

DESK EVALUATION OF THE PROJECT: REDIRECTING COMMERCIAL INVESTMENT  
DECISIONS TO CLEANER TECHNOLOGY - A TECHNOLOGY TRANSFER  
CLEARING HOUSE

Project GF/2200-99-03

EVALUATION REPORT

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### List of abbreviations and acronyms

AREED	African Rural Energy Enterprise Development
BASE	Basel Agency for Sustainable Energy
B-REED	Brazilian Rural Energy Enterprise Development
CEDRL	CANMET Energy Diversification Research Laboratory
CSD	United Nations Commission on Sustainable Development
DANIDA	Danish International Development Agency
DEG	Deutsche Investitions und Entwicklungsgesellschaft Mbh
DGEF	Division of Global Environment Facility Coordination
DTIE	Division of Technology, Industry and Economics
FIDIC	International Federation of Consulting Engineers
FMO	Netherlands Development Finance Company
GEF	Global Environment Facility
GNESD	Global Network on Energy for Sustainable Development
IAF	Investment Advisory Facility
IFC	International Finance Corporation
PhilBIO	Philippine Bio-Sciences and Engineering Company.
REED	Rural Energy Enterprise Development
SEAF	Sustainable Energy Advisory Facility
SANet	Sustainable Alternatives Network
UCCEE	United Nations Environment Programme Collaborating Center on Energy and Environment
UNEP	United Nations Environment Programme
UNF	United Nations Foundation
WFEO	World Federation of Engineering Organisations

## Executive summary

1. Most of the 11 investment projects supported by the Investment Advisory Facility (IAF) are still underway. Three of them have been approved and are being implemented with a total capital of \$63 million, well above the targeted 1 million metric tonnes of greenhouse gases not emitted when compared to investment baselines projected before the IAF intervention. Four training seminars have been conducted and one is scheduled. One-hundred-twenty loan and investment officers have already been trained using a customized training curriculum and an upgraded version of the RETScreen project feasibility software model. This was achieved within a budget of \$750,000 funded by the Global Environment Facility (GEF) and in-kind contributions of \$233,660 by the United Nations Environment Programme (UNEP). The project is now nearing completion, but most of the activities have already been included in other projects drawing on the lessons learned. IAF has been included in the Sustainable Alternatives Network (SANet) co-financing facility and the targeted intervention approach has also been applied to energy policy makers through the Sustainable Energy Advisory Facility (SEAF), which was funded by the Danish International Development Agency (DANIDA). Other outputs, particularly the training component, have fed into the Global Network on Energy for Sustainable Development (GNESD), targeting global and regional network projects that promote energy effectiveness and renewable energy technologies. The project has also provided input to three UNEP Rural Energy Enterprise Development (REED) projects in Africa, Brazil and China.

2. The project: Redirecting Commercial Investment Decisions to Cleaner Technologies - A Technology Transfer Clearing House, was designed to respond to the need for expert financial and technical advice for private sector investments in energy-efficient/renewable energy technologies. It also responds to the need for an appraisal tool for evaluating the financial and economic attractiveness of investments in energy efficient and renewable energy technologies.

3. The objectives of the project have been largely achieved. The planned outputs of the project have been achieved and, on the whole, the planned activities have been carried out. Annex II provides a table of project objectives, results, outputs and activities according to the project document. They include the following:

- (a) Providing customized advisory and project appraisal services;
- (b) Developing an interactive appraisal guide for loan officers;
- (c) Preparing general informational material;
- (d) Preparing training materials on the use of the appraisal tool, spelling out project appraisal and providing training to loan officers from selected partner banks;
- (e) Monitoring loan provision and project implementation to determine the greenhouse gas emissions achieved.

4. Banks often fail to support investment projects. Investment projects are therefore penetrating the market at rates that are slower than desirable. Loan officers in financial institutions have little practical experience in evaluating applications that have an energy efficient or renewable energy technologies component. The project was therefore designed to help overcome existing informational barriers in financial institutions, where economic and environmental advantages of investments in energy efficient and renewable energy technologies tend to be ignored and are considered more risky than they should be on the basis of outdated or incorrect information.

5. On the whole, the project has been successful. The overall rating of the project, based on the ratings in table 1, is 2, or "very good". The ratings are based on a scale of 1 to 5, 1 being the lowest.

Table 1

Project performance rating

Aspect of project implementation	Rating
Timeliness	3
Attainment of outputs	1
Completion of activities	2
Execution of the project within the budget	2
Cost-effectiveness of the project	2
Impact created by the project	3
Sustainability	2
Overall rating	2

6. The project achieved the planned outputs and activities with some changes in the original project design. IAF support for a final investment project is nearing completion and a planned training seminar at the Land Bank of the Philippines is yet to be carried out. IAF and the training components have already been incorporated into the activities of SANet, GNESD networks and the three REED projects.

7. The project was the first of its kind to use this particular approach in energy financing to be supported by GEF and implemented by UNEP, and was largely perceived as a pilot project. It was expected that a great deal would be learned during its implementation and the project management was very flexible in accomplishing the planned outputs and activities. Most changes in the original project design were made to adapt the facility to the demands of the commercial public and the private financing sector. The private financing sector, while difficult to influence through traditional policy oriented project approaches, has a key role to play in the introduction of more energy efficient and renewable energy technologies in new investments. The evaluation recommends that current efforts at UNEP be continued to streamline and strengthen project monitoring and evaluation. It is also recommended that capacity building and building of energy networks be strengthened by providing comprehensive assistance to financial institutions to strengthen their overall organizational, operational, informational and policy related capacity. Finally, it is recommended that an energy efficient renewable technologies training strategy be developed. Targeting internal training tools and programmes at banks that have already created an enabling environment for energy efficient and renewable energy technologies will be more effective.

## Introduction

8. Barriers to information in the financing of energy efficient and renewable energy technologies are a significant obstacle for investment in such technologies in developing countries. Knowledge and perception barriers prevent loan officers in financial institutions from supporting investments in energy efficient and renewable energy technologies even where commercially available energy efficient and renewable technologies are technically feasible and financially attractive. This project, Redirecting Commercial Investment Decisions to Cleaner Technologies - A technology Transfer Clearing House, responds to the need for expert financial and technical advice on private sector investments in energy efficient and renewable energy technologies and for an appraisal tool for evaluating the financial and economic attractiveness of investments in energy efficient and renewable energy technologies. By targeting the investment decision making process through training activities, developing an energy efficient and renewable energy technologies appraisal tool and conducting pre-feasibility studies of investments in energy efficient and renewable energy technologies through IAF, the project would help to direct additional lending to upgrade the skills of loan officers in the financial institutions of developing countries and to reduce greenhouse gas emissions.

9. The Energy Unit, Division of Technology, Industry and Economics at UNEP (DTIE) and the UNEP Collaborating Centre on Energy and Environment (UCCEE) were responsible for the implementation and management of the project. The project was financed through the GEF Trust Fund and in-kind contributions from UNEP. It was originally planned for eighteen months, beginning from May 1999, but was later extended twice to end in December 2002.

10. The present report presents the findings of the desk evaluation that was carried out by the Evaluation and Oversight Unit, UNEP, between September and November 2002. The objective of the evaluation was to establish the impact of the project and to review and evaluate the implementation of the planned project activities, outputs and results against actual results. The findings of the desk evaluation are based on teleconferences conducted as part of a GEF secretariat-managed project review, exchanges with the project manager and a review of project documents, outputs, monitoring reports and midterm review reports - "Review of the energy-efficient/renewable energy technologies IAF I and II", prepared by a consultant in October 2000 and February 2001. The desk evaluation does not cover field visits.

11. The evaluation of the project's performance is based on a rating system of 1 to 5, and takes into account timeliness, attainment of outputs, completion of activities, execution of the project within the budget, cost-effectiveness of the project, impact and sustainability. Aspects of project management in terms of achievement of activities, outputs and results are emphasized. Impact is evaluated both at the higher level (i.e., change in the environment) and at lower levels related to the role of UNEP, Governments and national institutions, United Nations agencies and other organizations, including donors and funding organizations. Sustainability provides a measure of the real value of the project and UNEP's activity based on the extent to which the project or activity will continue in the short and long term to achieve the intended environmental objectives beyond the project's life.

12. The desk evaluation coincided with a GEF secretariat-managed project review. The GEF secretariat-managed project review is a pilot evaluation initiative launched by GEF in 2002 in collaboration with the implementing agencies. The secretariat-managed project review evaluation was conducted as a questionnaire-based process through panel discussions between the evaluation officers of the GEF secretariat and a representative of the International Finance Corporation (IFC) of the World Bank. The Evaluation and Oversight Unit evaluator served as UNEP observer on the secretariat-managed project review panel.

## I. OVERVIEW OF THE PROJECT

13. The project was designed to facilitate expert financial and technical advice for private sector investments in energy efficient and renewable energy technologies and to develop an appraisal tool for evaluating the financial and economic attractiveness of investments in energy efficient and renewable energy technologies. The anticipated result was to increase lending directed to energy efficient and renewable energy technologies, to upgrade skills of loan officers in the financial institutions of developing countries and to reduce greenhouse gas emissions. These results were based on the assumptions that partner banks would join in the project to achieve mutual goals, that private sector clients and lending institutions would be willing to take or make loans based on the appraisals of alternative investments and that private sector borrowers would carry out feasibility studies of energy efficient and renewable energy technologies that they would not have conducted in the absence of IAF.

### A. Project identification

14. The project was approved by the GEF Council in March 1999 and by UNEP in May 1999. The details of the project are as follows:

Title of the subprogramme:	Technology, industry and economics
Title of the subprogramme element:	Energy
Title of the project:	Redirecting Commercial Investment Decisions to Cleaner Technologies: A Technology Transfer Clearing House
Project number:	GF/2200-99-03
Geographical scope:	Global
Implementation:	DTIE Energy Unit and UCCEE
Duration of the project:	Commencing May 1999 Final completion: December 2002

Table 2

### Budget (in US dollars)

		Percentage of total budget
GEF Trust Fund	750,000	80.65
UNEP in-kind	180,000 *(final 233,660)	19.35 (23.75)
Total	930,000 (final 983,660)	100

\*(Final budget according to revisions)

### B. Project relevance

15. The project refers to the subprogramme "Technology, Industry and Economics," under programme element 4.4.1- "Energy", the objective of which is "to provide policy makers in Governments and industry with relevant, practical, timely information and to improve their skills so that they can make better, more informed decisions concerning energy policies, practices, and investments". This includes the creation of better understanding of the potential of energy efficient technologies and the ability to recognize and to remove barriers to more widespread use of renewable energy. The project also supports the objective of DTIE to enhance the capacity of developing countries and countries with economies in transition in the use of market based incentives to achieve environmental objectives.



16. UNEP's Energy Group consists of the Energy/OzonAction Branch, located in DTIE, Paris and UCCEE, located in Riso, Denmark. UCCEE provides technical backstopping and support to UNEP through a memorandum of understanding signed with the Government of Denmark. The areas of expertise of UCCEE are in methodology development, climate change mitigation analysis, energy and development economics, development of national and international policy instruments and energy sector reform. UCCEE also has links with leading academic and research institutions in developing and developed countries.

17. The project contributes to UNEP's energy policy and programme to "...build off its role as a global environmental authority, which gives the organization an entry into energy-environmental issues not enjoyed by others and makes [UNEP] valuable as a partner" and to provide "unbiased information on the current status of renewable energy technologies". The energy programme of UNEP is based on a strategic approach to partners such as the private sector providing a basis for development of new measures and initiatives. Thus, this project was conceived at a meeting between the GEF secretariat and industry associations organized by UNEP. Partnership with the financial sector is created through the Financial Services Initiative, which was established in 1992. Today, the network comprises over 250 banks and insurers in developed and developing countries. Links between the Financial Services Initiative, programme and energy projects within UNEP provide the required access to financial partners already committed to environmental lending. The Netherlands Development Finance Company (FMO), and Deutsche Investitions und Entwicklungsgesellschaft (DEG), for example, used IAF to obtain energy efficient and renewable energy technologies appraisals for investment projects and afterwards decided to become members of the Financial Services Initiative network. Their membership, together with others in this global financial network, contributes to the overall institutional strengthening of environmental concerns in these organizations.

### C. Project activities

18. The project was planned for eighteen months. This, however, was revised three times to rephrase the unspent balance of the budget from 1999 to 2001 and to extend the project to December 2002. The revisions of the project resulted from the fact that the project activities took longer to initiate than anticipated, mostly because it took longer for the IAF activity to receive eligible projects for appraisal.

19. The project had the following activity clusters (1-5):

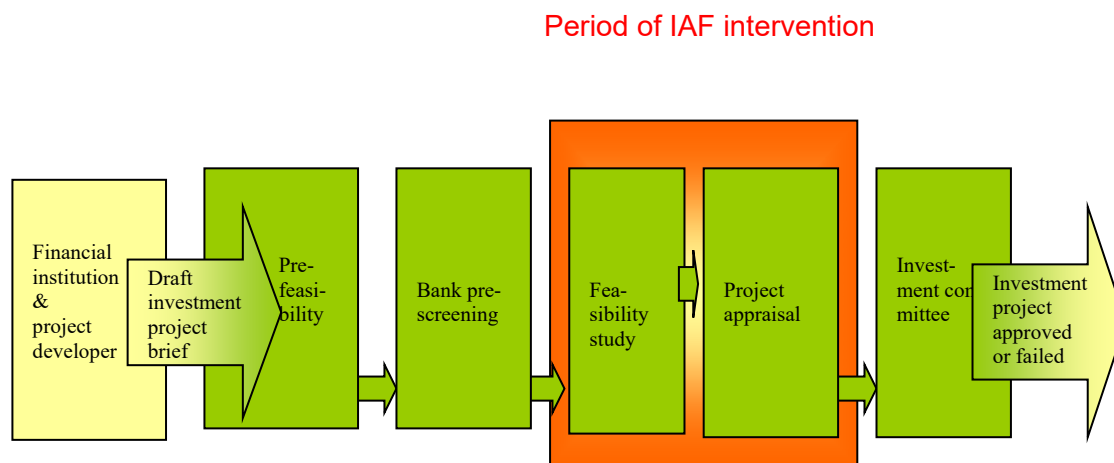
- (a) Development and operation of IAF;
- (b) Development and fine tuning of an energy efficient and renewable energy technologies appraisal tool;
- (c) Publicizing of the project, conduct of outreach activities and maintenance of a web site;
- (d) Preparation of training materials and conduct of workshops;
- (e) Monitoring and evaluation.

20. According to the original plan, activities 1-5 would be implemented over a period of eighteen months with activity 1 covering months 0 to 16, activity 2 during the first two months of the project, activity 3 running closely and parallel to activity 1 and training activities (four) during months 4 to 10. The project was extended to 24 months to accommodate activities 1 and 4.

#### 1. Development and operation of the Investment Advisory Facility

21. IAF was the core activity of the project and was intended to provide customized advisory and project appraisal services to loan officers and their clients on projects that had a greenhouse gas abatement potential but were prevented by informational barriers from moving forward.

Fig.1. Typical investment evaluation process



22. The following are examples of services eligible for IAF support:

- (a) Independent project assessment;
- (b) Regulatory compliance and framework review rights;
- (c) Market sizing for a manufacturing operation;
- (d) Operational and maintenance cost review;
- (e) Environmental liabilities risk analysis;
- (f) Financial risk analysis;
- (g) Legal review of intellectual property and patents;
- (h) Independent valuation of a project or company;
- (i) Legal review of performance or power purchase contracts.

23. DTIE established the initial contact with possible clients and managed relations with the GEF focal points in the countries. UCCEE, which is a joint venture of DANIDA and UNEP, was then responsible for the overall coordination of the project and technical backstopping. UCCEE undertook the contracting process for IAF and participated in the evaluation of proposals. Projects seeking the services of IAF were evaluated by a six person committee convened by UCCEE to determine the eligibility of the projects for support case by case. Members of the evaluation panel were usually supplied by UCCEE and DTIE. The evaluation consisted of a one-page evaluation questionnaire asking questions on project feasibility, benefits, replicability, financial leverage and rating of the project's innovative content in terms of the technology used, geographical scope, etc. The questionnaire also asked if the requested advisory services addressed the site of the barriers in the project proposal and if there was any negative environmental or social side effects related to the investment. The evaluation panel was further requested to determine if the project had sufficient incremental global benefit and if the GEF supported advisory services were incremental.

24. Once a project was found eligible, the funds for the payment of the consultant were forwarded to the loan officers at the financial institution, which usually would select the consultant to carry out the appraisal. In some cases, this was done through a tendering process. Contracting of consultants by the banks ensured that the work undertaken was focused on the issues needing resolution for an investment decision to be taken. In most cases, the financial institutions which commissioned the studies did not own them. Consequently, the project developers were able to use the studies to make their case to other financiers where the financial institutions declined to fund the project.

25. The national GEF focal points were asked to approve IAF requests based on a “no-objection” policy, which ensured that the appraisal process was not unduly delayed. In most cases, there were no comments from the focal points.

26. Each IAF intervention followed six steps from the promotion of the facility to contracting, payment and monitoring and evaluation. The responsibility for carrying out tasks at the various stages was divided between DTIE and UCCEE. This arrangement kept the time from the receipt of the proposal to the contracting of consultants down to a mere eleven to fifteen days.

Table 3

Steps during the period of IAF intervention

Step	Task	Action	Main responsibility
Step 1	Promote facility	Various activities: <ul style="list-style-type: none"> <li>• Training seminars;</li> <li>• Web site;</li> <li>• Networking.</li> </ul>	DTIE
Step 2 (Day 0)	Receive proposals	Proposals must include: <ul style="list-style-type: none"> <li>• A brief description of the investment;</li> <li>• Issues to be resolved for an investment decision to be taken;</li> <li>• Proposed terms of reference and budget;</li> <li>• Documentation showing that the investment has been pre-screened (i.e. is formally under evaluation).</li> </ul>	DTIE
Step 3 (Days 1-10)	Quick evaluation	<ul style="list-style-type: none"> <li>• Evaluations carried out electronically by a six-person committee;</li> <li>• Members have five days to complete the evaluation form (i.e. endorse or reject);</li> <li>• Notify client of the decision by e-mail and explain the contracting procedure.</li> </ul>	UCCEE
Step 4 (Days 11-15)	Rapid and simple contracting	<ul style="list-style-type: none"> <li>• UNEP e-mails the draft contract and statement of work to UCCEE;</li> <li>• UCCEE approves and processes the contract;</li> <li>• UCCEE sends the contract to the client for signature, followed by initial payment;</li> <li>• The consultant and client interact directly thereafter.</li> </ul>	UCCEE
Step 5	Reporting and payment	<ul style="list-style-type: none"> <li>• Final report from financial institution sent to UNEP and UCCEE. It includes the report prepared by the consultant, the investment decision taken and the use of funds;</li> <li>• UNEP verifies technical elements of the report and requests UCCEE to proceed with the payment.</li> </ul>	DTIE and UCCEE
Step 6	Monitoring and evaluation	<ul style="list-style-type: none"> <li>• UNEP carries out ongoing monitoring and evaluation on each project;</li> <li>• UCCEE maintains contract administration and project tracking information.</li> </ul>	DTIE

27. At the beginning of the implementation, IAF shifted its focus from redirecting clean technologies to directing clean technologies. In practice, it turned out that the “redirecting” mode was not workable and was substituted for a more workable “directing” mode. The financing tool employed for granting IAF support also changed. The original financing tool was a contingent grant mechanism, which required that once an investment project of a financial institution had been approved, the financial institution should pay back the IAF grant and the money should be re-phased into the IAF budget. This recapitalization clause, however, turned out to be a major constraint to attracting eligible investment projects for the facility. These changes in the project during implementation are discussed in section I.D.

## 2. Development and fine tuning of an energy efficient and renewable energy technologies appraisal tool

28. The development of an interactive appraisal guide for loan officers would make it easier to screen and appraise loan projects with an energy efficient or renewable energy technologies component or stand alone energy efficient or renewable energy technologies projects and to compare conventional investments with energy efficient or renewable energy technologies options. The tool would be accessible through the Internet.

29. A memorandum of understanding was signed on 16 February 2001 between DTIE and Natural Resources Canada’s Canmet Energy Diversification Research Laboratory (CEDRL) for the development of the greenhouse gas mitigation model for RETScreen. The original RETScreen International Renewable Energy Project Analysis Software is provided free-of-charge and can be used for evaluation of energy production, life-cycle costs and greenhouse gas reductions for renewable energy technologies. The new greenhouse gas mitigation model for RETScreen was developed by DTIE, UCCEE and CEDRL. The new model provides calculations of the estimated greenhouse gas emissions avoided and the financial impact of the corresponding emission reduction for a proposed renewable energy technologies project. The tool can be used not only for preliminary feasibility studies, but also for project lender due diligence, market studies, policy analysis, information dissemination, training, sales of products and/or services, project development and management and research and development.

## 3. Publicizing of the project, conduct of outreach activities and maintenance of a web site

30. These activities supported the IAF activity by promoting IAF and providing information about energy efficient and renewable energy technologies. General information materials would be prepared about the economic and environmental benefits of investments in alternative energy technology and information about activities conducted by project partners.

31. The following information sheets were prepared: one pager on IAF; two page renewable energy technologies fact sheets on wind power, small-scale hydro, bioenergy, solar thermal, geothermal and photovoltaics (solar electricity). The sheets explain in a concise manner the key points and techniques available within the specific areas of renewable energy technology. They also provide a brief assessment of project risks such as the technology and environmental and planning problems which might be expected. For bioenergy, for example, the technology risks are considered to be low because the “technologies for combustion, fermentation and anerobic digestion are proven and in widespread use”.

32. The web site, which has already been created, provides information about IAF which is available on [www.uneptie.org/energy/act/re/IAF/index.htm](http://www.uneptie.org/energy/act/re/IAF/index.htm). There is access to the IAF brochure and examples are given of supported projects and guidelines and the eligibility of countries for IAF. The web site does not contain any information related to the training activities.

#### 4. Preparation of training materials and conduct of workshops

33. Training materials on the use of the appraisal tool and IAF as well as training of loan officers in selected partner banks such as bilateral and multilateral development banks were to be provided. The training workshops were intended to be short (one day) with the aim of raising awareness about the advantages of investments in energy efficient and renewable energy technologies while introducing energy efficient and renewable energy technologies appraisal and identifying potential beneficiaries of the advisory services.

34. The American energy investment companies E+Co and Ecoenergy International Corporation were commissioned by DTIE to conduct a series of seminars for development finance institutions. The seminars were intended to introduce these financial institutions to the basic information needed for consideration of renewable energy and energy efficiency investments, including how they and their in-country client financial institutions could integrate sustainable energy lending into their portfolios. The seminars were one to three days long and were limited to an introduction to renewable energy investments. A training manual for banks, which was provided to participants, contained valuable information on renewable energy technologies, project examples, financial model results for different types of projects, other sources of information through the Internet and information about IAF and the operations of E + Co. Three day seminars, such as one held at the African Development Bank, combined lectures with field visits, study tours, case studies and workshops customized according to the participants' need for credit-related technical, general or train-the-trainer type of training.

#### 5. Monitoring and evaluation

35. Project progress reports and project implementation reviews were duly completed by DTIE and UCCEE. Monitoring was intended to focus on granting of loans and project implementation to determine if greenhouse gas emission reductions were achieved. Estimates of global environmental benefits would be made through the project appraisals. In spite of making provisions for documenting the impact at higher levels, no follow-up beyond project progress reports and project implementation reviews was provided for in the project to document the impact at lower levels. The indicators provided did not facilitate any measurement of the institutional impact in the financing institutions. This made it difficult to evaluate the project's institutional impact, particularly given the fact that this evaluation has been carried out as a desk evaluation. The desk evaluation has been carried out with no costs to the project budget. This was necessary because the budget provided for a terminal in-depth evaluation was used for a midterm review. The midterm review was conducted in October 2000 and March 2001 by an external consultant and its costs were then charged to the evaluation budget.

#### D. Changes in the project during implementation

36. Changes in the project were dealt with through the established reporting mechanisms such as six-monthly progress reports. During the implementation of the project, the funding agency received periodic updating on the progress of the implementation, including the problems of implementing the contingent grant mechanism and the types of intervention IAF was supporting. These changes were not reflected in the revisions of the project document; they should have been reflected in case the changes significantly impeded or had an impact on the achievements and assumptions of the project. The decision not to use the contingent grant mechanism was the most noteworthy change because had it proved workable, more projects could have been given an IAF grant. The project, however, even without the possibility for recapitalization, achieved the planned number of IAF interventions.

## 1. From redirecting to directing

37. The overall objective of the project was to "...prevent the emission of greenhouse gases by redirecting private sector investments towards cleaner technologies" (project document). At an early stage, it was decided to evaluate specific clean energy investments on their own rather than to offer comparative assessments between clean and conventional energy investments. This change implied that rather than supporting feasibility studies for new investment projects, the project began supporting energy efficient and renewable energy technologies project finance investments that were already being developed or already included an energy efficient or renewable energy technologies component. The reason for this change was that IAF would respond better to the immediate needs of the financing institutions and increase its ability to attract feasible investment projects.

38. Since the focus of IAF was at the project level of financial institutions, it seems that directing instead of redirecting covers better the type of investments that actually benefited from IAF. Whether the change from redirecting to directing, however, had a fundamental impact on the purpose of IAF or not is a matter of interpretation. If redirecting is interpreted in a strict sense then IAF services should only be provided for investment projects that originally did not include an energy efficient or renewable energy technologies component. A more relaxed interpretation would be that redirecting was merely a matter of redirecting the financial institutions away from a "business as usual" approach which generally discourages investments in energy efficient and renewable energy technologies. By providing funds for appraisal through IAF to the power department for the Argentinean wind project, Granjas Eólicas Sociedad Anonima, for example, IAF in fact directed some IFC lending toward renewable projects since it was already an investment project with a large energy efficient and renewable energy technologies component. The appraisal did not influence the initial decision to use energy efficient and renewable energy technologies in that project. The relaxed interpretation would argue that there was no difference between redirecting and directing of investments. The project would contribute to an overall redirection of investments and increase, over time, in the proportion of loans or other financial support extended by banks to investments in energy efficient and renewable energy technologies as well as the overall energy sector investments at country level.

39. The shift from the redirecting to the directing mode suggests a more loosely applied criterion which probably better reflected real practice in the financial institutions. The majority of renewable energy investments do not offer comparable returns to conventional energy investments and face a number of specific market barriers including lower returns, smaller project sizes, longer lead times and a higher ratio of capital to operating costs. There are other problems associated with investments in energy efficient and renewable energy technologies such as less experienced developers and sponsors, greater perceived or action technology risk and possible regulatory issues. In energy efficient investments, a major barrier to obtaining third party financing, even for commercially attractive deals, is the perceived level of risk by financing institutions. Energy efficient investments are classified as unsecured loans due to lack of suitable security packages, which in turn force financial institutions to require overcollateralization, effectively rendering such investments uneconomic and unattractive. The main barrier to redirecting more investment to energy efficient and renewable energy technologies was not only informational but a combination of issues connected to renewable energy techniques to which the IAF grant and immediate access to it were more important or at least as important as the information provided through the IAF feasibility studies.

## 2. Ownership of the Investment Advisory Facility appraisals

40. The goal of the IAF approach was to motivate investment officers to get energy efficient and renewable energy technologies projects approved by their investment committees. IAF relied mostly on the financiers to indicate which developers and projects were the most likely to move forward. All funds provided through IAF had to flow through the financier in their entirety in order to ensure that they were used for the appraisal and not for covering any labour costs of the financier. Usually, there are a number of prospective financiers for each good project. The grant was therefore provided through one financial institution but if it failed to pursue the project, the feasibility study would be made available to other financiers. In the case of the sustainable forestry plantation project in Tanzania, for example, the study was contracted by FMO, which later withdrew from the project. The project was a partnership between FMO and DEG and DEG decided to carry out the project on its own.

### 3. The contingent grant mechanism

41. The original project design included a contingent grant mechanism which was to provide a grant to the borrower on condition that it would be repaid if the investment was viable and the bank was willing to extend a loan for the energy efficient or renewable energy technologies project. Early during the implementation of the project, this arrangement proved unworkable and was abandoned. In practice, it was difficult to ask the financial institutions to repay the costs of a consultant hired by a bank that might not be involved in the final financing. It would have required that UNEP enter into a legal agreement with both the banks and the developers, thus complicating the one-off agreement with the developer and constraining the quick turnaround time of the pre-appraisal evaluation (i.e., ten days to approve a request and another five days for contracting).

42. The contingent grant mechanism was included as a sustainability measure and the failure to implement it would prevent the project from ensuring a degree of sustainability by which grant funds could be recovered for possible redeployment.

43. The contingent grant mechanism also provided some level of accountability to ensure that the support provided was used as intended and that the financial institution was serious about the investment project. This level of accountability and assurance of commitment by the financial institutions was instead assured by giving ownership of the appraisal to more financiers and by having the banks develop the terms of reference of the consultant conducting the appraisal and having the financing institution liaise directly with UCCEE to receive support. Furthermore, a certain degree of cost sharing was encouraged and the project was able to obtain cost sharing funds from financial institutions for the majority of the investment projects which benefited from appraisal services through the facility.

#### E. The project budget

44. The Redirecting Commercial Investment to Cleaner Technologies project received GEF funding of \$750,000 and in-kind contributions amounting to \$180,000 from UNEP. In-kind contributions from UNEP consisted of project management, coordination of the energy programme, project administration (DTIE), project administration of contracts (UCCEE), the evaluation committee and office rent, etc; including web site support. The project manager was financed through the project from project start-up in 1999 to May 2001. Thereafter, until the closure of the project in December 2002, when he was financed by the UNEP Environment Fund, the project manager figured as in-kind contribution. The costs of extending the project were financed by increased in-kind contributions from UNEP, while the contribution of GEF remained the same. Total in-kind contributions by UNEP amounted to \$233,660.

45. From a budgetary point of view, the project has run relatively smoothly. Three revisions were made in the project document during the implementation to reflect actual spending and reassignment of the unspent balance. The reassignment saved funds for the development of the appraisal tool, the training activity and the conduct of IAF appraisals. The budget shows that allocations for activities were maximized. Within the overall budget of \$750,000, more than 70 per cent of the budget went directly into the development of appraisal tools and IAF activities. The project could have obtained better results in the training component in the form, for example, of more and longer seminars. This, however, was not possible within the given budget limitations. Replenishment of funds was discussed between the UNEP Division of Global Environment Facility Coordination (DGEF) in Nairobi and the GEF secretariat. It later became apparent, however, that such funds, for example, funds set aside in the UNEP/GEF Strategic Partnership, were not available. Fortunately, the training component has now been taken over by the REED projects and the GNESD project.

## II. PROJECT RESULTS

### A. Actual outputs and activities

46. A total of eleven IAF investment project appraisals were prepared. A new RETScreen model was developed. The model can be accessed through the web site of CEDRL. The RETScreen network, initially launched in 1998, has 22,000 registered users in 189 countries. Nine fact sheets were developed. Three one day awareness seminars and one three day training seminar were held. One seminar is scheduled for the end of 2002.

Table 4

#### Actual outputs and activities

Month	IAF project appraisals	Information and training materials	Seminars	Follow-up
6	6	4 fact sheets	African Development Bank FMO	-
12	0	RETScreen model released	FMO	Midterm review report
18	5	-	Inter-American Investment Cooperation	Midterm review report; Launch of the Sustainable Alternatives Networks (SANet) launch planned for fall 2001
24	0	5 fact sheets	-	Report on greenhouse gas emission mitigation from IAF
30	0	-	-	Seminars used as a basis for the bank training programme in the African Rural Energy Enterprise Development (AREED)
36	0	-	Planned Land Bank of Philippines (planned for end of 2002)	-
Total	11	9 fact sheets RETScreen model	5 seminars	2 midterm review reports; SANet-planned Greenhouse gas report; AREED training.

Source: Six monthly progress reports

### 1. The Investment Advisory Facility

47. UCCEE provided speedy and efficient technical backstopping during the appraisal process. The core areas of capacity of UCCEE were well matched with the role UCCEE played in the IAF activity. The technical expertise and the (organizational) location of UCCEE also meant that contracts could be processed much more quickly than at UNEP. As a result, the processing time was kept down to a remarkable low of eleven to fifteen days from the time the project proposal was received to the time a consultant was contracted.



Table 5  
IAF appraisal projects

Investment project	Bank/financier	IAF services	Investment project status	Funding \$ (a) IAF support (b) Co-finance (c) Total investment project
1. Sustainable forestry plantation in Tanzania	FMO and DEG	Evaluation of plantation investment as part of mine refinancing	Plantation underway, with 600,00 seedlings planted by mid-2002 [5]	(a) 26,000 (b) –0- (c) 1,200,000
2. 20 MW wind farm in Jamaica	RES Ltd. And Petroleum Corporation of Jamaica	Carbon valuation and sale	The Pollution Prevention Act (PPA) signed, carbon sale nearing completion [3]	(a) 38,115 (b) –0- (c) 25,500,000
3. 20 MW small hydro peaking plant in Guatemala	Inter-American Investment Corporation	Third party review of engineering design	Investment approved although the project is financed at national level; construction completed; plant in operation [5]	(a) 25,000 (b) –0- (c) 36,700,000
4. Biomass Coffee waste cogeneration plant in Costa Rica	UBS Asset Management (Australia) Ltd.	Project feasibility for the development of an alternative climate fund	Fund launched, capitalization failed, prototype plant under construction [3]	(a) 34,000 (incl. CDM support) (b) n/a (c) 10,000,000
5. District Heating cogeneration plant in Slovak Republic	UBS Asset Management (Australia) Ltd.	Project feasibility for the development of an alternative climate fund	Fund launched, capitalization failed [3]	(a) 38,000 (incl. in-house JI support) (b) n/a (c) 3,500,000
6. 5 MW geothermal power plant in Vanuatu	International Finance Corporation and Pacific Hydro	Completion of feasibility study and third party review for Government negotiations	Negotiations ongoing between the Governments and the utility [2]	(a) 47,000 (b) 25,000 (c) 14,700,000
7. 50 MW windfarm in Argentina	International Finance Corporation, REED and two commercial investors	Third party review of wind resource data and wind plant design	Development frozen due to macro situation [1]	(a) 35,000 (b) n/a (c) 68,000,000
8. 3 MW biogas plant in the Philippines	Philippine Bio-Sciences Engineering Co. (PhilBio)	Carbon valuation and sale	IAF's support completed mid 2001 [2]	(a) 13,115 (b) 12,500 (c) 3,400,000
9. 20 MW wind farm in Ghana	NewEn GmbH and DEG	Support for preparation of environmental impact assessment	IAF support completed, financing efforts continue [2]	(a) 30,000 (b) 38,000 (c) 24,000,000
10. Latin America Energy Services Fund	Inter-American Development Bank (MIF) and FondElec	Market sizing for funding the development of the pipeline	Fund launched (\$25.5 million), first investments closed [5]	(a) 25,000 (b) 25,000 (c) 25,500,000
11. Nepalese Clean Energy and Infrastructure Development Fund	Nepal Merchant Bank	Fund legal documentation and capitalization efforts	IAF support nearing completion [1]	(a) 25,000 (b) 50,620 (c) 7,000,000

Notes [1 to 5] give an estimate of the development status of the project as follows: 1= IAF's work underway; 2 = IAF's work completed; 3 = targeted investment decision taken and positive; 4 = project fully financed and in progress; 5=construction underway; and 6 = plant in operation

48. Eighteen pre-feasibility evaluations and eleven IAF appraisals have been conducted or are underway, thereby achieving more than the planned minimum number of fifteen pre-feasibility evaluations and ten IAF appraisals. The three most common reasons why pre-feasibility evaluations disapproved of IAF support were lack of a convincing incrementality argument, i.e., IAF support and grant were truly needed, the limited likelihood of the project taking off even with IAF support and lack of co-financing for the IAF part. The co-financing requirement was applied increasingly stringently towards the end of the project. Five energy efficient and renewable energy technologies investment projects have successfully reached the approval or implementation stage. Two investment projects, the biomass coffee waste cogeneration plant in Costa Rica and the district heating cogeneration plant in the Slovak Republic, were successful, inasmuch as the goal of the IAF interventions was to convince UBS Asset Management (Australia) Ltd. to launch the Alternative Climate Fund, which it did. However, the fund failed to raise enough outside capital to start up. Three investment projects are still being developed or negotiated. IAF appraisals are yet to be completed for another two investment projects. It is therefore likely that the project will also reach the expected minimum of seven approved energy efficient and renewable energy technologies investment projects for which loans have been extended.

## 2. The RETScreen model

49. The model was released as planned in October 2000 and was an integral part of the one day seminars. The revised RETScreen user base, launched in 1998, is growing steadily and now has 22,000 registered users in 189 countries. The Prototype Carbon Fund of the World Bank has recently contracted RETScreen to upgrade the greenhouse gas model to make it compliant with the Marrakech Accords to the Kyoto Protocol and to configure RETScreen to be used for the submission of carbon financing projects of the Philippine College of Physicians to the fund. DTIE and UCCEE are involved in this upgrading.

## 3. The web site

50. The web site developed as part of the project activities provides basic information on IAF and how to apply for IAF support. The web site is well maintained and has detailed information on ten out of the eleven projects supported. The findings of the midterm review carried out in October 2000 are also posted on the site. The web site does not give any account of the training activities undertaken or the model and tools developed for this activity. The intellectual property arrangements with E+Co, the provider of the training curriculum, prevented DTIE from publishing and sharing them directly through the web site, which could have made IAF attractive to a wider audience, particularly project developers and stakeholders in developing countries.

51. Also posted on the web site is an IAF status note from October 2001. Since the project will not end before December, however, an updated status note would be valuable. This status note could provide an update on projects and include new projects. It would also give an account of the future of IAF and explain how its services would be included in the activities of the SANet and AREED networks.

## 4. Training

52. Training was provided to a total of 120 loan and investment officers in financial institutions. The training took place at the financial institutions, the African Development Bank, the FMO (twice) and the Inter-American Investment Cooperation and is scheduled to be carried out by the end of 2002 at the Land Bank of the Philippines.

53. Except for the three day training seminar at the African Development Bank, the training sessions were short one day seminars. The first seminars had a very technical approach, which changed in the subsequent seminars to better accommodate financial investment concerns such as risks and market spread. The project budget did not allocate adequate funds to the organization of more comprehensive training sessions or to the hiring of consultants with knowledge of both renewable energy and finance and investment. Lack of funds also prevented DTIE from developing a curriculum and instead DTIE had to modify the E+Co curriculum. Consequently, the training itself did not have a significant impact on the number of IAF projects. Thus, the seminars were able to raise the awareness of renewable energy technologies but the overall capacity building value of the training component was limited.

## 5. Monitoring and evaluation

54. Half-yearly progress reports were submitted to DGEF at UNEP headquarters and GEF project implementation reviews were prepared for 2000, 2001 and 2002. A midterm review report was prepared by a consultant in October 2000, by which time six IAF interventions had been made. The same consultant reviewed another four IAF appraisals in February 2001. The midterm review was shared with the GEF secretariat. The recommendations of the midterm reviews provided substantial guidance in the fine tuning of the IAF approach. The costs of the review were charged to the project's evaluation budget, amounting to \$13,000 and contracted through UCCEE. The present final evaluation has been carried out as a desk evaluation by the Evaluation and Oversight Unit with no costs to the budget. The desk evaluation approach was agreed to because the evaluation budget had been used for midterm reviews. In addition, the review reports provided detailed information on the implementation of the project and the GEF secretariat-managed project review, which ran concurrently with the desk evaluation, was also considered.

55. Some monitoring of loan provision to and implementation of investment projects was carried out to determine the impact at a higher level in terms of greenhouse gas emissions achieved using the revised RETScreen model. Monitoring, however, was not extended to systematically document the impact of project activities such as training and IAF. In particular, measurement of the impact at a lower level was impossible to capture with the indicators included in the project document. This kind of proof of achievement, such as institutional change, should be considered very important, particularly for this project, which sought to influence something as difficult as decision making.

## 6. Stakeholder participation

56. The project primarily targeted investors, including development banks, commercial banks and project developers, through IAF and training seminars. Information barriers to investments in energy efficient and renewable energy technologies exist in financial institutions of both developing and developed countries. However, there are more resources to be allocated to such investments in the financial institutions of developed countries and the development banks of developing countries are still in the early stages of integrating environmental benefits into their projects. For these reasons, only about half of the IAF support to investment projects involved the financial institutions of developing countries, such as RES Ltd., the Petroleum Corporation of Jamaica, PhilBIO and the Nepal Merchant Bank. Similarly, three out of five training seminars have been or are scheduled to be held at banks in developing countries such as the African Development Bank, the Inter-American Investment Corporation and the Land Bank of the Philippines.

57. A number of IAF investment projects included international financial institutions, which usually have access to internal resources through trust funds or technical cooperation funds. These financial institutions were found eligible for IAF support because they may value environmental benefits but do not prioritize cleaner technology and energy efficient and renewable energy technologies and consequently allocate very limited internal resources for carrying out relevant feasibility studies.

58. The project focused on developers and lenders to producers of energy in developing countries and countries in transition and did not directly involve other stakeholders at the national level. In one case, however, the Vanuatu geothermal project, the Government was involved. In a response from the Ministry of Energy to the "no objections letter" to the investment proposal, the Government indicated that it was pleased with the feasibility study but that it had little capacity to understand the appraisal report and so would not be able to enter into negotiations of concessions with the developer. Consequently, in-kind assistance was provided by DTIE and UCCEE for a third party review of the appraisal report and with expert support for conducting negotiations to the satisfaction of the Government of Vanuatu. The fact that so few responses were received was not surprising because most Governments of developing countries are very supportive of investments that target the energy sector and of exploration of alternatives to traditional energy sources.

## B. Problems encountered during implementation

### 1. Budgetary constraints

59. The training component was underfunded. The project, however, used the limited funds allocated for training and development of appraisal tools very effectively. Four training seminars were held for 120 loan and investment officers. An additional training seminar is scheduled for the end of 2002 at the Land Bank of the Philippines. A training curriculum was developed and is now being refined under the AREED programme. In view of the budgetary constraints, the training courses had to be downsized to one day information seminars instead of full scale three day seminars. By building on the existing RETScreen model of E+Co and using E+Co as consultants to develop the training curriculum, a high degree of cost effectiveness and reduction of the cost of product development was realized. In addition, this ensured that the revised RETScreen would reach a larger user segment than could be reached through IAF alone. This approach, however, had the disadvantage that the training curriculum belonged to E+Co and could not be used without the consent of E+Co for training sessions other than those contracted. E+Co is a financing organization with a wide range of experience in financing small scale renewable energy technology projects. Using an E+Co consultant was the most effective choice that could have been made under the circumstances. A consultant with a less technical background and more of a bank financing mindset, however, might have been more successful in overcoming the perceived informational barrier of the financing institutions and increasing the impact made through training.

### 2. Project design

60. As indicated in section I.D, some changes were made in the project design after the project start up. These changes, which, for example, excluded the contingent grant mechanism, were made in order to achieve the goal of at least ten energy efficient and renewable energy technologies investment projects and did not change the overall objective and needs of the project. IAF was a service that operated on the goodwill of the financial institutions and enjoyed the advantages of quick turnaround pre-appraisals and simple one stop administrative procedures. It turned out to be very attractive to financiers and developers. In addition, the decision to abandon the contingent finance mechanism and to shift the focus from supporting feasibility studies to supporting energy efficient and renewable energy technologies project finance type of investments was made to accommodate the needs of financiers and developers. Easy access and operating measures helped to attract more investment projects, including projects with little documentation and description, which in turn enhanced the importance of the pre-appraisal evaluation process.

## C. Accomplishments of the project

61. The project was successful in a number of aspects. The close partnership of DTIE and UCCEE ensured a quick and smooth running administrative process during the stages of the IAF interventions such as the carrying out of pre-appraisal evaluations of investment projects, preparation of contracts for consultants to undertake an IAF study and disbursement of IAF grants. The remarkably short period of processing of applications of eleven to fifteen days for IAF was also due to the excellent communication between the UNEP focal point and the financial institutions interested in IAF. This approach contained the elements of relationship banking of a flexible and interactive relationship with the institutions applying for assistance through IAF.

62. The simple evaluation questionnaire used for the IAF pre-appraisal of an energy efficient or renewable energy technologies project comprised very general questions and the midterm review report noted that the pre-evaluation of investment projects was kept to a simple "yes" or "no". According to the review, this practice, together with the level of adjustment and expeditious handling of case prospects may have made the pre-evaluation more risk averse and helped to reject energy efficient or renewable energy technologies projects with perceived high risks or few chances of approval at an early stage.

63. In practice, the delegation of financial, technical and procedural responsibility to the financial institutions applying for support from IAF translated into a certain opacity with regard to the specific status of the planned energy efficient or renewable energy technologies project and the relationship between the project developer and financial institutions. Thus, it was difficult to predict objectively the projects that had a real chance of final approval and implementation and therefore should be supported through the Facility. The evaluation procedure, however, is considered to have been successful since out of the eleven energy efficient or renewable energy technologies projects supported through IAF, only one project, the district heating cogeneration plant in the Slovak Republic, failed to materialize altogether. All other energy efficient or renewable energy technologies projects supported through IAF are in the stages of implementation, approval or IAF appraisal.

#### D. Relationship with other activities at the United Nations Environment Programme and the United Nations

64. Beginning from fall 2001, a joint initiative between UNEP and GEF, SANet, began to support IAF's appraisal services through its Decision Support Facility for investments in energy efficient or renewable energy technologies as well as other climate-friendly investments. SANet provides online resources, expert advice and co-financing to business experts working in emerging markets. Contributing partners include the World Federation of Engineering Organizations and the International Federation of Consulting Engineers (FIDIC). So far, SANet has supported the following three investment projects using the IAF approach:

- (a) Dexia-FondElec EE Fund - support for carbon valuation and sale from the fund's investments;
- (b) Elana combined heat and power in Poland – support for the completion of due diligence for combined heat and power upgrade and fuel switch;
- (c) La Cabana bagasse plant in El Salvador - to complete the feasibility study for efficiency upgrade.

65. In 2000, DTIE and UCCEE established the Sustainable Energy Advisoral Facility (SEAF) with \$400,000 with the support of DANIDA to offer technical assistance for sectoral and national planning studies, climate change mitigation studies, technology assessment and selection and linkages with relevant institutions for project finance. SEAF also provided renewable energy and energy efficient investment appraisal services along the same line as IAF by providing assessment of renewable and conventional energy projects with reduced environmental impacts but targeting policy decision makers instead of financial decision makers. SEAF was a pilot initiative to provide information and technical support for sustainable energy activities in selected developing countries to feed into the ninth session of the Commission on Sustainable Development.

66. At the World Summit on Sustainable Development held in Johannesburg in September 2002, SEAF was scaled up into a full partnership of GNESD. The network partners will help to promote research, transfer and takeover of green and cleaner technologies in the developing world through an existing network of energy centres of excellence in industrialized and developing countries, including UCCEE. Network partners are widely defined as research centres, Governments, agencies of the United Nations system, international development banks, GEF, regional networks, non-governmental organizations, private sector entities and donors. UNEP serves as the secretariat of the network. Funding has been provided by the United Nations Foundation (UNF) and bilaterally by France, Germany and the United Kingdom.

67. The training component of the project has been integrated into the AREED project, a UNEP project supported and funded by UNF. AREED provides early stage funding and enterprise development services to entrepreneurs and energy businesses that supply clean energy technologies and services to rural African customers. The enterprise development approach used by AREED has been adapted from E+Co, whose training materials were revised through the Redirecting Commercial Investments to Cleaner Technologies project.

### III. LESSONS LEARNED

#### A. Revisions of the project design

68. The focus of the project changed from the redirecting to directing mode of investment in energy efficient and renewable energy technologies. In addition, the abandonment of the contingent grant mechanism was not accounted for in the revisions of the project document. Some informal correspondence on this issue has been recorded by UNEP, which kindly informed the GEF secretariat of these changes in the project implementation reports. There does not seem to be any clear guidance on the extent to which the implementing agencies should correspond with the GEF secretariat on project changes beyond that of the project implementation review process. The decision not to continue applying the contingent grant mechanism, for example, should have been reflected in the revisions of the project document. Changing the focus from redirecting to directing commercial investments, depending on the interpretation of that function, should also have been reflected in the revisions.

69. Project revisions would have provided an opportunity to scrutinize impact indicators and follow up measures of project activities. The project document lacks adequate indicators to measure the impact at lower levels and ways of using indicators as a monitoring tool. This would have involved refining the project design according to the need for establishing the impact and developing tools to carry out monitoring during project implementation. Close monitoring, besides the timely preparation of progress reports and project implementation reviews throughout the implementation of the project (i.e. reporting and filing those reports and e-mails), and close communication between the project manager, DGEF and the GEF secretariat is necessary to maintain a high level of accountability and transparency in the project decision making process and management.

#### B. Customization and integration of tools

70. The project was as far as possible implemented to meet the needs of the financial institutions and thereby ensure the achievement of the project's planned outputs. Changing the way financial institutions view new investments requires better information that is customized to the requirements of each financial institution. Most projects developed in the area of energy efficiency or renewable energy are unprofitable when measured against the usual international standards of investors (i.e., above the 20 per cent threshold). Consequently, there is a need for new mandates which combine social and environmental factors, both in terms of risks and returns, as an integral measure of economic performance.

71. The lesson to be learned for future projects targeting financial institutions is that financial institutions have different approaches to investment banking. Some want to first focus on policy and therefore need training and policy advice while others first want to take a few investments and therefore need help for evaluating potential investments. There may also be those financial institutions that want assistance for creating various types of sustainable energy investment funds. The training tools need to comply with each of these functions if they are to address information barriers in financial institutions effectively. The approach also needs to take into consideration whether the target is the environment portfolio financier, senior management or an investment committee.

### C. Addressing barriers

72. The project assumed that information barriers constituted the main constraint to more investments in energy efficient and renewable energy technologies. Addressing informational barriers in financial institutions through training seminars was better received by loan officers when the seminars were less technical and focused more on the financial concerns of bankers. The experience gained through the implementation of the training seminars was that bankers appeared to have more confidence in project appraisals or training carried out by other bankers. Bankers tended to relate best to other bankers. The best consultants turned out to be those with previous working experience in banking. For IAF this meant letting the financial institutions define the terms of reference of the consultant conducting the IAF appraisal. The speed at which investment projects were received, however, did not pick up until IAF was able to demonstrate a portfolio of credible financial institutions using IAF for their investments in energy efficient and renewable energy technologies.

73. Investment decisions are primarily based more on estimates of financial risks and returns and security options and less on environmental policy considerations. Documentation prepared for technology or policy decision makers is generally not appropriate for the finance sector. Financial institutions are not used to approaching a United Nations agency such as UNEP for technical support. Consequently, much of the work in the establishment of IAF involved developing credibility among the clients of the banking sector. This included setting up rapid administrative procedures that operated within the short proposal evaluation cycle of financial institutions. Rapid and effective administrative procedures similar to those in the private sector help to overcome informational barriers.

### D. Ownership of Investment Advisory Facility appraisals

74. There are usually a number of prospective financiers for every good project. What may be considered as uninteresting in one financial institution may be rated more favourably in another. Therefore, instead of restricting the ownership of IAF appraisals to one financier, the appraisal report was made available to the developer and other prospective financiers.

## IV. CONCLUSIONS

75. The success of the project has been evaluated in terms of six aspects of implementation following the guidelines for ratings in the terms of reference (see annex I). Each of these aspects has been evaluated on a scale of 1 (i.e. 90-100 per cent achievement- "excellent") to 5 (i.e., 49 per cent and below achievement- "unsatisfactory"), with 1 being the highest rating. The performance rating is given in table 6 and each aspect is discussed in greater detail below. The overall rating for the project is assessed as 2 - "very good".

Table 6

### Project performance rating

Aspect of project implementation	Rating
Timeliness	3
Attainment of outputs	1
Completion of activities	2
Execution of the project within the budget	2
Cost effectiveness of the project	2
Impact created by the project	3
Sustainability	2
Overall rating	2

#### A. Timeliness

76. The project was planned for eighteen months but was extended twice, first to December 2001 and then to December 2002. The extensions were made to allow for a reassignment of funds and reflected the fact that the majority of the IAF grants were disbursed during the last eighteen months of the project. A duration of eighteen months is normal for a project of this size but the type of activities and the time needed to enhance the knowledge of the facility and the adjustments that were made at an early stage, including a midterm review, made it necessary to extend the project. The final extension was also made to allow for interaction between IAF and the training component in order to ensure that the training component was fully integrated into the SANet, GNESD and AREED projects and to provide sufficient time for the administrative closure of the project. Though the extensions were well justified, the planning of the activities and the time needed to prepare and to implement the project could have been more realistic.

#### B. Attainment of outputs

77. The planned outputs of the project have been largely attained (see tables 4 and 5) in terms of the revision of RETScreen, the development of fact sheets and the web site and carrying out of appraisals. Some projects, however, have not yet reached implementation or are still being developed and IAF appraisals are still underway for two energy efficient or renewable energy technologies investment projects. At the time of the evaluation, five investment projects had arrived at positive investment decisions, two had arrived at a positive investment decision but had not been capitalized and three had been fully approved and were being implemented. In addition, an appraisal tool was developed and training seminars were conducted as planned to increase awareness about energy efficient and renewable energy technologies.

78. The contingent grant mechanism was not fully integrated into the project design. In fact, the recovery of IAF grants and possible redeployment were not listed among the expected outputs in the project document. Quite early during the project, the project team in DTIE became aware that the contingent grant mechanism was a serious constraint to IAF. The contingent grant mechanism was then abandoned in order to achieve the planned number of appraisals for energy efficient and renewable energy technologies investment projects, which would otherwise have been impossible to reach. The fact that the contingent grant mechanism was abandoned, however, is not reflected in subsequent revisions of the project document and was only subject to informal notification to the GEF secretariat, which initially had insisted on the inclusion of the mechanism in the project design (see annex II for UNEP's terminology on outputs and activities).

#### C. Completion of activities

79. The planned activities have been completed. The core activity, IAF, is still ongoing and it is expected that the remaining IAF appraisals will be completed shortly. The present economic situation in Argentina may result in the collapse of the 50 MW wind farm investment project in Argentina and the recovery of the IAF grant of \$20,000. Overall, the project had to be extended for 24 months because it took longer than expected to attract energy efficient and renewable energy technologies investment projects for IAF. The training seminars planned for the Land Bank of the Philippines is yet to be carried out.

#### D. Execution of the project within the budget

80. The project has been completed within the overall budget of \$750,000. The budget was revised to extend the duration of the project. Budget items were re-allocated to reflect the fact that the project manager was by May 2001 no longer funded directly through the budget. The costs of the midterm reviews were deducted from the evaluation budget of the project. The extensions of the duration of the project did not necessitate changes in the contribution made by GEF and the in kind contribution by UNEP was instead increased.



## E. Cost-effectiveness

81. The outputs and activities were achieved and completed within the budget. The development of appraisal tools and the training curriculum were planned with cost effectiveness in mind. The existing training curriculum of Ecoenergy International Corporation was modified by E+Co. The curriculum therefore remained the property of E+Co and not within the domain of DTIE or IAF. This time-sharing arrangement was the most effective option in terms of time and funds. However, it limited the number of seminars that could be offered. In addition, if DTIE and UCCEE were to continue activities in this area, they would have been better off having full or shared ownership of the curriculum. E+Co was chosen as the second best option within the limited budget allocated for training purposes. Moreover, the effective partnership between DTIE and UCCEE ensured quick and smooth running of pre-appraisal evaluations, preparation of contracts and disbursement of IAF grants.

## F. Impact

82. The project made an overall impact by reaching the goal for reducing the number of metric tons of greenhouse gases not emitted as compared to the projected baseline of investment projects. Preliminary greenhouse gas calculations, based on the revised RETScreen model, indicate that the project will surpass the greenhouse gas mitigation target of 1 million tonnes CO<sub>2</sub> avoided.

83. The evaluator conducted a number of interviews with developers and loan officers in order to establish the usefulness and impact of the project's activities, particularly IAF. IAF clearly broke new grounds and reached a larger audience. In fact, for all of those interviewed, the IAF investment projects constituted their first renewable energy technology project. IAF support was regarded as critical for the investment project in some cases because the banks or developers did not have the capacity to carry out feasibility studies themselves or had very limited access to seed money for project development. The quick turnaround time required to hire a consultant was an additional benefit. The loan officers have since engaged in new projects, including renewable energy technology and clean energy projects such as small hydro plants, and the interviewees all expressed interest in using the facility if the opportunity to do so occurred in the future.

84. Loan officers in international development banks and development banks in developing countries face various types of problems. Most international development banks are already implementing environmental strategies and creating an enabling environment within the institutions. These banks are effectively slowly driving banks in developing countries into the area of the environment but not out of their own initiative. Development banks in developing countries do not have sufficient in-house capacity to develop this kind of project and are further constrained by the fact that developers in those countries also do not have the capacity or knowledge to carry out even simple environmental feasibility studies. Another problem is that most energy efficient and renewable energy technologies projects that developers present to financing institutions are too small to be bankable.

85. On four occasions, letters of appreciation were forwarded to IAF after IAF support had been received. Institutions that forwarded such letters include the German Development Bank DEG, the Inter-American Development Bank, UBS Asset Management (Australia) Ltd. and the Government of the Republic of Vanuatu, Ministry of Lands, Geology, Mines, Energy and Rural Water Supply. The letters unanimously indicated that the IAF service provided invaluable support for securing a critical level of project feasibility. The quick, competent, independent and external expertise provided was highlighted and interest was expressed in using IAF for future energy efficient and renewable energy technologies investment projects.

86. There may also have been an institutional impact within UNEP. Instead of closing down IAF at the end of the project in December 2002, both the training component and IAF have already been incorporated into the SANet, GNESD and REED projects. Thus, valuable knowledge of the financial investment environment gained during implementation within UNEP will be preserved and used in these projects.

87. IAF had the most significant impact on the project's activities. It is, however, almost impossible to establish the role that IAF played in the decision making process. The likelihood of the investment project being approved and implemented also depends on internal institutional factors and external factors, such as macro-economic developments in the case of the 50MW wind farm investment project in Argentina. The number of investment projects that sought IAF services clearly indicates that IAF was useful. There also seems to be a general trend in the financing institutions to take on more clean energy projects, which proves that the timing of the project was appropriate and that the facility will be useful in the future and can benefit from this general trend. As already mentioned, the lack of indicators identified in the project document, which measures impact at a lower level of the project activities, means that the impact cannot be established in full. However, on the basis of feedback from interviews and letters of appreciation, the overall impact of the project is rated "good".

#### G. Sustainability

88. The project management decided in May 2001 not to apply for a renewal of the project on the basis of the evidence that existing activities would be incorporated into other projects by the end of the project. From a long-term perspective, the evaluator considers this decision appropriate for incorporating this project into other projects and avoiding duplication, even if this means closure of the project.

89. Training activities have now been incorporated into the training components of SANet and AREED. To date, two REED workshops have been held as a result of the IAF training: the AREED workshop entitled "UNEP Financial Initiative Programme double roundtable: Interactive workshop - Introduction to sustainable energy for financial professionals" held in February 2001 and the AREED seminar entitled "Clean energy investment opportunities in Brazil". The latter was a financial institutions and investor seminar held in November 2002. Already, three investment projects have received UNEP support along the lines of IAF through the SANet Decision Support Facility. The appraisal services developed through IAF will be brought to a wider audience and a bigger network of energy centres of excellence through a project that initially started in SEAF and now has been upscaled in GNESD, which was launched at the World Summit on Sustainable Development in September 2002.

### V. RECOMMENDATIONS

90. Valuable lessons have been learned from the findings and achievements made and problems encountered during the implementation of this project which, in turn, have allowed the following recommendations to be proposed.

#### A. Improvement of the project design and strengthening of monitoring and evaluation

91. The resources put into project design should be increased at UNEP to avoid too many changes during implementation and to optimize project outputs and results. Early in the project, IAF refocused its activities from redirecting to directing investments in energy efficient and renewable energy technologies and abandoned the contingent grant mechanism. These changes were made to customize IAF to the needs of the financial institutions. The IAF approach constituted a learning experience and flexibility during project implementation was envisaged and effectively applied. The number of changes made to this project suggests that there were some flaws in the project design. The contingent grant mechanism, for example, was not fully integrated into the project design because it did not work in its original form. Financing projects of this kind should have a mechanism based either on a contingent grant mechanism or cost sharing, to increase cost incrementality, project sustainability and stakeholder accountability. Cost sharing was applied in the later stages of IAF with good results.

92. Part of this design exercise should involve revisiting relevant UNEP guidelines and formalizing procedures for changes in the project document for UNEP/GEF projects. This will ensure that both the financing and implementing agency are updated beyond the existing reporting procedures such as the project implementation review process. More formalized procedures will also improve project monitoring and evaluation and ensure better communication between the project manager and the Evaluation and Oversight Unit. For this project, the costs of the midterm review were covered by the evaluation budget, which meant that there was no money left for an in depth terminal evaluation. It is important that midterm reviews be handled in the same way as terminal evaluations and discussed with the Evaluation and Oversight Unit. Midterm reviews are not obligatory and are mostly used as a management tool during project implementation. They, however, must be budgeted for and cannot replace the obligatory terminal evaluation. Project managers who envisage conducting a midterm review should inform the Evaluation and Oversight Unit and the financial management officer to ensure that appropriate budget allocations are made for both the terminal evaluation and the midterm review.

93. The need for an in depth evaluation was further brought to the fore by the lack of appropriate impact indicators and tools to follow up on those energy-efficient/renewable energy technologies investment projects supported by the facility. The project manager made efforts to follow up on projects and some letters of appreciation commending IAF were received. In addition, within the framework of the desk evaluation, some telephone interviews were conducted with loan officers and developers. More effort, however, should be made during project implementation through the use of indicators to establish impact at both higher and lower levels. Adequate indicators and tools to measure impact should be developed during the preparation of the project document.

#### B. Strengthening capacity building and building of regional energy networks

94. With regard to strengthening coordination and links between UNEP's capacity building and building of regional networks in its energy programme, UNEP's comparative advantage based on its energy policy and programme lies in building "strategic partnership with banks and financial institutions on renewable energy" with an emphasis on developing countries and, in particular, African countries. The capacity to independently provide tools, training and technical expertise through partnerships with UNEP collaborating centres such as UCCEE and the Basel Agency for Sustainable Energy constitutes a well-established niche for UNEP work.

95. Other initiatives or capacities that cover the energy financing and policy area at regional and global levels that UNEP is not involved in include temporary bilateral projects implemented by donors such as the Norwegian Agency of Development Cooperation and regional development banks or through the IFC private sector programme targeting specific programme countries. Formalized networks within the financial sector that incorporate finance and policy are virtually nonexistent. Important lessons are to be learned from the establishment of equity (clean energy) investment funds in the Asian region where banking and financing networks building in cleaner production have been successful.

#### C. Development of the energy efficient and renewable energy technologies training strategy

96. An overall strategy should be developed to strengthen the training component. While this project's activities are now spread over the SANet, GNESD and REED projects, it is important that the existing format be strengthened and training be coordinated with exchanges taking place between these projects to avoid duplication. Coordination will strengthen the credibility and impact of such efforts in the energy policy sector, which involves a great many actors. The IAF approach should be a standard item of the training curriculum.

97. The long term goal of the training strategy should be to encourage financial institutions to develop capacity to conduct training in energy efficient and renewable energy technologies. Targeting internal training tools and programmes at banks that have already created an enabling environment for energy efficient and renewable energy technologies will be more effective in achieving results in the short and long term. The training strategy should distinguish between an energy finance approach and an energy policy approach, depending on whether it is targeting financiers and investors or policy makers. There is a need to address developers in developing countries and their capacity to integrate environmental concerns so that they can at least be able to prepare simple environmental feasibility studies or know where to seek information. In order to address financial institutions and developers effectively, it is necessary to focus on the recurrent problem of scale that faces many energy efficient and renewable energy technologies projects. Many energy efficient and renewable energy technologies projects are too small to be bankable.

98. The strategy should also bear in mind that there is a divide between financial institutions in the developed world, which are already systematically carrying out environmental feasibility studies, and the financial institutions of the developing world. Many financial institutions, however, are in the process of developing an environment policy or still do not have any policy or have a rural development policy instead. Rural development can, in the absence of a proper environment policy, provide an effective entry point for introducing investments in energy efficient and renewable energy technologies together with sustainable development and environmental concerns into the investment portfolios of the financing institutions.

## Annex I

### TERMS OF REFERENCE FOR THE EVALUATION OF THE “REDIRECTING COMMERCIAL INVESTMENT DECISIONS TO CLEAR TECHNOLOGY – A TECHNOLOGY TRANSFER CLEARING HOUSE” PROJECT, GF/2200-99-03

Under the guidance of the Officer-in-charge of the Evaluation and Oversight Unit and in close cooperation with the Energy Programme Coordinator and Project Manager in the Division of Technology, Industry and Economics (DTIE) and collaboration with the task manager in the Division of Global Environment Facility Coordination (DGEFC), the evaluator shall undertake a detailed review and evaluation of the Redirecting Commercial Investment Decisions to Cleaner Technology – A Technology Transfer Clearing House “project, GF/2200-99-03. The evaluation shall be conducted as a desk evaluation by the Evaluation and Oversight Unit during the period between September 16 and October 31, 2002.

#### 1. BACKGROUND

The “Redirecting Commercial Investment Decisions to Cleaner Technologies – A Technology Transfer Clearing House” Project addresses the need to redirect more investment in developing countries to sustainable energy technologies. The objective of the project is to overcome informational barriers in the financing of energy-efficient and renewable energy technologies by bringing together banks and their clients. The results of the project will provide additional lending directed at energy-efficient/renewable energy technologies, improved familiarity of finance decision makers with such investments and reduced emission of greenhouse gases.

The approach of the project was to provide advisory services to clients of the finance sector in the format of targeted appraisals, feasibility assessments and third party reviews of sustainable energy investments. This facility was facilitated by UNEP and each intervention was carried out by a specialized consultant. DTIE played the lead role in the implementation of the overall project and the UNEP Collaborating Centre on Energy and Environment (UCCEE) provided technical advice throughout project implementation.

The activities of the project are clustered as follows:

- (a) Development and operation of the Investment Advisory Facility (IAF);
- (b) Development/fine tuning of an energy-efficient/renewable energy appraisal tool;
- (c) Publicizing of the project, conduct of outreach activities and maintenance of a web site;
- (d) Preparation of training materials and running of workshops.

The planned project duration was May 1999 to December 2000 (18 months). The project, however, was extended for final completion in December 2002. The budget was \$930,000, mostly covered by the UNEP/GEF Trust Fund and by DTIE in kind.

## 1.1 LEGISLATIVE MANDATE

The legislative mandate of the project stems from Agenda 21, chapter 38 and UNEP Governing Council decisions GC 16/33, GC 16/41, GC 17/32 and GC 19/22. The project supports UNEP's Programme of Work 1998-1999, in particular subprogrammes for: raising the awareness of decision makers in Governments and the private sector on the potential of energy-efficient technologies; promoting understanding of the role of renewable energy in energy production and use; making policy makers and energy planners aware of the environmental impacts associated with energy production and use and promoting good environmental management practices into energy planning and policy; and enhancing awareness on climate change mitigation and adaptation policies, strategies and technologies.

The project also supports the subprogramme on environment, trade and economics in terms of "...enhanc[ing] the capacity of developing countries and countries in transition to market economies in the use of market-based incentives to achieve environmental objectives".

The project refers to GEF Operational Programme (OP) 5 "Removal of barriers to energy efficiency" and OP 6 "Promoting renewable energy".

## 1.2 SCOPE OF THE EVALUATION

The evaluation shall be conducted as a desk evaluation. The objective of the evaluation is to establish project impact and review and evaluate the implementation of planned project activities, outputs and outcomes against actual results. The performance indicators provided in the time frame of the GEF project document will be used together with evaluation parameters of appropriateness, effectiveness and efficiency, impact and sustainability.

The desk evaluation will coincide with a secretariat-managed project review throughout which the evaluator of the Evaluation and Oversight Unit will serve as the focal point for UNEP.

The findings of the evaluation will be based on the following:

- (a) Desk review of project documents, outputs, monitoring reports and other relevant project documents, including the report on the "Review of the energy-efficient/renewable energy technologies Investment Advisory Facility", which was prepared by a consultant as an in-depth review in October 2000;
- (b) Teleconferences conducted as part of the secretariat-managed project review;
- (c) Telephone interviews with the project manager located in DTIE, Paris and others if necessary.

## 2. TERMS OF REFERENCE

The evaluator shall:

- (a) Assess the overall appropriateness of the objectives of the project to the pertinent UNEP mission, mandate and subprogramme objectives;
- (b) Determine to what extent the project's objectives were met and the expected results were obtained, taking into account the listed indicators and whether it has been a cost-effective way of obtaining these results;
- (c) Determine the extent to which project activities corresponded to those outlined in the project document;
- (d) Determine the quality and usefulness of the project's outputs, in particular the targeted appraisal services (IAF), the information tool and materials, training workshops and the web site;

- (e) Determine the effectiveness and timeliness of the institutional arrangements established for providing appraisals and carrying out project activities;
- (f) Establish the effectiveness of cooperation between UNEP, UCCEE and the financial institutions;
- (g) Establish the extent to which the project has had an impact on removing information and awareness barriers;
- (h) Compare the approach and outputs of this project to that used by other organizations, institutions and the private sector for providing investment advisory services;
- (i) Assess the profile of the projects to which appraisal services have been provided and determine the success of this pilot project in terms of follow-up activities;
- (j) Assess the effectiveness of the institutional arrangements, procedures, choice of consultants and administrative and financial support provided by UNEP;
- (k) Identify the problems encountered and the lessons learned during project implementation;
- (l) Make recommendations on how to improve future delivery in this particular type of project (i.e. to provide advisory services on a cost-sharing basis) and the area of energy-efficient/renewable energy technologies.

### 3. EVALUATION REPORT FORMAT AND PROCEDURES

The evaluation report shall be a detailed report, written in English, of no more than fifteen pages exclusive of the executive summary and the findings and recommendations of the evaluation and include the following:

- (a) A concise summary (no more than two pages);
- (b) A separate section on lessons learned;
- (c) A separate section on findings and recommendations.

All annexes should be typed.

The success of project implementation will be rated on a scale of 1 to 5 with 1 being the highest rating and 5 being the lowest. The following items should be considered for rating purposes:

- (a) Timeliness;
- (b) Attainment of outputs;
- (c) Completion of activities;
- (d) Project executed within budget;
- (e) Impact created by the project;
- (f) Sustainability.

Each of the items should be rated separately and then an overall rating given. The following rating system is to be applied:

- 1 = Excellent (90 % - 100 % achievement)
- 2 = Very good (75 % - 89 %)
- 3 = Good (60 % - 74 %)
- 4 = Satisfactory (50 % - 59 %)
- 5 = Unsatisfactory (49 % and below)

In accordance with UNEP/GEF policy, all GEF projects are evaluated by an evaluator of the Evaluation and Oversight Unit not associated with the implementation of the project. The evaluation will begin on 16 September and end on 31 October 2002. The evaluator shall prepare a first draft by 17 October 2002. A draft version will be forwarded to DTIE for initial comment. Comments on the final draft report will be sent to the evaluator after a maximum of two weeks after which the evaluator will complete the final report.

There is no travel involved in this evaluation.

The final report shall be written in English and submitted in electronic form in MS Word format by 31 October 2002 to the Project Manager, Energy, DTIE and the Officer-in-charge, Evaluation and Oversight Unit. The evaluation report will be printed in hard copy and published on the Evaluation and Oversight Unit's web site, [www.unep.org/eou](http://www.unep.org/eou);



Annex II

PROJECT DOCUMENT: OBJECTIVES, RESULTS, OUTPUTS AND ACTIVITIES

UNEP terminology uses objectives, results, outputs and activities to describe the approach and logical linkages between analytical levels and expected contributions of the project. Objectives and needs are used interchangeably. Results, referred to in GEF terminology as outcomes, are the main focus of the evaluation of impact. Outputs derive from, but not necessarily, activities such as workshop reports. Activities include seminars, meetings, etc.

	Objectively verifiable indicators	Means of verification	External factors/assumptions
<u>Objectives and needs</u> (a) Promote greenhouse gas mitigation by removing information barriers that prevent consideration of alternative technology choices and redirect investments towards clean technologies; (b) Need for expert financial and technical advice concerning private sector investments in energy efficient and renewable energy technologies; (c) Need for an appraisal tool for evaluating the financial and economic attractiveness of energy efficient and renewable energy technologies investments.	Number of million metric tons of greenhouse gases not emitted as compared to the projected, non-intervention baseline.	Evaluation reports based on technology choices and pre-project baseline estimates.	Lending institutions will participate in the project; private sector borrowers are open to investing in energy efficient and renewable energy technologies if these are demonstrated to be viable and funding exists; cleaner technologies will perform as expected.

<p><u>Results</u></p> <p>(a) Additional lending directed at energy efficient and renewable energy technologies;</p> <p>(b) Upgrading of skills in loan officers in financial institutions of developing countries;</p> <p>(c) Delivery by partner development banks to their private sector clients of energy efficient and renewable energy technologies advisory services as part of their conventional lending operations;</p> <p>(d) Reduced greenhouse gas emissions.</p>			<p>(a) Partner banks will join in the project to achieve mutual goals; financial intermediaries in developing countries will be persuaded to identify suitable investment projects and borrowers will avail themselves of the alternative appraisal services;</p> <p>(b) Private sector clients or lending institutions will be willing to take or make loans respectively when presented with favorable appraisals of alternative investments; provision of customized appraisal services on a contingent basis will reduce this risk among borrowers;</p> <p>(c) Private sector borrowers will join as project partners and receive alternative appraisals which they would not have paid for in the absence of the project; careful selection of private sector partners with the help of participating financial institutions will help reduce this risk.</p>
<p><u>Outputs</u></p> <p>(a) Alternative feasibility and appraisal studies that redirect pending technology investment decisions to more climate friendly technologies;</p> <p>(b) Appraisal tools and related information technology resources that aid informed decision making;</p> <p>(c) Trained investment officers and their counterparts (trained on conducting alternative</p>	<p>(a) Pre-feasibility and feasibility appraisals of specific investment projects conducted with a possible energy efficient and renewable energy technologies component (fifteen pre-feasibility and ten feasibility studies/appraisals conducted and reports prepared);</p>	<p>(a) Consultants' reports and alternative investment appraisal documents and evaluation questionnaires provided by private sector entities and development banks using the project services;</p> <p>(b) Evaluation questionnaires of loan officers at lending institutions participating in the project and independent evaluation of project</p>	<p>(a) Pre-feasibility and feasibility studies will be persuade private sector entities and their lenders to extend loans on favorable terms;</p> <p>(b) Lending institutions will support workshops and release staff to participate in them;</p> <p>(c) Development banks, industry and trade associations and other bodies will collaborate and help to spread information about the project;</p>

<p>appraisals and aware of project services).</p>	<p>(b) High quality useful information materials prepared and made widely available to interested parties through electronic and other means;</p> <p>(c) At least 150 loan officers will have participated in training workshops by month eight of the project and gained increased skills and knowledge about energy efficient and renewable energy technologies.</p>	<p>materials;</p> <p>(c) Evaluation questionnaires distributed at workshops;</p> <p>(d) Lists of participants of workshops.</p>	<p>(d) Borrowers and lenders interested in energy efficient and renewable energy technologies will obtain and use informational materials made available to them.</p>
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<p><u>Activities</u></p> <p>(a) Manage the project in partnership with development banks (the executing agents) to enable delivery of project outputs to interested commercial sector clients (\$70,000);</p> <p>(b) Provide contingent finance for alternative feasibility studies to private sector clients through development bank partners (\$550,000);</p> <p>(c) Monitor the impact of study outcomes on investment decisions to draw broader conclusions on the effectiveness of the approach and tools (\$35,000);</p> <p>(d) Recruit and supervise consultants who develop the alternative appraisal tools and deliver related training to investment officers (\$235,000);</p> <p>(e) Undertake the monitoring and evaluation work and provide annual project implementation review reports (\$40,000)</p> <p>(Total project budget (\$930,000).</p>	<p><u>Inputs</u></p> <p>(a) Administrative, technical, and partial financial support from UNEP;</p> <p>(b) In kind contributions from partners in development banks, partner lending institutions and private sector clients;</p> <p>(c) GEF funds to support project activities.</p>		
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Source: UNEP project document and medium-sized project brief-Global Environment Facility for GF/2200-99-03  
 `Redirecting commercial investment decisions to cleaner technologies.

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