

UNITED NATIONS DEVELOPMENT PROGRAMME  
Global Environment Facility

PROPOSAL FOR FUNDING (PDF BLOCK B )  
Malawi Renewable Energy Programme

**TITLE:** Barrier Removal to Malawi Renewable Energy Programme

**ACC/UNDP SECTOR AND SUB-SECTOR:** Energy/Environment

**GEF THEME** Climate Change

**FUNDING REQUESTED:** US\$64,800

**CO-FUNDING:** US\$25,000 ( SADC-FINESSE)

**REQUESTING AGENCY:** UNDP

**EXECUTING AGENCY:**

*For PDF Activities:* UNOPS  
*For Full Project:* Ministry of Energy & Mining, Department of Energy

**ESTIMATED STARTING DATE:** July 1997

**BLOCK A GRANT AWARDED:** none

**DURATION:** 6 months

**Brief Description:** This PDF is designed to evaluate the barriers which exist to renewable energy in Malawi. In particular, the PDF will evaluate the potential for renewable electricity production, the barriers that exist to the development of that potential, and meaningful avenues which can be identified to remove the identified barriers. The scoping work to be carried out under this PDF will be complemented by the evaluation of the renewable energy industry and the preparation of business plans for renewable energy provided by the UNDP-funded SADC-FINESSE Programme. It is anticipated that the final project to be prepared with this PDF will focus on the removal of the barriers to expanded renewable energy use in Malawi. The GEF supported initiative will operate in parallel to both a SADC- FINESSE initiative financed by the UNDP Energy Account to attract investment capital for commercially viable renewable energy and energy efficiency projects and a UNDP TRAC-funded project to strengthen the renewable energy policy environment in Malawi.

## Background and objectives

1. Malawi is a landlocked, densely populated country which occupies the southern part of the Great East African Rift Valley. The total land area is 119,140 square kilometers of which 20,908 square kilometres is covered by surface water resources dominated by Lake Malawi. The country is bordered by Mozambique to the south, east and west; Tanzania to the north and Zambia to the west. Malawi is endowed with natural resources which include some of the most fertile soils for agricultural use in Southern Africa. The country has abundant water resources and a remarkably diverse flora and fauna.
2. The Malawian population is rapidly growing (3.2% per annum) but is characterized by pervasive poverty (average per capita income US \$40 per annum). The associated mounting pressures on land and land resources pose serious threats to biological diversity and sustainable development. Due to the increasing demand for agricultural land, wood for household needs, tobacco curing, brick burning and beer brewing, extensive deforestation has occurred. During the 1970's and 1980's, the rate of deforestation peaked at 3.5% per annum, falling to 1.6% per annum in 1990 largely because of decreasing availability of land to be deforested. Considerable encroachment into protected areas has also occurred.
3. Approximately 90% of the Malawian population live in rural areas and depend on biofuels (wood, crop residues, and animal dung) for cooking and water heating. Paraffin and candles are used for lighting. Only about 4% of the population enjoy the benefits of electricity and, of that, less than 1% reside in the rural areas.
4. If the current rate of wood-use continues, the deforestation will increase. This will not only imply a serious energy access problem, but will also have a substantial impact on almost every major national priority area including health, economic development, population, gender-issues, and the local and global environment.
5. The current use of woodfuel for cooking and water heating is already posing a serious threat to biological diversity and sustainable development in Malawi through deforestation and land degradation. As the Malawian population continues to grow, the pressure on biomass fuel will increase to an extent where the consequences are immense if people do not adopt alternative sources of energy.
6. Electricity in Malawi is generated, transmitted and distributed by the Electricity Supply Commission of Malawi (ESCOM). It is produced exclusively by hydropower from Malawi's own indigenous hydropower resources. Malawi presently has a generating capacity of 214 Mwe. ESCOM has planned a hydropower extension that will bring the capacity closer to 300 Mwe, but the project has not yet been commissioned. However, the policy of national energy self-sufficiency is now rapidly changing. Bilateral and multilateral discussions with Zambia and

Mozambique, have been carried out on the possible interconnection of power systems

7. Although the Government's macro-economic policies emphasize rural electrification as a means of improving the quality of life of the rural population and promoting rural economic development, it has become apparent that the fulfillment of this goal cannot be achieved solely through the extension of the national electric grid due to economic reasons. Grid expansion is very costly in view of the comparably small amount of electricity the rural population will buy. It is unlikely that the populations living even a few kilometers from the grid will be connected to the grid in the near future, even where ESCOM identifies a particular economic activity warranting grid extension
8. The major need for energy in the rural households are for: lighting, entertainment (radios, radio cassettes, television), and, to a lesser extent, refrigeration. These end-use needs can be met using sustainable energy technologies such as photo voltaic (PV) systems, photo-thermal (PT) systems, biogas systems, wind energy systems and energy-efficient stoves. The PDF will examine barriers to the widespread dissemination of the technologies and thus result in the preparation of a full GEF project to remove those barriers.
9. Most of the renewable sources of energy systems have already been tried in Malawi with varying results. PV systems are providing electricity for remote telecommunications systems, lighting and refrigeration at rural health centers. PT systems are used for water heating in several missionary centers, secondary schools, government hospitals and buildings, such as the new state house. But the dissemination of renewable energy technologies has been very slow, due to a number of transactions barriers.
10. Private sector activities related to renewable energy have been limited to solar water heaters and photovoltaic systems, mainly for lighting. Only a few companies handle solar energy systems and they cannot generate a significant volume of business to expand due to the suppressed nature of the market. The suppression of the market arises from a number of factors. First, the Government's pronouncements of support to the development of renewable energy technologies have not yet been followed with concrete action. Second, the high up-front cost of PV technology and the absence of credit for end-users and local suppliers who have minimal resources for purchasing and marketing solar equipment have been barriers to market expansion. Third, there is an insufficient number of adequately trained persons in both the public and private sectors to correctly size, install and maintain PV systems.
11. A number of barriers to the sustainable use of renewable energy in Malawi have been identified. These include:

#### **Institutional Barriers**

- Lack of an effective and comprehensive institutional framework.
- lack of clear government policy on new and renewable sources of energy.

- Lack of coordination of the activities and the knowledge of the government, the research institutions, the academic institutions, the NGO's and the private sector.

### Economic, Commercial and Market-Related Barriers

- High import duties and sales taxes.
- Lack of private sector capacity in manufacturing, distribution, installation and maintenance of renewable energy systems.
- Lack of suitable financing arrangements.
- End-users in rural areas cannot afford renewable energy systems
- Lack of locally produced components and raw materials.

### Technical Barriers

- Lack of data for the design of appropriate sustainable and renewable systems.
- Lack of standards for sustainable and renewable energy technologies.

### Information, Education and Training Barriers

- Lack of access to necessary information.
- Lack of knowledge of markets including energy needs of target groups.
- Lack of public awareness of the technologies.
- Lack of trained manpower at all levels.
- The PDF activities will evaluate these barriers and develop a project to overcome them, wherever feasible.

### Summary Project Objectives and Description:

12. This PDF is designed to evaluate the barriers which exist to renewable energy in Malawi. In particular, the PDF will evaluate the potential for renewable energy production, the barriers that exist to the development of that potential, and meaningful project activities which can be identified to remove the identified barriers. The scoping work to be carried out under this PDF will be complemented by the evaluation of the renewable energy industry and the preparation of business plans for renewable energy providers supported through SADC-FINESSE programme. It is anticipated that the final project to be prepared with this PDF will focus on the removal of the barriers to expanded renewable energy use especially focusing on the consumer's side of the problem. The project is also expected to include or run parallel to a UNDP TRAC-funded project to strengthen the renewable energy policy environment in Malawi.

### FINESSE STRATEGY

13. FINESSE( Financing Energy Services for Small-Scale Energy Users) is a concept that was initiated in 1989 by the World Bank in collaboration with the Netherlands Ministry of Development Cooperation(DGIS), the United States Department of Energy (USDOE), and Energy and Atmosphere Programme of the United Nations Development Programme(UNDP/BPPS/SEED/EAP) with the objective of identifying and promoting ways to provide technically feasible and economically viable renewable energy and energy efficiency services to residential, commercial, and industrial energy users. The FINESSE proposal resulted from the recognition that traditional energy sector lending by multi-lateral and bi-lateral institutions is biased towards large-scale, supply-oriented fossil and

hydro-based projects. FINESSE supported activities are designed to create the conditions and mechanisms for the credit sector to on-lend to small-scale energy users.

14. Since MAY 1996 a Programme Management Unit has been set up at SADC Energy Sector TAU in Luanda, Angola and subsequently a Technical Support Group formed. National FINESSE coordinating bodies were set up and a first regional steering committee was held in Pretoria, South Africa (August 1996) where ToR's for national consultants were refined after which consultants were selected. The SADC-FINESSE team has carried out country market assessments, short listed commercially interesting projects and prepared business plans (feasibility studies) for 3-4 projects per country. Those were presented at a National FINESSE Workshop in each country, i.e., Lesotho, S. Africa and Zimbabwe (April 1997) for review by the various stockholders, beneficiaries and other actors involved (Energy Department, private sector, financial institutions, donor community, academia and NGO's). These business plans were revised as a result of these workshops ensuring that national development priorities, lending criteria and environmental criteria were met before presentation at a Regional FINESSE Workshop (May 1997) for consideration for follow-up investments by development financing institutions.

#### **Description of the PDF Activities by Component for GEF funding:**

15. The PDF Block 'B' grant will be used to undertake the following activities in collaboration with SADC/FINESSE Programme :
- (a) Identification of energy service needs of small scale energy users in Malawi;
  - (b) Identification of alternative technologies that have the potential of satisfying the energy needs of the target groups;
  - (c) Comparative assessment of the technical, economic and environmental feasibility of promising solar and wind energy and small hydro technologies;
  - (d) Preparation of renewable energy strategies and identification of investment opportunities in Malawi;
  - (e) Development of plan of action for financial enterprises, industry and government that will facilitate the implementation of alternative energy projects;
  - (f) Preparation of a project brief for GEF funding and a subsequent project document for project implementation.

#### **Eligibility:**

16. Malawi ratified the UNFCCC on 21 April 1994 and is therefore eligible for support from the GEF.

#### **Justification:**

17. The Government of Malawi ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 21 April 1994. The proposed project is consistent with the GEF Climate Change Operational Programme 6 'Promoting the adoption of renewable energy by removing barriers and reducing implementation costs'

### Budget and Items to be Financed:

18. The budget for this PDF is closely linked to the activities to be financed. They are listed in the budget as follows:

	GEF	FINESSE
(1) National consultants to evaluate renewable energy markets and barriers to renewable energy development	\$25,000	\$10,000
(2) International consultants to provide technical backstopping	\$10,000	-----
(3) Initiation Workshop	-----	\$10,000
(4) National Workshop to discuss proposed programme for renewable energy prospects	\$10,000	\$5,000
(5) Preparation of project brief and project document	\$15,000	-----
Subtotal	<b>\$60,000</b>	<b>\$25,000</b>
Executing Agency Support Costs (8%)	\$4,800	-----
Total	<b>\$64,800</b>	<b>\$25,000</b>

### Outputs:

The outputs of this activity are fourfold, namely:

- 1) UNDP/GEF Project Brief;
- 2) UNDP/GEF Draft Project Document;
- 3) Workshop to review and revise draft proposal; and
- 4) Draft outline of national programme to remove barriers to renewable energy and to promote growth through stimulation of both the demand and supply sides of the renewable energy industry.

### Expected Date of Preparation Completion:

The PDF activities will begin in August 1997 and will be completed by January 1998 to ensure that the project can be considered at the GEF Council meeting in March.

### Special Features:

The project to be prepared through this PDF will include support from UNDP, GEF, and the SADC- FINESSE programme. The different components will be designed in a collaborative process in consultation with local shareholders to remove barriers at the national policy level, and on both the demand and supply sides of the renewable energy system. Thus, the programme is expected to be a major impetus to create and open-up Malawi's energy system to renewable energy.

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In reply please quote Ref. No. ....

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Communications to be addressed to:  
The Secretary for Energy and Mining



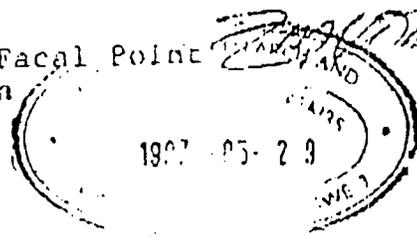
MINISTRY OF ENERGY AND MINING  
PRIVATE BAG 309  
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Ref. No. DOE 1/15

29th May, 1997.

The Resident Representative,  
United Nations Development Programme,  
P.O. Box 30135,  
LILONGWE 3.

Through: GEF National Facal Point  
Dr. Z. Vokhiwa



29/5/97

Dear Sir,

REQUEST FOR GEF SUPPORT FOR RENEWABLE ENERGY PROGRAMME

I acknowledge receipt of your letter of 29th May instant on the above subject matter.

I am submitting this request for funding to support the formulation and finalization of the National Sustainable and Renewable Energy Programme in Malawi. This in essence will complement other components being planned for the development of Renewable Energy Sources through GEF funding.

The amount required is in the range of US\$70,000 which will complement the work of FINNESE and support the mission to Malawi to finalize the proposal for a full GEF funding.

Yours Sincerely,

*George Gondwi*  
G.C. Mkhondwa

for:

SECRETARY FOR ENERGY AND MINING

