

FACSIMILE TRANSMISSION



United Nations Development Programme
GLOBAL ENVIRONMENT FACILITY (GEF)



To: Mr. Kenneth King
Assistant Chief Executive Officer
GEF Secretariat

Date: 25 June 1998

Mr. Lars Vidæus, Chief
Global Environment Div.
World Bank

Mr. Ahmed Djoghlaïf
GEF Executive Coordinator
UNEP, Nairobi, Kenya

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Pages: (14 including this sheet)

From: Eduardo Fuentes
Officer-in-Charge

Subject: PDF A Funding - In-Situ Conservation of Kazakhstan's Mountain Agrobiodiversity; and Fiji: Renewable Energy Hybrid Village Power Systems

Please find attached for your review two PDF Block A requests for funding entitled *In-Situ Conservation of Kazakhstan's Mountain Agrobiodiversity; and Fiji: Renewable Energy Hybrid Village Power Systems*.

We would appreciate receiving your comments no later than c.o.b. Thursday 2 July 1998.

Thank you.

PM

Proposal for PDF Block A Grant

PART I - ELIGIBILITY	
1. Project name: Fiji Renewable Energy Hybrid Village Power Systems.	2. Proposed GEF Implementing Agency: UNDP
3. Country or countries in which the project is being implemented: Fiji.	4. Country eligibility: Ratified UNFCCC on February 25, 1993
5. GEF focal area(s): Climate Change	6. Operational program/Short-term measure: OP6- Promoting the Adoption of Renewable Energy by Removing Barriers.
<p>7. Project linkage to national priorities, action plans, and programs:</p> <p>The Fijian Department of Energy (FDoE) has the official mission of providing the framework for a resource efficient, cost effective and environmentally sustainable energy sector for economic and social development. Among its established programs are Renewable Energy Development, Energy Conservation, and Rural Electrification.</p> <p>Among the objectives of the FDoE are the promotion of the development of indigenous renewable energy to replace current fossil fuel use (diesel fuel); and the establishment of appropriate policies and programs to minimize Government involvement in the supply of energy services and maximize private sector involvement. An outcome of these objectives would be the establishment of a sustainable institutional framework, i.e. a renewable-energy-based rural energy service company, that would charge consumers a fee for the electricity supplied.</p> <p>One of the schemes considered under the 1993 Rural Electrification Policy (Policy), as implemented by the Rural Electrification Unit (REU) within the FDoE, refers to the diesel generators operated by the Public Works Department (PWD) at the five government stations in Kadavu (Vunisea), Lakeba (Tubou), Rotuma (Ahau), Taveuni (Waiyevo), and Vanua Levu (Nabouwalu). These fossil fuel generators supply electricity to government offices, community hospitals, public institutions, stores, ice houses and surrounding villages. Electricity is supplied through mini-grids of a few kilometers in length, with the loads ranging from 500 kWh/day to 1000 kWh/day.</p> <p>Recently the FDoE, with PWD, completed the installation of a 720 kWh/day Renewable Energy Hybrid Village Power System in Nabouwalu. The system was designed by the Pacific International Center for High Technology Research (PICHTR), a private not-for-profit institute located in Hawaii. The hybrid system, which includes wind turbine generators and solar PV panels, can supply approximately 80% of the electricity load with the balance supplied by diesel</p>	

generators. The renewable energy equipment (inverter/controller, wind turbine generators, PV panels and battery) was donated by the Ministry of Foreign Affairs (MOFA) of the Government of Japan through PICHTR. As of January 29, 1998, Fiji assumed ownership of the \$600,000 system donated by MOFA.

8. GEF national operational focal point and date of country endorsement:

Mr. Rishi Ram, Permanent Secretary for Local Government, Housing and Environment; Endorsed: February, 11, 1998.

9. Project rationale and objectives:

This project is aimed to reduce greenhouse gas emissions through commercial utilization of renewable energy hybrid village power systems which would replace the diesel generators currently used in Nabouwalu, and which could be replicated in other parts of Fiji. This objective is consistent with the goal of FDoE to promote development of renewable energy, which is exemplified by the Nabouwalu system.

With support from GEF, this objective would be achieved through the establishment of a sustainable institutional framework to transfer the operation, maintenance, and revenue collection responsibilities of the Nabouwalu hybrid system from FdoE to the self-sustaining private company. The mechanism of the private energy service company would need to be determined with the participation of the villagers, PWD, PICHTR and all other stakeholders. Ideally, a rural energy service company or utility, which charges a fee for the electricity supplied to consumers, would be established as a sustainable institutional framework in Nabouwalu, and eventually replicated in other parts of Fiji.

Training of operators in the proposed energy service company is needed along with implementing appropriate revenue collection mechanism (e.g., prepayment electricity meters) to ensure that funds collected for services consider all factors of running the hybrid system. The residents of Nabouwalu will also be trained in efficient operation of the Nabouwalu system. Participatory survey and appraisal techniques would be used incorporating all stakeholders into the process.

In a parallel effort, capacity building for renewable energy resource assessment in the other four government stations will be conducted. There is an ongoing activity of resource data collection by FDoE. With GEF support, this project can conduct a desk study to assemble and review all the previous and ongoing work related to resource assessment, and conduct training in resource assessment techniques, site selection, and the installation and use of specialized wind and solar measurement equipment. The intention is to apply the Nabouwalu model

to the other government stations. The feasibility of establishing a village power training center for the Pacific Region at Nabouwalu will also be explored. FDoE will continue to solicit the participation of the PICHTR engineers and analysts that designed and supervised the installation of the Nabouwalu hybrid system. They also operate a test and evaluation system in Hawaii and maintain a data base on cost data, equipment life cycles, maintenance and repair requirement for the components of similar hybrid systems.

10. Expected outcomes:

The proposed project would be considered successful if a rural energy service company, which charges for the electricity it produces, is established in Nabouwalu as a sustainable institutional framework. This would be replicated in other parts of Fiji after the GEF project has been completed.

The project would have global environmental benefits by reducing greenhouse gas emissions (CO₂), and other emissions from diesel generators, minimizing the noise pollution caused by their operation, and reducing oil imports.

11. Planned activities to achieve outcomes:

GEF funds would be used to establish a private rural energy service company in Nabouwalu using renewable energy resources. The company, which would be operated by trained local operators, would provide energy services (installation, operation, and maintenance) to the renewable hybrid system and incorporate an appropriate payment collection mechanism. The Nabouwalu model would be replicated throughout Fiji (and eventually other sites in the Pacific Region and the world).

FDoE will need to identify an appropriate mechanism to account for the \$600,000 in renewable energy equipment at Nabouwalu (part of the in-kind contribution to the proposed project). It might be appropriate to lease the equipment to the rural energy service company to be established. The lease funds collected would be used in the process of replicating the Nabouwalu model elsewhere.

The proposed project will include following activities to achieve the outcomes:

- 1) The project preparation tasks consist of: (i) identifying and incorporating lessons learned from other similar projects (e.g. Solar Energy Company in Kiribati); (ii) identifying and analyzing barriers to the development of renewable energy in Fiji;
- 2) Assess the full economic cost of electricity production of the renewable hybrid system in Nabouwalu and make recommendations to the Government of Fiji regarding establishing appropriate electricity pricing;

- 3) Hold participatory workshops with all stakeholders to identify the requirements, expectations, and mechanisms for the proposed rural energy service company;
- 4) Establish appropriate compensation to FdoE, by the proposed rural energy service company, for the use of the hybrid power plant in Nabouwalu. Currently, FDoE either lends the equipment to consumers with strict maintenance specifications and periodic inspections or leases the equipment with the funds collected used for replication of the Nabouwalu experience elsewhere in Fiji. In addition, an innovative financing mechanism will be identified and implemented;
- 5) Train operators in the proposed rural energy service company in the installation, operation, and maintenance of the Nabouwalu system as well as business and marketing strategy;
- 6) Establish Nabouwalu as a training and demonstration center for other potential users of renewable energy technology. This activity would be performed in coordination with the rural energy service company;
- 7) Educate consumers (villages) about the efficient operation of the renewable hybrid system;
- 8) Disseminate information (e.g. design, installation, and operation of the Nabouwalu system as well as the results of the proposed project) within Fiji and abroad through Regional Institutions;
- 9) Capacity building for renewable energy resource assessment at the other four Government Stations;

12. Stakeholders involved in project:

FDoE, PICHTR, PWD, the Fiji Electricity Authority (FEA), as well as the Nabouwalu villagers and villagers at the other four stations.

PART II - INFORMATION ON BLOCK A PDF ACTIVITIES

13. Activities to be financed by the PDF A:

The objective of this PDF A is to assist the Government of Fiji in formulating and finalizing a GEF Medium-Size Project brief and project document, aimed towards developing its Renewable Energy Hybrid Village Power Systems, to be submitted for GEF financing consideration. This PDF A will be completed under the guidance of the RBAP/GEF Regional Coordinator for Climate Change and in collaboration with the GEF Technical Specialist, who will serve as team leader. The PDF A will cover the costs for

- 1) Hiring an international consultant to work with the GEF Technical Specialist, to provide support for formulating a GEF Medium-Size Project brief and project document to be submitted for GEF financing;
- 2) Holding a project formulation workshop with all stakeholders involved;
- 3) Hiring one national consultant to assist the GEF Technical Specialist and the

international consultant in the project brief development activities, including organizing the project formulation workshop.	
14. Expected outputs and completion dates:	
1) A GEF Medium-Size Project brief and project document; 2) A report on project formulation workshop which includes stakeholders' expectations, commitments, and recommendations for the project, analysis of previous and ongoing efforts related to development of renewable energy for rural electrification in Fiji, definition of stakeholders' role, and implementation arrangements.	
Completion date: to be determined	
15. Other possible contributions / donors and amounts:	
GEF. US\$ 14,490	
The MSP is expected to draw funding from GEF and Government of Fiji (FDoE), with possible co-funding from UNDP.	
16. Total budget and information on how costs will be met (including the Block A grant):	
International Consultant: US\$5,000 National Consultant: US\$4,070 Workshop (1 day): US\$3,000 Documentation: US\$1,000 Sundry: US\$1,000 UNDP CO Support Costs: US\$420 Total: US\$14,490	
PART III - INFORMATION ON THE APPLICANT INSTITUTION	
17. Name: FDoE	18. GEF Implementing Agency: UNDP
19. Mandate/terms of reference: See item 7.	20. Recent activities/ programs, in particular those relevant to the GEF: none
PART IV - INFORMATION TO BE COMPLETED BY IMPLEMENTING AGENCY	
21. Project identification number:	
22. Implementing Agency contact person: Nandita Mongia, Regional GEF Coordinator for Climate Change, Regional Bureau for Asia and the Pacific, UNDP	
23. Project linkage to Implementing Agency program (s): National Environmental Action Plan	

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Our File Ref. 1175/14-5

11 February, 1998

The Resident Representatives
UNDP
SUVA

Attention: Dr Jenny Bryant

Dear Sir,

Re : GEF Proposal

The Fiji Department of Energy is seeking GEF Funding for the project, Fiji Renewable Energy Hybrid Village Power Systems, in the attached communication.

Fiji has much to gain from the project. Among other benefits, the project would help to reduce oil imports, reduce CO₂ and other emissions from diesel generators as well as minimize noise pollution caused by such operation—an environmentally friendly project.

The Ministry of Foreign Affairs and External Trade supports and endorses the proposal and in this respect wishes to seek your consideration for GEF funding for the project.

We look forward to your favourable consideration.

Thank you kindly.

Yours faithfully,

(M.T. Mudeller) Mrs

for Permanent Secretary for Foreign Affairs & External Trade

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