and letters of agreement.

All correspondence regarding substantive and technical matters should be addressed to:

**At UNEP/DTIE:**

Mr. Eric Usher  
Division of Technology, Industry and Economics  
Tour Mirabeau  
39-43 quai André Citroën  
75739 Paris cedex 15  
France  
Tel: (33-1)4437-7614  
Fax: (33-1)4437-1474  
Email: Eric.Usher@unep.fr

**At UNEP/DGEF:**

Mr. Tom Hamlin  
Task Manager

GEF Coordination Unit  
39-43 quai André Citroën  
75739 Paris cedex 15  
France  
Tel: (33-1)4437-1472  
Fax: (33-1)4437-1474  
Email: Tom.Hamlin@unep.org

**With a copy to:**

Ms. Catherine Vallee  
Climate Change Coordinator  
Division of GEF Coordination  
P. O. Box 30552  
Nairobi, Kenya  
Tel: (254-20)-762-5076  
Fax: (254-20) 762-4041  
email: Catherine.Vallee@unep.org

Mr. Shafqat Kakakhel  
OIC, Division of GEF Coordination  
P. O. Box 30552  
Nairobi, Kenya  
Tel: (254-20)-762-4686  
Fax: (254-20) 762-4041  
Email: [Olivier.Deleuze@unep.org](mailto:Olivier.Deleuze@unep.org)

All correspondence regarding administrative and financial matters should be addressed to:

**At UNEP**

Mr. David G. Hastie  
Chief, Budget and Financial Management Service (BFMS)  
UNON  
P.O. Box 30552  
Nairobi, Kenya  
Tel: (254-20) 762-3821  
Fax: (254-20) 762-3797

**With a copy to:**

Ms. Elaine King  
Fund Management Officer  
Division of GEF Coordination  
P.O. Box 30552  
Nairobi, Kenya  
Tel: (254-20) 762-4605  
Fax: (254-20) 762-3162/762-4041/762-4042  
Email: Elaine.King@unep.org

**Evaluation**



147. Every year, UNEP/ DGEF Coordination will undertake a desk evaluation, to measure the degree to which the objectives of the project have been achieved. This will be in addition to the standard mid-term and final evaluations of the project per UNEP procedures in paragraphs 125-128 of Section 2 and the Monitoring, Evaluation and Reporting procedures outlined in Annex H as well as supervision missions conducted by the UNEP Task Manager and/or UNEP Fund Management Officer.

## **SECTION 5 - MONITORING AND REPORTING**

### **Management Reports**

#### **Progress Report**

148. Within 30 days of the end of the reporting period, UNEP/DTIE will submit a Half-yearly Progress Report to UNEP as at December 31, with a copy to Division of GEF Coordination, using the format given in Annex 3A.

149. The Inventory of Outputs/Services and the Inventory of Non-Expendable Equipment should be submitted with the Progress Report and the Final Report. The reports are due within 30 days of the end of each half-yearly period when submitted with a Progress Report or within 60 days of the completion of a project when submitted with a Final Report. The formats of the reports are given in Annex 3B and Annex 3C respectively.

#### **Final Report**

150. Within 60 days of the completion of the project, UNEP/DTIE will submit to Chief, Budget and Financial Management Service, with a copy to UNEP/DGEF Coordination, a Final Report detailing the activities taken under the project, lessons learned and any recommendations to improve the efficiency of similar activities in the future, using the format provided in **Annex 4**.

#### **Co-finance Report**

151. Within 30 days of the of the reporting period, UNEP/DTIE shall submit to UNEP/DGEF Coordination, a co-financing report for the project using the format provided in **Annex 1C** showing:

- (a) Amount of co-financing realized compared to the amount of co-financing committed to at the time of project approval, and
- (b) Co-financing reporting by source and by type.
  - ◆ Sources include the agency's own co-financing, government co-finance (counterpart commitments), and contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector, and beneficiaries.
  - ◆ Types of co-finance. Cash includes grants, loans, credits and equity investments. In-kind resources are required to be:
    - dedicated uniquely to the GEF project,
    - valued as the lesser of the cost and the market value of the required inputs they provide for the project, and monitored with documentation available for any evaluation or project audit.

### **Terms and Conditions**

#### **Responsibility for Cost Overruns**

152. Any cost overruns (expenditures in excess of the amount in each budget sub-line) shall be met by UNEP/DTIE as it is responsible for authorizing the expenditure, unless written agreement has been received in advance from UNEP/DGEF Coordination. In cases where UNEP/DGEF Coordination has indicated its agreement to a cost overrun in a budget

sub-line to another, or to increase the total cost to UNEP, a revision to the project document amending the budget will be issued by UNEP/DGEF Coordination.

**Terrorism Finance Provisions**

153. The United Nations Security Council Resolution 1373 of 28 September 2001 on the fight against terrorism shall be adhered to by the Executing Agency, failure to which shall without prejudice to other legal actions, lead to the immediate cancellation of the project.

**Amendments**

154. The Parties to this project document shall approve any modification or change to this project document in writing.

## **ANNEX 1A - BUDGET IN UNEP FORMAT**

EXPENDITURE BY CALENDAR YEAR							
UNEP BUDGET LINE/OBJECT OF EXPENDITURE	2007	2008	2009	2010	2011	2012	Total
	US\$	US\$	US\$	US\$	US\$	US\$	US\$
<b>10 PROJECT PERSONNEL COMPONENT</b>							
<b>1100 Project Personnel w/m</b>							
1101 REFU support	17,000	17,000	17,000	33,000	33,000	33,000	150,000
1199 Sub-Total	17,000	17,000	17,000	33,000	33,000	33,000	150,000
<b>1200 Consultants w/m</b>							
1201 PMU Project Management	55,000	55,000	55,000	55,000	55,000	55,000	330,000
1202 Enterprise Dev. TA; Project Support	75,000	75,000	52,500	45,000	45,000	45,000	337,500
1203 Sub-Total	0	0	0	0	0	0	0
1299 Sub-Total	130,000	130,000	107,500	100,000	100,000	100,000	667,500
<b>1600 Travel on official business (UNEP s</b>							
1601 Project Staff Travel	10,000	5,000	5,000	5,000	5,000	10,000	40,000
1603							0
1699 Sub-Total	10,000	5,000	5,000	5,000	5,000	10,000	40,000
<b>1999 Component Total</b>	<b>157,000</b>	<b>152,000</b>	<b>129,500</b>	<b>138,000</b>	<b>138,000</b>	<b>143,000</b>	<b>857,500</b>
<b>20 SUB-CONTRACT COMPONENT</b>							
<b>2100 Sub-contracts (MoU's/LA's for cooperating and supporting agencies)</b>							
2101 Asian Funds	3,000,000	1,000,000	40,000	40,000	40,000	80,000	4,200,000
2102 Asian Dev. Bank Administration fee	150,000	50,000	2,000	2,000	2,000	4,000	210,000
2103 African Funds	700,000	1,349,047	420,000				2,469,047
2104 African National Dev. Bank fees	35,000	67,452	21,000				123,452
2199 Sub-Total	3,885,000	2,466,500	483,000	42,000	42,000	84,000	7,002,500
<b>2999 Component Total</b>	<b>3,885,000</b>	<b>2,466,500</b>	<b>483,000</b>	<b>42,000</b>	<b>42,000</b>	<b>84,000</b>	<b>7,002,500</b>

<b>30</b>	<b>TRAINING COMPONENT</b>							
<b>3300</b>	<b>Meetings/conferences</b>							
3301	Country Consultations	35,000	35,000	35,000	10,000	15,000	20,000	150,000
3302	Other meetings	11,000	11,000	11,000	11,000	11,000	25,000	80,000
3399	Sub-Total	46,000	46,000	46,000	21,000	26,000	45,000	230,000
<b>3999</b>	<b>Component Total</b>	46,000	46,000	46,000	21,000	26,000	45,000	230,000
<b>40</b>	<b>EQUIPMENT &amp; PREMISES COMPONENT</b>							
<b>4100</b>	<b>Expendable equipment (items under</b>							
4199	Total	0	0	0	0	0	0	0
<b>4200</b>	<b>Non-expendable equipment</b>							
	<b>(computers, office equip, etc)</b>							
4201	Printer/scanner	0						0
4299	Sub-Total	0	0	0	0	0	0	0
<b>4300</b>	<b>Premises (office rent, maintenance</b>							
	<b>of premises, etc)</b>							
4301	office rent	4,000	10,000	10,000	8,000	6,000	6,000	44,000
4399	Sub-Total	4,000	10,000	10,000	8,000	6,000	6,000	44,000
<b>4999</b>	<b>Component Total</b>	4,000	10,000	10,000	8,000	6,000	6,000	44,000
<b>50</b>	<b>MISCELLANEOUS COMPONENT</b>							
<b>5100</b>	<b>Operation and maintenance of</b>							
	<b>equip.</b>							
5101	Rental & maint. of computer equip.	1,000	1,000	1,000	1,000	1,000	1,000	6,000
5199	Sub-Total	1,000	1,000	1,000	1,000	1,000	1,000	6,000
<b>5200</b>	<b>Reporting costs (publications,</b>							
	<b>maps,</b>							
	<b>newsletters, printing, etc)</b>							
5201	SCAF Publications, Newsletters	30,000	20,000	10,000	10,000	10,000	20,000	100,000
5299	Sub-Total	30,000	20,000	10,000	10,000	10,000	20,000	100,000
<b>5300</b>	<b>Sundry (communications, postage,</b>							
	<b>freight, clearance charges, etc)</b>							
5301	Sundry (communications, postage.)	3,000	3,000	3,000	3,000	4,000	4,000	20,000
5399	Sub-Total	3,000	3,000	3,000	3,000	4,000	4,000	20,000

<b>5500</b>	<b>Evaluation (consultants fees/travel/ DSA, admin support, etc.)</b>							
5501	Monitoring and Evaluation	10,000	15,000	40,000	15,000	15,000	45,000	140,000
5599	Sub-Total	10,000	15,000	40,000	15,000	15,000	45,000	140,000
<b>5999</b>	<b>Component Total</b>	44,000	39,000	54,000	29,000	30,000	70,000	266,000
<b>TOTAL COSTS</b>		4,136,000	2,713,500	722,500	238,000	242,000	348,000	8,400,000

## Annex 1B - Budget by Activity

	GEF	UNF	Fund Investments	Fund Managers	UNEP/As DB/AfDB	Cofinance	Total
Establish the Facility	0				380,000	380,000	380,000
Create Seed Windows	970,000	78,000		400,000	360,000	838,000	1,808,000
Operate the Facility	6,610,000	400,000	50,900,000	1,100,000	260,000	52,660,000	59,270,000
Mgt and Outreach	820,000	222,000			370,000	592,000	1,412,000
Total FSP	8,400,000	700,000	50,900,000	1,500,000	1,370,000	54,470,000	62,870,000

### Notes on Project Finance table:

- The fund investments co-finance figure in this table is based on the worst case co-finance figures in Annex F2 (the \$10.8mn figure from Box #1 plus the \$40.1 mn figure from Box #2). These minimum cofinancing ratios will be contractually set with cooperating fund managers, therefore none will co-finance less than the worst case and it is assumed that a number will co-finance much more. The PMU will continuously monitor and report on co-finance achieved.
- It is expected that fund managers of each fund will provide in-kind contribution, which is estimated at approximately \$150,000-200,000 per fund.
- It is envisaged that approximately 60% of the SCAF fund will be allocated to enterprise development cost sharing, while 40% of the fund will be used for Seed Capital Subsidy. See some indicative allocation for each fund in *Annex D: Pipeline of Prospective SCAF Funds*.
- The cost for the PMU is based on the following estimation: The project manager will be 2/3 Full Time equivalent in yrs 2006 - 2009 and 1/6 Full Time equivalent thereafter. This position will be cost-shared by UNF in years 2006 – 2009. The AsDB Investment Specialist will contribute 20% of their time (in-kind). Additional consultants will be hired for specific support tasks, as needed. At UNEP/REFU, a small personnel commitment will be required to support project coordination activities (half time in years 1 – 3; quarter time thereafter).
- UNEP In-Kind Consists of: UNEP Core staff working on SCAF development and implementation (1/4 P4 + 1/10 P5 + 1/4 G6 = \$510,000); and project staff time working on REED Programme implementation funded by UNF, SIDA and BMZ (\$460,000). The associated \$9.5 million deployed in the on-going AREED, B-REED and CREED projects have and will continue to provide support relevant to the REED SCAF project objectives



## ANNEX 1C - UNEP/GEF REPORT ON PLANNED PROJECT CO-FINANCE AND ACTUAL CO-FINANCE RECEIVED

(report required as at 30 June and 31 December during project execution)

<b>Title of Project:</b>							
<b>Project Number:</b>		PMS:GF/			IMIS:GFL-2328-		
<b>Name of Executing Agency:</b>							
<b>Project Duration:</b>		<b>From:</b>			<b>To:</b>		
<b>Reporting Period:</b>							
Source of Co-finance	Cash Contributions			In-kind Contributions			Comments
	Budget original	Budget latest revision	Received to date	Budget original	Budget latest revision	Received to date	Received to date
<b>Additional Co-finance:-</b>							
<b>Total</b>		0	0	0	0	0	0
<i>All amounts in US dollars</i>							
<b>Name:</b>							
<b>Position:</b>							
<b>Date:</b>							

## **ANNEX 2 - WORKPLAN AND TIMETABLE**

Months 1-3:	contractual and administrative arrangements
Months 1-6:	letters of intent signed with at least three potential cooperating funds
Months 1-6:	promotion of Facility and expansion of fund pipeline
Month 6:	progress and activity report
Months 4-12:	negotiation of first fund agreements (i.e., agreement on terms/conditions)
Month 12:	progress and activity report
Month 13:	completion of first fund agreement (i.e., due diligence, approval, contracting)
Months 8-24:	second round of fund agreements
Month 25:	completion of second round of fund agreement
Month 34:	commencement of first independent evaluation
Month 36:	completion of final fund agreements
Months 37:	administration and monitoring phase
Month 38:	completion of first independent evaluation
Month 66	final evaluation
Month 72	project closure

# ANNEX 3A - Format for Half Yearly Progress Report

As at 30 June and 31 December  
 (Please attach a current Inventory of Outputs/Services and  
 Inventory of Non-Expendable Equipment when submitting this report)

## 1. Background Information

1.1 Project Number:

1.2 Project Title:

1.3 Division/Unit:

1.4 Coordinating Agency or Supporting Organization (if relevant):

1.5 Reporting Period (the six months covered by this report):

1.6 Relevant UNEP Programme of Work (2002-2003) Subprogramme No:

1.7 Staffing Details of Cooperating Agency/ Supporting Organization (Applies to personnel / experts/ consultants paid by the project budget):

Functional Title	Nationality	Object of Expenditure (1101, 1102, 1201, 1301 etc..)

1.8 Sub-Contracts (if relevant):

Name and Address of the Sub-Contractee	Object of Expenditure (2101, 2201, 2301 etc..)

## 2. Project Status

2.1 Information on the delivery of outputs/services

	Output/Service (as listed in the approved project document)	Status (Complete/ Ongoing)	Description of work undertaken during the reporting period	Description of problems encountered; Issues that need to be addressed; Decisions/Actions to be taken
1.				
2.				
3.				

2.2 If the project is not on track, provide reasons and details of remedial action to be taken:

### 3. Discussion acknowledgment

<b>Project Coordinator's General Comments/Observations</b>	<b>First Supervising Officer's General Comments</b>
Name: _____ Date: _____ Signature: _____	Name: _____ Date: _____ Signature: _____

## Annex 3B - Attachment to Half-Yearly Progress Report: Format for Inventory of Outputs/Services

### a) Meetings (UNEP-convened meetings only)

No	Meeting Type <sup>4</sup>	Title	Venue	Dates	Convened by	Organized by	# of Participants	List attached Yes/No	Report issued as doc no	Language	Dated
1.											
2.											
3.											

### List of Meeting Participants

No.	Name of the Participants	Nationality
1.		
2.		

### b) Printed Materials

No	Type <sup>5</sup>	Title	Author(s)/Editor(s)	Publisher	Symbol	Publication Date	Distribution List Attached Yes/No
1.							
2.							

<sup>4</sup> Meeting types (Inter-governmental Meeting, Expert Group Meeting, Training Workshop/Seminar, Other)

<sup>5</sup> Material types (Report to Inter-governmental Meeting, Technical Publication, Technical Report, Other)

**c) Technical Information / Public Information**

No	Description	Date
1.		
2.		
3.		

**d) Technical Cooperation**

No	Type <sup>6</sup>	Purpose	Venue	Duration	For Grants and Fellowships		
					Beneficiaries	Countries/Nationalities	Cost (in US\$)
1.							
2.							

**e) Other Outputs/Services (e.g. Networking, Query-response, Participation in meetings etc.)**

No	Description	Date
1.		
2.		
3.		

<sup>6</sup> Technical Cooperation Type (Grants and Fellowships, Advisory Services, Staff Mission, Others)

## ANNEX 3C - Attachment to Half Yearly Progress Report

### FORMAT OF INVENTORY OF NON-EXPENDABLE EQUIPMENT PURCHASED AGAINST UNEP PROJECTS

UNIT VALUE US\$1,500 AND ABOVE AND ITEMS OF ATTRACTION

Project title:.....

Implementing Agency .....

Internal/SO/CA (UNEP use only).....

FPMO (UNEP use only).....

Description	Serial No.	Date of Purchase	Original Price US\$	Present Condition	Location	Remarks Recommendation for disposal

The physical verification of the items(s) above was done by: Name .....

(Duly authorized official)

Title: .....

Signature: .....

Date: .....

# ANNEX 4 - FINAL REPORT

## 1. Background Information

- 1.1 Project Title:
- 1.2 Project Number:
- 1.3 Responsible Divisions/Units in UNEP:
- 1.4 Project starting date:
- 1.5. Project completion date:
- 1.6 Reporting Period:
- 1.7 Reference to UNEP/DGEF Sub-programmes and expected accomplishments:
- 1.8 Overall objectives of the project: (maximum quarter of a page)
- 1.9 Total Budget (US\$): (specify contributions by donor/s)
- 1.10 Partners and leveraged resources:  
Describe collaboration with partners. Specify supporting organizations as well as cooperating agencies and state their role.  
List the additional resources leveraged (beyond those committed to the project itself at time of approval) as a result of the project (financial and in-kind)

## 2. Project Status

### 2.1 Information on the delivery of the project

Activities/Outputs (as listed in the project document)	Status (complete/ongoing)	Results/Impact (measured against the performance indicators stated in the project document)
1.		
2.		



2.2 List lessons learned and best practices

2.3 State how the project has nurtured sustainability. Is the project or project methodology replicable in other countries or regions? If yes, are there any concrete examples or requests?

**3. List of attached documents**

(for example: publications, reports of meetings/training seminars/workshops, lists of participants)....

<b>Name and Title of Project Coordinator:</b>		<b>Name of Division Director:</b>	
<b>Signature:</b>	<b>Date:</b>	<b>Signature:</b>	<b>Date:</b>

## Annex A - Incremental Cost Matrix

Project Activity	Baseline	Alternative	Increment
<b>Establish and Operationalize the Seed Capital Assistance Facility (SCAF) and monitor the project</b>	Financiers remain unengaged in the <i>sustainable energy sectors</i> in target regions due to the limited availability of mature investment opportunities. They therefore will continue to invest available resources in fully commercial fossil fuel based energy projects.	<p>Financiers will set up specialised clean energy funds including early stage seed investment windows.</p> <p>Dedicated seed capital windows will invest in, and provide enterprise development services to, small scale sustainable energy projects. These initial investments subsequently become the pipeline of investment opportunities for later stage more commercial clean energy investments.</p> <p>The diverted baseline implies that the funds financiers were previously investing in fossil fuel energy projects will now be invested instead in low GHG energy projects.</p>	<p>Helping fund managers set up new clean energy funds with early stage seed windows to invest in and help develop clean energy SMEs.</p> <p>By providing enterprise development cost sharing and Seed Capital Subsidy, sustainable energy SMEs are able to deliver acceptable risk-adjusted returns to the mainstream investment community. This therefore leads to both seed scale investment, and follow-on commercial investment in clean energy projects.</p>
<b>Costs ('000 US \$)</b>	<p><b>“Business as usual” energy investment scenario: Investment in fully commercial, fossil fuel-based energy technologies.</b></p> <p style="text-align: right;"><b>Total \$52,400</b></p>	<p style="text-align: right;"><b>\$52,400</b></p> <p><b>Total Incremental \$10,920</b></p> <p style="text-align: right;"><b>Total \$63,320</b></p>	<p style="text-align: right;"><b>GEF \$8,400</b> <b>PDFB \$300</b> <b>UNF \$700</b> <b>UNEP-in-kind \$970</b> <b>ADB, RDB \$400</b> <b>PDFB donors \$150</b></p> <p style="text-align: right;"><b>Total Incremental \$10,920</b></p>

<b>Global Environmental Benefits</b>	Investment in sustainable energy SMEs in targeted countries/ regions continues to be limited. New energy capacity additions mostly met by conventional fossil fuel sources, resulting in increased GHG emissions.	Investment yielding between 2.3 and 6.1 million tons of CO2 emissions reductions <i>over a twenty year period</i> <sup>39</sup> .	Increment is equivalent to the diverted baseline.
<b>Local Benefits</b>	<p>Little or no financing provided to local sustainable energy entrepreneurs.</p> <p>Access to energy remains limited especially in rural/ peri-urban areas.</p> <p>Most of the energy demands in targeted region/countries will continue to be met by traditional biomass fuels, causing local air pollution and health problems.</p>	<p>Local capacity of sustainable energy SMEs and financial institutions are increased resulting in increased local economic development, creation of new employment opportunities and availability of investment for sustainable energy technologies services.</p> <p>Improved access to energy in rural /peri-urban areas.</p> <p>The main non-financial impacts include: avoided deforestation (or reforestation), job creation, waste utilisation, avoided environmental impacts of traditional charcoal production, avoided health/environmental impacts of traditional fuel use, labour/time savings, increased personal/household income, electricity savings, cost savings, fossil fuel substitution, empowerment of women, electricity supply, and health benefits of reliable water supply and infrastructure improvement.</p>	<p>Increased investment in sustainable energy sector and increased capacity of local SMEs and financial institutions for such investment.</p> <p>Increased sustainable energy services/ products made available and brought on-line.</p>

<sup>39</sup> see Annex F2: SCAF Leverage Calculations

## Annex B - Logical Framework Analysis

SUMMARY	INDICATORS	MEANS OF VERIFICATION	EXTERNAL FACTORS (Assumptions)
<b>Global Objective</b>			
Energy related CO <sub>2</sub> emissions are reduced through promotion of renewable energy projects.	<p>GHG emissions mitigated through reduced fossil fuel based energy consumption in targeted regions (target 2.3 Mt CO<sub>2</sub> over 20 yrs). While the replication of similar activities could be more than double that estimated here, a causality factor of less than half is assumed.</p> <p>Amount of total seed/growth investment mobilized in SE projects (Target: US \$67 million)</p>	<p>Project M+E reports Annual reports of energy investment funds.</p>	<p>In spite of high costs and risks associated with small-scale renewable energy projects, investment capital interest exists in the niche markets in targeted regions.</p>
<b>Outcomes</b>			
<p>Increased access to financing for early stage sustainable energy enterprises and projects in target regions.</p> <p>Increased experience amongst financiers for investing in small scale renewable energy / energy efficiency projects.</p> <p>Mainstreaming of seed capital into commercial energy finance approaches, whereby seed portfolios become <i>pipeline development tools</i> for later stage commercial investing.</p> <p>A new breed of indigenous clean energy enterprises established offering a range of GHG mitigating projects, products and services</p>	<p>Number of seed finance windows created within new or existing funds (target: 4 to 6 by mid project); Increase in volume of direct seed transactions (Target: US \$14 million)</p> <p>The increase in number of SE investments in targeted countries (Target: 134 during fund execution to end of project)</p> <p>Amount of clean energy provided by new SE projects (Target: 52MW<sub>e</sub> and 160 GWh/yr). GHG reductions resulting from seed capital transactions will be 0.4 million tonnes (within the investment deployment period and over the life of equipment). Amount resulting from 2<sup>nd</sup> stage investments will be 1.9 million tonnes.</p>	<p>Market surveys (of local energy/IPP associations)</p> <p>Project management and M+E reports Annual /Performance reports of respective clean energy funds and their respective GHG reductions.</p>	<p>SMEs and IPPs are well positioned to develop viable enterprises and projects in the clean energy sector in the target markets.</p>

<b>Project sub-components</b>	<b>Outputs</b>	<b>Indicators</b>	<b>Means of verification</b>	<b>Assumptions</b>
Establish the Facility and Develop the Operation Modalities	Governance structures for the management of the Facility and the project in place. Detailed operational parameters of the Facility defined, including the procedures and documentation related to the steps of: Proposal, Letter of Intent, Due Diligence, Approval, Agreement on Terms and Conditions, Contracting and Operating.		Project annual report, M+E reports.  Project annual report, M+E reports	
Support for creating "Seed Windows" in New Sustainable Energy Funds (TA)	New sustainable energy funds and seed finance windows created and through them enterprise development support and seed capital provided to sustainable energy SMEs and projects; Capital mobilized from new investors	Number of seed windows created in existing or new funds.	Project reports, M+E reports Annual report and performance report of the funds	There are niche opportunities in sustainable energy sub sector in certain market; and Financial institutions / investors are interested in investment in clean energy sector and SMEs.
SCAF Facility Operations	Sustainable energy entrepreneurs trained and commercially viable projects and SMEs created to provide cleaner energy and energy services; Co-opted seed capital investments made in such enterprises; and Services and products offered by SMEs with direct (cleaner energy supplied) and indirect economic, environmental and social benefits.	Numbers of projects/SMEs financed, Amount of finance disbursed to sustainable energy projects/SMEs; documentation of services and benefits yielded by projects/SMEs; number of households served; direct GHG emission reductions.(for targets of individual indicators, refer to the above "indicators for outcomes").	Project reports, M+E reports Annual report and performance report of the funds Commissioned studies  GHG emission reductions reporting by entrepreneurs  Project's management reports; M+E reports Outreach material Commissioned studies	

<p>Management Review and Dissemination</p>	<p>Performance of the Facility and individual seed capital investment projects are monitored and evaluated; other impacts and benefits of the project monitored and evaluated; and best practices and lessons learned disseminated among key stakeholders.</p>	<p>-Share of SCAF seed financed SMEs that graduate to second stage financing (target = 20% - 30%). A further 50% to 60% stay small, but meet most of their financing obligations. 20% are expected to be outright failures.          -Amount of co-financing on SCAF pipeline (\$50.9 million or a project co-finance ratio of 6.3 times the GEF contribution.)          -Transaction cost efficiency gains</p>		
--	--	---	--	--

# **Annex C1 - STAP Roster Review**

## **PROJECT PROPOSAL REVIEW by Prof. Anton Eberhard**

### **UNEP/GEF**

### **RENEWABLE ENERGY ENTERPRISE DEVELOPMENT**

### **SEED-CAPITAL ASSISTANCE FACILITY**

---

#### **1. TECHNICAL SOUNDNESS OF THE PROJECT**

The project correctly identifies financing as one of the important barriers to more widespread renewable and energy-efficiency markets. Small and medium enterprises involved in delivery of sustainable energy products and services struggle to access sufficient capital at an affordable cost. Debt financiers and equity investors have insufficient awareness, experience and knowledge of these new markets and see them, at best, as risky, with low returns likely in the early stages of market development. The transaction costs in assessing and preparing these projects for financing and investment are also seen as high.

In general, this is a correct diagnosis of the barriers – although the project does not differentiate between renewable energy and energy efficiency markets, or between specific technology or market areas. Some markets are likely to be more mature than others – with different risk profiles. A number of energy efficiency markets, for example, are generally more developed and commercial finance has been attracted into specific product lines such as energy-efficient lighting or ESCOs that specialise in specific market applications. The instrument that has often been used to attract mainstream finance into the latter applications is a partial risk guarantee which eases banks’ apprehension around these new markets. As they gain experience, and as they develop specialised financial products, then the risk guarantee can be removed or shifted to new market transformation areas.

This project focuses on a different financial instrument. Through the creation of a Seed-Capital Assistance Facility (SCAF) the project seeks to assist indigenous energy entrepreneurs initiate viable sustainable energy businesses thereby demonstrating to investors and lenders that these are viable investment opportunities. Early stage, venture capital is difficult to raise for small and medium enterprises in developing countries and doubly so for those enterprises seeking to deliver sustainable energy services and products. This kind of early seed-capital has mostly been provided by “soft money” from foundations or donor agencies in the past. For a step-change in expanding finance for this area it is vital that mainstream lenders and investors be involved in these early stages of project finance. The project aims to build experience and commitment amongst conventional investors whereby they come to see seed portfolios as a pipeline development tool for later stage commercial investing.

Seed-capital might well be the appropriate financial instrument to transform sustainable energy markets. However, the proposal should motivate why they have chosen this instrument versus other approaches, such as time-limited partial risk guarantees.

There should also, perhaps, be a clearer delineation of markets. The seed-capital approach to market transformation may be best suited for specific renewable energy markets – rather than

more mature energy efficiency markets. GEF is committed to pioneering new, innovative approaches. It is broadly recognised that more success has been achieved to date in their energy efficiency portfolio. The implication is that additional effort needs to be given to exploring new approaches to creating and transforming renewable energy markets. It may be a good idea to state that this proposal will focus predominately on renewable energy markets.

The focus on seed-capital is probably correct for most small renewable energy enterprises. E&Co, with their enterprise development model offering a combination of business development support and start-up seed financing, have shown that the focus in the early stages should not be only, or even primarily, on maximising returns. What is needed is for the enterprise to perform as planned, to repay their obligations and to be positioned to grow. Returns can grow as markets are transformed and as enterprises begin to access commercial finance.

SCAF funds seek to overcome two specific barriers: higher transaction costs and lower return expectations which hinder commercial lenders and investors from supporting emerging sustainable energy enterprises. Firstly, SCAF will cost share with investors, on a portfolio basis, the enterprise development and transaction costs associated with preparing sustainable energy project investments. Secondly, SCAF will provide a set of time-limited payments to make up the difference between the financial returns required by mainstream financiers and the likely lower IRRs of sustainable energy projects in the early years of market development. These two types of support would be conditional on mainstream financiers gradually expanding their involvement in early stage, seed-capital transactions – with the hope that these financial markets would be successfully transformed once substantial project pipelines are built for second-stage or growth capital.

Clearly, much detail will still need to be worked out and the structure and substance of SCAF agreements with mainstream funds will be crucial in establishing fair and reasonable compensation for additional transaction costs and the actual difference between project returns and investor expectations and requirements. A key issue will be the fair allocation of risks and distribution of rewards and earnings.

The project envisages four main activities:

1. *Establishment of SCAF and its operating modalities.* This activity is clearly spelt out and is an obvious first task.
2. Support and technical assistance for the development of new sustainable energy funds. There seems to be much opportunity in this area. New, specialist fund managers are emerging that plan to focus on sustainable energy markets. The trick is being able to attract mainstream capital into these funds. SCAF assistance should be made conditional on these specialist funds being able to attract the commitment of large commercial banks and equity funds. It will also be important for these mainstream financiers to sit on the Boards of these specialist funds and, critically, on their investment committees – in order to build understanding and experience which can be taken back into their own organisations. SCAF needs to catalyse a quantum increase in financial flows to this sector.
3. *Transaction cost-sharing and capital cost subsidy* for a period of three to five years to encourage commercial funds to set aside 5 to 15% of total capital for earlier stage, seed investing. This is an interesting proposal, although it will require a great deal of work to encourage large commercial banks and equity funds to move into this area. Sufficient resources need to be devoted to SCAF “deal-making” with finance houses. The precise modalities for transaction cost-sharing and returns enhancement still need



to be finalised. Estimated transaction costs seem very high and there would seem to be a strong argument for approaches that seek to develop specialised financial products for specific market segments.

The other crucial element is *enterprise support*. Experience shows that this kind of hand-holding is vital in the early stages of business and market development, including support around core business skills, financial budgeting and planning, accounting systems, marketing, etc. The proposal states that this function will be undertaken by the various seed fund managers. The proposal is not clear how the experience developed by E&Co and REED will be shared with these fund managers. Project resources will surely have to be devoted to this activity (indirectly to the fund managers), and this is not an inexpensive activity.

4. Monitoring and evaluation. This is vital in order to document accurately the structure and performance of the deals, and the lessons learned, as a basis for replicating this approach elsewhere.

A word on E&Co's role. They appear to be co-developers of this proposal. They will assist UNEP in setting up SCAF. But they are also potential users of SCAF. The project does state that funds will not be dedicated exclusively to E&Co or their affiliates. However, a clear governance mechanism needs to be established which allows funds to compete for SCAF support on a non-discriminatory basis.

It is not clear to the reviewer how the co-financing figures for commercial finance were derived.

This project represents a welcome move away from technology demonstration to seed-capital investing where entrepreneurs are assisted in innovating, refining their business models and growing their markets.

## **2. GLOBAL ENVIRONMENTAL BENEFITS**

This section of the project proposal is not very well developed. It is clear that expanded investments in energy efficiency or renewable energy projects will save or avoid CO<sub>2</sub> emissions and hence assist the global effort to mitigate global warming. GEF is in the process of developing more detailed guidelines on how to calculate direct and indirect CO<sub>2</sub> saved or avoided. GEF is under increasing pressure to be more precise in documenting and monitoring project GHG targets. It is recommended that the project proposers interact with the GEF secretariat in developing a more credible and robust estimation of direct and indirect GHG impacts.

## **3. FIT WITH GEF GOALS AND OPERATIONAL STRATEGIES**

There is no doubt that this project falls firmly within GEF's focal area, its operational programs and its strategic priorities. Renewable energy (OP6) and energy efficiency (OP5) continue to dominate the GEF portfolio and will remain important in the future. The project is directly concerned with barrier removal – the core concern of these two operational programs. The project clearly also responds to a number of GEF strategic priorities, especially SP2 – increasing access to local sources of finance. GEF is working on an overall strategic framework that emphasizes its overall mission of transforming sustainable energy markets to reduce or avoid GHG emissions. Market transformation is supported by enabling policies, access to finance, adequate business systems, information and awareness, and

technical capability and innovation. This project clearly supports market transformation activities in finance and business support, as well as information and awareness.

#### **4. REGIONAL CONTEXT**

The project focuses on Central America, Sub-Saharan Africa and Asia. Cameroon, Thailand, Cambodia, Vietnam, Indonesia, Phillipines, El Salvador, Honduras, Nicaragua, Panama, Guatemala, Belize and Costa Rica are listed as requesting countries. The project proposers should be aware of the debates in GEF around performance based allocation of GEF funds and the need to target GEF mitigation efforts in those countries that have the greatest potential for GHG savings or avoidance. While these debates in GEF have sparked much controversy and argument, and the debate is far from settled, it is likely that GEF funds will be more targeted in future. The project document should make more explicit which countries and will be targeted and why.

#### **5. PROJECT REPLICABILITY**

The project expands the work of E&Co and REED into new regions and in that sense serves to replicate earlier success. However, the project also extends this approach in order to catalyze commercial debt and equity funds to provide early-stage seed-capital support for sustainable energy enterprises. If the project is successful then it has great potential for replicability in other countries and regions.

#### **6. PROJECT SUSTAINABILITY**

The sustainability of the project is dependent on persuading commercial debt and equity funds to become involved in early seed-capital support for emerging sustainable energy enterprises. The two barrier removal instruments of transaction cost-sharing and time-limited returns-enhancement are designed to achieve just that. Project support is conditional on commercial capital dedicating a percentage of their funds for seed-capital support. If these projects mature and later access growth capital – then many of these commercial funds might be incentivized to continue providing seed-capital support, even if transaction costs are high and initial returns are low.

#### **7. SECONDARY ISSUES**

- **Linkages with other focal areas**

Some renewable energy projects will focus on biomass production or more efficient utilisation of biomass – and in that respect this project will be supportive of the cross-sectoral area of land degradation.

- **Links to programs and actions plans at the sub-regional level**

The project mentions a number of possible linkages with other GEF supported projects. Most of these possibilities seem tentative and the project proposal might want to be more definite in its commitment to complement other relevant projects. This lack of project co-ordination at the country or regional level is a common problem – and yet effective partnerships can create a synergy which yields multiple benefits to the host country.

- **Stakeholder involvement**

A wide range of stakeholders have been consulted, but many of these are government departments, NGOs and development banks. A critical set of stakeholders are commercial lenders and equity fund managers. The project's success rests on their active participation in this project. The proposal should highlight these interactions and any early commitments to be involved.

- **Capacity building**

The project will provide technical assistance to establish seed-capital funds.

It is not clear to the reviewer whether the project will also provide back-up support to these funds in their enterprise support functions.

- **Innovation**

None of the barrier-removal mechanisms proposed are entirely new. However, there is no widespread involvement of commercial debt and equity finance in early-stage seed-capital support for emerging renewable energy enterprises in developing countries. The project's attempt to catalyze the involvement of commercial capital in this area is innovative and deserves support.

## Annex C2 - Response to STAP Roster Review

### Renewable Energy Enterprise Development – Seed Capital Assistance Facility (FSP OP 6) IMPLEMENTING AGENCY: UNEP

#	Comments	Response
	<p><b><u>Technical Soundness of Project</u></b></p>	
1	<p>In general, this is a correct diagnosis of the barriers – although the project does not differentiate between renewable energy and energy efficiency markets, or between specific technology or market areas. There should perhaps, be a clearer delineation of markets. The seed-capital approach to market transformation may be best suited for specific renewable energy markets – rather than more mature energy efficiency markets.</p>	<p>Some precision has been added to the brief to address this very valid point. It is expected that the SCAF supported funds will mostly focus on the RE markets. However some energy efficiency technologies and services also have strong potential in developing countries and still have to mature into commercial markets. Early stage seed capital can therefore still play an important role. In the AREED programme about 30% of the enterprises financed have been in the energy efficiency sector, in the areas of cook stoves, efficient lighting and power factor correction.</p>
2	<p>Seed-capital might well be the appropriate financial instrument to transform sustainable energy markets. However, the proposal should motivate why they have chosen this instrument versus other approaches, such as time-limited partial risk guarantees.</p>	<p>Other possible GEF mechanisms were considered during project preparation phase, including partial risk guarantees, contingent grants, and direct financing instruments (eg SDG, PVMTI, REEF). For the early stage seed capital sector, the only other mechanism that could realistically be employed is the direct financing approach, typically applied through dedicated investment funds managed by commercial fund managers. The dedicated funds approach is more risky since the GEF capital must be supplied up-front, and cannot be diversified across a number of fund entities in the way that SCAF support can. Using GEF capital as dedicated investment funds could still be effective, however this would not specifically help mainstream seed capital investing into commercial finance approaches, and therefore is seen as the baseline situation that this project is trying to build on.</p>
3	<p>Much detail will still need to be worked out and the structure and substance of SCAF agreements with commercial funds will be crucial in establishing fair and reasonable compensation for additional transaction costs and the actual difference between project returns and investor expectations and requirements.</p>	<p>Agreed. This issue will be at the core of the process to develop and define SCAF terms and conditions, and in the eventual negotiations with each fund manager. Some more information on this process has been added to the project brief.</p>
4	<p>The proposal is not clear how the experience developed by E+Co and REED will be shared with these fund</p>	<p>Activity 2 will be focused on supporting the development of new energy funds, and specifically helping fund managers integrate the</p>

	<p>managers. Project resources will surely have to be devoted to this activity (indirectly to the fund managers), and this is not an inexpensive activity.</p>	<p>seed finance approach into their more commercial investment strategies. Much of this work will involve transferring the experience on enterprises development and seed financing from E+Co and the REED programmes. Some useful documentation already exists, and others will be developed.</p>
5	<p>A word on E&amp;Co's role. They appear to be co-developers of this proposal. They will assist UNEP in setting up SCAF. But they are also potential users of SCAF. The project does state that funds will not be dedicated exclusively to E&amp;Co or their affiliates. However, a clear governance mechanism needs to be established which allows funds to compete for SCAF support on a non-discriminatory basis.</p>	<p>A governance mechanism will be structured to allow any fund manager equal access to SCAF support, based on a clear set of criteria and required deliverables (eg defining the sort of enterprise development services that will need to be provided to local entrepreneurs). E+Co has demonstrated how these services can form an integral element of an energy investment strategy, and therefore they will be used to demonstrate the overall approach and the SCAF contractual relationship. This demonstration will provide clarity to the broader investment community, and will help then bring a broad array of fund managers on board.</p>
6	<p>It is not clear to the reviewer how the co-financing figures for commercial finance were derived.</p>	<p>We have tried to more clearly detail these calculations in the brief. These calculations are based on the experiences of the REED and E+Co portfolio of activities.</p>
	<p><b><u>Global Environmental benefits</u></b></p>	
7	<p>GEF is in the process of developing more detailed guidelines on how to calculate direct and indirect CO2 saved or avoided. GEF is under increasing pressure to be more precise in documenting and monitoring project GHG targets. It is recommended that the project proposers interact with the GEF secretariat in developing a more credible and robust estimation of direct and indirect GHG impacts.</p>	<p>We have now received the beta version of the CO2 methodology from GEFSec, and will look to apply it to this project as it goes forward.</p>
8	<p><b><u>Regional Context</u></b> The project proposers should be aware of the debates in GEF around performance based allocation of GEF funds and the need to target GEF mitigation efforts in those countries that have the greatest potential for GHG savings or avoidance. While these debates in GEF have sparked much controversy and argument, and the debate is far from settled, it is likely that GEF funds will be more targeted in future. The project document should make more explicit which countries will be targeted and why.</p>	<p>We are assessing how and where it is possible to apply GHG targets in the negotiations and term setting process with the fund managers. Through this approach, we hope to fully engage fund partners in projects with the most cost effective mitigation potential. With regard to the Resource Allocation Framework discussions, this project is expected to be spread across 8 to 12 countries and therefore will not significantly distort country allocations in any one region.</p>

<p><b>9</b></p>	<p><b><u>Secondary issues</u></b>  <b>Stakeholder involvement</b>  A wide range of stakeholders have been consulted, but many of these are government departments, NGOs and development banks. A critical set of stakeholders are commercial lenders and equity fund managers. The project's success rests on their active participation in this project. The proposal should highlight these interactions and any early commitments to be involved.</p>	<p>The process of engaging finance sector interest in this project is underway with the initial funds in development. The response has generally been very positive, both vis a vis their interest in the overall funds, and the seed finance components. This documentation will be provided to GEFSec. Of course this is an on-going process that will also continue during project implementation for each fund in development.</p>
<p><b>10</b></p>	<p><b>Capacity building</b>  The project will provide technical assistance to establish seed-capital funds. It is not clear to the reviewer whether the project will also provide back-up support to these funds in their enterprise support functions.</p>	<p>The technical support to funds development will principally be targeted at BOTH 1) helping them raise capital from the investment community, and 2) helping them integrate enterprise support functions within their operations (since that is the most complicated part of the seed finance approach).</p>

## Annex C3 - Response to GEF Sec Review

Renewable Energy Enterprise Development- Seed Capital Assistance Facility (OP6) Implementing Agency: UNEP		
No.	Comments Expected at CEO Endorsement	Response
<b>Section 2</b>	<p><b>Project Design</b> For activity 2: - exact SCAF qualification criteria as sugg, in para 79 - exact description and rules for the type of support that is given.</p>	<p>SCAF criteria now included in Annex G, including rules that define the type of support provided and conditions associated with this support.</p>
<b>2.22</b>	<p style="text-align: center;"><b>Monitoring +Evaluation</b></p> <p>Fully developed M&amp;E plan with quantitative indicators and targets.</p>	<p>M&amp;E plan updated with impact and co-finance targets, with timeframes.</p>
<b>Section 4</b>	<p><b>Core Commitments and linkages</b> WP ENTRY The governance structure and institutional arrangements are not detailed enough. Who will make decisions wrt investments into the subsidiaries, share best practices, monitor and evaluate the specific investments of the subsidiaries? What are the minimum expectations for a fund to benefit from the SCAF? Who will eventually make the decision to engage with a fund?</p>	<p>Management structure including the AfDB and AsDB is defined in the institutional arrangements. SCAF Operating procedures state the requirements of the funds and the Terms of Reference for the participating fund managers spell out their responsibilities. Management decisions on due diligence, transfers and termination are made by UNEP, AsDB and AfDB jointly.</p>

## Annex C4 - Response to Council Comments

### 1. Joint Summary of the Chairs of GEF Council June 3-8 2005

**Council's approval of the project proposal, *Global: Renewable Energy Enterprise Development - Seed Capital Access Facility*** (UNEP), is contingent upon UNEP securing agreement prior to CEO endorsement from the World Bank/IFC or one of the regional development banks or another credible financial institution to jointly implement the project. If after one year UNEP has not found a partner from amongst such financial institutions, the project is to be removed from the work program and returned to the pipeline until an appropriate partner can be found.

Footnote: One Council Member opposed the project on the grounds that UNEP is not qualified to manage such a capital facility or make an assessment about the credibility of a financial institution, and because the GEF Instrument does not provide for UNEP to do so.

### 2. Germany Council Comment

We support the following projects without a need for further comments:

- **10. Global – Renewable Energy Enterprise Development – Seed Capital Access Facility**

### 3. France Council Comment

#### **Favorable opinion with suggestions for improving projects preparation:**

#### ***10 Global – Renewable Energy Enterprise Development – Seed Capital Access Facility***

The project addresses the difficulty of mobilizing financial resources for RE or energy conservation projects taking into account their preparation costs, their specific risks and their too low IRR in front of these constraints. The project aims at mobilizing commercial banks to enter in this new promising market by reducing the initial risks, improving the loan or equity viability and providing guidance to project promoters to develop their business. To achieve this role, the project intends to mobilize existing specialized fund helping them to enter in some new RE market niches.

The project proposes an interesting approach, rather new, with a convincing argumentation. It provides a good analysis of the barriers encountered by the promoters of small and medium size RE promoters in Africa, Asia or Latin America.

The project is interesting and innovative,

### UNEP Response:

1. The project is a technical assistance project wherein the targeted cooperating fund managers are co-opted into providing business development support and early stage financing to promising entrepreneurs. UNEP is pleased to have secured the Asian Development Bank and African Development Bank as joint implementation/ execution partners. The Asian Development Bank will work with the fund managers through their normal Private Sector Group operations. The African Development Bank will participate as partner in the technical assistance aspects as well as management and execution of the project in parallel with the ongoing African REED project. The activities, operational procedures and terms of reference clarify the UNEP, AsDB and AfDB Management Committee joint decision making structure that will oversee all operations and especially the partner selection and due diligence procedures.

2. Acknowledged with appreciation.

3. Acknowledged with appreciation.



addressing an important issue for RE development which is to mobilize finance from the normal commercial banking sector as well as investment funds through products which matches the specificities of RE projects, the GEF funds contributing to “smoothen” the gap between project developers and the financial community in its initial stage.

We suggest to address the following topics:

- a complex project organization which could make its management difficult
- some absence, today, of “rules of the game” ensuring transparency and a clear decision process for allocating resources
- a likely ambiguous position of the NGO E+Co which is supposed to co-managed the project with UNEP while being beneficiary of part of the GEF funds for its own activities
- value added of UNEP special team in the project should be more demonstrated
- a likely ambitious approach by establishing links with at least a half dozen investment funds, working in three continents, while the GEF funds are limited to about 8 US\$ M\$ over 6 years
- a financial model of the project to clarify and make it more understandable (assumptions...)
- clarification of the modalities of operation and monitoring between

- The geographic scope has been reduced and a management structure established that will operate in an efficient yet diligent manner.
- a project management structure and operating modalities defined by which due diligence and decisions are made jointly by UNEP, AsDB and AfDB. This approach will be effective in meeting the impact targets and integrating in a reasonable way with financial business and entrepreneurial needs.
- E+Co’s role at the management level is replaced by the RDBs while at the fund manager level we anticipate they could participate subject to project rules regarding separation of REED/SCAF from other GEF projects.
- ANNEX L on UNEP engagement of the financial sector illustrates UNEP’s comparative advantage and the co-financed activities of the Project Management Unit are commensurate with the qualifications and experience of the Renewable Energy and Finance Unit at DTIE.
- the scope is reduced to Asia and Africa and the assistance of AsDB and AfDB as well as current activities under Africa Rural Energy Enterprise Development and similar activities in Asia are an adequate base from which to expand.
- The financial model is presented with a range of cofinance and impact assumptions
- in addition to the management structure, a monitoring and evaluation annex is added with targets for direct

the different actors

**\* Favorable opinion.**

**4. Switzerland Council Comments  
N°10: Global: Renewable Energy  
Development – Seed Capital Access  
Facility (SCAF), (UNEP); GEF: 8.7  
million USD; Total: 49.2 million USD  
General Comments**

Objectives stated: “The overall objective of the project is to reduce energy related CO<sub>2</sub> emissions through the increased use of renewable energy technologies and services provided through local enterprise. The near term objectives are to, first, increase in developing countries the flow of seed capital to sustainable energy enterprises and, second, to convince the energy finance community that early stage seed capital investing is a viable and cost effective strategy for building long term commercial energy investment portfolios.” This project addresses one of the main barriers in the development of SME in the field of renewables and, to a lesser extent, energy efficiency. It is therefore in perfect agreement with OP6 objectives (Promoting the adoption of RE by removing barriers and reducing implementation costs).

**Main Concerns**

- The access to seed capital is certainly a major barrier to the development of a sustainable renewable and energy efficiency market. At the same time, this is only a precondition for the development. Capacity building orientation within the enterprise, leadership, vision, and customer-oriented and high quality after-sales services are other characteristics that these kinds of new enterprise leaders must develop in order to succeed. The capacity building does not seem to be explicitly developed in the proposal.
- E&Co is recognised as a leader in the renewable and energy efficiency small-scale enterprise development. E&Co is

impacts, cofinance and time horizons

- Capacity building which is envisioned to be provided mainly by the fund managers is emphasised but as well, the AfDB FINESSE program and Asian Development Bank REACH programs will provide important parallel assistance in this regard. The Management Committee would direct support as needed.
- E&Co are now not included in the management structure and will not have

<p>already managing the “REEF-II” (Renewable and Energy Efficiency Fund) for which there has not been any competitive bidding process. Again, here E&amp;Co is involved directly in the project preparation and will be one of the major partners in this programme. We ask if a young organisation like E&amp;Co can grow and may be able to cope successfully with all these projects? It seems that South based organisations should also have a chance to play similar roles. Some of the successful developers in the South may be willing to act as leaders in this process.</p> <ul style="list-style-type: none"> <li>➤ The monitoring process does not seem to be developed at the level it should be for such a complex project. The capacity building indicators, both at financial as well as at enterprise performance level, should be stated clearly in the proposal</li> <li>➤ One of the major challenges of such a global project is the ability to further develop the SCAF concept in many different national environments.</li> </ul> <p><b>Conclusions and Recommendations</b></p> <p>This project meets the OP6 objectives and addresses one of the main barriers in the development of SME. However, it seems that the project has not been developed to a level where it addresses all the issues necessary for project success, or at least it does not appear so in the project document. We would like to support the project provided the issues raised above are taken into account.</p>	<p>an exclusive role. A number of funds and fund managers are identified and the Asian Development Bank as well as other executing agencies will pursue developing country based funds.</p> <ul style="list-style-type: none"> <li>• The Monitoring process and management chain of responsibility is now laid out in order to ensure timely progress reporting and disbursement commensurate with outputs and impacts.</li> <li>• The Scope is now reduced and relies on the regional development bank partners for some of the relationship building</li> </ul>
<p><b>5. US Council Comments:</b>  Assessment: Oppose. While this may be a worthwhile program, we do not believe that UNEP is qualified to implement this on its own. We can only support if UNEP has a joint implementation agreement with the World Bank/IFC or one of the regional development banks. The Logframe has quantifiable indicators and the project is attempting to address the major barriers to commercial financing of sustainable energy activities. However, we are somewhat skeptical of the project’s success given the</p>	<p>The project emphasizes the success that UNEP has had in engaging energy finance through technical assistance and small incentives. The impression that this is an equity or capital investment activity should not have been given. While the fund managers that have been consulted are more commercially minded and are in fact in some cases the only source of finance in the developing country context, they always have a development interest and therefore the terminology has been changed</p>

<p>heavy reliance on commercial fund managers and the fact that these fund managers seem to be the least consulted group. In these countries, there are many investments opportunities and we question the commercial fund manager's willingness to pursue these activities due to the higher transaction costs and lower (or negative) return expectations. Are these commercial funds willing to invest in renewables beyond the life of the project? Similarly, the project is supposed to support both renewable and energy efficiency activities, although the priority is on developing renewables. Is there a target (percentage) for renewables? If not we would predict that fund managers will focus efficiency gains as they will offer a more predictable return on investment.</p>	<p>from "commercial" to "mainstream" indicating that these are more commercially orientated but not purely profit orientated.</p> <p>Given that the nature of the support is now more clearly defined as technical assistance that flows through the fund managers (and now through or in parallel to the regional development banks) the need to consider this as an "investment" project may be not justified. Utilising the 5.5% implementation fee in a joint implementation/ execution structure meets the intent of joint implementation while maintaining efficiency in the management and reporting structure. Note that the management functions are cofinanced as well.</p> <p>Fund managers consulted are now listed with the letters of intent demonstrating interest from a variety of development as well as more commercial financiers. FE Clean Energy, Energy Performance Services, Emerging Power Partners, GroFin, E+Co Africa, Triodos, Asia West Renewable Energy Fund, and China Clean Energy Capital. Investors include Cameroon National Investment Corporation, FinnFund, and Al Tayyar.</p>
---	---

## Annex D - Pipeline of Prospective SCAF Funds

Fund	Region	Fund Manager
FE Clean Energy Global Fund	Asia	FE Clean Energy
Energy Efficiency Project Investment Company Limited (China)	China	tbd
China Clean Energy Capital	China	China Clean Energy Capital
China Environment Fund	China	Tsinhua Venture Capital
Renewable Energy Fund	India	Terra Development Partners BV
InterAsia Renewable Energy Fund	Asia	Inter-Asia Renewable Fuels
Emerald Capital Asia	Asia	Emerald Capital Asia
Cameroon RE Fund	Cameroon	E+Co
GroFin East Africa Fund	East Africa	GroFin

### Annex D.1 - Fund Concept – Cameroon

Name – Cameroon Renewable Energy Fund

Abbreviation -- CREF

Target Enterprises and Projects – small and mid-sized hydroelectric and biomass to energy enterprises

Approximate Size – USD\$14,500,000

Sources of Capital – National Investment Corporation, local, regional banks and development institutions

What the Facility Can Accomplish – Convincing local investment entities to invest in this sector will require a confidence that the key actors are coordinated and that a management entity is on top of the progress of multiple projects that are the focus of the CRE Fund. Management fee costs can be kept low because of the local cost structure but three factors will inhibit success: (1) the fund management company needs to assure project quality improved via technical assistance – investors will not absorb that cost; (2) start-up losses on seed investments could be high (up to 25%) and need to be partially covered; and (3) early returns could be low in dollar and local currency terms and need to be enhanced.

- SCAF Enterprise Development Cost Sharing – \$200,000 to \$300,000
- SCAF Seed Capital Subsidy – \$188,000 to \$355,000

What SCAF Can Contribute – up to \$655,000, which would support the creation and operation of a \$3 million seed finance window within an overall \$14.5 million fund investing in the Cameroon renewable energy sector.

## **Annex D.2 - Fund Concept – East Africa**

Name – GroFin East Africa Fund

Abbreviation -- GEAF

Countries: Uganda, Kenya and Tanzania

Size – USD\$24,000,000

Sources of Capital – CDC, FMO, BIO, Triodos, Shell Foundation, DFCU Group, Commercial Bank of Africa and GroFin

In an effort to promote the delivery of products and services via small and medium enterprises, leading local and global business organisations, GroFin has partnered with a number of investors to form the GroFin East Africa SME finance facility. As in other developing regions, many East African SMEs are unable to enter the market largely because of a lack of business skills, absence of collateral and high level of perceived risk by financial institutions. The GroFin East Africa SME finance facility was established to service these needs by offering financial and business support services to SMEs within the target countries of Uganda, Kenya and Tanzania. This new fund builds off the existing R51 million GroFin Empowerment Through Energy Fund that focuses on SME investments in the energy sector in South Africa.

What the Facility Can Accomplish – SCAF support would be used to create a \$2 to \$3 million seed finance window within GEAF that specifically targets renewable energy and energy efficiency investments. Since the fund will also be working with other investment sectors, SCAF would not be able to provide enterprise development cost-sharing but could provide seed capital subsidies that helped cover part of the return gap.

- SCAF Enterprise Development Cost Sharing – \$0
- SCAF Seed Capital Subsidy – \$400,000 to \$500,000

What SCAF Can Contribute – up to \$500,000, which would support the creation and operation of a \$2 to \$3 million seed finance window for renewable energy and energy efficiency investments.

## **Annex D.3 - Fund Concept – Asia**

Name: FE Global Energy Clean Energy Services Fund

Countries: China, India, Southeast Asia

Target Enterprises and Projects – Commercial renewable energy and energy efficiency projects in Asia

Size – \$64 million

Sources of Capital – Mitsubishi Corporation, the Chubu and Hokkaido electric power companies, JBIC, Proparco and AsDB.

What the Facility Can Accomplish – This existing fund does not presently have an explicit seed finance component, however it would consider the creation of such a window if the SCAF could cost-share some of the increased costs of building a pipeline of small scale entrepreneurs, working with smaller scale transactions, and realizing lower expected returns. The fund specifically expects that a seed finance window would help the fund manager develop projects in the energy efficiency (e.g. efficient lighting), biomass (e.g. bagasse) and biogas area (e.g. methane capture).

- SCAF Enterprise Development Cost Sharing – \$250,000 to \$500,000
- SCAF Seed Capital Subsidy – \$113,000 to \$260,000

What SCAF Can Contribute – up to \$760,000, which would co-finance the creation and operation of a \$3 million seed finance window, and mobilize \$14.5 million into the Cameroon renewable energy sector.

## **Annex D.4 - Fund Concept – Asia**

Name: Asia Sustainable Energy Fund

Countries: Thailand, Malaysia, Philippines and China primarily. Will also evaluate investments in Cambodia, Indonesia, Nepal, Sri Lanka and Vietnam.

Abbreviation – PEMF 2

Target Enterprises and Projects – Commercial renewable energy and energy efficiency projects in Asia

Approximate Size – up to Euro 50,000,000

Sources of Capital – Finn Fund, tbd

What the Facility Can Accomplish – the possibility exists to increase the share of this fund dedicated to seed investment to as much as Euro 3 million. It is expected that as much as Euro 1 million might be allocated in the normal course of events but that assumes a relatively high management fee (2.6%) on such a large base (fees usually decline as a fund's total capital rises).

- Enterprise Development Cost Sharing – \$300,000 to \$500,000
- Seed Capital Subsidy – \$75,000 to \$173,000

Facility commitments especially to cost sharing can liberate \$3 million or more of seed capital for between \$375,000 and \$673,000 in support from the SCAF.

## **Annex D.5 - Fund Concept - Nepal**

Name – Clean Energy and Infrastructure Development Fund

Target Enterprises and Projects – On and off grid clean energy enterprises, clean energy-based infrastructure projects, clean energy based agro-processing industry, etc.

Approximate Size – USD 4 million

Sources of Capital – development finance institutions, local banks, and pension funds

The main objective of the Fund is to earn competitive returns for its shareholders by financing environmentally responsible infrastructure investments as well as conversion of fossil fuel based agro-processing to provide clean energy in the country. A second objective is to mobilize and supply long-term capital for renewable energy and clean industry projects executed by the private sector. Debt investment by the Bank is expected to leverage, on the average, over 35 percent in debt and at least 15 in equity for subject projects from local and international promoters and financial institutions.

Though smaller hydro projects are site-specific and generally suffer from scale disadvantage (and sometimes also from the lack of peaking capability during dry season and from water use conflicts), there are commercially attractive and competitive projects scattered throughout the country. Several small hydro projects near national grid and road access have estimated financial rate of return of around 20 percent. With potential linkages in the economy, these small projects can also contribute to capital market development, domestic manufacturing capability, and indigenous hydropower development skills, serving development objective of the country. Further, with more reliance on domestic financial market, foreign exchange risk could be less and possibly there would be quick financial closure.

Similar market opportunities are evolving in other renewable energy sectors (e.g. micro hydro, solar power, biogas), that are becoming popular to meet energy needs in rural areas of the country. There is a tremendous scope for harnessing such energy sources for rural development.



## **Annex E - Indicative Fund Concept Notes**

### **Annex E1 - Cameroon Renewable Energy Fund (CREF)**

#### **1- BACKGROUND AND RATIONALE**

The electricity sector in Cameroon faces new and ongoing challenges with respect to access to, and reliability of, electricity supply, particularly in rural areas. The sector is facing a rapid increase in demand while the generating capacity has not been renewed for 20 years. Subsequently, consumers and industry have suffered heavily from daily load-shedding over the past four years. The industrial and services output are especially hit by forced outages and system breakdowns, resulting in significant economic loss to the nation.

Rising energy demand and aging facilities call for major financial investment in plant upgrades and new energy production, transmission and distribution facilities. This in turn, requires improved access to energy resources and the timely, cost-effective development of new supplies. Resource mobilization on such a massive scale has not been possible mainly because of the severe financial challenge faced by the State in the face of competing priorities for public funding; compounding the problem is the fierce international competition for attracting foreign direct investment and a rather limited domestic capital market.

It is against this background that under the IMF-World Bank reform process, an investor friendly electricity liberalisation program was initiated in 1998, with the goal of attracting private sector participation in the generation and distribution of power; and redefining the regulatory role of government.

#### **2- SCOPE AND MAIN FEATURES**

The Cameroon Renewable Energy Fund hereinafter referred to as CREF or The Fund, is an independent and financially autonomous investment facility in its fundraising stage. The Fund's purpose is to increase the availability, and affordability of capital and knowledge required to foster the development of small and medium-sized (15 MW or less) hydroelectric/biomass electricity projects and businesses. The Fund will provide seed, early stage, or development capital to realize the growth potential of a project.

The CREF is targeting a first financial close on the order of €14.5 million. In addition, the Fund will include a technical assistance facility to help developers prepare projects that meet the requirements of market-oriented financing. The technical assistance will help developers carry out financial, engineering, and environmental feasibility studies of projects. CREF is a twelve year Fund, with an investment horizon over four years.

#### **3- FUND STRUCTURE**

The governance of the Fund is organized in three main structures designed to promote performance, accountability, and allow an efficient and independent activity development. The institutional structure includes a Board of Administration, an Investment Committee, and a Fund Manager.

- The managing body of the Fund is the Board of Administration (“the Board”), which consists of representatives of shareholders/investors. The Board develops the policy and strategy, and manages the entire activity of the Fund.
- The Investment Committee reviews, in accordance with the investment guidelines, the recommendations for investment submitted by the Fund Manager for approval, and takes investment decisions.
- The Fund Manager provides professional structured financial engineering and technical expertise to develop and finance commercially viable projects. The Fund Manager is responsible for the investment, finance and administration functions of the Fund. E+Co will hold the responsibility of Fund Manager.

#### 4- MARKET DEVELOPMENT STRATEGY

Taking into account the identified market opportunities as well as the associated risks in the initial phase of market development; CREF will adopt a three-step investment strategy:

- “Early action” (pre-fund) investment in two or three projects to test the market and refine the investment methodology. The learning and demonstration effect of some successful investments will be crucial in this stage in order to leverage additional parallel or co-financing arrangements. E+Co will leverage its non-traditional finance base to cover these initial transactions.
- “Seed capital” and technical assistance window (within the fund) to credible but not yet mature projects. This covers ‘enterprise development’ tasks undertaken by potential clients to pilot early stage plants and to enable the development of full scale investment proposals. It is proposed that the UNEP/GEF Seed Capital Assistance Facility provide underlying support for the operation of this seed window.
- “Direct investment” in project implementation. The Fund is expected to mobilize resources by attracting additional private investment in co-financing.

The combined effect of these activities will be to “jump-start” hydro/biomass power projects by reducing initial market risks and promoting successful project replication through application and dissemination of lessons learned.

#### 4- INVESTMENT ORIENTATION

Investments will be made in projects that are economically viable, financially bankable and technically, managerially and environmentally sound. CREF will invest in: Projects/companies that have strong prospects for success but are having difficulties attracting investment by themselves; and Projects that will earn a lower rate of return than other sources of capital require, but employment and economic development prospects are strong in the mid and long term.

According to its investment orientation CREF funds can be used to finance: Purchase of equipment, and machinery; Equipment leasing; Civil works; Procurement of know-how; technical assistance and support on system commissioning and operations; and Working capital.

The Fund will provide mezzanine finance -subordinated debt and preferred shares- and could also take an equity kicker (warrants on common shares) in projects with strong potential. The expected returns to the Fund from the investments of about 12% will be below normal for such an investment facility. However it is expected that this fund should still be of interest to commercial investors because of the Managers proven record of creating viable small scale clean energy portfolios, and underlying institutional support that will share some of the initial incremental costs of investing in this sector.

The Fund is designed to be flexible both in terms of product mix and terms such that it could offer products adapted to the specificities and complexities of each transactions. Detailed lending terms will be decided by the Fund Manager for each specific project.

A commitment of 20% to 40% -to be decided in accordance with the type of investment and the risk profile of the project and the borrower - will be requested from borrowers as their own share of risks. This commitment will be agreed in the financing contract and will consist of an up-front contribution to the approved project.

The Fund participation in a project will not exceed 30% of the total investment cost.

## **Annex E2 - FE Clean Energy Global-Asia Clean Energy Fund**

FE Clean Energy Group, Inc. has organized its third international private equity energy fund to capitalize on the growing demand for clean energy services in emerging markets. The private equity firm, which has pioneered the management of funds that generate competitive private equity returns from energy investments, in its third fund will pursue attractive investment opportunities for cost-saving energy efficiency, renewable energy and emission reduction in emerging Asian markets.

The Group expects that the FE Clean Energy Global-Asia Clean Energy Fund will total US\$100-150 million. US\$46 million was committed in the first closing in May 2004 and a subsequent \$19 million in 2005. Mitsubishi Corporation, Chubu Electric Power Company, Hokkaido Electric Power Company, JBIC, Proparco and AsDB are investors in the fund.

### **1. FE CLEAN ENERGY GROUP**

FE Clean Energy is the leading private equity firm focused on buying and building companies that provide clean energy services in emerging markets. The Group's principals currently manage two other funds – the *Dexia-FondElec Energy Efficiency and Emissions Reduction Fund*, and the *FondElec Latin American Clean Energy Services Fund* - which have total capital committed of US\$120 million.

FE Clean Energy Group's main office is in Darien, CT. It has offices in Budapest, Warsaw, Singapore and Mexico City, and a proprietary deal origination network that encompasses Central and East Europe, Latin America and parts of Asia. The firm's principals possess significant transaction and financial structuring expertise and a proven ability to add value operationally to the portfolio companies they manage.

### **2. INVESTMENT THESIS**

FE Clean Energy principals and investment teams harness the three key market drivers behind the demand for clean energy services – economic forces, evolving regulations and environmental pressures – and channel these forces into investment opportunities.

Why Asia now? Underlying market drivers, other geo-political and economic conditions make the timing of this fund especially compelling for the target regions. The Asian region's dynamic economic growth, which is expected to surpass 6% annually over the next several years, leads that of the rest of the world. Energy efficiency has become an urgent priority, as Asian countries find themselves losing manufacturing facilities to China, the low-cost competitor. Massive retrenching by Independent Power Producers (IPPs) and other international energy players as a result of the Enron bankruptcy and subsequent collapse of the US IPP market has substantially reduced the availability of capital for energy project promoters.

### 3. INVESTMENT FOCUS AND STRATEGY

The Fund is focused on two principal types of investments in the energy sector: (i) investments that enhance energy efficiency and (ii) investments in renewable energy projects. These two broad categories, which address the highest growth segments of the energy market, position the Fund to create value by addressing both the demand and the supply side of the energy equation.

The fund does not presently have an explicit seed finance component, however it would consider the creation of such a window if the SCAF could cost-share some of the increased costs of building a pipeline of small scale entrepreneurs, working with smaller scale transactions, and realizing lower expected returns. The fund expects that a seed finance window would help the fund manager develop projects in the energy efficiency (e.g. efficient lighting), biomass (e.g. bagasse) and biogas area (e.g. methane capture).

### 4. INVESTMENT CHARACTERISTICS

*FE Clean Energy Group has clear exit strategies going in to the investments.* FE Clean Energy has developed a distinctive investment structure that minimizes exit risks in these emerging markets by earning its target returns from short-term contracts of between 5-8 years that self-liquidate prior to the end of the Fund's life. Contracts of longer duration are offered for sale with the benefit of a reliable payment history to lower the risk profile from the trade buyers' perspective.

## **Annex E3 - PEMF 2 - ASIA SUSTAINABLE ENERGY INITIATIVE**

### 1. INTRODUCTION

PEMF 2 will be a closed-end investment fund making direct investments in private sector companies and projects that generate renewable energy, enhance energy efficiency or provide energy services in the emerging markets across Asia, with a focus primarily on Thailand, Philippines, Malaysia, India and China.

The Fund will have a term of 10 years from the closing date, with a targeted fund size of EUR 50 million. The Fund will provide equity and mezzanine type financing with a target return for the Fund of 15-20% p.a.

### 2. THE SPONSORS

The Fund is to be managed by Emerging Power Partners Ltd (EPP). EPP will jointly establish a special purpose Fund Management Company to carry out the activities of the Fund, with the main office to be in Bangkok Thailand.

EPP is the manager of the Private Energy Market Fund (PEMF), a €26 million private equity fund established in 1999 ([www.pemfund.com](http://www.pemfund.com)). The PEMF portfolio of investments includes biogas and biomass companies, multiple energy efficiency projects for industrial and municipal customers and several combined heat and power plants. PEMF has invested more than 50 % of its capital in Asia.

### 3. MANAGEMENT OF THE FUND

The management of the Fund will be carried out through a Fund Management Company (FMC) which will be headed by a dedicated Fund Manager and Management Team, predominately based in Bangkok. This team in turn will be further supported by the Sponsors through advisory agreements. The Management Team will consist of a focused team of professionals with extensive experience in the renewable energy sector and investing in the Asia region. In addition to the lead management professionals that will come from current EPP management, the Bangkok office of the FMC will have 2 full time investment officers/analysts and other administrative support staff to be hired from the region.

### 4. INVESTMENT STRATEGY

The Fund's investment objective is to seek current income from cash flow and long-term capital appreciation over the Fund's 5-7 year holding period. This will be achieved through direct investments in equity or equity related instruments in one of the following key investment areas: renewable energy, combined heat and power, agro-industry based fuel substitution, and energy service companies (ESCOs). The Fund will target opportunities arising from carbon credit trading, energy sector restructuring, efficiency improvements in energy production, distribution and utilization, and governmental programs promoting clean energy.

The Fund envisaged that the average size of each investment will be between EUR 3-6 million. The Fund's Investment Policy and Guidelines will include the standard features that are normally found in other equity funds targeted to emerging markets.

The Fund also expects to create a seed finance window for investing earlier stage capital, in the \$150,000 to \$300,000 range. Seed investments will finance developmental costs in companies with projects under development covering, for example, technical and financial advisors, closing expenses, and project bonding arrangements. These investments will secure the Fund preferred investment rights in the investee company's expansion. The total amount of such seed capital investments has been estimated to be 5% of the Fund's capital and will be invested in the first 2 years of the fund's commitment period. The Fund hopes to benefit from the UNEP/GEF Seed Capital Assistance Facility (SCAF) to offset some of the increased transaction/management costs and the lower returns of making and holding these early stage seed capital investments.

Target countries: Based on the experience of EPP in Asia the selected countries in Asia have been ranked in two categories. The priority group includes the countries of Thailand, Malaysia, Philippines, India and China. Other target countries include Cambodia, Indonesia, Nepal, Sri Lanka, and Vietnam.

## 5. FUND STRUCTURE AND GOVERNANCE

The Fund will be established as a closed-end Limited Partnership. The fund management will be provided by the Bangkok based limited liability company.

An Advisory Committee will provide guidance in the implementation of the Fund's investment policy and review the progress of Fund's investment activities. The Advisory Committee will be comprised of representatives from each of the Investors and will hold meetings semi-annually. To screen investments an Investment Committee will be comprised of 3-5 individuals, and will actively oversee, review and approve investments as well as divestments proposed by the FMC.

## 6. NEXT STEPS

The fund concept has already been presented to FinnFund and received a verbal indication that they have included PEMF2 on their pipeline of potential investments and would like to make a positive investment decision. In the coming months the Fund proposal will be formally submitted to several more European institutional investors and out-reach to potential investors in North America and Asia will commence.

# Annex F - Energy Fund Model

## SCAF Pro-Forma Cash Flow Analysis

The below analysis provides a simplified comparison between a single large scale commercial investment vs. the alternative of investing in a number of small-scale seed-stage investments. This comparison is used to estimate the incremental costs of seed scale investing.

### Sections of the analysis:

- #1) The reference case of a single large scale investment in the later stages of the project development cycle
- #2) The alternative case of 10 small-scale seed-stage investments with 3 different types of outcomes in terms of duration, returns and losses
- #3) The incremental enterprise development cost of coaching, advising and overseeing 10 investments instead of the less transaction cost-intensive reference case
- #4) The incremental (expected) losses resulting from the significantly riskier seed investments of which a considerable share will be non- or slow performers (cp. #3)
- #5) The resulting combined return reflects the rationale that a certain number of seed investments will mature and deliver strong returns that will outweigh the seed stage failures

### #1) Base/Reference Case

1 Investment of \$1,500,000 transacted in a commercial project with expected 16% gross return, 2% annual transaction costs and management fees and 10% expected portfolio losses over a 7 year investment period.											
Year	0	1	2	3	4	5	6	7	8	9	10
Investmt.	(\$1,500,000)										
Returns-interest		\$239,281	\$239,281	\$239,281	\$239,281	\$239,281	\$239,281	\$239,281	\$239,281	\$0	\$0
Returns-principal <sup>1</sup>			\$167,287	\$167,287	\$167,287	\$167,287	\$167,287	\$167,287	\$167,287	\$0	\$0
Gross CF	(\$1,500,000)	\$239,281	\$406,568	\$406,568	\$406,568	\$406,568	\$406,568	\$406,568	\$406,568	\$0	\$0
Portfolio losses (on interest&principal)		(\$21,429)	(\$21,429)	(\$21,429)	(\$21,429)	(\$21,429)	(\$21,429)	(\$21,429)	(\$171,428.57)	\$0	\$0
CF after Losses	(\$1,500,000)	\$217,852	\$385,139	\$385,139	\$385,139	\$385,139	\$385,139	\$385,139	\$235,139	\$0	\$0
Trans/Mgt costs		(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	\$0	\$0
CF after losses and fees	(\$1,500,000)	\$187,852	\$355,139	\$355,139	\$355,139	\$355,139	\$355,139	\$355,139	\$205,139	\$0	\$0
										=> Total Mgmt. cost of which discounted at 10.0%	\$210,000 \$146,061
										=> Return after losses (Portfolio)	12.4%
										=> Return after losses & fees (Fund)	10.9%

### #2) Seed Case

10 Investments of \$150,000 per transaction in early stage SMEs/projects, of which:											
20% are non-performers <sup>2</sup> , charged 16% interest p.a., <sup>6</sup> generating returns of <-30% p.a. after write-down of 70% of principal, and 80% of interest.											
60% are slow performers <sup>3</sup> , charged a 16% interest p.a., <sup>6</sup> generating returns of 9% p.a. after write-down of 25% of principal, and 20% of interest.											
20% are prime performers <sup>4</sup> , charged a 16% interest p.a., <sup>6</sup> generating returns of 16% p.a. after write-down of 0% of principal, and 0% of interest.											
Transaction/Mgt. Costs include a one time 25% Enterprise Development (ie transaction) Cost, and a 2.5% annual asset management cost.											
Year	0	1	2	3	4	5	6	7	8	9	10
<b>SCAF Portfolio</b>											
<b>Non-performers</b>											
Investmt.	(\$150,000)	(\$150,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Returns-interest	\$0	\$24,000	\$48,000	\$48,000	\$48,000	\$24,000	\$0	\$0	\$0	\$0	\$0
Annual write-down interest	\$0	(\$19,200)	(\$38,400)	(\$38,400)	(\$38,400)	(\$19,200)	\$0	\$0	\$0	\$0	\$0
Returns-principal <sup>1</sup>	\$0	\$0	\$42,789	\$85,577	\$85,577	\$42,789	\$0	\$0	\$0	\$0	\$0
Annual write down principal	\$0	\$0	(\$29,952)	(\$59,904)	(\$59,904)	(\$29,952)	\$0	\$0	\$0	\$0	\$0
CF before losses	(\$150,000)	(\$126,000)	\$90,789	\$133,577	\$133,577	\$66,789	\$0	\$0	\$0	\$0	\$0
CF after losses	(\$150,000)	(\$145,200)	\$22,437	\$35,273	\$35,273	\$17,637	\$0	\$0	\$0	\$0	\$0
Enterpr. Devmt. Costs	(\$37,500)	(\$37,500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mgt Costs-Yearly	\$0	(\$3,750)	(\$7,500)	(\$7,500)	(\$7,500)	(\$3,750)	\$0	\$0	\$0	\$0	\$0
Total Costs	(\$112,500)	(\$112,500)	(\$7,500)	(\$7,500)	(\$7,500)	(\$3,750)	\$0	\$0	\$0	\$0	\$0
CF after losses&fees	(\$107,500)	(\$106,450)	\$14,937	\$27,773	\$27,773	\$13,887	\$0	\$0	\$0	\$0	\$0
<b>Slow performers</b>											
Investmt.	(\$450,000)	(\$450,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Returns-interest	\$0	\$72,000	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$72,000	\$0
Annual write-down interest	\$0	(\$14,400)	(\$28,800)	(\$28,800)	(\$28,800)	(\$28,800)	(\$28,800)	(\$28,800)	(\$28,800)	(\$14,400)	\$0
Returns-principal <sup>1</sup>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$375,000	\$375,000	\$0
Annual write down principal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$93,750)	(\$93,750)	\$0
CF before losses	(\$450,000)	(\$378,000)	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$144,000	\$519,000	\$447,000
CF after losses	(\$450,000)	(\$392,400)	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$396,450	\$338,850
Enterpr. Devmt. Costs	(\$112,500)	(\$112,500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mgt Costs-Yearly	\$0	(\$11,250)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$11,250)	\$0
Total Costs	(\$112,500)	(\$123,750)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$22,500)	(\$11,250)	\$0
CF after losses&fees	(\$562,500)	(\$516,150)	\$92,700	\$92,700	\$92,700	\$92,700	\$92,700	\$92,700	\$92,700	\$373,950	\$327,600
<b>Prime performers</b>											
Investmt.	(\$100,000)	(\$100,000)	(\$100,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Returns-interest	\$0	\$16,000	\$32,000	\$48,000	\$48,000	\$48,000	\$32,000	\$16,000	\$0	\$0	\$0
Annual write-down interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Returns-principal <sup>1</sup>	\$0	\$0	\$19,738	\$39,475	\$59,213	\$59,213	\$39,475	\$19,738	\$0	\$0	\$0
Annual write down principal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CF before losses	(\$100,000)	(\$84,000)	(\$48,262)	\$87,475	\$107,213	\$107,213	\$71,475	\$35,738	\$0	\$0	\$0
CF after losses	(\$100,000)	(\$84,000)	(\$48,262)	\$87,475	\$107,213	\$107,213	\$71,475	\$35,738	\$0	\$0	\$0
Enterpr. Devmt. Costs	(\$25,000)	(\$25,000)	(\$25,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mgt Costs-Yearly	\$0	(\$2,500)	(\$5,000)	(\$7,500)	(\$7,500)	(\$7,500)	(\$5,000)	(\$2,500)	\$0	\$0	\$0
Total Costs	(\$25,000)	(\$27,500)	(\$30,000)	(\$7,500)	(\$7,500)	(\$7,500)	(\$5,000)	(\$2,500)	\$0	\$0	\$0
CF after losses&fees	(\$125,000)	(\$111,500)	(\$78,262)	\$79,975	\$99,713	\$99,713	\$66,475	\$33,238	\$0	\$0	\$0
<b>Total Cost</b>	<b>(\$175,000)</b>	<b>(\$192,500)</b>	<b>(\$60,000)</b>	<b>(\$37,500)</b>	<b>(\$37,500)</b>	<b>(\$33,750)</b>	<b>(\$27,500)</b>	<b>(\$25,000)</b>	<b>(\$22,500)</b>	<b>(\$11,250)</b>	<b>\$0</b>
<b>Total CF before losses</b>	<b>(\$700,000)</b>	<b>(\$588,000)</b>	<b>\$186,526</b>	<b>\$365,052</b>	<b>\$384,790</b>	<b>\$318,001</b>	<b>\$215,475</b>	<b>\$179,738</b>	<b>\$519,000</b>	<b>\$447,000</b>	<b>\$0</b>
<b>Total CF after losses</b>	<b>(\$700,000)</b>	<b>(\$621,600)</b>	<b>\$89,374</b>	<b>\$237,948</b>	<b>\$257,666</b>	<b>\$240,049</b>	<b>\$186,675</b>	<b>\$150,938</b>	<b>\$396,450</b>	<b>\$338,850</b>	<b>\$0</b>
<b>Total CF after losses &amp; costs</b>	<b>(\$875,000)</b>	<b>(\$814,100)</b>	<b>\$29,374</b>	<b>\$200,448</b>	<b>\$220,186</b>	<b>\$206,299</b>	<b>\$159,175</b>	<b>\$125,938</b>	<b>\$373,950</b>	<b>\$327,600</b>	<b>\$0</b>
										=> Total Ent. Dev/Mgt Costs of \$622,500, which when discounted at 10.0% (IRR base case) is equivalent to \$470,883	
										=> Total write-down principal 24.2%	=> Return after losses (Portfolio) 6.9%
										=> Total write-down interest 29.5%	=> Return after losses&fees (Fund) -0.5%
										=> Total write-down loan receivables 26.6%	

# Annex F1 - Pro Forma Energy Fund Model

<b>#3) Incremental Enterprise Development Costs (to be partially covered by SCAF - Enterprise Development Support Line)</b>												
	Base Case	Seed Case										
Investment	\$1,500,000	\$1,500,000										
Costs	\$210,000	\$622,500		3.0 times								
NPV Costs	\$146,061	\$470,883		3.2 times								
											<b>=&gt; Incremental Trans/Mgt costs</b>	<b>\$24,822</b>
<b>#4) Incremental Seed Investment Losses (to be partially covered by SCAF - Seed Capital Subsidy)</b>												
Year	0	1	2	3	4	5	6	7	8	9	10	
Total CF after losses & costs	(\$875,000)	(\$814,100)	\$29,374	\$200,448	\$220,186	\$206,299	\$159,175	\$125,938	\$373,950	\$327,600	\$0	
SCAF ED-Cost-Sharing Contribution (50%)	\$54,137	\$54,137	\$54,137	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Adjusted Cash Flow	(\$820,863)	(\$759,963)	\$83,511	\$200,448	\$220,186	\$206,299	\$159,175	\$125,938	\$373,950	\$327,600	\$0	
a) Annual return of \$1,500,000 seed portfolio is -0.47% or b) Annual return of \$1,500,000 seed portfolio incl. a 50% ED cost contribution is 1.26% or c) Annual return of \$1,500,000 single reference investment is 10.0% or												
<b>=&gt; Annual incremental return loss after a SCAF Enterprise Development Cost Contribution of 50% (= c-b) is</b>											<b>\$131,013</b>	

<b>#5) Combined Returns on First- and Second Stage Investments</b>											
7 seed investments mature into 2nd stage \$1,500,000 investments with 17% IRR, 10% Incremental Portfolio Losses and 2% mgt costs.											
Year	0	1	2	3	4	5	6	7	8	9	10
Adjusted Cash Flow	(\$820,863)	(\$759,963)	\$83,511	\$200,448	\$220,186	\$206,299	\$159,175	\$125,938	\$373,950	\$327,600	\$0
New Investments			(\$3,000,000)								
Returns-int				\$510,000	\$510,000	\$510,000	\$510,000	\$510,000	\$510,000	\$510,000	\$0
Returns-prin										\$3,000,000	
Incremental portfolio losses				(\$42,857)	(\$42,857)	(\$42,857)	(\$42,857)	(\$42,857)	(\$42,857)	(\$42,857)	
Costs-Incremental				(\$60,000)	(\$60,000)	(\$60,000)	(\$60,000)	(\$60,000)	(\$60,000)	(\$60,000)	\$0
Combined Cash Flow	(\$820,863)	(\$759,963)	(\$2,916,489)	\$607,591	\$627,329	\$613,442	\$566,318	\$533,080	\$761,093	\$3,734,743	\$0
<b>=&gt; Combined Return Seed+Second Stage Investmt. (Fund)</b>											<b>9.4%</b>
<b>if 3 out of 10 investments mature into 2nd stage</b>											
<b>=&gt; Combined Return Seed+Second Stage Investmt. (Fund)</b>											<b>11.4%</b>

<b>Footnotes:</b>											
1	To better align the pro forma model with general recommendations of the IFC review of the E+Co portfolio and to better reflect the cash flow of similar "venture-capital-type" operations the revenues from principal payments were modeled as a stream of payments starting after a 1 year grace period. While this more evenly spread distribution of cash flows resulted in an improvement of the model's overall risk profile, it also reduced returns after losses and fees by about 130bps compared with the original CF model										
2	"Non-performers" are failed investments that are not able to generate sufficient returns for reimbursement of principal. A small portion of the interest payments are assumed to met out of the initial cash outlays. A slightly larger portion of the principal is assumed to be recuperated through repossession of assets. Failed investments are assumed to be settled within an average of 4 years after the initial disbursement.										
3	"Slow performers" are mostly small scale investments that are reasonably viable, but due to external factors are experiencing problems growing and generating sufficient cash flow to meet current interest and principal obligations. They are assumed to only pay back principle (-write down) at the very end of the loan's (extended 8-year) duration.										
4	"Prime performers" are investments that grow and develop like planned. Only a small portion of interest receivables are written off to reflect the cost of pmt. transaction problems, arrears, etc. Prime performers are considered to only need a one-year moratorium on principle payments until they have achieved financial self-sustainability and are able to effect yearly reimbursements of both principle and interest within 5 years. To allow for a reasonably realistic "investment learning curve", the successful investments in prime performers are assumed to be distributed over 3 years instead of only 2.										
5	The percentages for write-downs on principal and interest were corrected to allow for better alignment with the IFC review of the E+Co portfolio. Of E3Co's outstanding loan receivables 50% are past due. Following a very conservative approach, one could assume that half of these will be written off, leading to a total of 25% write-down of loan receivables. With a slightly higher 25.4% of write-downs on total loan receivables the pro forma model is consistent with this approach.										
6	The relatively high interest rate for all three types of performers tries to account for the fact that a considerable share of the fund's investment will not be done as 100% debt investment like in this simplified model, but rather as a mix of junior debt, equity and quasi-equity, siphoning off a significant portion of the investment's profits.										





## Annex F1 - Pro Forma Energy Fund Model (continued)

What If...				
...the percentage of non-performers is different?				
	% non-performers <sup>1</sup>	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	10%	7.9%	0.4%	9.7%
	15%	7.4%	-0.1%	9.5%
Base case ==>	20%	6.9%	-0.5%	9.4%
	25%	6.4%	-0.9%	9.3%
	30%	5.8%	-1.3%	9.1%
	35%	5.3%	-1.8%	9.0%
	40%	4.8%	-2.2%	8.9%

(\*) offset with a lower/higher percentage of slow performers keeping prime performers constant

What If...				
...enterprise development costs are different?				
	One-time enterprise dvmt. Cost <sup>1</sup>	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	25%	6.9%	-0.5%	9.4%
	20%	6.9%	0.3%	9.6%
Base case ==>	25%	6.9%	-0.5%	9.4%
	30%	6.9%	-1.2%	9.2%
	35%	6.9%	-1.9%	9.0%
	40%	6.9%	-2.6%	8.8%

(\*) in percent of total investment

What If...				
...write-downs on slow performers are different?				
	Write-down of principal	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	15%	7.5%	0.3%	9.6%
	20%	7.2%	-0.1%	9.5%
Base case ==>	25%	6.9%	-0.5%	9.4%
	30%	6.5%	-0.9%	9.3%
	35%	6.2%	-1.3%	9.2%
	40%	5.8%	-1.7%	9.1%

(\*) write down on interest held constant

What If...				
...the percentage of prime-performers is different?				
	% prime-performers <sup>1</sup>	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	10%	5.7%	-1.4%	9.0%
	15%	6.3%	-1.0%	9.2%
	20%	6.9%	-0.5%	9.4%
	25%	7.5%	0.0%	9.6%
Base case ==>	30%	8.1%	0.5%	9.8%
	35%	8.7%	1.0%	10.0%
	40%	9.3%	1.6%	10.2%

(\*) offset with a lower/higher percentage of slow performers keeping non-performers constant

What If...				
...write-downs on non-performers are different?				
	Write-down of principal <sup>1</sup>	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	60%	7.2%	-0.2%	9.5%
	65%	7.0%	-0.3%	9.4%
Base case ==>	70%	6.9%	-0.5%	9.4%
	75%	6.7%	-0.6%	9.4%
	80%	6.6%	-0.7%	9.3%
	85%	6.4%	-0.9%	9.3%

(\*) write down on interest held constant

What If...				
...interest rates <sup>1</sup> charged for seed investments are different?				
	Interest rate charged	Returns on portfolio level	Returns on fund level	Returns 1st+2nd stage
	13%	4.4%	-2.7%	8.7%
	14%	5.2%	-1.9%	8.9%
	15%	6.1%	-1.2%	9.2%
Base case ==>	16%	6.9%	-0.5%	9.4%
	17%	7.7%	0.3%	9.6%
	18%	8.5%	1.0%	9.9%

(\*) interest rates assumed the same for all types of performers, write-downs on loan

# Annex F2 - SCAF Capital Mobilization Calculations

## Worst Case Scenario

### Total SCAF Pipeline - Worst Case

The below calculation provides a simplified 2-stage commercial co-financing analysis based on assumptions concerning the amount of SCAF contributions, equity contributions from entrepreneurs, success and failure rates as well as the avg. size of seed and growth stage investments. The results in terms of total investment are then fed into a formula based on a few empirical values for costs per installed kWh, specific GHG reductions and load factors to generate a detailed investment outcome in terms of installed capacity, annual generation, GHG reductions, etc. (see#5).

#### Best and worst case scenarios differ in:

- the amount of SCAF support provided per seed transaction
- the amount of cash contributed from entrepreneurs
- the success and failure rates for seed stage investments
- the characteristics of slow performers (see #3)

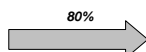
#### Sections of the analysis:

- #1 The seed transactions are the first source of co-financing resulting from contributions from the cooperating fund ("seed capital pool") and from entrepreneurs.
- #2 Second Stage transactions are a result of successful seed investments and generate more co-financing depending on their assumed number and average size
- #3 Non performers are directly written off and only a small percentage of slow performers manages to obtain further co-finance from sources other than the cooperating fund
- #4 The grand total investment is a sum of all investment flows (first stage + second stage + slow performers + alternative co-finance)
- #5 The investment outcome is a function of grand total investment and the technological assumptions. "specific mitigation cost to GEF" is equal to total GEF support (\$8.7m) divided by total GHG reductions
- #6 The seed stage co-finance and 2nd stage cofinance generated by SCAF, both at the cooperating funds level and the overall project level (ie incl. all co-finance and all GEF costs)

#1 First (Seed-) Stage Transactions	
SCAF enterprise development support [per \$M]	\$ 250,000
SCAF seed capital subsidy [per \$M]	\$ 100,000
SCAF contribution [per \$M]	\$ 350,000
<b>Total SCAF support line</b>	<b>\$ 6,000,000</b>
Contribution seed capital pool [%]	180%
Total cooperating fund seed capital investment	\$ 10,800,000
Cash from entrepreneurs [%]	30%
Total cash from entrepreneurs	3,240,000
Avg. size of 1st seed stage investmt.	\$ 150,000
# of investmts.	133.6
<b>Total value of 1st stage transactions (incl. SCAF support)</b>	<b>\$ 20,040,000</b>

Success rate 1st stage = 20%

#2 Second (Commercial/Growth) Stage Transactions	
Value of Seed Scale Investments that graduate to 2nd Stage	\$ 4,008,000
# of seed investments that graduate to 2nd stage investments	26.7
Ave. Size of 2nd stage investmt.	\$ 1,500,000
Total value of 2nd stage transactions	\$ 40,080,000
Total investment in projects that graduate (seed + 2nd stage)	\$ 44,088,000
Subsequent failure rate of projects that graduate	10%
<b>Total value of projects that graduate (after write-off)</b>	<b>\$ 39,679,200</b>



#3 Non- and Slow Performers	
\$ 16,032,000	Value of Seed Investments that don't graduate to 2nd stage
20% \$ 4,008,000	(1) Write-off
45% \$ 8,917,802	(2) Small scale 1st stage investments w/ no add. Cofinance
+	
15% \$ 3,106,198	(3) Projects w/ alternative sources of cofinance
+ alt. leverage \$ 15,530,990	(4) Assumed 5:1 leverage from alternative sources
=	
<b>(2)+(3)+(4) \$ 27,554,990</b>	<b>Total seed stage + alternative leverage projects</b>



#4 Grand total capacity investment	
	<b>\$ 67,234,190</b>

Technological Assumptions	Total	Seed Stage	Second Stage
Avg. installed cost [\$/kW]	1,304	1,800	1,200
Specific GHG reductions [tCO2/MWh]	0.7	0.7	0.7
Specific GHG reductions [tCO2/MW/yr]	2,200	2,200	2,200
Avg. load factor	35%	35%	35%
Avg. annual operation hours	3,110	3,110	3,110

#5 Outcome	Total	Seed	Second Stage
Total installed capacity [MW]	51.6	8.9	42.7
Total annual generation [GWh]	160.4	27.7	132.7
Annual GHG reductions [tCO2 p.a.]	113,491	19,599	93,892
Total 20yr GHG reductions [MtCO2]	2.27	0.39	1.88
Specific mitigation cost to GEF - 20yrs [\$/tCO2]	3.8		

#6 Capital Mobilization Summary	
Cooperating Fund Co-financing in seed stage	\$ 10,800,000
Other Capital Mobilized at seed stage	3,240,000
Cooperating Fund Co-financing at 2nd stage	\$ 40,080,000
Other Capital Mobilized at 2nd stage	\$ 15,530,990
<b>Total Co-financing (seed and 2nd stage)</b>	<b>\$ 50,880,000</b>
Total Facility Co-finance ratio (Cooperating fund co-finance / \$6mn of GEF funds)	8.5
<b>Project Co-Finance Ratio (all co-financing / total GEF funds)</b>	<b>6.3</b>

Load factors and baselines are all estimates based on E&Co's 2004 portfolio and empirical data from "Standardised Baselines and Streamlined Monitoring Procedures for Selected Smallscale Clean Development Mechanism Project Activities", Ministry of Housing, Spatial Planning and the Environment of the Netherlands (December 2001)

# Annex F2 - SCAF Capital Mobilization Calculations (continued)

## Best Case Scenario

### Total SCAF Pipeline - Best Case

The below calculation provides a simplified 2-stage commercial co-financing analysis based on assumptions concerning the amount of SCAF contributions, equity contributions from entrepreneurs, success and failure rates as well as the avg. size of seed and growth stage investments. The results in terms of total investment are then fed into a formula based on a few empirical values for costs per installed kWh, specific GHG reductions and load factors to generate a detailed investment outcome in terms of installed capacity, annual generation, GHG reductions, etc. (see#5).

#### Best and worst case scenarios differ in:

- the amount of SCAF support provided per seed transaction
- the amount of cash contributed from entrepreneurs
- the success and failure rates for seed stage investments
- the characteristics of slow performers (see #3)

#### Sections of the analysis:

- #1) The seed transactions are the first source of co-financing resulting from contributions from the cooperating fund ("seed capital pool") and from entrepreneurs.
- #2) Second Stage transactions are a result of successful seed investments and generate more co-financing depending on their assumed number and average size
- #3) Non performers are directly written off and only a small percentage of slow performers manages to obtain further co-financing from sources other than the cooperating fund
- #4) The grand total investment is a sum of all investment flows (first stage + second stage + slow performers + alternative co-finance)
- #5) The investment outcome is a function of grand total investment and the technological assumptions, "specific mitigation cost to GEF" is equal to total GEF support (\$8.7m) divided by total GHG reductions
- #6) The seed stage co-finance and 2nd stage cofinance generated by SCAF, both at the cooperating funds level and the overall project level (ie incl. all co-finance and all GEF costs)

#1) First (Seed-) Stage Transactions	
SCAF enterprise development support [per \$M]	\$ 200,000
SCAF seed capital subsidy [per \$M]	\$ 50,000
SCAF contribution [per \$M]	\$ 250,000
<b>Total SCAF support line</b>	<b>\$ 6,000,000</b>
Contribution seed capital pool [%]	300%
Total cooperating fund seed capital investment	\$ 18,000,000
Cash from entrepreneurs [%]	100%
Total cash from entrepreneurs	18,000,000
Avg. size of 1st seed stage investmt.	\$ 150,000
# of investmts.	280.0
<b>Total value of 1st stage transactions (incl. SCAF support)</b>	<b>\$ 42,000,000</b>

70%

Success rate 1st stage =

30%

#2) Second (Commercial/Growth) Stage Transactions	
Value of Seed Scale Investments that graduate to 2nd Stage	\$ 12,600,000
# of seed investments that graduate to 2nd stage investments	84.0
Ave. Size of 2nd stage investmt.	\$ 1,500,000
Total value of 2nd stage transactions	\$ 126,000,000
Total investment in projects that graduate (seed + 2nd stage)	\$ 138,600,000
Subsequent failure rate of projects that graduate	10%
<b>Total value of projects that graduate (after write-off)</b>	<b>\$ 124,740,000</b>

#3) Non- and Slow Performers	
\$ 29,400,000	Value of Seed Investments that don't graduate to 2nd stage
20% \$ 8,400,000	(1) Write-off
35% \$ 14,700,000	(2) Small scale 1st stage investments w/ no add. Cofinance
+	
15% \$ 6,300,000	(3) Projects w/ alternative sources of cofinance
+ alt. leverage \$ 31,500,000	(4) Assumed 5:1 leverage from alternative sources
=	
<b>(2)+(3)+(4) \$ 52,500,000</b>	<b>Total seed stage + alternative leverage projects</b>

#4) Grand total capacity investment	
	<b>\$ 177,240,000</b>

Technological Assumptions	Total	Seed Stage	Second Stage
Avg. installed cost [\$ /kW]	1,281	1,800	1,200
Specific GHG reductions [tCO2/MWh]	0.7	0.7	0.7
Specific GHG reductions [tCO2/MW/yr]	2,200	2,200	2,200
Avg. load factor	35%	35%	35%
Avg. annual operation hours	3,110	3,110	3,110

#5) Outcome	Total	Seed	Second Stage
Total installed capacity [MW]	138.4	18.7	119.7
Total annual generation [GWh]	430.3	58.0	372.2
Annual GHG reductions [tCO2 p.a.]	304,476	41,076	263,400
Total 20yr GHG reductions [MtCO2]	6.09	0.82	5.27
Specific mitigation cost to GEF - 20yrs [\$ /tCO2]	1.4		

#6) Capital Mobilization Summary	
Cooperating Fund Co-financing in seed stage	\$ 18,000,000
Other Capital Mobilized at seed stage	18,000,000
Cooperating Fund Co-financing at 2nd stage	\$ 126,000,000
Other Capital Mobilized at 2nd stage	\$ 31,500,000
<b>Total Co-financing (seed and 2nd stage)</b>	<b>\$ 144,000,000</b>
Total Facility Co-finance ratio (Cooperating fund co-finance / \$8mn of GEF funds)	24.0
<b>Project Co-Finance Ratio (all co-financing / total GEF funds)</b>	<b>17.0</b>

Load factors and baselines are all estimates based on E&Co's 2004 portfolio and empirical data from "Standardised Baselines and Streamlined Monitoring Procedures for Selected Smallscale Clean Development Mechanism Project Activities", Ministry of Housing.

## **Annex G1 - SCAF Terms of Reference**

### **1) SCAF Operations - Fund Selection Criteria**

The cooperating funds will be selected through an open and on-going competitive tendering process. Bidding organisations will be required to submit detailed technical and financial proposals setting out relevant experience and capability to satisfy these terms of reference. These proposals and work plans, along with a draft contract prepared by the SCAF Project Management Unit, will form the basis for a request to the SCAF Management Committee. Selections will be made by the Management Committee according to the following criteria:

#### **1.1) Seed window size**

The seed window's size should be based on the potential of energy investments in the target countries, the seed capital subsidy needed to meet a competitive rate of return and the pool of commercial investment capital available to the fund manager. To keep unit management costs within an acceptable range and to maximize the effectiveness of the seed window, the minimum size of a seed window is set to USD 500k. However, it is expected that most seed windows/funds will be in the \$1.5 - \$5.0 million range for full investment funds in the \$20 million to \$100 million range. Exceptions on both minimum and maximum thresholds can be made on a case-by-case basis.

#### **1.2) SCAF support level**

The funds provided through both the enterprise development and seed capital subsidy support lines will cover only a portion of the incremental seed investment costs up to a total of \$800,000. The target for this cost-sharing will be 50%, although could range up to 75% in circumstances where the costs of enterprise development are significantly elevated (e.g. in Least Developed Countries).

#### **1.3) Seed window investment focus**

The seed window's investment focus should be on SMEs, clean energy project developers, technology manufacturers, providers and end-users; criteria should target technologies outlined, and enterprise development services should be likely to stimulate sector growth in the near term. The commercial investment window does not necessarily need to be focused only on clean energy but rather could have a broader fund focus.

#### **1.4) Performance indicators and criteria**

Comprehensive output and impact indicators should be built into the fund design via a "project score-sheet" or similar document. Verifiable deliverables and obligations of the fund manager and enterprise development service providers should be clearly spelled out (including output indicators, institutional development indicators and market development indicators). However, progress reporting should not become a bureaucratic burden on the fund manager's investment activities. A detailed monitoring and evaluation plan will be laid out in collaboration with the cooperating fund mainly building off existing reporting procedures and only adding supplementary reporting tasks where necessary.

#### **1.5) Minimum Qualifications of Fund Management**

The Fund Manager should demonstrate suitable technical and managerial experience and qualification to execute the tasks set out above. Specifically, the Fund Manager should have:

- (a) Proven experience and track record in successfully managing private equity, venture capital or special purpose investment funds in developing countries.
- (b) Demonstrated technical competence in energy project appraisal and experience in working with indigenous small and medium enterprises.
- (c) Adequate financial management and accounting capacity to meet fiduciary requirements.
- (d) Sound financial track record and integrity with a good reputation for service quality and delivery.
- (e) In-house capacity or access to a reputable network of local or regional entities to deliver enterprise development services to prospective entrepreneurs and project developers.

## **1.6) Additional Due Diligence Documentation required by SCAF**

### **(a) Investment related Documents**

- Outline of the Investment Process of the Fund Manager
- Due Diligence Process (Checklist)
- List of pipeline deals
- Information about completed transactions
- Information about earlier funds
- Waterfall/Carried Interest Calculation
- Risk Analysis
- Detailed Investment Restrictions, Policy and Strategy
- Detailed Borrowing and Guarantee Restrictions
- General Exclusion Criteria

### **(b) Policies of the Fund**

- Environment Policy
- Resettlement Policy (if different from AsDB or AfDB guidelines)
  
- Valuation Policy
- Conflict of Interest Policy
- Reporting Policy (including sample reports to limited partners)
- Risk Management Policies / Special Covenants (including hedging policy)

### **(c) Organizational and Staff related documents**

- Organization Chart of the Management Company
- Hiring Plan
- CV of all Key Management Staff (including any Key Person)
- CV of all members of the Investment Committee
- Copies of all employment contracts of key personnel
- First Year Budget of the GP and Fund Manager
- Code of Conduct
- Human Resources Handbook
- Operation and Process Manual
- Information about the reserve account structure (in lieu of a claw back provision)
- Advisory Board responsibilities of Principals

### **(d) Background Papers and Additional Information**

- Research papers on industry, sector and various sub-markets
- Added value of the proposed fund manager

## **2) SCAF Enterprise Development Support - Indicative Terms of Reference**

The SCAF Enterprise Development Support line will partially cover the cost of providing enterprise development services to project developers. These services will be aimed at helping developers assess the feasibility of a project, preparing the documentation of an investment proposal and managing the start-up/project development process. Fund managers will determine what sort of enterprise development services to offer, but will be required to provide the minimum set of services described below to benefit from this particular support line.

### **2.1) Main Objectives of the Support Line**

Provide the necessary information, training and coaching needed by entrepreneurs to start planning and building a clean energy project or business that can supply affordable, reliable and appropriate energy services.

Fulfilling the above objective will require the cooperating fund to assess technical, managerial and other capacity building requirements of prospective investee companies; Develop and facilitate delivery of enterprise development interventions to prospective investee companies; Monitor enterprise development activities and account for all services provided.

### **2.2) SCAF Contractual Arrangements**

SCAF enterprise development support will be provided to the cooperating fund manager in the form of annual fees and will be time limited to between three and five years. Fees will be based initially on the amount of seed capital under management. The fund manager will be obliged to meet an investment schedule failing which the annual enterprise development cost sharing fees will decrease.

### **2.3) Institutional Arrangements:**

For the purpose of providing enterprise development assistance, each cooperating fund has the choice to either:

- Deploy own personnel for the realization of enterprise development services;
- Contract, prior to SCAF disbursements, a local/regional partner organization or expert that will realize all or a portion of the services.

In either case, the entity shall possess the adequate background and experience in supporting enterprise development in the energy sector, have linkages with industry, and be capable to provide technical support for the agreed duration.

### **2.4) Minimum Services Required**

#### ***a) Enterprise Development Training (regular Workshops, e.g. annual)***

Provide enterprise development training to entrepreneurs. The goal is to conduct workshops that will broadly raise awareness of investment opportunities in the clean energy sector and more specifically help participants prepare bankable investment proposals for the cooperating fund.

Typically, the workshops should cover the following stages of early-stage enterprise development:

- Validation and refinement of a business idea
- Fact-finding and conducting a feasibility study
- Conducting a competitive-/market analysis
- Crafting a business plan and setting goals
- Building a financing plan

*Deliverables:* A minimum number (to be negotiated with cooperating funds on a case-by-case basis) of (a) entrepreneurs trained on how to develop a project and start a business; (b) entrepreneurs and business opportunities identified for subsequent individual enterprise development coaching.

### ***b) Enterprise Development Coaching (Individual)***

#### *Stage I - Pre Investment Support (Business Plan Preparation)*

The most promising entrepreneurs selected during the training stage will be guided through all stages from refining a project idea and building a fully fledged business and financing plan to due diligence and crafting shareholder agreements.

The goal of pre-investment stage coaching is to guide previously selected entrepreneurs through all stages leading to successful submission to the cooperating fund's investment committee. However, the investee selection process should be carried out as a continuous routine. Consequently, if the entity providing pre-investment coaching services considers results at any stage to be unsatisfactory, it shall refrain from providing further assistance.

Individual coaching should comprise conceptual and methodological guidance, progress assessment and review of results throughout the following stages:

- Vetting the submitted proposal
- Assistance in fact-finding and feasibility analysis
- Guidance through business and financing plan production
- Submission to investment committee
- Follow-up on questions and clarifications
- Formal due diligence
- Crafting of loan or shareholding agreements

*Deliverables:* A minimum number (to be negotiated with cooperating funds on a case-by-case basis) of (i) entrepreneurs assisted with feasibility studies, business- and financing plans; (ii) "investment grade" business plans to be submitted for review by cooperating fund's investment committee.

#### *Stage II - Post Investment Support (Business Start-Up and Expansion)*

On a needs-basis, entrepreneurs that successfully completed pre-investment stages and obtained seed funding by the cooperating fund will receive individual coaching and basic asset management and monitoring and evaluation services, most notably:

- Advise on enterprise structuring and start-up issues
- Assistance in accessing legal and financial expertise



- Enterprise monitoring and evaluation
- Support commercial development and expansion of enterprise
- Provide input for course corrections
- Assist in preparing for second stage investment

*Deliverables:* (a) A minimum number (to be negotiated with cooperating funds on a case-by-case basis) of projects receiving coaching during the business start-up and expansion phase.  
 (b) Biannual reports on each of the projects that reached seed finance disbursement stage.

## **2.5) Optional Services (to be negotiated and compensated separately)**

### *a) Enterprise Development Tools*

On a needs basis, prepare customized enterprise development tools that suit the needs of local project developers. The tools to be developed will help energy entrepreneurs with specific issues such as assessing market opportunities, determining the most appropriate technologies, building a business plan, attract financing as well as implementing and monitoring start-up activities.

*Deliverables:* Tools tailored to the needs of the specific target audience. Final products will be publicly available documents. SCAF and the cooperating fund or service provider will jointly hold the rights for public distribution and use.

### *b) Involvement of Local and Regional Financial Institutions*

Identify and screen prospective local and regional financial institutions with an interest in the renewable energy market. In collaboration with local partners, prepare and present training programs/orientation sessions to financial institutions' senior management and investment officers. Build awareness amongst financial institutions of clean energy enterprises, and in so doing leverage renewable energy investment flows. Provide local and regional financial institutions with examples of successfully financed renewable energy projects, energy enterprise business models, and case studies that outline project evaluation and risk mitigation strategies.

*Deliverables:* A minimum number (to be negotiated with cooperating funds on a case-by-case basis) of local/regional financiers trained.

### **3.) SCAF Seed Capital Subsidy - Indicative Terms of Reference**

#### **3.1) Main Objectives of the Support Line**

The Seed Capital Subsidy, paid on a project by project basis, is designed to offset the hurdle of higher perceived risks and lower expected returns when dealing with early stage sustainable energy enterprises. Its main objective is to offer project specific and time limited support to cover the incremental risk/returns hurdle, the gap between what a portfolio of early stage enterprises are able to provide in terms of risk adjusted returns on investment, and what mainstream investors are able to finance.

#### **3.2) SCAF Contractual Arrangements**

The seed capital subsidy will be paid out on an investment by investment basis. Payment amounts are subject to negotiation during the preparatory period of the SCAF support agreement and will be dimensioned to bridge part of the gap (e.g. 40%-60%) between prevailing hurdle rates and expected returns of the overall seed investment portfolio. Each payment will be made upfront at time of investment, although will be calculated to cover part of the return gap over a 3 to 4 year period, the time it typically takes to graduate a seed scale investment to full scale investment, if and when this happens. The upfront payments will be calculated on a net present valued basis.

#### **3.3) Minimum Services Required**

The fund manager of the cooperating fund will be responsible for all operational and administrative aspects of the project/seed window to be created involving compliance with relevant legal requirements, marketing, project identification and screening, monitoring as well as disinvestments and a coherent exit strategy.

On an project-by-project basis, the fund manager will be required to:

*a) Prior to contracting with SCAF:*

- Create seed window institutional structure and documentation including, but not limited to contracting, transfer of funds and board membership arrangements
- Ensure compliance with relevant legal requirements

*b) On a project-by-project basis:*

- Screen and appraise potential seed-stage energy ventures
- Request SCAF approval for each project to be submitted to cooperating funds investment committee (a max. 10 business day response will be provided by the SCAF PMU)
- Submit investment proposals to cooperating fund's investment committee
- Continuously track progress of the seed portfolio

*c) Periodically prepare and submit progress reports including<sup>40</sup>:*

- Investment activity report (quarterly)
- Enterprise Development activities report (quarterly)
- Reports on income and expenditure (quarterly)
- Annual report on the fund's activities (including benchmarking of seed window and fund performance and income and expenditure account to be reviewed by external reviewer approved by Management Committee)

---

<sup>40</sup> Wherever possible the reporting format and frequency will be based on existing reporting requirements to fund investors.

- Comply with all other agreed monitoring and evaluation requirements
- Liaise with the SCAF project management unit on any other issues as and when required

### **3.4) Eligible Investments - Restrictions and Exclusions**

#### **3.4.1) Eligible Countries of Investment**

Support agreements can be negotiated for fund investment activities in any GEF eligible country in Africa or Asia that has endorsed the SCAF. The use of SCAF funds for investments in Latin American countries is excluded.

#### **3.4.2) Exclusion of prior beneficiaries of GEF support**

The cooperating fund will not employ SCAF-funds to provide seed capital and/or enterprise development services to entrepreneurs or ventures that within a three year period prior to obtaining SCAF support already benefited from direct capital- and/or investment cost subsidies from any other Global Environment Facility supported programme.

For this purpose, and on a project by-project basis, the cooperating fund will:

- (a) Communicate with the SCAF project management unit to make sure investments comply with the above conditions.
- (b) Certify the compliance of proposed investments with the above condition.

#### **3.4.3) Eligible technologies**

The cooperating fund will restrict the use of SCAF support to the facilitation of seed investments in the below listed eligible technologies. Technologies not included in the below list will be considered on a case-by case basis. In the overall SCAF, there will be the minimum target that at least half of the projects supported will be in the renewable energy area<sup>41</sup>.

##### *(1) Eligible renewable energy technologies<sup>42</sup>:*

- (a) wind pumps for mechanical water pumping for agriculture and domestic water supply;
- (b) low-temperature solar thermal heat for household and agricultural sectors;
- (c) biomass and geothermal heat, including combined heat and power, and use of urban and industrial wastes for process heat and district heating;
- (d) wind, biomass, photovoltaics, small-scale hydro, and other renewable energy for rural electricity supply;
- (e) renewable energy for grid-connected electricity (e.g., wind farms);
- (f) renewable energy for rural and agro-processing industries;
- (g) storage systems (e.g., batteries) for cost-effective but intermittent renewable energy supplies; and
- (h) biogas digesters for lighting and water pumping (family-size digesters for home lighting and cooking; community-size digesters coupled with engines and electric generators for water pumping, lighting, and village power needs).

##### *(2) Eligible least-economic cost energy-efficient technologies<sup>43</sup>:*

<sup>41</sup> Discussions with prospective cooperating funds indicates that renewables should actually account for between 2/3 and ¾ of projects supported.

<sup>42</sup> according to GEF Operational Program Number 6, Programme Objective 6.10 as of 03/2003

<sup>43</sup> according to GEF Operational Program Number 5, Programme Objective 5.8 as of 03/2003

- (a) industrial energy consumption (efficient drives, motors, and improved systems configurations);
- (b) manufacturing processes in energy-intensive industries (basic materials processing);
- (c) effective use of energy intensive materials;
- (d) combined heat and power technologies;
- (e) manufacture of more energy-efficient equipment (refrigerators, industrial motors, and lighting systems);
- (f) passive heating and cooling (building regulations and designs);
- (g) commercial buildings (more efficient lighting and space conditioning); and
- (h) district heating and cooling (insulation, weatherization, boiler tuning, and controls).

#### **3.4.4) Maximum Seed Investment Size**

Unless otherwise approved by the Management Committee, the individual seed investments to be made by a cooperating fund will not be more than \$350,000 in size. Larger transactions will not be considered seed finance investments although the possibility exists to negotiate prorated payments for larger investments up to a higher maximum size<sup>44</sup>.

#### **3.4.5) Timing of Seed Investments**

To be considered an eligible seed investment the fund manager must certify that they do not normally intend to provide follow-on investment to the project/company in the 12 months following disbursement of the seed funds. If follow-on investment does occur during the 12 month period the fund manager must inform the SCAF and either i) request a waiver, based on the assertion that the two commitments combined are still small enough to constitute a seed finance transaction, or ii) pay back the initial seed capital subsidy, based on the assertion that the project is now investment grade and is no longer in need of seed financing.

#### **3.4.6) Investment in pre-commercial markets**

In each target country, SCAF-supported seed financing shall only be drawn on for investments in ventures, sectors and technology areas that are still in the early stages of development. For this reason, and taking into consideration the technology baseline of every target country, the SCAF will:

- (a) Prior to start of operations, as per agreed terms and conditions: Set a limit to the number and/or volume of investments in a specific technology area of the target country (typically up to four seed investments in each of the above mentioned eligible technologies, depending on country and market context)
- (b) After the establishment of the seed capital window and the start of operations: Reserve the right to cease support for investments and refuse approval of further investment proposals in a specific technology area, if there is a clear sign that the respective market has reached its critical mass or the threshold to being commercially viable.

#### **3.4.7) Exclusion of carbon finance support**

SCAF support cannot commingle with carbon finance revenues.

- a) SCAF funds cannot be used to pay for the transaction costs involved with the issuance of Kyoto Protocol carbon credits (including methodological development; verification, and certification)
- b) Only subsequent replication or scale-up of seed supported investments can be eligible for carbon finance.

---

<sup>44</sup> ie under certain circumstances a \$500,000 investment could be eligible, but would receive SCAF subsidy only for the first \$350,000 of investment.

- c) Where SCAF supported seed finance is used for investing in hardware (e.g., a test wind turbine or a number of solar water heating installations), the cooperating fund manager will need to certify that this hardware is ineligible for carbon sale through the Kyoto Protocol or any other carbon trading mechanism<sup>45</sup>. For SCAF monitoring, any second stage financed project that does secure carbon finance will be considered replication and not direct co-financing.

#### **3.4.8) Compliance with Environmental Safeguards**

- d) All projects have to be prepared to follow the requirements of AsDB's or AfDB's environment safeguard policies and the relevant parts of their Environmental Assessment Guidelines. For this purpose, cooperating funds shall mainstream compliance with environmental safeguards by incorporating measures to mitigate potentially adverse impacts as key aspects of their investment, project design, construction, and operating processes

---

<sup>45</sup> The hardware installed through a SCAF supported seed finance transaction will never be large enough to justify a CDM Certified Emissions Reduction carbon sale on its own. However it is possible that the equipment installed at the seed stage is bundled together with a much larger project installed at the full commercial stage. In this instance the seed financed equipment would not be eligible for CDM carbon revenues (i.e., the project sponsor would need to retire, or set aside, a share of the carbon reductions that is equivalent to the share of the support provided by SCAF).

## Annex G2 - Regional Development Bank Terms of Reference

The Regional Development Banks will be engaged as executing agencies to participate in the implementation and execution activities of the Seed Capital Assistance Facility. This engagement will involve:

1. Representation on the Management Committee, including:
  - 1.1. On an on-going basis,
    - 1.1.1. Providing oversight to the overall facility operation
    - 1.1.2. Approving SCAF operational procedures
    - 1.1.3. Provide input to any required course corrections or terminations as and where needed.
  - 1.2. On a fund by fund basis,
    - 1.2.1. Agreeing to the Terms and Conditions of the support agreements to be signed with cooperating funds.
    - 1.2.2. Selecting evaluators and Terms of Reference for the due diligence they will carry out on cooperating fund entities, including anti-corruption safeguards.
    - 1.2.3. Accepting or rejecting evaluator recommendations.
    - 1.2.4. Approval of cooperating fund proposals to set up seed fund windows.
    - 1.2.5. Agree to the execution of any contracts with national development banks in Africa.
2. Execute project activities, specifically:
  - 2.1. Through energy sector activities in their region, identify on an on-going basis prospective fund managers for SCAF support.
  - 2.2. For proposals approved by the Management Committee, execute contracts with cooperating fund managers (AsDB in Asia).
  - 2.3. Provide cooperating fund managers with any parallel investment, co-finance or related support, as and where possible, from on-going RDB energy sector support programmes (eg. FINESSE, REACH).
  - 2.4. Provide relevant institutions with any parallel support, as and where possible from on-going RDB energy sector support programmes.
  - 2.5. Review quarterly reports and annual independent audits of cooperating fund manager disbursements, investment activity and portfolio performance.
  - 2.6. Recommend any spot checks or random audits as may be warranted.
  - 2.7. Report on activities executed on a half-yearly basis in sub-project document format.
  - 2.8. Provide expenditure statements on a quarterly basis in sub-project document format.
  - 2.9. Provide cash advance requests on a quarterly basis, or as needed, in sub-project document format.
  - 2.10. Provide audit statement on an annual basis<sup>46</sup>.
  - 2.11. Contribute to the joint annual monitoring reports (GEF Project Implementation Reviews) prepared by UNEP.
  - 2.12. Participate in the mid term evaluation and provide management response as appropriate.
  - 2.13. Participate in the final independent evaluation and recommend follow-up actions for UNEP, GEF and the RDB.

For funds transferred directly from the GEF Trustee to the RDBs, the terms of reference will remain the same except for the operation associated with fund transfers from UNEP to the RDB or seed fund managers.

---

<sup>46</sup> organization wide audit is acceptable if specific mention is made of the SCAF project

## Annex G3 – Project Manager Terms of Reference

Co-ordinates all actions of the Project Management Unit required for the effective implementation of the overall project and its sub-activities by:

- (a) Monitoring subproject implementation by all collaborating agencies at all stages, including analyzing difficulties and taking remedial action; preparing and submitting reports to UNEP's GEF Coordination Office.
- (b) Working with the Management Committee to put in place effective procedures for SCAF project management.
- (c) Working with the regional development banks to raise awareness of the facility and to solicit proposals from prospective private sector fund managers.
- (d) Undertaking outreach activities with the private equity community to further raise awareness of the facility.
- (e) In Africa, working with the African Development Bank to identify executing agencies for administering SCAF support to national or regional partner funds.
- (f) Reviewing proposal documentation supplied by prospective fund managers and for those that look promising preparing letters of intent to be sent from the Management Committee.
- (g) Interfacing with the prospective fund manager to provide guidance for the development of enterprise development support programmes and associated seed finance windows.
- (h) Working with the prospective fund manager to prepare SCAF support agreements for the creation of the seed finance windows and the enterprise development services they will provide.
- (i) Overseeing the due diligence process of the prospective funds.
- (j) Preparing the fund support agreements for submission to Management Committee for approval.
- (k) Negotiating with implementing/executing agencies any changes needed to sub-project workplans and making necessary amendments to Project Documents and budgets.
- (l) Requesting actions for contracting experts and ensuring satisfactory and expeditious completion of such actions.
- (m) Preparing and/or reviewing project written outputs and revising them as required.
- (n) Preparing and/or reviewing various project administrative reports, e.g., periodic progress reports, technical contractors' agency terminal reports, and, as requested, project status reports, fiscal reports and briefing notes.
- (o) Arranging for the completion of the sub-projects and main project, and ensuring all documents and financial accounts are finalized.

The project manager should have an advanced degree in engineering, business, finance or equivalent. General knowledge of and familiarity with renewable energy finance, seed finance, enterprise development, and climate change issues.

At least 15 years experience in development finance, project and program management, preferably with national or international agencies. Experience in developing and implementing GEF and/or renewable energy projects is beneficial. Work experience in developing countries and in projects involving multiple international agencies is highly desirable.

## Annex G4 – Due Diligence Consultants Terms of Reference

Under the guidance of the SCAF project manager, due diligence consultants will be hired to prepare detailed audits of each prospective cooperating fund management entity as a condition precedent for SCAF contractual engagement.

Bidding organisations to the SCAF will be required to submit detailed technical and financial proposals setting out relevant experience and capability to satisfy these terms of reference. The due diligence consultant will undertake an evaluation to verify that the fund entity has the appropriate capacity, management systems and legal authorities to carry out the proposed investment activity and as well has the ability and systems in place to provide the proposed enterprise development support. The following will be assessed as part of this work:

- 1) **Verify Seed window size-** The seed window's size should be based on the potential of energy investments in the target countries, the seed capital subsidy needed to meet a competitive rate of return and the pool of commercial investment capital available to the fund manager.
- 2) **Verify SCAF support level -** The funds provided through both the enterprise development and seed capital subsidy support lines will cover only a portion of the incremental seed investment costs up to a total of \$800,000. The target for this cost-sharing will be 50%, although could range up to 75% in circumstances where the costs of enterprise development are significantly elevated (e.g. in Least Developed Countries).
- 3) **Verify Seed window investment focus -** The seed window's investment focus should be on SMEs, clean energy project developers, technology manufacturers, providers and end-users; criteria should target technologies outlined, and enterprise development services should be likely to stimulate sector growth in the near term.
- 4) **Verify the Existence of Performance indicators and criteria -** Comprehensive output and impact indicators should be built into the fund design via a "project score-sheet" or similar document. Verifiable deliverables and obligations of the fund manager and enterprise development service providers should be clearly spelled out (including output indicators, institutional development indicators and market development indicators). A detailed monitoring and evaluation plan must be laid out, building off existing reporting procedures and only adding supplementary reporting tasks where necessary.
- 5) **Verify Minimum Qualifications of Fund Management -** The Fund Manager should demonstrate suitable technical and managerial experience and qualification to execute the tasks set out above. Specifically, the Fund Manager should have:
  - i) Proven experience and track record in successfully managing private equity, venture capital or special purpose investment funds in developing countries.
  - ii) Demonstrated technical competence in energy project appraisal and experience in working with indigenous small and medium enterprises.
  - iii) Adequate financial management and accounting capacity to meet fiduciary requirements.
  - iv) Sound financial track record and integrity with a good reputation for service quality and delivery.
  - v) In-house capacity or access to a reputable network of local or regional entities to deliver enterprise development services to prospective entrepreneurs and project developers.

### Verify Additional Documentation required by SCAF:

- 6) **Investment related Documents**
  - i) Outline of the Investment Process of the Fund Manager
  - ii) Due Diligence Process (Checklist)
  - iii) List of pipeline deals
  - iv) Information about completed transactions
  - v) Information about earlier funds
  - vi) Waterfall/Carried Interest Calculation
  - vii) Risk Analysis
  - viii) Detailed Investment Restrictions, Policy and Strategy
  - ix) Detailed Borrowing and Guarantee Restrictions



x) General Exclusion Criteria

**7) Policies of the Fund**

- i) Environment Policy
- ii) Resettlement Policy (if different from AsDB or AfDB guidelines)
- iii) Valuation Policy
- iv) Conflict of Interest Policy
- v) Reporting Policy (including sample reports to limited partners)
- vi) Risk Management Policies / Special Covenants (including hedging policy)

**8) Organizational and Staff related documents**

- i) Organization Chart of the Management Company
- ii) Hiring Plan
- iii) CV of all Key Management Staff (including any Key Person)
- iv) CV of all members of the Investment Committee
- v) Copies of all employment contracts of key personnel
- vi) First Year Budget of the GP and Fund Manager
- vii) Code of Conduct
- viii) Human Resources Handbook
- ix) Operation and Process Manual
- x) Information about the reserve account structure (in lieu of a claw back provision)
- xi) Advisory Board responsibilities of Principals

**9) Background Papers and Additional Information**

- i) Research papers on industry, sector and various sub-markets
- ii) Added value of the proposed fund manager

The due diligence consultant should have an advanced degree in accounting, business, finance or equivalent. General knowledge of and familiarity with renewable energy finance and climate change issues an asset. At least 10 years experience managing or evaluating development finance projects. Work experience in developing countries and in projects involving multiple international agencies is highly desirable.

## **Annex H - SCAF Monitoring, Evaluation and Reporting**

### **1) Monitoring, Evaluation and Reporting**

The objective of monitoring and evaluation plan will be to assist all project participants in assessing project performance and impact, with a view to maximizing both. Monitoring will be a continuous review and surveillance by the SCAF PMU to ensure that all required actions are proceeding as planned. Evaluation will help in determining systematically the relevance, efficiency, effectiveness and impact of various activities in light of their objectives.

The general and specific objectives of the project, and the planned outputs, have provided the basis for monitoring, evaluation and reporting. The project will be evaluated on the basis of execution performance, output delivery, and project impact.

### **2) Execution performance:**

Execution monitoring will assess whether the management and supervision of project activities is efficient and seek to improve efficiencies when needed so as to improve overall effectiveness of project implementation. This will be a continuous process carried out by PMU, which will consist of collecting information about the execution of all SCAF activities, advising on improvements of methods and performance, and compare accomplished with programmed tasks. This activity will be the direct responsibility of the project manager in the Project Management Unit (PMU), working under the supervision of UNEP/REFU.

### **3) Project impact:**

Evaluation of the project's success in achieving its outcomes will be monitored continuously throughout the project through semi-annual progress reports, annual summary progress reports, a mid-term and final evaluation all of which will use the project logical framework (*Annex B: Logical Framework Analysis*) for indicators and means of verification. While indicators of outcomes in the marketplace will be monitored, no single project will be solely responsible for all change in the marketplace. Influence may be detectable.

### **4) Global Goal:**

The project is consistent with the global objective expressed in Operational Program #6, Promoting the adoption of renewable energy by removing barriers and reducing implementation cost. The GEF alone cannot influence this goal but must carry out actions as financial instrument of the UNFCCC. In the absence of OP6 projects, fossil fuel emissions would certainly be greater and RETs would have much less chance of success. UNEP is not responsible for monitoring at this level; however some sources of information are referenced in any case.

### **5) Tasks and Responsibilities of the Project Management Entities:**

- Project Manager and Task Manager will be appointed by UNEP.

<b>INTERNALLY EXECUTED</b>			
<b>Report</b>	<b>Format</b>	<b>Timing</b>	<b>Responsibility</b>
Co-financing Report	Provided in Annex 1C	Half-Yearly	PMU
Progress Report	Provided in Annexes 3A, 3B, 3C	Half-Yearly	PMU
Logical Framework	Provided in Annex B		PMU
Self-Evaluation Report	Online	Yearly March	PMU
Project Implementation Review (PIR) report	Per GEFSec format	Yearly for progress up to end of June (after project has been under implementation for one year)	Task Manager
Spot check	Once in 6 months (PC) Once in a year (TC)	During project implementation	Task Manager
Mid-term review	In-depth evaluation report	During project implementation	Task Manager
Final report	Provided in Annex 4	End of project	PMU/Task Manager
Independent terminal evaluation	In-depth evaluation report based on Terms of Reference (ToR)	End of project	Task manager, /EOU

<b>EXTERNALLY EXECUTED</b>			
<b>Report</b>	<b>Format</b>	<b>Timing</b>	<b>Responsibility</b>
Investment Activity Report (for each fund supported)	Tbd (based on existing reporting procedures of cooperating fund)	Tbd (based on existing reporting procedures of cooperating fund) Minimum of Half-Yearly	Fund Manager to IA/EA and PMU
Enterprise Development Activities Report (for each fund supported)	In-depth activity report	Tbd. Minimum of Half-Yearly	Fund Manager to IA/EA and PMU
Audited Income Statement (for each fund supported)	Basic report on income and expenditures, format tbd based on existing reporting procedures of cooperating fund	Tbd (based on existing reporting procedures of cooperating fund)	Fund Manager to IA/EA
Annual Fund Activity Report (for each fund)	Tdb (based on existing reporting procedures of	Yearly	Fund Manager to IA/EA and/or

supported)	cooperating fund)		PMU
Progress Report	To be provided in sub-project document format	Half-Yearly	IA/EAs to PMU
Spot check	Once in 6 months (PC) Once in a year (TC)	During project implementation	PC/Task Manager
Mid-term Review	In-depth evaluation report	During project implementation	Task Manager and IA/EA
Final Report	To be provided in sub-project document format	End of project	IA/EA/Task Manager
Self-Evaluation Report	Online	End of project	Task Manager
Independent terminal evaluation	In-depth evaluation report based on Terms of Reference (ToR)	End of project	Task manager, /EOU
Expenditure Statement	To be provided in sub-project document format	Quarterly	IA/EAs to PMU
Co-financing Report	Provided in Annex 1C	Annually	IA/EAs to PMU
External audit		Yearly and End of project	IA/EAs to PMU
Cash advance request	To be provided in sub-project document	Quarterly or as needed.	IA/EAs to PMU

**Overview of monitoring and reporting responsibilities of the project management entities:**

<b>UNEP/DGEF (Task Manager &amp; FMO)</b>	<b>UNEP-REFU SCAF Project team (Project Management Unit)</b>	<b>Management Committee</b>	<b>Implementing/ Executing Agencies</b>
Monitor the agreed M&E plan in accordance with the terms of agreement with GEFSEC	Establish responsibility and reporting guidelines for all partners in the project and ensure that they meet reporting dates and provide reports of suitable quality	Oversee overall operating strategy, including M&E activities. Ensure the successful and credible operation of the facility.	Contract with funds to carry out enterprise development / seed finance activity. Include M&E provisions in contracts to ensure needed information is provided.
	Coordinate inputs from all cooperating institutions and experts associated with the project.	Review and approve proposals to the SCAF facility.	
	Coordinate inputs from ongoing other renewable energy projects / programmes as needed.		
Receive half-yearly progress reports, and copies of all substantive and financial reports from Project Management Unit.	Prepare half-yearly progress reports and financial reports for UNEP/DGEF, and forward substantive and financial reports, with supporting documentation as appropriate, in a timely manner.		
Engage and prepare ToR for independent M&E consultants to conduct mid-term / final evaluations	Coordinate periodic internal review for the SCAF performance and seed capital investments supported by SCAF.		
	Coordinate overall project activities, and pay attention to implementation problems and suggest remedies to Management Committee.		
	Conduct supervision missions to selected project sites to identify implementation problems and suggest remedies to Management Committee.		
Ensure compliance with UNEP/DGEF policies and procedures			

# Annex I - Stakeholder Consultation Summaries

## Annex I.1 - Stakeholder Consultation - Asia Region

In the Asian region, the main stakeholders consulted were:

Fund Managers:

- FE Clean Energy
- China Clean Energy Fund
- Emerging Power Partners
- Energy Efficiency Project Investment Company Ltd
- InterAsia Renewable Energy Fund

Other Stakeholders:

- Electricity Authority of Cambodia – National regulatory body of Cambodia
- Ministry of Environment - Department of Planning (Cambodia)
- Ministry of Industry, Mines, and Energy (Cambodia)
- SME Cambodia – NGO active in Rural Electrification/IPP sector support
- World Bank: Renewable Energy Action Plan (Cambodia)
- Agricultural Bank of China (Yunnan, China) – Foreign investment section
- Selco Solar Light Pvt. Ltd. (India) – Provider of solar PV equipment/services
- Ministry of Energy – Dept. of Alt. Energy Dev. and Efficiency (Thailand)
- Palang Thai (Thailand) – NGO active in clean energy policy advocacy
- Thai Biogas Energy Co. (Thailand) – Private developer of biogas projects
- Asian Development Bank– Private Sector Group (Philippines)
- Cepalco (Philippines) - Private electricity utility (gen. and dist.) on Mindanao
- UNEP and UNDP, Regional Office for Asia/Pacific (Bangkok)

### Feedback Summary

With the increasing demand for electricity from both residential and commercial consumers along with a need to reduce energy supply risks and costs, the consulted stakeholders across the region showed a real desire for an increase in the flow of private sector equity into the emerging private energy sectors of the countries. There was also a perception that additional support in the form of early stage capital, business services and specific technical skills pertaining to clean energy are also needed. Renewable energy sources are widely available across Asia, and governments and industry are keen to identify and adapt technologies and put systems in place to take advantage of this potential in the near term.

All stakeholders were supportive of the concept of the creation of new clean energy funds, including with seed windows, and saw the need for such instruments in their respective markets, although ideas on modes of implementation and terms for investment differed among the parties.

The individual organizations specific areas of interest are noted below:

- **Electricity Authority of Cambodia** – National regulatory body, responsible for regulation of generation and distribution. ECA has begun a program to impose standards on the rural transmission and distribution systems that operate independently across the country. EAC is concerned that these local IPPs have access to sufficient technical and

financial resources to bring their systems into line with the new regulations that will come into effect in the next few years.

- **Ministry of Environment** - Dept. of Planning (Cambodia): The Department of Planning is working to encourage other government agencies, international donors, and the private sector to adopt clean energy solutions. They realize the need for investment and business services to be directed into sustainable energy sector for it to become viable in the minds of local developers.
- **Ministry of Industry, Mines, and Energy** (Cambodia): The Ministry is interested to see coordinated and sustainable growth in rural electrification systems across the country. They would like to see Cambodia's limited hydro power potential developed to its fullest as part of the newly emerging national grid plans. A private sector fund focused on these two sectors would support the Ministry's overall plan for energy development in Cambodia.
- **SME Cambodia:** This group has been working since 2000 to assist rural IPPs to organize and improve their business operations. They helped establish the Rural Energy Enterprise Association in Cambodia and have a number of projects to offer for development. They would be well positioned to prepare rural IPPs for any seed fund window.
- **Agricultural Bank of China** (Yunnan, China): Discussions with the bank focused on how foreign investment companies can operate in the Chinese energy market. While there are still significant obstacles for foreign investors, the Bank officials expressed a need for foreign funds and business practices to be brought into the sector.
- **Selco Solar Light Pvt. Ltd. (India)** – Provider of solar PV equipment/services: Selco India was positive about the development of a specialized fund for clean energy. While many programs exist in India for supporting Solar (and other renewables) they are often tied to regulations or conditions that make them difficult to utilize fully. Additional funds and competition in the market would help the clean energy industry overall. Selco has received seed capital investment from E+Co in the past.
- **Ministry of Energy** – Dept. of Alt. Energy Dev. and Efficiency (Thailand): The Thai government supports clean energy in a number of ways through subsidies and special access to PPAs for clean energy projects. In general though Thai investors and banks have been slow to finance these types of projects. Additionally appropriate technologies and business models are needed to provide examples in the industry. The creation of fund vehicles was seen as a positive development that could accelerate the uptake of projects already proven as tech/financially viable but not clearly understood by the commercial sector.
- **Palang Thai** (Thailand) – NGO active in clean energy policy advocacy: Discussions with Palang Thai confirmed the need for real and successful projects in the private sector that can demonstrate the ability of the private sector to play a role in energy service delivery and through this can encourage enlightened policy decisions affecting the sector. A new clean energy fund was seen as a good vehicle for the creation of such projects, particularly if it could provide early stage finance to get the commercial pipeline of projects developing in Thailand.

- **Thai Biogas Energy Co.** (Thailand) – Private developer of biogas projects: This group is representative of several private sector project developers that would welcome the addition of a fund and fund management company experienced in developing and financing clean energy projects.
- **Cepalco** (Philippines) - Private electricity utility (generation and distribution) in Mindanao: This company is representative of several private sector power generation and distribution companies in the Philippines that would welcome the addition of a fund experienced in financing clean energy projects.

## **Annex I.2 - Cameroon**

In Cameroon, the main stakeholders consulted were:

Fund Managers:

- E+Co Africa
- GroFin
- Triodos

Other Stakeholders:

- National Investment Corporation (NIC)
- AER, Rural Electrification Agency
- AES-Sonel, subsidiary of US utility
- Cameroon Power and Lighting Corporation (CPLC)
- ARSEL, regulatory body
- Minister of mines and energy
- Fund Special of Equipment and Inter-commune Intervention (FEICOM)
- UNDP and the World Bank

### **Summary Feedback**

Discussions with stakeholders confirmed that there is a strong and repeated support from all stakeholders for a financing mechanism aimed at developing power generation and distribution and that including a seed finance window, if possible, is the way to develop the investment pipeline, which at present is promising but very immature. Reasons for support include a need for increasing sources of supply, improving service quality, developing rural electrification, promoting the involvement of the private sector in the electricity sector. Especially, given the country's huge hydro potential, a number of them have underlined the need for smaller, more diverse, off-grid hydro projects. Many hydro/biomass projects could be developed in the short and medium term.

The Fund concept was presented to all the above organizations and encouraging feedback was provided overall, with strong manifestations of interest to participate from: AES-Sonel, NIC, and FEICOM. From the interaction with different stakeholders, it appears that: public organizations such as the NIC and FEICOM will not be able to invest in a regional Fund, as the scope of their mission is limited to Cameroon. Institutions that are likely to invest on a regional level include the Central African Development Bank (BDEAC) and international financial institutions.

The meetings also revealed a number of key questions and contradictions identified in the regulatory and institutional framework of the electricity sector in Cameroon. The results of individual consultations is summarized as follows:



- **National Investment Corporation (NIC)**, state investment company. NIC's activities focus on private sector development and investment in parastatals. The meeting with the CEO generated a great deal of interest. The NIC supports the fund idea and is very keen to get involved. This also coincides with the fact that they are busy developing a strategic plan for company involvement in the energy sector for the next ten years.
- **AER, Rural Electrification Agency**. AER indicated that they have a portfolio of 15 hydro projects, for which feasibility studies have been completed. This portfolio will also be submitted to the UNDP/GEF program and there is good complimentary between the sorts of support these two projects can provide.
- **AES-Sonel**, subsidiary of US utility; AES-Sonel currently has the monopoly to run the electricity market in Cameroon. It is interested in the project for such reasons as strategic positioning and corporate social policy with regard to upcoming retrenchment. They are interested to see the fund financing the rehabilitation of some old small hydro sites.
- **Cameroon Power and Lighting Corporation (CPLC)** CPLC is interested in the rehabilitation of AES-Sonel small hydro sites. Among their shareholders is Mecamidi, a French company based in Toulouse that manufactures turbines. Discussions with the Minister of mines and energy indicated that Mecamidi could possibly be awarded the concession. Because it appears that Mecamidi has plans for Cameroon beyond the East province, this seems to represent an opportunity to partner in developing the concession area but also other projects. They also represent a strong potential partner for the fund.
- **ARSEL**, regulatory body. A number of issues regarding the implementation of the regulatory framework were discussed. Discussions focused mainly around: competition, concession and licensing procedure, the AES-Sonel concession, AES-Sonel monopoly, and the AES-Sonel concession area. ARSEL pledged its support for the fund initiative. A National Commission on Energy was set up last year with the mission of designing a long-term development plan for the electricity sector and to provide recommendations for the appropriate institutional and regulatory framework necessary to achieve the plan. The final report of the commission is expected before the end of the year.
- **Minister of mines and energy**, Positive feedback from the minister who pledged his full support. He later introduced us to the director of energy with whom we will be working closely. The minister offered to organize a tripartite meeting with AER and the ministry to define a partnership for the implementation of the rural electrification master plan.
- **Special Fund for Equipment and Inter-Commune Intervention (FEICOM)**, Since 1977 FEICOM has been leading the way in facilitating investment and promoting infrastructure development in Cameroon. FEICOM is a financially autonomous organization that, together with the Ministry of Finance, provides funding and counsel to operators in the sectors of construction, infrastructure, transport and energy. The principal activity of the FEICOM is the financing of projects and urban and rural communal equipment. FEICOM is already providing financial assistance to AER for rural electrification. They have reacted positively to the fund idea but are waiting to see a full proposal to decide of their participation.

**UNDP and the World Bank**, Possible collaboration with the planned UNDP/ GEF regional hydro program was discussed with representatives of both organizations in Cameroon.

## Annex J.1 - Example of Enterprises Supported by AREED

Country	Investment Name	Technology Applied	Description of Business	Financing US\$
Mali	Eco'Home	Energy Efficient Lighting	Sale of compact fluorescents products	\$112,782
Mali	Sodigaz	LPG	Distribution of Liquefied Petroleum Gas	\$183,088
Mali	USISS	Solar Thermal	Drying of food crops	\$19,665
Mali	Bagani	Bio Fuel	Jatropha powered multifunctional platforms to peel, ground cereals and charge batteries	\$15,170
Senegal	AME	Solar Thermal	Repair and installation of solar water heaters	\$41,563
Senegal	Foyers Améliorés	Biomass	Manufactures and Sales cookstoves	\$19,455
Senegal	EnergieR	PV	Solar electronics manufacture	\$37,273
Senegal	Motagrisol	PV	Solar grinding mills	\$117,551
Senegal	VEV	Wind	Repair and installation of wind pumps	\$22,395
Tanzania	BETL	Biomass	Sourcing Biomass Waste for Cement Production	\$25,000
Tanzania	Mona Mwanza Electrical 2	PV	Installs and maintains Solar PV Systems	\$50,000
Zambia	Chavuma	Energy Efficiency	Installation of EE motor control gear	\$22,300
Zambia	Chavuma2	Energy Efficiency	Installation of EE motor control gear	\$40,500
Zambia	KBPS	Biomass	Manufacture of charcoal from renewable eucalyptus waste	\$75,300
Zambia	Rasma Engineering Co.	Energy Efficiency	Manufacture and sale of energy efficient stoves and ovens	\$20,000
Zambia	RCI	Biomass	Manufactures and Distributes Nyemba Oil Fuel and its by products "pressed cake/fertiliser"	\$8,000
Zambia	TSADC	Solar Thermal	Solar Bakery	\$10,000
Zambia	Ubwato Enterprises	Energy Efficiency	Manufacture and sale of energy efficient stoves	\$15,700
Ghana	AB Management	Energy Efficiency	Power factor correction	\$122,400
Ghana	Anasset	LPG	Retail of Liquefied Petroleum Gas	\$38,000
Ghana	Fee Hi Ventures	LPG	Operates a Liquefied Petroleum Filling plant	\$33,500
Ghana	Gladymanuel	Energy Efficient Lighting	Sale of compact fluorescents	\$70,000
Ghana	Lambark Gas	LPG	Retail of Liquefied Petroleum Gas	\$109,945
Ghana	M 38 LPG Filling Plant	LPG	Retail of Liquefied Petroleum Gas	\$59,000
Ghana	Translegacy Venture Limited	LPG	Fabrication and sale of LPG stoves	\$20,000
Brazil	ASCIMA	PV	Solar water pumping for irrigation	\$47,500
Brazil	Ceramica Bandeiras	Biomass	Wood fuel for brick manufacturing	\$146,939
Brazil	Hidrosol	Solar Thermal	Sales and maintains Solar Water Heating Systems	\$17,400
Brazil	Operarias do Mel	Solar Thermal	Purchasing, packaging and marketing of Solar Dried Bee Pollen	\$27,000
Brazil	Ouro Branco	Biomass	Wood processing plant	\$50,000
Brazil	Carbo Charcoal	Biomass	Producing waste wood derived charcoal for the steel industry	\$160,000
Brazil	Solar Moveis	Solar	Commercializes low-cost highly efficient solar food dryers	\$18,333
Brazil	Village Ambiental	PV	Solar water pumping for irrigation	\$55,000

## Annex J.2 - E+Co Investment Portfolio<sup>47</sup>

Enterprise	Investment	Country	Technology	Financed
Annapurna	Annapurna	Nepal	Hydro	\$35,294
AT Biopower	AT Biopower	Thailand	Bio-mass	\$250,000
Bergey	Beijing Bergy (BWFE)	China	PV	\$80,000
Bethel	Bethel 2	Lesotho	PV	\$58,803
Bubunawan Power Company, Inc.	Bubunawan	Philippines	Hydro	\$250,000
Camargo Power Generation	Camargo Power Gene	Bolivia	Other	\$250,000
CleanThai	CleanThai	Thailand	Bio-gas	\$150,000
CleanThai	CleanThai - KWTE	Thailand	Bio-gas	\$35,000
EESM	EESM	Mexico	Energy Efficiency	\$259,608
Eficontrol	Eficontrol	Nicaragua	Energy Efficiency	\$30,000
Energy Dynamics	Energy Dynamics	Trinidad and Tobago	Energy Efficiency	\$10,000
Energy Dynamics	Energy Dynamics III	Trinidad and Tobago	Energy Efficiency	\$40,000
Energy Plus (CDK)	Energy Plus (CDK) 2	Uganda	Energy Efficiency	\$20,000
Energy Plus (CDK)	Energy Plus (CDK) 3	Uganda	Energy Efficiency	\$43,000
ESL	ESL	Uganda	PV	\$50,000
Gast Solar Mechanics PLC	Gast Solar Mechanics	Ethiopia	Solar Thermal	\$62,000
GESA	GESA	Argentina	Wind	\$50,000
Jones	Jones	Guatemala	Hydro	\$60,500
Jones	Jones 2	Guatemala	Hydro	\$100,000
KBAL	KBAL	Bangladesh	Other	\$109,203
La Esperanza	La Esperanza	Honduras	Hydro	\$250,000
La Esperanza	La Esperanza - II	Honduras	Hydro	\$200,000
LEDCO	LEDCO	Nepal	Hydro	\$133,000
Lotus	Lotus	Nepal	PV	\$150,000
Mirador Lodge San Gerardo	Mirador Lodge San Ge	Costa Rica	Wind	\$24,000
New Energies	New Energies	South Africa	Solar Thermal	\$60,308
New Energies	New Energies II (Onst	South Africa	Solar Thermal	\$52,843
New Energies	New Energies III JHC	South Africa	Solar Thermal	\$48,989
New Energies	New Energies IV Monu	South Africa	Solar Thermal	\$62,298
New Energies	New Energies V Krone	South Africa	Solar Thermal	\$23,716
NOOR	NOOR	Morocco	PV	\$109,669
Petrogas, S.A.	Petrogas, S.A.	Costa Rica	Other	\$250,000
PhilBio	PhilBio	Philippines	Bio-gas	\$200,000
PhilBio	PhilBio-B	Philippines	Bio-gas	\$76,650
Quitaracsa	Quitaracsa	Peru	Hydro	\$304,727
RAPS	RAPS	South Africa	PV	\$200,000
RAPS	RAPS II	South Africa	PV	\$80,022
Red Ceramics	Red Ceramics	Bolivia	Energy Efficiency	\$202,160
Rio Hondo SA	Rio Hondo SA	Guatemala	Hydro	\$386,364
Selco	Selco India	India	PV	\$107,500
Snow Mountain	Snow Mountain	Honduras	Hydro	\$150,000
Snow Mountain	Snow Mountain II	Honduras	Hydro	\$100,000
SOLUZ	SOLUZ DR Bridge	Dominican Republic	PV	\$150,000
SOLUZ	SOLUZ Honduras	Honduras	PV	\$209,745
Suntank	Suntank	South Africa	Solar Thermal	\$27,859
Technosolar	Technosolar	El Salvador	PV	\$75,000
Tecnosol	Tecnosol	Nicaragua	PV	\$100,000
Tecnosol	Tecnosol II	Nicaragua	PV	\$200,000
Vacvina	Vacvina 2	Vietnam	Bio-gas	\$16,000
VENSA	VENSA	Nicaragua	Wind	\$190,000

<sup>47</sup> Not including REED investments made on behalf of UNEP and listed in Annex J1.

## Annex K1 - Assessing the Benefits of REED/E+Co Investments

**Study Conclusions**<sup>48</sup> (see also an example analysis for the enterprise BETL)

The sample of enterprises for this study was drawn primarily from AREED and broadened by a selection of REED-type enterprises from E+Co's portfolio in Central America, where different technologies have been supported compared with Africa.

Since the sustainability of the business is the foundation to the sustainability of the enterprise's social and environmental impacts, attention was also given to business performance in the discussion and enterprise data presented.

All the enterprises in the sample studied were found to have significant social impacts through their operations. The narrowest social impact mechanism is income-creation for employees, local suppliers, distributors and other related industries. Further social impacts occur due to the improved availability of clean energy services to enterprise customers and enterprise involvement in the local community. The level of these social impacts depends on the nature of the enterprise's business – the scale of their operations and their contact with low-income, informal sectors.

The enterprises all have positive environmental impact through offset greenhouse gas emissions; although in two cases this is not significant in comparison to the social effects and is insufficient to be viable as a small-scale CDM project. Of the six projects with significant environmental impact, four also contribute to avoided deforestation and one to improved waste management.

So far, REED's major successes have been the identification of promising enterprises in infant sectors and giving the investment necessary for these to grow, expanding the delivery of clean energy services and establishing new sectors in the countries of operation. REED has done less to build business management capacity in supported enterprises, which in some cases would benefit from improved systems for accounting, training and responding to safety hazards.

REED combines its focus on developing specific enterprises with general entrepreneurial training, which helps to identify viable businesses, and policy level interventions in certain countries, to address barriers identified through its experiences with a wide range of local enterprises.

This study has found that the REED approach is an innovative mechanism, which has effectively overcome many of the challenges facing it to deliver valuable social and environmental impacts within its first three years. As well as strengthening the REED program for expansion, the learning from this period can help to inform the design of new enterprise investment funds and contribute to discussion on the way forward in this area of development.

<b>Enterprise Name</b>	<b>Business Area</b>	<b>REED/E+Co Investment</b>	<b>Country</b>	<b>Benefit/Co st Ratio</b>
Anasset	LP Gas retail	\$38,000	Ghana	4.5
BETL	Alternative fuel retail	\$50,000	Tanzania	7
CISA	Grid-connected small-hydro	\$450,000	Honduras	71
GTEL	Energy-efficient lighting retail	\$70,000	Ghana	9.9
SHLN	Grid-connected mini-hydro	\$250,000	Honduras	2.2
Sodigaz	LP Gas retail	\$183,088	Mali	2
Tecnosol	Solar-home-system retail	\$100,000	Nicaragua	4
USISS	Solar food-drying	\$19,665	Mali	1

Table 1: Summary of enterprises in study sample

<sup>48</sup> During the PDF-B preparatory phase a study was carried out to establish the nature, magnitude and distribution of the benefits that might be attributed to the successful operation of one or more REED/E+Co supported enterprises in a given energy-economy. The ongoing work utilizes a set of test indicators developed through collaborative research involving REED country partners and researchers from Lund University and the Said Business School at Oxford University. The full report is available upon request.

### Example Enterprise Analysis

*Enterprise Name:* **Biomass Energy Tanzania Limited (BETL)**

*Business Activity:* Alternative fuel<sup>1</sup> retail

*Country:* Tanzania

*Amount Invested:* \$50,000 loan

*Date Disbursed:* 30<sup>th</sup> July 2003

*Current Terms:* 10.0%, 4 years

#### *AREED contribution*

The AREED loan allowed this start-up enterprise to begin operations in August 2003. BETL coordinates sourcing and supply for a range of agricultural and other biomass wastes, for use as fuel by a single current client, Tanga Cement Company Ltd (TCCL). The client uses the biomass supplied in the back end of their clinker cement kiln, to displace up to 15% of the 44,000 tons of heavy fuel oil otherwise used yearly to provide heat. This results in cost savings to TCCL and reduced greenhouse gas emissions, both organizational goals set by the Swiss parent company, Holcim. BETL earns \$40-\$60 per ton of fuel delivered, depending on calorific value, which generates a 43% gross profit margin on the monthly deliveries of up to 1200 tons. The AREED loan gave the entrepreneurs the resources to experiment in this new market, trialing a wide range of local biomass wastes at TCCL over the first year of operations, to find fuels that provide strong, even heating at a competitive cost. Of around ten trialed fuel types, cashew nut shell and sunflower/safflower cake have proved the most successful.

#### *Beneficiaries*

Indirect income creation in biomass collection and transport is, potentially, the most significant social impact of BETL's activities. Those who have benefited over the past year include collectors of coconut-husks, in rural areas, and charcoal dust, in urban areas. Each ton of biomass supplied also generates income for the Tanga-based transporter, Nassoro Fehdi, who has used these profits to buy an additional 7-ton truck and to employ an extra driver. BETL has employed one new staff member, William Ngwi, who is currently undergoing professional accountancy training.

#### *Non-financial impacts*

The women who collect bags of charcoal dust in urban areas can earn \$60/month full-time, collecting 40 bags a day for the waste contractor used by BETL. This income level is 25% more than the minimum wage in Tanzania and constitutes low level job creation with a genuine impact on poverty. BETL's current focus on cashew nut shells and sunflower/safflower cake does not provide the same impact, since these are collected in bulk directly from processing plants. However, the entrepreneur has recently begun a briquette-manufacturing operation that does require large volumes of charcoal dust supply and should create several full-time collection jobs for the same women. The entrepreneur also plans to increase their supply of carbonized coconut husks, which have very high calorific-value and attract a high price from TCCL. These husks would be sourced in rural areas by providing rudimentary carbonizing equipment on a credit basis to the individuals already involved in collection.

Environmental impacts include both local benefits arising from a waste disposal mechanism and the global impact of offset GHGs, otherwise emitted from combustion of heavy fuel oil at TCCL. Both the 'cake' and shell wastes are generated from rotated crops, which are neutral with respect to carbon dioxide emissions, since gasses yielded on combustion can be reabsorbed by the following year's crop. In addition, burning agricultural by-products – such as the coconut husks, cashew nut shells, sunflower cake and safflower cake – avoids methane emissions from decomposition in open waste-dumps.

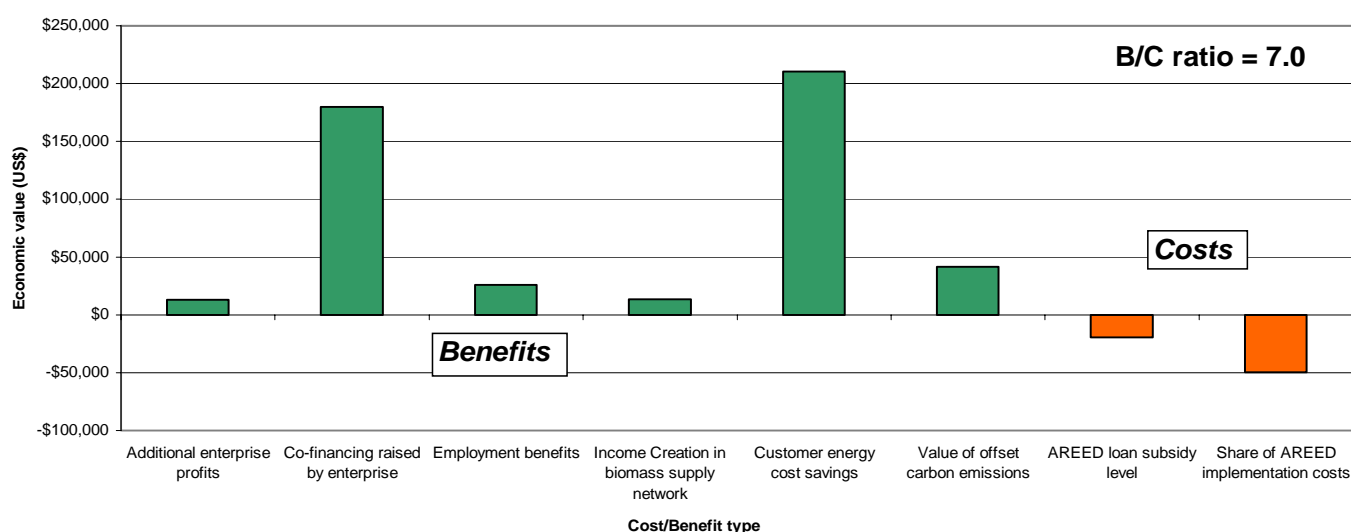
A major future development for BETL is the adaptation of TCCL's kiln to accept biomass for front-end burning, scheduled for the 2<sup>nd</sup> quarter of 2005. This opens up possibilities for BETL to supply higher levels of biomass and to attract carbon financing, on the basis of the 'additionality' provided by new biomass-burning infrastructure. BETL plan to source further biomass in the Arusha region and reinvest the profits from carbon financing for expansion of their service to additional industrial clients.

---

<sup>1</sup> 'Alternative fuels' are departures from traditional petroleum and woodfuel based energy production. This term is used in different technological areas to cover a differing range of energy sources. In the case of BETL in Tanzania, possibilities include by-products of crop processing, either for direct combustion or by capturing methane released on decomposition, burning of other biomass wastes such as charcoal dust and sawdust, and rotated energy-crops. Currently, direct combustion of by-products from agricultural crops such as sunflower, safflower and cashew nut constitute the bulk of BETL's business.

### Quantifiable impacts: cost-benefit analysis

Average salary for additional staff, net of tangible benefits (US\$/year)	7340	# additional permanent staff directly employed by enterprise	1
The enterprise is funding chartered accountancy training for William Ngwi, which is now one third completed.			
<b>Provision of Service to Customers &amp; Community</b>			
Additional customer cost savings (US\$)	210,300	Income creation for suppliers (US\$)	13,700
<b>Environmental Effects of Operations<sup>49</sup></b>			
Additional Greenhouse Gas offsets (tons CO <sub>2</sub> equivalent)	10,500	Value of additional Carbon Credits if sold, after transaction costs (US\$)	41,600
Projected Greenhouse Gas offsets over loan term (tons CO <sub>2</sub> equivalent)	86,000	Projected value of Carbon Credits over loan term if sold, after transaction costs (US\$)	387,000
Local environmental benefits include avoided charcoal dust in urban areas, avoided use of land for disposal of agricultural waste and avoided eyesore of unmanaged, open waste dumps around inhabited processing areas.			
<b>Financials and Operations</b>			
Annual sales (US\$/year)	168,000	Annual sales (tons biomass/year)	3,400
Gross Margin (%)	43.1	Net Margin, after tax (%)	7.7
Additional profits, after tax (US\$)	12,980	Additional remuneration to entrepreneur (US\$)	N/A
Co-financing obtained (US\$)	180,000	Increase in assets (resale value, US\$)	N/A
Due to BETL's initial testing of different biomass suppliers and fuel types, the enterprise only began generating positive profits in 2004. Therefore, although total profits over the year were \$12,980, monthly profits are now a consistent \$6,500.			



N.B. This analysis gives the *minimum* impact of the enterprise, showing only benefits so far measured. The analysis only includes those benefits that can readily be quantified, which are typically a fraction of total social impacts.

### Critical success factors

The most significant social effects of the enterprise are on the individuals and companies in the biomass supply network, both through creating income and building awareness of the *value* inherent in by-products regarded previously as 'waste'. In creating a new precedent for energy supply in Tanzania, the entrepreneur is also well-positioned to access financing from concerned parties, with an outside equity investment of around \$180,000 from 'Abassi exports' in the new briquetting plant and possible support from the Shell Foundation. Building on this foothold and extending the awareness creation effort is a necessary growth strategy for BETL.

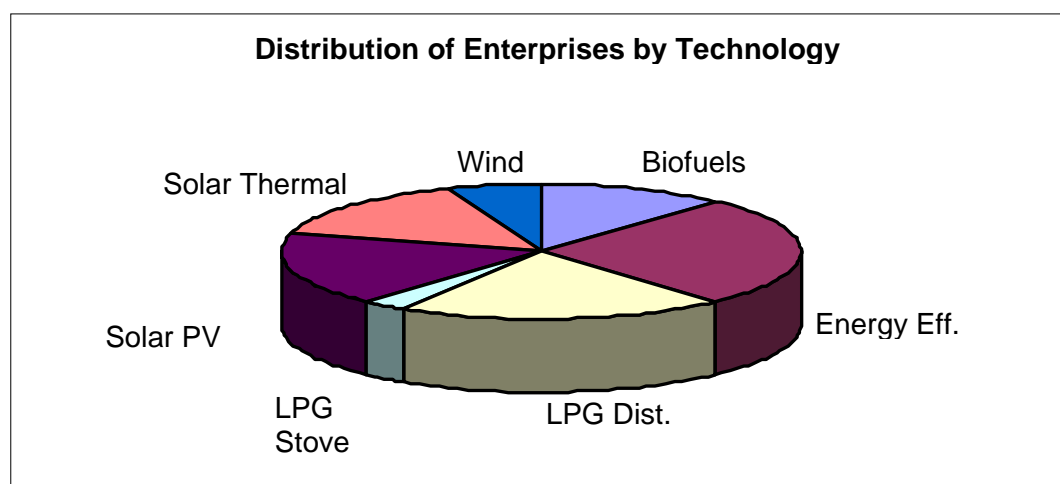
<sup>49</sup> Offset GHG emissions are calculated using fuel data from the industrial client, TCCL and standard IPCC formulae on rotated energy crops and avoided decomposition of waste. For valuation of the emissions, a CER price of \$5/tCO<sub>2</sub>e, sunk transaction costs of \$100,000, yearly monitoring costs of \$6,000 and a total project life of 21 years are assumed, based on Medina-Gomez (2003) and comment from BETL's carbon financier, Camco.

## Annex K2 - AREED PORTFOLIO REVIEW

The AREED programme has been operating for five years in the countries of Mali, Senegal, Ghana, Tanzania and Zambia and at present has 33 enterprises in its portfolio covering modern energy products and services including solar crop drying, wind water pumping, solar water heating, solar bakeries, Liquefied Petroleum Gas (LPG) distribution, biodiesel multifunction platforms and energy efficiency. The pie chart below gives an indication of the distribution by technology type.

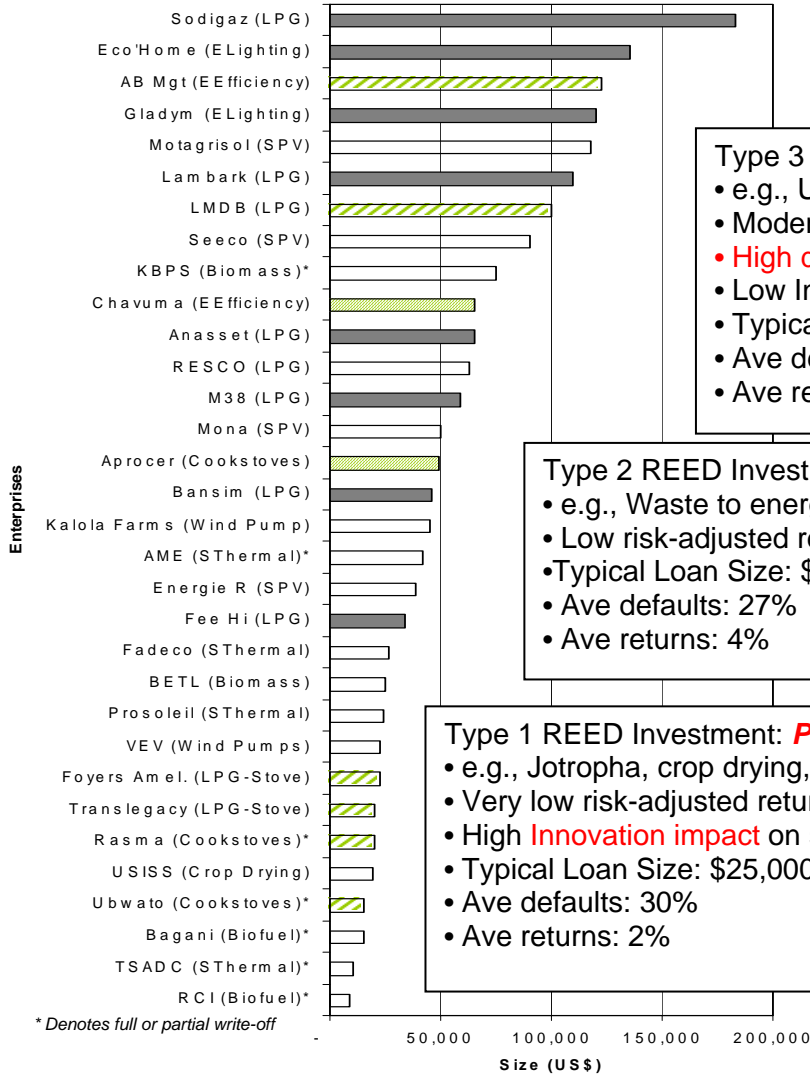
Today 69% of these investments are current or have paid back, 24% are in some form of business restructuring, and 9% have been written off. Since the larger projects are typically more mature and less risky than the smaller ones, the overall portfolio from a financial perspective remains cash-flow positive, meaning that it grows and can be provided to other enterprises over time. However the need to continuously work with these enterprises to refine their business models and to test out new service offerings is certainly indicative of the hands-on seed capital assistance approach. It currently costs between 20 and 50 US cents in enterprise development assistance for every dollar invested, a range that is lower than earlier in the programme.

The Figure on the following page lists the enterprises that have been supported and provides a segmentation into three types including very early stage *proof of concept* focused enterprises, early stage *commercialization* enterprises and the more mature *replication* stage enterprises. Of the three types, the replication enterprises, those that are copying business models that are already successfully commercialized in the country, are the most secure financially and have the best potential for near term direct impacts such as job creation, customers served, environmental improvement, etc. However the experience<sup>50</sup> has been that the less mature proof of concept and commercialization stage enterprises can provide the largest longer term impact since they are the ones that are driving innovation forward and for those that succeed creating industrial development that can change the way in which energy services are delivered in a country.



<sup>50</sup> Based mostly on the longer term portfolio results of E+Co (see [http://www.energyhouse.com/tbl\\_info.htm](http://www.energyhouse.com/tbl_info.htm))

**AREED Investments 2001 - 2006**



**Type 3 REED Investment: *Replication***

- e.g., Urban LPG, efficient lighting
- Moderate risk-adjusted returns
- **High direct impacts**
- Low Innovation impact
- Typical Loan Size: \$130,000
- Ave defaults: 4%
- Ave returns: 6%

**Type 2 REED Investment: *Commercialization***

- e.g., Waste to energy, rural LPG
- Low risk-adjusted returns
- Typical Loan Size: \$70,000
- Ave defaults: 27%
- Ave returns: 4%

**Type 1 REED Investment: *Proof of Concept***

- e.g., Jatropha, crop drying, PV mills
- Very low risk-adjusted returns.
- High **Innovation impact** on sector development
- Typical Loan Size: \$25,000
- Ave defaults: 30%
- Ave returns: 2%

\* Denotes full or partial write-off



## Annex L - UNEP DTIE Sustainable Energy Finance Work

### UNEP and Sustainable Energy Finance<sup>51</sup>

The mission of UNEP's Division of Technology, Industry and Economics (DTIE) is to work with decision makers in Industry and Government to develop and adopt policies, strategies and practices that are cleaner and safer and reduce pollution and risks for human beings and the environment<sup>52</sup>. The finance sector is an industry that, like the other sectors that UNEP engages, has a need to integrate environmental sustainability into their business practices. Working from its' core mission, DTIE is well positioned to mobilise the finance community to begin increasing capital commitments to the clean energy sectors.

Energy programmes activities within UNEP DTIE are managed through the Energy Branch. This Branch is divided into two teams, an *Energy and Transport Policy Unit* that promotes policies that place energy and transport within a broader sustainable development context and a *Renewable Energy and Finance Unit (REFU)* that works to steer project developers and the investment community toward greater support of renewable energy and energy efficiency projects. In the area of sustainable energy finance, REFU specifically targets two UNEP Governing Council subprogramme outputs<sup>53</sup>:

D4: Technical advice and support to and partnerships with financial institutions...to influence investment decisions favouring energy efficiency and renewable energy, and

D8: Policy and technical inputs to early stage enterprise support and project financing for innovative energy companies providing sustainable energy services.

On an operational basis REFU has addressed these subprogramme outputs through a finance sector engagement approach that:

- 1) partners with first movers to **develop and implement new products, commercial strategies or investment approaches** that demonstrate the sort of industry leadership needed for the rest of the sector to take notice, and
- 2) works through industry platforms (i.e., SEFI, UNEP FI) to **develop and share information and build awareness/capacities**, helping mainstream the leadership of first movers across the sector.

This paper provides an overview of UNEP's experience working with the finance sector on sustainable energy finance activities. UNEP is not a bank and therefore does not directly finance projects or companies<sup>54</sup>. Rather UNEP works with banks and other financial actors to increase their engagement in the sector. Through different approaches UNEP helps financiers develop new financial products, buy down transaction costs, build capacity and address various other barriers that restrict their ability to create and grow sustainable energy investment portfolios. This work is often carried out in partnership with other UNEP teams and collaborating agencies, particularly the UNEP Finance Initiative, the UNEP Risoe Centre and the Basel Agency for Sustainable Energy (BASE).

UNEP's sustainable energy finance activities fit within an overall strategy to help strengthen the *continuum* of financing sources needed to carry new ideas and technologies from the project conception stage through to commercial investment. The sustainable energy sector is still maturing and many gaps exist that prevent projects from raising finance on a purely commercial basis. Figure 1 is a conceptual finance continuum for Small and Medium Sized Enterprises (SMEs), showing the sorts of financing they typically are able to secure today, the gaps in financing that they often encounter and some possible interventions to close the gaps. UNEP has a number of programmes

<sup>51</sup> Info on UNEP Energy finance programmes is available at <http://www.unep.fr/energy/finance> and <http://sefi.unep.org>

<sup>52</sup> Information on DTIE work with industry, and specifically its voluntary industry partnerships programmes, is available at <http://www.unep.fr/outreach/>

<sup>53</sup> (biennium 2004-2005 subprogramme - A/58/6 (Sect.14) Rev.1)

<sup>54</sup> In a few instances UNEP has channelled donor support to projects through finance sector partners, however this is generally seen as a less catalytic use of UNEP resources.

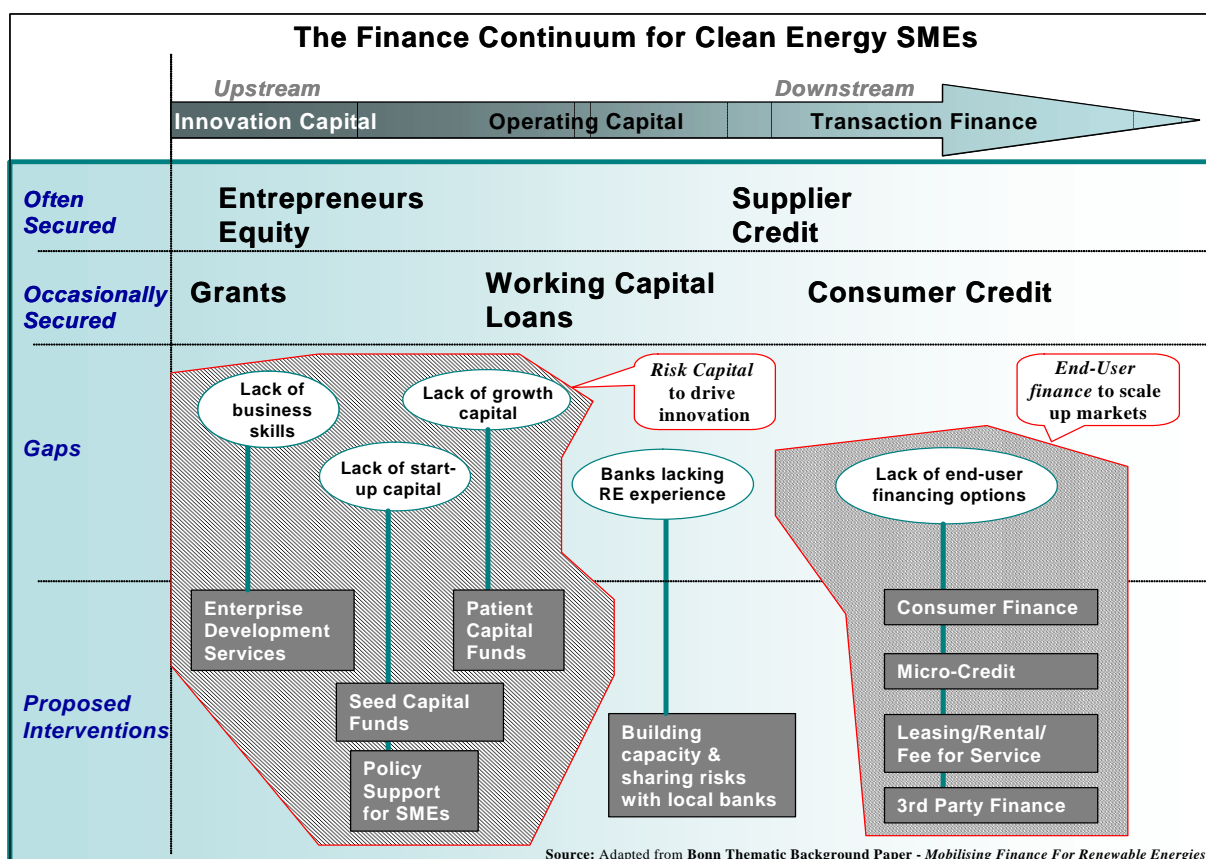


Figure 1: Clean Energy SME Finance Continuum

underway targeting two specific areas of this continuum: the first at the early stage of enterprise development, when lack of risk capital and technical support limits their ability to innovate new product or service offerings; and the second at the market expansion stage, when lack of end-user financing constrains market growth (these two areas are hatched in Figure 1). The risk capital programmes are intended for sustainable energy markets in very early stages of development. The end-user finance programmes target more mature markets, where basic industry infrastructure (e.g. dealer support networks) is already in place but business is still only done on a ‘cash and carry’ basis.

## 1. Enterprise Development and Seed capital

The Rural Energy Enterprise Development (REED) initiative is one UNEP effort aimed at addressing the early stage risk capital gap through the provision of enterprise development and start-up seed capital support to clean energy entrepreneurs. To date, \$9.4 million has been committed to REED programmes in five countries of West and Southern Africa, Northeast Brazil and China’s Yunnan Province. This enterprise development model has been pioneered by the public purpose clean energy investor E+Co and advanced by a partnership between UNEP, E+Co<sup>55</sup>, the UN Foundation, a growing number of other foundations and donor governments, and a diverse group of in-country enterprise development partners.

REED seed finance is provided to SMEs that deal in clean energy products and services, a sector generally considered too risky to attract conventional sources of finance. The African programme, AREED, is the most advanced to date with 33 clean energy enterprises supported and hundreds of entrepreneurs trained. Although not all of these enterprises survive, and those that do require significant hands-on enterprise development support, the overall portfolio from a financial perspective remains cash-flow positive, meaning that it grows and can be provided to other enterprises over time.

<sup>55</sup> E+Co’s homepage is [www.energyhouse.com](http://www.energyhouse.com) and information on their impacts is at [www.energyhouse.com/tbl\\_info.htm](http://www.energyhouse.com/tbl_info.htm)

### Key Facts: Rural Energy Enterprise Development Programmes

<i>Programme Strategy</i>	Offer entrepreneurs a combination of enterprise development support and seed financing to set up or expand a clean energy business or project.
<i>Geographic Coverage:</i>	Mali, Senegal, Ghana, Tanzania, Zambia, Northeast Brazil, Yunnan Province, China
<i>Total Budget:</i>	\$9.4 million (across three programmes)
<i>Donors:</i>	UN Foundation (\$7.8mn), Blue Moon Fund (\$0.7mn), SIDA (\$0.7mn), BMZ (\$0.4mn), Dutch Govt (\$0.2mn), Other: DBSA, Bodyshop, Domini Social Investments
<i>Seed Fund Manager:</i>	E+Co (US 501K non-profit status – audited annually) manages seed funds and provides co-finance (\$0.5mn direct; and \$8mn indirect).
<i>Seed Fund Size:</i>	\$0.9mn to \$1.8 mn
<i>Enterprise Development Costs:</i>	20 to 50 cents per dollar invested
<i>Co-Finance:</i>	1.1 times
<i>Leverage:</i>	can be significant over time (e.g. E+Co has achieved 9.4 times)

The REED programmes are each independently evaluated as part of their M&E plans<sup>56</sup> and in addition a number of specific studies have been commissioned by UNEP<sup>57</sup> or carried out independently<sup>58</sup> during the course of implementation.

## 2. Bank Partnership Lending Programmes for Small Scale RE Technologies

Referring back to the continuum in Figure 1, for small scale clean energy technologies already commercialized on a ‘cash and carry’ basis but where growth is constrained by a lack of end-user financing, UNEP has been implementing credit support programmes that help local banks build their first clean energy loan portfolios. Such programmes are underway today in India (PV), Tunisia (domestic SHW), Morocco (hotel based SHW) and China (RE), and others are in development in Egypt and Indonesia. Although the local context for each varies considerably, there are many common elements that have allowed UNEP to build experience and transfer best practice across countries and regions.

### *Financing Solar Home Systems in India*

A first bank partnership was launched in 2003 between UNEP and two of India’s largest banking groups – Canara Bank and Syndicate Bank – that provides consumer financing for solar home systems at preferential interest rates. Although India has one of the most dynamic PV industries in the developing world, at the time little bank financing<sup>59</sup> was available to customers which posed a severe constraint to market growth. The programme, supported by the UN Foundation (\$1.2 mn) and Shell Foundation (\$0.3mn), was aimed at helping establish an Indian consumer credit market for solar home system financing.

The programme involved providing Canara Bank and Syndicate Bank with an interest rate subsidy, marketing support and a vendor qualification process. These banks were chosen based on their extensive branch networks, reputations for progressive social banking and interest in developing dedicated loan products for the solar PV sector. The interest subsidy was preferred by the banks over guarantees or other support mechanisms since, although they would not benefit directly, it enabled them to offer preferential banking terms to their customers in an efficient and transparent manner. The commercial interest rate for equivalent loan types at programme inception was 12%. UNEP’s subsidy initially brought this rate down to 5%, but then was progressively phased out in 2% increments. The loans were offered through 1,115 Canara and Syndicate bank branches as well as 1,051 branches of 9 rural grameen banks sponsored by Canara and Syndicate.

<sup>56</sup> For AREED a first mid-term evaluation was carried out in 2003, a second mid-term evaluation is currently underway and a final evaluation will be carried out at project closure.

<sup>57</sup> e.g., *Social and Environmental Impacts of REED ‘Clean Energy’ Enterprise Development*, P. Napier-Moore, November 2004; *AREED Policy Review – Analysis of Policies and Institutions, and Linkages with Energy SME Development*, F. Denton, February 2006.

<sup>58</sup> *Investing for Impact: Managing and Measuring Proactive Social Investments*, A study carried out by the Foundation Strategy Group for the Shell Foundation, November, 2005. (includes a significant focus on AREED)

<sup>59</sup> The pre-programme analysis determined that in total 1400 loans had been provided to the solar sector by a range of banks in the years preceding the UNEP programme, mostly through vendor-bank tie-ups that each financed in the range of 100-300 loans.

The oversight mechanisms for the programme include 1) the vendor qualification process, which ensures that vendors have the experience and service infrastructure to maintain the products they sell, 2) compulsory product warranties and service contracts, 3) customer satisfaction surveys, 4) biannual bank and vendor audits and 5) the programme's overall evaluation component.

2.5 years into the programme the banks have financed 15,800 Solar Home Systems and the subsidy has been fully removed from one of the banks and partially from the other.

Syndicate and Canara were the first major lenders, but a number of other banks started to compete in this new credit market in 2004, financing an additional 4,000 loans by the end of 2005. Although the solar home sector was pretty much a cash-only business in 2003, today over 50% of sales are financed therefore the credit market has responded well to the impetus.

#### ***Financing Solar Water Heaters in Tunisia***

A second loan support programme is now underway in Tunisia, although this time for solar water heaters and in a somewhat more complicated institutional context. The Tunisian solar thermal sector began to grow in the 1980s but mainly due to subsidy distortions and quality issues went into decline through the early 1990s. In Tunisia the conventional water heating option is LPG boilers, which have low capital costs and government subsidized fuel costs. In 1996 the Tunisian Government launched a program aimed at improving the competitiveness of solar water heaters vis a vis LPG, in part to level the playing field. This effort, supported by the World Bank and GEF, provided a similar subsidy to that of LPG, but as a capital cost reduction of 35%. This effort enabled the industry to re-establish itself but unfortunately once the capital subsidies ran out the market dropped again with the two main barriers to sustainability being the skewed playing field and the lack of end-user financing options.

As part of the \$7 million Italian funded Mediterranean Renewable Energy Programme (MEDREP), UNEP began in 2004 to work with the Tunisian government to address the bank engagement issue. This led to the launch of the PROSOL loan programme in April 2005. The facility is similar to the Indian programme, in that it helps local banks provide low cost financing to solar end-users, although in Tunisia the state utility STEG also plays an important role by recovering the monthly loan payments via their customers' utility bills.

The commercial lending rate for similar loan products in Tunisia is 14%. Through a total commitment of \$1 million, UNEP provides a 7% interest buy-down which is phased out over time. The banks involved – the leaders being Amen Bank and UBCI – have agreed to a further 7% reduction meaning the rate initially charged to customers is 0% and after 12 months 7%. At the same time, based on the quick uptake of the sector and the bank engagement the government passed legislation in late 2005 that made the SWH sector eligible for the energy subsidy that previously was only provided to LPG.<sup>60</sup>

PROSOL began operating in April 2005 and during that year 7200 solar water heating systems were installed, the equivalent of 22,616 m<sup>2</sup> which on an annualized basis was 60% higher than the previous best year in 2001. As in India, the market has once again responded to the impetus and credit financing seems to be playing an important role. In relative terms of market potential the Tunisian

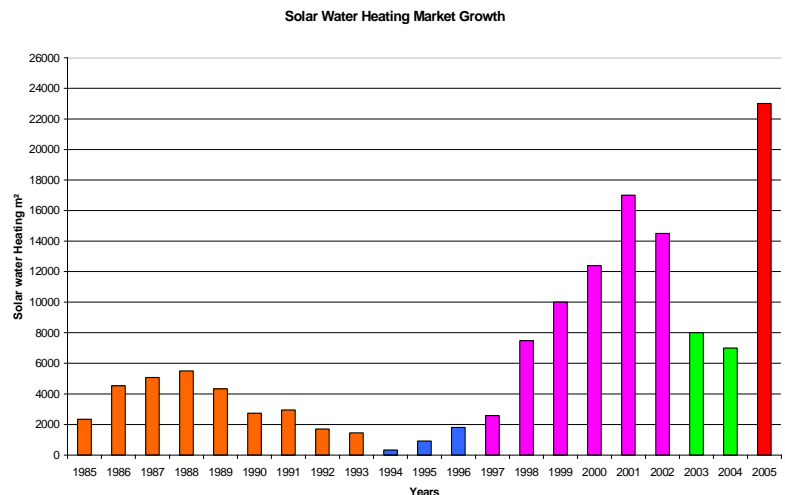


Figure 2: Tunisian SWH Market Growth

<sup>60</sup> Of course in the long-term the best solution would be to remove all subsidies, however in the interim at least this decision allows SWH to directly compete with LPG on a fully commercial basis.

response has actually been significantly larger, although the support package is more substantial with the energy subsidy of 20% factored in. UNEP's interest subsidy will phase out over the next 6–8 months. The Tunisian government is now pushing very hard to scale up this programme, targeting 250,000 m<sup>2</sup> of installations by 2009 which would require a total investment of about \$125 million. However whether this can occur will depend on the programme being able to resolve an issue of vendor indebtedness since a particularity of channeling the financing through STEG is that the loans rest on the vendor balance sheets not the end-users. In other words, the environment for SWH financing in Tunisia has changed entirely, with the banks more willing to lend than the vendors are able currently to accommodate. Two solutions are currently being discussed, one where vendors would insure their accounts receivables, effectively outsourcing their customer default risk, and the other involving shifting the loans off their balance sheets to STEG or a third party.

### ***Financing hotel based SWH in Morocco***

In January, 2006, UNEP launched a second MEDREP finance programme, this time in Morocco in partnership with the state utility, ONE, and three commercial banks. This one, also \$1 million in size, is a solar loan and leasing facility, targeting the financing of collective solar water heating systems on hotels. As in Tunisia, the partnership with ONE makes the loans and leases a low risk investment for the partnering banks as customers risk losing their electricity supply if they default on loan repayments. In return for the ONE guarantee the banks have agreed to reduce their rates from 10% down to 6%. UNEP has agreed to further buy down this rate, initially to 0% but then phased out over 2-3 years. The first financings under this programme are expected to be carried out in the 2<sup>nd</sup> quarter of 2006, with 17 hotels engaged so far. A similar SWH credit support approach is also now being initiated for hotels in Egypt.

### ***Green Micro Credit in China***

In April 2005, UNEP launched a *GreenVillage Credit* initiative in partnership with The Nature Conservancy to provide local villagers with financing for a range of sustainable energy systems and for related productive use activities. *GreenVillage Credit* makes loans of up to \$1,250 for 18 months with an annual interest rate of 5%. The loan capital is entrusted to Rural Credit Cooperative Union, a local bank that serves as the platform for credit delivery. Loans are provided directly to the villagers, but co-signed through solidarity groups consisting of 5 member households from the village association. As of today, 286 loans have been disbursed, mainly for solar water heating and biogas systems. This is a smaller programme than the ones in Tunisia and Morocco, with total capital of \$400,000, and is operating in a more risk adverse banking environment. However based on the experience with the initial loan portfolio discussions are now underway with RCCU to shift to an interest subsidy approach, whereby they would begin to lend their own capital and then just rely on UNEP to improve the affordability of loan repayments for the villagers.

### ***Linking bank lending to policy making***

An interesting lesson taken from these loan programmes is that there can be an effective feedback loop from the actions of the banking community to policy makers. When banks begin to scale up lending to an RE sector it sends a positive signal to policy makers that the technology is mature and ready to play a significant role in the country's energy mix. This change in perception can go a long

<b>Key Facts: Bank Partnership Loan Programmes</b>	
<i>Programme Strategy</i>	Help domestic banking sectors build credit markets for small scale RE systems through the use of credit enhancements, technical support and vendor qualification.
<i>Geographic Coverage:</i>	India, Tunisia, Morocco, Egypt, China
<i>UNEP Budget:</i>	\$9 million
<i>Donors:</i>	UN Foundation, Shell Foundation, Italian IMET, German BMU, The Nature Conservancy
<i>Typical Programme Size:</i>	\$0.4 mn – \$1.5 mn
<i>Bank Co-finance:</i>	\$5mn to \$7 mn per programme (less for China)
<i>Loan Portfolio Targets:</i>	10,000 to 20,000 loans per programme (less for China)
<i>Overall Impact:</i>	Can be quite significant quickly, although only for markets that are somewhat mature
<i>CO<sub>2</sub> Mitigation Cost:</i>	e.g. for Tunisia, the mitigation cost ranges from \$2.60 - \$9.50 per ton CO <sub>2</sub> <sup>11</sup>



way towards convincing policy makers of the need for shifts in policy frameworks, often from a narrow technology demonstration approach to a broader fiscal or regulatory approach. This has now happened both in Tunisia, with the change in energy subsidy policy, and in India, where the government is looking to shift its PV support programme away from capital subsidies and towards the interest subsidy approach. This contradicts the conventional wisdom that investment only engages once the right policies are in place. Rather our experience has been that financing and policy development evolve somewhat in parallel, with one community constantly influencing the actions of the other.

### 3. Facilitating Investment in Larger Scale Grid-Connected Projects

For larger grid-connected projects, UNEP efforts to date have mostly focused on working with banks and project developers to address barriers in the investment decision process and working with the risk management industry to determine new ways to evaluate and hedge project risks. These two areas are shown in Figure 3, a conceptual finance continuum for grid-connected projects.

Between 2000 and 2002, UNEP invested more than \$450,000 to promote renewable energy and energy efficiency investments in developing and transition economies through the GEF supported pilot RE/EE Investment Advisory Facility (MSP GF/2200–99-03). The IAF provided banks and financiers with targeted expertise and support to evaluate proposals in the sustainable energy sector and to help these institutions develop the skills to evaluate such projects independently. In total 12 investment evaluations were supported and of these, five secured financial commitments and four went on to implementation. The total financing leveraged to these four projects was \$95.5 million, which will result in the reduction

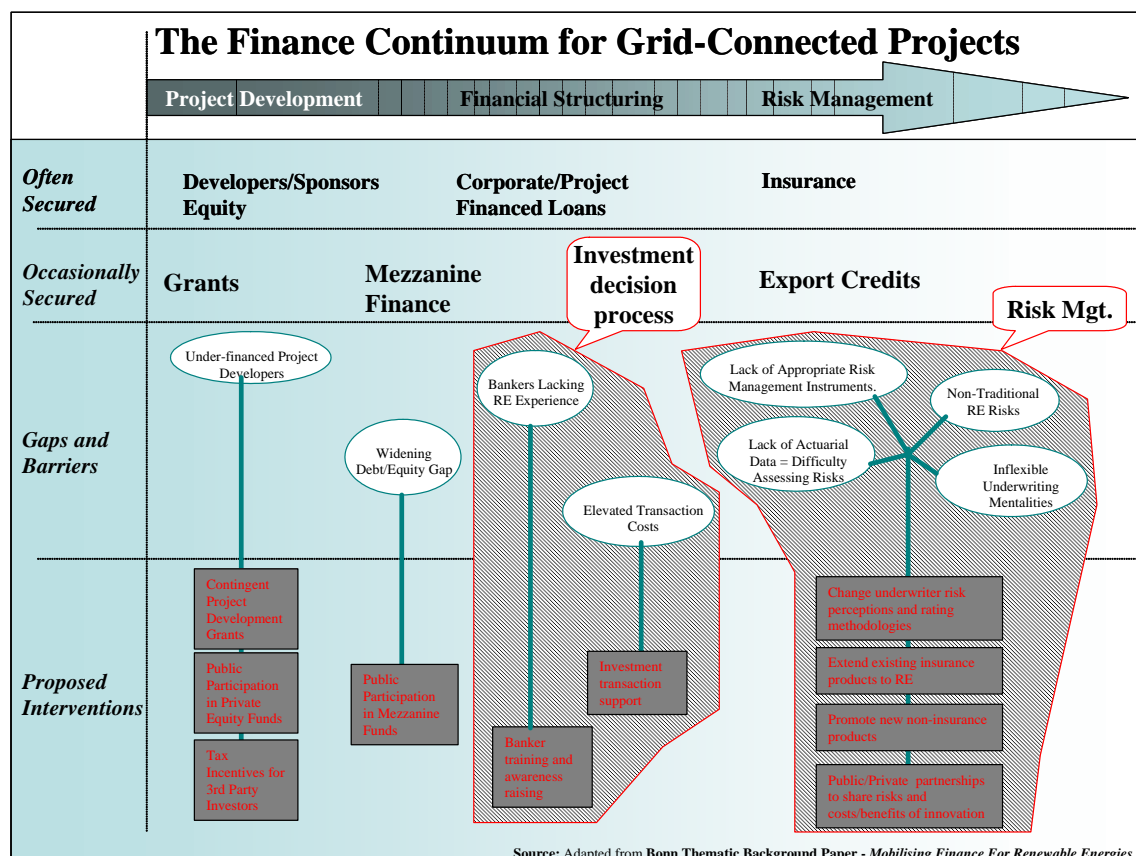


Figure 3: Large Grid-Connected Project Finance Continuum

<sup>61</sup> The higher figure referring to direct reductions associated with 10,000 SWH installations to be financed with the UNEP subsidy and the lower figure including the expected replication to 83,000 installations, based on a 50% causality assumption.

of 3.8 million tons of CO<sub>2</sub> (over 20 years) and implying a low cost of mitigation<sup>62</sup>. Building off this experience UNEP in 2006 initiated a similarly structured Transaction Support Facility, managed through BASE with MEDREP support (\$0.3mn) and initially being offered to banks in Tunisia, Morocco and Egypt.

An on-going UNEP/GEF targeted research effort (MSP), *Assessment of Financial Risk Management Instruments for Renewable Energy Project*, is trying to catalyze new thinking in the risk management area for renewable energy projects, assessing risks associated with RE projects, examining existing instruments and approaches and suggesting potential modalities for new instruments that could be developed in partnership with private / public sector financial institutions and donors. The project is being implemented in co-operation with BASE and the other GEF Implementing Agencies- the World Bank and UNDP-, GEF STAP, as well as a number of RE finance industry partners.

UNEP has also been working in a few other areas, including carbon finance and energy efficiency finance. Since mid 2005 UNEP has been undertaking a joint \$1 million initiative with the World Bank's Community Development Carbon Fund called *Carbon Finance for Sustainable Energy in Africa* aimed at facilitating the first CDM transactions and CDCF investments in Cameroon, Ghana, Mali, Mozambique and Zambia. This initiative builds off the \$12 million *Capacity Development for the CDM* programme, run through UNEP Risoe Centre, that has been helping establish the institutional frameworks for CDM in 19 other developing countries.<sup>63</sup> Since 2001 UNEP has been undertaking a joint initiative (\$2.2 mn UNF, ESMAP) with the World Bank on *Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India*. This effort builds off of World Bank experience as well as a number of UNEP industrial energy efficiency projects<sup>64</sup>.

#### **4. Develop and Share Information, Build Awareness and Capacities**

Although on-the-ground partnerships can test out new approaches and help foster leadership in the sector, only through catalyzing broader support within the financial community can we hope to achieve any significant scale-up and through this a replicatin of first mover successes.

##### ***1.4.1 Helping Foster a Sustainable Energy Finance Community***

Part of UNEP strategy is to support growth of a nascent sustainable energy finance community through a platform managed by UNEP Energy, the UNEP Finance Initiative, and BASE. The *Sustainable Energy Finance Initiative*, or SEFI, aims to foster a sustainable energy finance community that brings together financiers, engages them to do jointly what they may have been reluctant or unable to do individually, and catalyses public-private alliances that together share costs and lower barriers to investment. SEFI operates using a three pronged strategy of information provision, networking and partnerships. These areas are briefly introduced below and specific outputs of this work are listed in Annex L2.

- *INFORMATION – at the core of SEFI is a growing portfolio of tools, guidelines, reports, services, and capacity building activities that together help financiers understand the opportunities for sustainable energy investment, and to assess and manage the risks, improve deal origination, and lower the transaction costs of their first investments in the sector.*

---

<sup>62</sup> Assuming a causality factor of 0.1 the mitigation cost is \$1.20/ton CO<sub>2</sub>

<sup>63</sup> See [www.cd4cdm.org](http://www.cd4cdm.org)

<sup>64</sup> for more information see <http://www.unep.fr/energy/efficiency>

- *NETWORKS and FORA – building the sustainable energy finance community – bringing together bankers, insurers, and investors with project developers to share experiences, create alliances, promote new financing initiatives, and build credibility in the finance sector and within financial institutions. Communicating investment activity in the sustainable energy sector to the broader finance community and conveying the financial community’s needs to governments and policy-makers.*
- *PARTNERSHIPS – connecting financiers with project developers and corporations, and creating alliances within the finance sector for launching innovative financial products and mechanisms tailored to the sustainable energy sector.*

The scope of SEFI includes renewable energy and energy efficiency investment in developed and developing countries, including climate change and carbon trading activities as they relate to clean energy investment.

#### ***1.4.2 Mainstreaming Environmental Finance through the UNEP Finance Initiative***

SEFI grew out of a long standing voluntary partnership with the finance sector through which UNEP has been working to mainstream environmental management within the big banks and insurers. Today more than 175 banks and insurers from over 50 countries have signed up to the **UNEP Finance Initiative** (UNEP FI)<sup>65</sup>. Initiated in 1992 as a means of engaging financial institutions on sustainable development, signatories commit to integrate sustainable development considerations into all aspects of their operations and service. The participating institutions (i) support the precautionary approach to environmental management, (ii) recognize that identifying and quantifying environmental risks should be part of the normal process of risk assessment and management and (iii) pursue best environmental practice. Contributions from private and public finance agencies provide the bulk of the funding for the secretariat and its activities.

UNEP FI's work programme is focused on current and emergent issues which are relevant to the signatories. They work collaboratively to find innovative approaches to issues around finance and sustainability. Through its Climate Change Working Group, UNEP FI has focused on carbon finance, national and international policy and regulation debates, and renewable energy.

---

<sup>65</sup> <http://www.unepfi.net>



## Annex L2 - Example SEFI Tools and Report

**SUSTAINABLE  
ENERGY  
FINANCE  
INITIATIVE**



### SEFI TOOLS & REPORTS

#### Tools & Studies



**Sustainable Energy Finance Directory**  
The Sustainable Energy Finance Directory is an inventory of lenders and investors who provide finance to the renewable energy and energy efficiency sectors. The directory is available as an online database at <http://www.sefi-directory.net>



**Renewable Energy Environmental Due Diligence Guidelines**  
UNEP and BASE have prepared Guidelines for Environmental Due Diligence (EDD) of Renewable Energy Projects. These guidelines provide investors and lenders with practical, standardised procedures for identifying and managing environmental risks associated with particular renewable energy technologies. EDD guidelines are now available for wind, solar PV, solar thermal, biogas, biomass systems based on agricultural and forestry waste, biomass systems based on energy crops, geothermal, and small-hydro plants. The guidelines are available on-line at <http://sefi.unep.org/edd>



**Financial Risk Management Instruments for Renewable Energy Projects**  
Appropriate risk management tools are often lacking for Renewable Energy projects, particularly in developing countries where risk and risk perceptions are highest. UNEP is therefore working on a comprehensive overview of currently available and potential future financial risk management instruments for the Renewable Energy sector. This study will pave the way for an upcoming GEF assessment of financial risk management instruments that favour the development of RETs. The summary document is available at <http://sefi.unep.org>



**UNEP FI CEO Briefing on Renewable Energy**  
This study is the third by the UNEP Finance Initiative Climate Change Working Group. The first was a scene setting paper in 2002 on the risk of climate change. It called for more leadership from policymakers and action by financial institutions on awareness-raising, and valuation methodologies. The second paper (2003) confirmed the sector's support for emissions trading as a key financial tool to address climate change. This third paper presents the business case for financing renewable energy. It presents concrete examples and makes strong policy recommendations for further action. The briefing is available at <http://sefi.unep.org>



**Making it Happen: Renewable Energy Finance and the Role of Export Credit Agencies**  
Only a very small portion of global export credits goes for the financing of renewable energy projects or the sale of renewable energy equipment. This is due to various barriers, some sector specific and others more general in nature. In addition, certain provisions in the OECD Arrangement on Officially Supported Export Credit - under which ECAs operate - seem to pose barriers to financing renewable energy projects. This document looks at if and how ECAs or their guardian authorities can break down these barriers, either directly by tailoring products to renewable energy project specificities or by making appropriate changes to the Arrangement. The briefing is available at <http://sefi.unep.org>

#### Communiqué

**'Creating the climate for change'**  
On 1-2 June 2004, the SEFI event 'Creating the Climate for Change' brought together members of the finance community, government officials, and project developers from 37 countries in Bonn as part of the International Conference for Renewable Energies. Work sessions were held on: risk management, venture capital, consumer lending and micro finance, export credits, carbon, infrastructure, and SME finance, as well as public-private partnerships. Each session produced specific recommendations for unlocking investment in sustainable energy, which have been summarised in this communiqué. The communiqué is available at <http://sefi.unep.org>

#### Contacts



**UNEP Energy Branch, Div. of Technology, Industry and Economics**  
Eric Usher, Tel. +33 (0)1 44 37 76 14, [eric.usher@unep.fr](mailto:eric.usher@unep.fr)

**UNEP Finance Initiative, Div. of Technology, Industry and Economics**  
Paul Clements-Hunt, Tel. +41 (0)22 917 81 16, [pch@unep.ch](mailto:pch@unep.ch)

**BASE - Basel Agency for Sustainable Energy**  
Virginia Sonntag-O'Brien, Tel. +41 (0)61 274 04 80, [virginia.sonntagob@energy-base.org](mailto:virginia.sonntagob@energy-base.org)

