



'Accelerators of Development'

Reference:

20 June 1994

Dear Mr. Tanahashi,

SADC/FINESSE - Zimbabwe

I write as follow-up to paragraph 1 of our fax of 17 June 1994 and have the pleasure to transmit herewith one copy each of the following reports in respect of project ZIM/92/G31 - Photovoltaics for Household and Community Use in Zimbabwe:

1. Project Performance Evaluation Report, prepared in December 1993.
2. Quarterly progress Report, for the period January to March 1994.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Suresh Hurry'.

Suresh Hurry
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Enclosures

DEPARTMENT OF ENERGY/UNDP

GEF SOLAR PROJECT - ZIM/92/G31

QUARTERLY PROGRESS REPORT FOR THE PERIOD JANUARY - MARCH 1994

INTRODUCTION

The Zimbabwe Global Environmental Facility (G.E.F.) Project is designed to promote the use of solar photovoltaic (PV) lighting systems in rural households, communities, co-operatives and small-scale farms. Those systems will provide the benefits of rural electrification to rural homes using the power of the sun. Children will be able to study for school and other family members will be able to extend their productive day. Availability of high quality light and power for radios and television will be a significant improvement in the standard of living for these rural households.

The G.E.F. Solar Photovoltaics for Household and Community Use in Zimbabwe Project is funded by the UNDP Global Environmental Facility which funds new energy approaches to reducing pollution and global warming. Using solar energy for electric power will provide the major benefits of rural electrification to thousands of Zimbabwe homes without the pollution produced by fossil fuel powered electric plants. The GEF solar programme is intended to address the issue of global warming and greenhouse gas emissions by providing a sustainable model of solar electricity dissemination in Zimbabwe's rural areas in order to reduce the need for conventional electrical grid extension while immediately displacing carbon emissions from kerosene and candles.

The programme will enhance and upgrade the indigenous solar manufacturing and delivery infrastructure through technical assistance, technician training, and provision of critical inputs to ameliorate constraints on manufacturing. A key feature of the programme is to develop an expanded commercial market in rural areas for affordable domestic solar electric lighting systems by providing low-interest financing through existing institutions to allow householders to purchase home solar systems.

During the first quarter of the year the main activities of the project have been:

1. Installation of Solar Electric Systems and Quality Inspections.
2. Induction training of new Solar Installation Companies.
3. Installers' training workshop.
4. Industry capacity buildup.
5. Importation of Equipment and Solar Electric components.
6. Monitoring and operational improvement of the AFC Solar finance scheme.
7. Resource mobilisation; Publicity through TV, meetings and articles, ZESA, NGOs and District Councils.
8. Move Towards Localisation of the Executing Agency.
9. Internal audit.

1. Installation of Solar Electric Systems.

The project was officially opened in August for applications by clients who wish to pay cash for the systems. In October a memorandum of understanding between the project and AFC was signed to allow the project to be open for credit customers. Effective installation then started in November with our first system being at Tsatsc farm school in Concession.

Installations started at a rather slow pace mainly because most of the target rural people had already exhausted their agricultural incomes for the seasons. The other constraining factors were;

- the "learning curve" drawback among the participating parties i.e. PMU, AFC, Industry and Clients,
- scarce Solar electric components,
- minimum awareness of the project and technology within the endusers and apathy in areas where previous systems were badly installed before the project.

Today some of the constraints have been improved upon as explained by the current trend of events. As at 30th March 1994, 2000 solar applications had been technically approved. Of these applications 530 applications valued at \$4 417 897.00 have been received and processed by AFC. Out of these 451 loan applications have been granted at a value of \$3,138,747.00. The average loan value being \$7,000.00.

Whilst the dissemination exercise has a total claim value of \$3,138,747.00 for on-lending to clients as at the mentioned date, our AFC Solar Energy Finance current account has a balance of \$2,646,113.97. This implies that urgent efforts are required to develop a mechanism which will enable the Revolving Fund to be sustainable. To this end PMU has developed terms of reference for the financial consultants to advise on the mechanism of sustaining the fund.

In the past a relatively small number of rural people have been able to take advantage of the high level of solar radiation in Zimbabwe because of prohibitively high costs and lack of appropriate technology. Through the GEF project, costs for the solar systems have been reduced because all the import requirements are imported duty and surtax free.

While the systems are being made affordable, the quality of the technology has been improved drastically. Appropriate Standards for the systems have been set and manufacturers and installers will have to follow them. This is in view of the fact that the Zimbabwe's solar electric industry and the project must produce top quality systems which will last for many years.

2. Induction training of new Solar Companies.

The courses have been held for 14 new companies who have applied to participate under the project. These courses also act as a basis of qualifying the companies, and the last before provisionally qualifying them will be the hands-on training which will be held in mid-April. The objectives of the courses are:

To orientate the new companies on;

- (a) objectives of the project
- (b) Solar electric system installation standards,
- (c) companies expected role,

- (d) system design, sizing and installation,
- (e) troubleshooting maintenance and repair of installed systems.

These set tasks will help us come up with a company capable of installing a quality system, and such companies should be functional by beginning of May, 1994.

3. Installers' training workshop.

The workshop was held at Great Zimbabwe from 21st March to 25th March, 1994 and all the ten qualified companies participated. Both local and international experts were used to train installers.

The need for this workshop arose in view of the fact that a number of systems that have been installed have failed to meet the basic standards as laid down by the PMU. Our observations show that some companies have a difficulty in following the DOE/GEF Standards. There was, therefore an urgent need to hold the workshop for the installers. This workshop also facilitated in the Project's effort to strengthen the local industry.

The results of this workshop are still to be ascertained in the field.

4. Industry capacity buildup

In the past, Zimbabwe's solar industry has been hampered by lack of private sector capacity in manufacturing and maintenance, limited financial resources to import the technology and a shortage of supply of system components. The project has been aiming to address each of these problems directly or indirectly through several initiatives:

- the project negotiated some soft loans for the companies from Scotfin,
- companies can have panels from GEF warehouse on the strength of a buying order from AFC,
- increased communication and interaction between PMU, Industry and AFC,
- provision of technical assistance and technician training,
- provision of critical inputs to ameliorate constraints on manufacturing.

5. Importation of Equipment and Solar Electric components.

After considerable discussion with the project financial consultants, solar companies and UNDDSMS, a detailed plan for importation of solar equipment and components was developed. All equipment and components for the project is accessed customs duty and surtax free and must be used exclusively for the project.

Orders have been placed for equipment and components for the local solar manufacturing and distributing companies. These orders include parts for DC fluorescent lights, charge controllers and voltage droppers. The new products developed by Zimbabwean manufacturing companies in response to the project are quite impressive and have passed our test standards. The lights developed by two of the local companies are of particularly high quality and superior to the imported lights tested to date. The locally assembled charge controllers have similar high quality standards.

The project will eventually move out of importation as the local companies take over. Currently we will continue to import in order to facilitate increased system installations, and for the mere fact that certain components such as solar cells and light filaments will still need to be imported.

6. Monitoring and operational improvement of the AFC Solar finance scheme.

The project personnel have continued to meet with AFC staff both at Head Office and branch level in order to streamline the administration of the fund. Industry is also participating in these meetings.

AFC is constantly investing part of revolving fund in the money market, in short- and long-term investments. To date we have realised over \$12 000 from interest earnings. What is of concern as already mentioned, is that fact that the amount of money available for lending falls short of what is available in the account. This explains the need to have financial advice as soon as possible. So far we have done two money seedings, and this has rescued the situation partially.

A slight change in our original idea is of 15% deposit at an interest rate of 15% payable over a period of two years. Now the repayment time is three (3) years to lighten the payment burden.

It is imperative to point out that despite all these achievements:

- there is need to hold a training workshop with AFC staff in order to improve upon the administration of the fund,
- AFC should render the project a fulltime officer at Head Office,
- monitoring of the AFC field operations should be intensified
- Interactions between AFC, PMU and Industry should be intensified.

6. Resource mobilisation

Publicity;

We have managed to talk to all provinces through their PDC and DC meetings and most of the Districts through the district council meetings. In addition to these meetings we have advertised in the daily newspapers and participated on TV's Insight programme. Articles have also appeared in a number of the local magazines. The desire at the end of the day is to reach the grassroots in order to boost installations. Efforts to engage a consultant for effective publicity are under consideration. We have exhibited at the UN Open Day, the Environment Show, at Provincial Agricultural Shows and at the Bulawayo Trade Fair.

NGOs;

A number of meetings with NGOs throughout the country have been held with the aim of activating the NGO delivery mode. In the project NGOs' expected roles are;

- Publicity, education and development of Learning/Training material,
- Training on system maintenance to endusers and on protection and preservation of the environment,
- Inspection & Installation of systems,

- Repair and maintenance of systems,
- Marketing and developing environmental impact analysis and independent environmental social and economic assessments of the dissemination of the technology,
- Funding of Developmental Projects e.g. schools, clinics, community halls and existing projects.

The response has been encouraging. To date we have quite a number of proposals from different NGOs which are under study. A number of schools and clinics have been and are being electrified through Mutarc and Chiredzi Plan International funding. Efforts are underway to convince the other Plan International Offices in Kwekwe and Bulawayo to do the same for their respective regions.

The project is also considering to hold some workshops for the NGOs to fully understand the project and the technology. The request came from the NGOs themselves. The aim of the workshop will be to activate the NGOs delivery mode since they will eventually take some of the responsibilities of the PMU in specific circumstances.

- DISTRICT COUNCILS

Apart from the meetings we have held with the councillors the project intends to have workshops with the Local Government project personnel and District council project officers. The aim of the workshops will be to bring the DCs mode of delivery into operation. The District councils are expected to;

- assist in designing and establishing a locally-based revolving credit system for purchase of domestic and institutional solar lighting systems.
- provide local funds accordingly.

ZESA

This delivery mode is not active yet but efforts are underway to active it. A timetable has been drafted and ZESA has shown a lot of interest. The main hindrance for this mode, however, is the fact that the revolving fund from which the ZESA mode is expected to be funded from is not yet sustainable. The realistic option is to create a separate budget line if the mode is to be functional soonest.

8. Localisation of the Executing agent.

An ongoing task that was endorsed by the Tripartite Review Meeting.

9. Internal audit.

The recommendations of the external auditor have been noted.

Safety, Health and Sustenance of the Project

The PV systems should be designed and installed in accordance with the standards (see attachment) developed by the PMU with the collaboration of the Standards Association of Zimbabwe and the Solar Energy Industry Association of Zimbabwe. Standards development will be on an action-learning approach, with emphasis on identifying potential improvements, low cost solutions, ensuring quality products, efficiency and higher productivity.

**UNITED NATIONS DEVELOPMENT PROGRAMME
PROJECT PERFORMANCE EVALUATION REPORT SUMMARY SHEET**

Project Number and Title	Executing Agency	Date last report	Date this report	Planned date Tripartite Review
ZIM/92/G31	DDSMS	N/A	12/93	JANUARY 13, 1994

	Original Budget (US\$)	Latest Signed Revision (US\$)
Total Budget (budget line 99)		
Government cost sharing (line 101)		
Other contributions (Lines 103-8)	U S \$ 7 000 000	U S \$ 7 000 000
UNDP contribution (line 999)		
Govt. cash contribution (from prodc cover page)	Z S 2 000 000	Z S 2 000 000

Originally planned	Project starting date		Originally planned	Project completion date	
		Actual			Current estimate
9/92		2/93	12/97		12/97

SUMMARY OF CONCLUSIONS:

- (1) remoteness of executing agency causes undue delays for authorizations and there are escalating communication costs. Also "troubleshooting" is difficult if executing agency is far removed from the ground.
- (2) there is virtually no training or capability building strategy at the moment. This should be in place especially at the start of the project.
- (3) Project personnel and Government officials are not actively engaged in procurement and sourcing of inputs.
- (4) the public awareness stance ought to be intensified.

SUMMARY OF RECOMMENDATIONS:

(Whenever possible indicate who should take the action and by when.)

- (1) - localize executing agency modalities
- (2) - there is need for consultancy to draw up a well defined training programme.
- (3) Government - seconded staff and project officials should be fully engaged in the procurement and sourcing procedures.
- (4) intensify publicity using radio/TV, newsletter, posters, video, workshops.

Prepared by:		Distributed to:	Date:
_____	Government Project Co-ordinator	_____	_____
Name and signature			
_____	Agency Project Co-ordinator	_____	
Name and signature			
_____	Other	_____	
Name and signature			

UNITED NATIONS DEVELOPMENT PROGRAMME

II. PROJECT OBJECTIVE AND FUNCTIONS

1. State the objective(s) of the project as indicated in the original project document or latest signed revision
- (a) Install about 9000 solar systems in 3 years, in rural areas.
 - (b) reduce pollution and global warming by promoting solar lighting systems in rural and community households.
 - (c) provide benefits of rural electrification, e.g. in education, health and social advancement.
 - (d) reduce need for costly grid extension while displacing carbon commissions from kerosene and candles.
 - (e) upgrade indigenous solar manufacturing and delivery infrastructure through technical training and provision of critical imported inputs.
 - (f) develop a sustainable market in rural areas for solar electric systems, through a revolving fund using local financial institution.

2. What is the primary function of the project? Check one only.

- | | | |
|---|---|--|
| <input type="checkbox"/> Institution building | <input type="checkbox"/> Direct support | <input type="checkbox"/> Direct training |
| <input type="checkbox"/> Experimental | <input checked="" type="checkbox"/> Pilot | <input type="checkbox"/> Relief |
| <input type="checkbox"/> Investment | <input type="checkbox"/> Special support | <input type="checkbox"/> Other |

3. List the outputs included in the latest project document

- 1. access to imported solar components by installers and manufacturers (banking procedures, revolving fund, industry qualification).
- 2. access to credit by end-user purchasers. (credit for dealers, consumers, institutions, identify target areas).
- 3. Z.E.S.A. activity. (plan for ZS3m for PV, pay ZESA PV supervisor from revolving fund).
- 4. Community activity: (identify district councils, NGO's farmers, institutions; train local personnel assist in fund raising and finance scheme management).
- 5. Train PV technicians and installers. (workshops, training by companies, certification, PV handbook).
- 6. Public awareness. (mass media, educational materials, radio/TV, demos, workshops).
- 7. Develop low cost system (5-10w) and battery charging stations.
- 8. Establish standards and testing. (Systems qualification and specification, standards maintenance programme; ISPRA, SEIA, SAZ).

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output.)

Output number: 1

1. Repeat output (as stated in latest approved project document/revision):

access to imported solar components by installers and manufacturers

Scheduled completion date as in original signed project document	Actual or expected completion date
12/95	12/95

2.a. Describe the present status of the output.

Imported items are available to installers and manufacturers (duty-free). To date the figures are as follows: 1 000 solar modules, 300 charge controllers, 1 000 kits for lights, 100 kits for charge controllers, 3 000 tubes for lights. The total value of these imports is approx. U.S.\$706 904.

- a finance scheme has been established with the A.F.C. for end-users. Currently, some 400 loan applications have been approved. Applicants derive from all the provinces and district councils.

- solar companies are being qualified. So far, 10 installers and 2 manufacturers have been qualified.

b. This status is Satisfactory Unsatisfactory

Please explain

The main objective is being realized. However, it has been realized that installers and manufacturers also need a credit financing scheme. An informal financing scheme has been arranged with one of the banking institutions. It has also been noted that direct seeding into the AFC revolving fund is needed, to boost deposits by end-users and installers. This has been done by an initial seeding of U.S.\$50 000 into the AFC revolving fund (ex. budget line 042-050 PV COMPONENTS).

B. Explain item(s) checked in 3.A. including how production of the output is affected.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

Output is produced satisfactorily for the benefit of installers and manufacturers, by DDSMS. However, project understudying personnel are not being fully appraised of the procurement and sourcing modalities. There are also long delays due to the remoteness of the executing agency, e.g. establishment of an imprestit account, and purchase of project vehicles. The project manager has intervened by instituting a procurement sub-committee to understudy and process sourcing of imported inputs. The situation is now improving.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 2

1. Repeat output (as stated in latest approved project document/revision):
access to credit by end-user purchasers.

Scheduled completion date as in original signed project document	Actual or expected completion date
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- 2.a. Describe the present status of the output.
- credit by way of the AFC finance scheme has already been established and has taken off well.

- b. This status is Satisfactory Unsatisfactory

Please explain.

The applications of potential solar system buyers are vetted in two stages: firstly by the G.E.F. management on technical specifications; and secondly by the AFC on the financial viability of the applicant. The latter assessment could entail some subjective bias.

B. Explain item(s) checked in 3.A. including how production of the output is affected.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

The output will be used by most of the rural farmers, who constitute some 75% of the national population. Already about 400 loan applications have been approved and systems are being installed. The loan scheme stipulates a 15% deposit and a 15% annual interest rate. (currently hire purchase in the commercial sector calls for 20% - 25% downpayment, at an interest rate of around 30%).

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 3

1. Repeat output (as stated in latest approved project document/revision):

Z.E.S.A. Activity.

Scheduled completion date as in original signed project document	Actual or expected completion date

2.a. Describe the present status of the output.

This output is not yet realized. However, there has been one meeting with Z.E.S.A. management last April, to assess joint activities. Z.E.S.A. is expected to work jointly with the G.E.F. Project team, and the installed systems will be subjected to the laid down standards and specifications.

b. This status is Satisfactory Unsatisfactory

Please explain.

Z.E.S.A. is currently involved in other priority activities, and has promised to resume debate on its G.E.F. participation early in 1994.

3. If the status of the output is unsatisfactory.

A. What factors are causing it? (Check as appropriate and provide comments under questions 3.B & C on the next page.)

(i) Operational factors:

	Quality	Quantity	Timeliness
(a) International inputs:			
Expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training fellowships/study tours/in service)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) National Inputs:			
Government project professional personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trainees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment/premises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Technical problems	<input checked="" type="checkbox"/>		
(d) Management problems	<input type="checkbox"/>		

(ii) External Factors:

- (a) Institutional
- (b) Political
- (c) Socio-cultural
- (d) Economic
- (e) Other

B. Explain item(s) checked in 3.A. including how production of the output is affected.

Deliberations on Z.E.S.A. participation in the G.E.F. project will be held early in 1994. Production of this output will be delayed by some 8 months. This will not seriously impair the overall progress of the project.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

No major effect

4. If produced, to what extent, and by whom is the output being used?

The output will utilize Z\$3m for the Z.E.S.A. delivery mode. It will benefit Z.E.S.A. as a pilot project, and also the end-users.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 4

1. Repeat output (as stated in latest approved project document/revision):

Community Activity

Scheduled completion date as in original signed project document	Actual or expected completion date
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2.a. Describe the present status of the output.

Community Activity

- Several meetings have been held in different provinces and districts, with NGO's, district councils, community leaders, churches, schools and donor agencies. Some donors elected to fund certain schools, clinics and cooperatives. A summary detail follows:- (See also Annex 1, Output 4)

- (i) Meetings with AFC branches on the project finance scheme: Chinhoyi, Bindura, Marondera, Mutare, Gweru, Gokwe, Bulawayo, Karoi, Masvingo, Kwekwe.
- (ii) Plan International Workshops, at Mutasa District, and Gweru.
- (iii) NANGO meetings in Harare, Gweru, Masvingo, Mutare, Chiredzi: to appraise NGO's on the GEF project, and to solicit their participation. Some NGO's have forwarded proposals.
- (iv) Field trips to potential target groups were undertaken to Mhondoro, Masvingo, Mt Darwin, Mrewa, Guruve.
- (v) Some field trips were made to assess the status of pre- GEF installations, in the Midlands, Mutare, Mhondoro and Chinhoyi. The objective was to identify departures from standards set up by G.E.F and also to look into the possibility of rehabilitation
- (vi) Meetings have been held in Harare, Bulawayo, Gweru and Mutare; with donors, e.g. Plan International, A.D.F. etc.

b. This status is Satisfactory Unsatisfactory

Please explain.

This is an ongoing task and the output is being realized progressively. Steps are being taken to identify NGO's, district councils or cooperatives, which can manage a mini revolving fund scheme.

B Explain item(s) checked in 3 A, including how production of the output is affected.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

The output is succeeding through joint actions of the G.E.F. management, donors, NGOs, district councils, community leaders and endosers. It will benefit all these, directly or indirectly.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 5

1. Repeat output (as stated in latest approved project document/revision):

Train PV technicians and installers.

Scheduled completion date as in original signed project document	Actual or expected completion date

2.a. Describe the present status of the output.

Very little training has yet taken place. No training manuals or teaching materials are being prepared.

b. This status is Satisfactory Unsatisfactory

Please explain.

Capacity building is inhibited by the expert's failure to deliver a capacity building strategy, training schedules and teaching manuals. The project manager intervened, noting lack of progress, by establishing a subcommittee tasked to develop a training programme strategy for installers, end-users and project personnel. Things now look slightly brighter.

3 If the status of the output is unsatisfactory.

A. What factors are causing it? (Check as appropriate and provide comments under questions 3.B & C on the next page.)

(i) Operational factors:

	Quality	Quantity	Timeliness
(a) International inputs:			
Expertise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training fellowships/study tours/in service)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) National Inputs:			
Government project professional personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trainees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment/premises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Technical problems	<input checked="" type="checkbox"/>		
(d) Management problems	<input checked="" type="checkbox"/>		

(ii) External Factors:

- (a) Institutional
- (b) Political
- (c) Socio-cultural
- (d) Economic
- (e) Other

- B. Explain item(s) checked in 3.A. including how production of the output is affected.
- (a) training programmes yet to be prepared.
 - (c) PV expert not succeeding in working cooperatively with project personnel and Government officials.
 - (d) delays in project implementation due mainly to remoteness of executing agency.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

If produced, output benefits project personnel, installers, manufacturers, endusers and repair artisans. It is key to capacity building and technological transfer.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 6

1. Repeat output (as stated in latest approved project document/revision):

Public Awareness.

Scheduled completion date as in original signed project document

Actual or expected completion date

2.a. Describe the present status of the output.

- Public awareness has been embarked upon through G.E.F. project personnel participating in meetings and workshops with donors, district councils, NGO's, institutions, etc. Meetings have been held at provincial and district levels, with the Solar Energy Industry Association, AFC, and Government organs. A summary detail follows:- (See Output 4 Annex 1).

- Public awareness has also been achieved through radio/TV and newspaper articles and captions

- G.E.F. Solar project has displayed publicity stunts and demos at:

- Harare Agricultural Show
- Mutare Agricultural Show
- Environment Expo' Day
- United Nations Day.

It will also display at the Bulawayo Trade Fair early next year.

This status is

Satisfactory

Unsatisfactory

Please explain.

The overall objective is in sight; but this is an ongoing process.

B. Explain item(s) checked in 3.A. including how production of the output is affected.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

If output is realised, several end-users will be aware of the project and its benefits, and so will be the installers, manufacturers and development planners. The next step is to intensify publicity via 4 fronts: radio/TV, video, newsletter, vernacular pamphlets. Plans are afoot to engage a professional mass media/public relations consultancy.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 7

1. Repeat output (as stated in latest approved project document revision):

Develop low cost systems and battery charging stations.

Scheduled completion date as in original signed project document	Actual or expected completion date

2.a. Describe the present status of the output.

- since the rural target groups for the solar systems are in the communal lands, they constitute mostly the low income people; hence the need to develop, say 2 - lamp solar system (5 - 10w).

- there is need to establish battery charging stations to cope with the spread of installed systems throughout the country. Ideally, such stations should be located where energy generating systems exist already for other purposes.

b. This status is Satisfactory Unsatisfactory

Please explain.

Work in this area has not started due to lack of resources.

3 If the status of the output is unsatisfactory.

A. What factors are causing it? (Check as appropriate and provide comments under questions 3.B & C on the next page.)

(i) Operational factors:

(a) International inputs:

	Quality	Quantity	Timeliness
Expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training (fellowships/study tours/in service)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) National Inputs:

Government project professional personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trainees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment/premises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(c) Technical problems

(d) Management problems

(ii) External Factors:

(a) Institutional

(b) Political

(c) Socio-cultural

(d) Economic

(e) Other

B. Explain item(s) checked in 3.A. including how production of the output is affected.

There is lack of appropriate equipment and inputs in industry, to favour R. & D. work on small systems. Technical problems also arise due to shortage of skilled manpower to develop small systems.

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

The unsatisfactory status does not gravely affect the immediate objective, which is - to have ordinary solar lighting systems.

4. ~~If~~ produced, to what extent, and by whom is the output being used?

If produced, output will benefit manufacturers, dealers, installers and end-users.

UNITED NATIONS DEVELOPMENT PROGRAMME

III. EVALUATION OF PROJECT PERFORMANCE - OUTPUTS

(Questions 1 - 4 should be completed for each output, using a separate sheet for each output)

Output number: 8

1. Repeat output (as stated in latest approved project document/revision):

Establish standards and Testing.

Scheduled completion date as in original signed project document	Actual or expected completion date
--	------------------------------------

2.a. Describe the present status of the output.

Standards and specifications have been established by the G.E.F. management, in close collaboration with the Solar Energy Industry Association, Zimbabwe Standards Association and international protocols (ISPR),

b. This status is Satisfactory Unsatisfactory

Please explain.

Standards and specifications as established, are now the guidelines upon which installed systems are certified and warranted.

B. Explain item(s) checked in 3.A. including how production of the output is affected

C. What effect does this unsatisfactory status have on the achievement of the immediate objective?

4. If produced, to what extent, and by whom is the output being used?

The output is a healthy aspect for installers, manufacturers and end-users. If produced, it will guarantee the well-functioning of the installed systems, and render a good name and image to the solar industry. Its success, however, depends on continuous training and technology transfer. Standards have an evolutionary character in that they are progressively improved and updated.

UNITED NATIONS DEVELOPMENT PROGRAMME

IV. EVALUATION OF PROJECT PERFORMANCE - OBJECTIVES

1. State how the achievement of the immediate objective(s) as stated in 11.1 can be observed and/or measured.

- (a) install 9 000 systems in 3 years; develop/monitor database of installations.
 - (b) reduce pollution; use meteorological and statistical data.
 - (c) rural electrification: assess literacy rates and health indicators.
 - (d) grid extension: cost/benefit analysis.
 - (e) technology transfer: identify new industries and new local inputs.
 - (f) develop market: monitor market expansion of solar systems
-

2. Using the indicators/success criteria recorded in 1. above, provide your assessment of the extent to which the project has achieved or is likely to achieve its immediate objective(s).

- (a) target of 9 000 systems will be reached, even slightly more.
 - (b) pollution: carbon dioxide and CFC emissions to slow down.
 - (c) literacy rates to rise (40%); fertility rates to decline (30%), migration to decline (30%).
 - (d) 20% of growth points electrified; rural folk affording electricity.
 - (e) several industries established.
 - (f) solar system market to grow by 300%.
-

3. State the development objective of the project as given in the original signed project document.

To address the problem of global warming and pollution by offering a sustainable model of solar PV lighting which will benefit the rural sector.

4. Are there any signs that the project is making or is likely to make a significant contribution towards the attainment of the development objective? If so, please describe.

Yes, because already the few installed systems are promoting literacy evening classes, entertainment in the home (radio-TV), and health (refrigeration).

5. (a) Who are or will be the beneficiaries of the project? (b) Explain how they are or will be benefiting from the project

- | | |
|--------------------|--|
| - end-users | - electrification, entertainment, social development (75% women) |
| - installers | - expanded market, employment |
| - manufacturers | - technology, market, employment |
| - finance banks | - money circulation, profit, investment |
| - national economy | - industry, commerce, incomes, employment. |

6. Has the project had any significance unforeseen effects wither positive or negative? If so, briefly explain.

- seeding of money into the revolving fund was unforeseen, but has positive effect in the initial project stages.
- unexpected and unforeseen long delays in getting authorizations from DDSMS has adverse effect on project implementation.
- unforeseen enthusiasm of the rural folk to acquire solar lighting systems.

7(a) On the basis of your analysis in parts III and IV above, give your overall assessment of the progress of this project in terms of achieving its immediate objectives(s).

- Much more than planned More than planned As planned
 Less than planned Marginal or non-existent

7(b) What action do you recommend to be undertaken by any of the three parties involved (Government, Executing Agency, UNDP) to improve the effectiveness of the project?

- Change the technical approach
- Undertake a technical review
- Redesign (clarify, redefine) one or more of the principle project design elements (objectives, outputs, workplan)
- Reconsider the institutional setting of the project
- Initiate an in-depth evaluation
- Other, please specify:

Please explain items checked.

- problem is structural in nature; i.e. change execution modalities
- promote local execution to ensure greater manageability, monitoring, control and on-the-spot project assessment.
- local execution is answer to remote referral networks and escalating communication costs.
- local execution avoids delays in getting authorizations and approval.
- local execution is conducive to a rapid capacity building strategy.

7(c) Description of the overall status of the project.
(This question is optional)

Localization of executing agency is highly recommended, as it favours accelerated capacity building and speedy communication linkages. So far, project is progressing fairly well in all fronts: installations, financing, coordination, publicity standardization. But above all, localizing the executing portfolio, ensures proper realization of the project phases:- identification, formulation, development and implementation.

UNITED NATIONS DEVELOPMENT PROGRAMME

TECHNICAL
CO-OPERATION
PERSONNEL

Post No	Post Title	Name gender and nationality of incumbent	Entry on duty (date)		Departure (date)	
			Scheduled	Actual (Est.)	Scheduled	Actual (Est.)
NPP 017-001	National Project Manager	G. Mandishona, Male Zimbabwe	1-1-93	1-2-93		
017-002	Outreach Adviser	G. Marawanyika, Male Zimbabwe	1-6-93	15-10-93		
017-003	National Project Officer, (Admin/ Finance Officer)	W. Mukoko, Male Zimbabwe	1-2-93	1-10-93		
IPP 011-001	Rural PV Expert	H. Burris, Male, United States	1-1-93	1-3-93		

Remarks:

The rural PV-expert's inter-personal working relationships have been very poor. There have been instances of bad respect and arrogance to Government officials. He does not engender team spirit within the project management unit.

UNITED NATIONS DEVELOPMENT PROGRAMME

GOVERNMENT PROJECT PERSONNEL					
Post No	Post Title	Name gender of incumbent	Full/part time	Assumed duty (date)	
				Scheduled	Actual
1.	Project Coordinator	J. Pfaira, Male Zimbabwe	Full-time	1-1-93	1-1-93
2.	Project Economist	T.B. Muchenje, Male, Zimbabwe	Full-time	1-1-93	1-1-93
3.	Project Engineer	N. Kaliwoh, Male Zimbabwe	Full-time	1-1-93	1-1-93
4.	Project Technician	G. Mupaya, Male Zimbabwe	Full-time	1-10-93	1-10-93

Remarks:

All the four Government project personnel are working satisfactorily. They have different roles which complement each other for the successful implementation of the project.

UNITED NATIONS DEVELOPMENT PROGRAMME

TRAINING

Fellowship, Training Course Study Tour, or In-service Training	Duration (months)	Name and gender of Fellow(s). If training undertaken abroad, indicate country and institution of study	Started (date)		Completed (date)	
			Scheduled	Actual	Scheduled	Actual
				(Est.)		(Est.)
Training Course (solar PV course)	1/2	J. Pfaira, Male U.S.A. SOLTECH' 93 Washington, D.C.	April 20, 1993	April 20, 1993	May 3, 1993	May 3, 1993
Training Course (UNESCO Solar Energy Symposium)	1/2	J.T. Chigwada, Male France, Paris	July 3, 1993	July 3, 1993	July 12, 1993	July 12, 1993
Training Course (Leadership for Development)	1/2	G. Mandishona, Male	June 1, 1993	June 1, 1993	June 13, 1993	June 13, 1993
Training Course (Leadership for Development)	1/2	J. Moyo	June 1, 1993	June 1, 1993	June 13, 1993	June 13, 1993

Remarks:

UNITED NATIONS DEVELOPMENT PROGRAMME

SUBCONTRACTS (Separate forms to be completed for each subcontract)

Starting date of subcontract	Expected completion date of subcontract
------------------------------	---

Name of subcontractor: Maestro Signs

Purpose of subcontract:

- (i) To develop and produce the G.E.F. billboard, to be used at exhibitions, trade fairs and agricultural shows.
- (ii) To develop and produce the G.E.F. logo, to be used in letter-heads and publicity formats.

Describe subcontract inputs (include cost, work months, etc.).

the consultancy succeeded in achieving the above objective, at a cost of (i) ZS850.
(ii) ZS400.

The workload duration was 3 weeks.

Subcontract outputs scheduled to be produced during the reporting period:

- billboard was produced.
- logo was produced.

Subcontract outputs produced during reporting period:

the above outputs were produced.

Remarks:

There is need to do more in the area of publicity and public awareness. The billboard and logo will require additional PR devices to increase the public's perceptions on the G.E.F. solar project.

UNITED NATIONS DEVELOPMENT PROGRAMME

SUBCONTRACTS (Separate forms to be completed for each subcontract)

Starting date of subcontract

Expected completion date of subcontract

Name of subcontractor: P & R Associates (and Petra Consultants).
FINANCIAL CONSULTANTS

Purpose of subcontract:

To review and recommend on the G.E.F. - A.F.C. Finance Scheme which operates a revolving fund for loan disbursements to rural purchasers of solar electric systems. (A Summary Report from the consultants is attached).

Describe subcontract inputs (include cost, work months, etc.).

- review: GEF Project Document, Dissemination of PV Systems, financial agreements (SCOTFIN, AFC), legal setting
- develop spreadsheet for financial analysis of the revolving fund; loan award criteria: administrative charges.
- the consultancy lasted for about 6 weeks at a cost of U.S.\$5,000.

Subcontract outputs scheduled to be produced during the reporting period:

- development of spreadsheet on the A.F.C. finance scheme.
- refinement of the G.E.F. - A.F.C. finance scheme agreement.
- review of potential legal liability for the G.E.F. project management.
- assessment of default rate and its dependency on downpayment.
- review and development of loan application form and award criteria.

Subcontract outputs produced during reporting period:

all the outputs cited above were produced and realized.

Remarks:

The above consultancy served a useful purpose. It is suggested that some form of financial consultancy be retained at regular intervals during the tenure of the project.

GEF PURCHASE ORDERS FOR 1993

(POS1208)

NO	TITLE	COMPANY	PO NO	PO DATE	PO TOTAL	ACCOUNT CODE	REC'D (ZIM)
1	Gateway Computer	CODATEC MEDIA	30725	2-Jun	13850.00	4202	X
2	Computer Hardware	NETCONNECT	30724	2-Jun	14412.40	4202	X
3	Test Equipment	DAVIS	30727	2-Jun	10271.50	4203	CLAIM
4	Computer Software	EDGE-BUY	30722	3-Jun	5949.50	4201	X
5	Office Equipment			APPROX	11889.85	4202	X
6	Hydrometer	COLE-PALMER	30729		98.00	4203	X
7	Data Logger	LICOR	30726		9659.00	4203	X
8	Reference Solar Modules	SOLAREX			1050.00	4205	X
9	Equipment	C & H SALES	30988	12-Jul	158.70	4203	X
10	Data Acquisition	IOTECH	30987	12-Jul	2410.00	4203	X
11	Neste - Modules	NESTE	30997	13-Jul	46447.69	4205	X
12	Neste - Controller	NESTE	30991	14-Jul	280.00	4203	X
13	Portable Printer	EDGE-BUY	30986	14-Jul	583.00	4202	X
14	Solarcomm Solar Modules	SOLARCOMM	30994	15-Jul	57997.50	4205	X
15	Solapak Controller	INTERSOLAR	30990	16-Jul	174.93	4203	X
16	Compass/Inclinometer	EDMUND SCIENTIFIC	30989	21-Jul	145.55	4203	X
17	Label Writer (Printer)	ALS COMPUTER	30992	21-Jul	115.44	4205	X
18	Solarex - Modules	SOLAREX	30993	27-Jul	52095.00	4205	X
19	Siemens - Modules	SIFMENS	30996	29-Jul	57820.00	4206	X
20	Solapak Controllers (200)	INTERSOLAR	31342	18-Sep	7810.00	4206	X
21	Solarex - Modules (60/20 & 83/2)	SOLAREX	31337	17-Sep	12870.00	4205	X
22	Solatek Kits	SOLATEK	31338	17-Sep	9997.01	4205	X
23	Solarex - Modules (60/340 & 83/	SOLAREX	31346	28-Sep	58969.60	4205	X
24	R & S Controller	R & S	31378	29-Sep	13135.00	4205	X
25	IOTA Inverters	IOTA	31433	5-Oct	4520.00	4205	X
26	Solar Lanterns	LUDWIG-BOLKOW	31434	5-Oct	1087.00	4205	X
27	Publications - Periodicals		93-LS-NL-2	7-Oct	1095.00	4100	O
28	Inverter Components	SEMICONDUCTOR SUPPL	31377	14-Oct	4616.42	4205	X
29	Publications - Books	HUMANITIES PRESS	93-30986	18-Oct	1252.50	4100	O
30	Fluorescent Lampholder	Vossloh-Schwabe GmbH	31600	18-Oct	2267.00	4206	X
31	Gateway Computer	CODATEC MEDIA	31530	21-Oct	6500.00	4206	X
32	Voltage Dropper Electronic	Mouser Electronics	31563	26-Oct	594.36	4206	O
33	Electronic Test Component	Mouser Electronics	31563	26-Oct	594.35	4206	X
34	Test System Components	C & H Sales Co.	31562	26-Oct	792.15	4205	X
35	Flourescent Lamp Order	Osram Munich	31602	27-Oct	2760.74	4206	X
36	Bodine Inverter ballast	Bodine Company	31669	27-Oct	4400.00	4205	X
37	Solar Equipment Order	Alternative Energy Eng	31564	28-Oct	1546.07	4205	O
38	Transformer Components	A. Andrews & Co	31379	1-Nov	2206.00	4205	X
39	Fluorescent Lamp	OSRAM	31432	8-Nov	8885.89	4205	O
40	Misc Computer Hardware	ALS COMPUTER	31528	16-Nov	2482.72	4205	X
41	SEC Battery	SEC Industrial Battery C	31660	18-Nov	15861.44	4205	X
42	Solarex Solar Module & Battery	SOLAREX CORP	31662		126136.96	4206	O
43	Computer/TV Graphics Hardwa	EDGE-BY EXPRESS	31629	22-Nov	714.00	4206	O
44	Photowatt Solar Module	Photowatt Corp	31641	23-Nov	16986.30	4206	X
45	Helios Controller & Light	Helios Technology			14645.25	4205	O

GEF PURCHASE ORDERS FOR 1993				(POS12085)	(SORTED BY ACCOUNT CODE)		ACCOUNT	REC'D
NO	TITLE	COMPANY	PO NO	PO DATE	PO TOTAL	ACCOUNT CODE	ACCOUNT CODE TOTALS	(ZIM)
27	Publications - Periodicals		93-LS-NL-2	7-Oct	1095.00	4100		O
29	Publications - Books	HUMANITIES PRESS	93-30985	18-Oct	1252.50	4100	2348	O
4	Computer Software	EDGE-BUY	30722	3-Jun	5949.50	4201	5949.50	X
1	Gateway Computer	CODATEC MEDIA	30725	2-Jun	13850.00	4202		X
2	Computer Hardware	NETCONNECT	30724	2-Jun	14412.40	4202		X
13	Portable Printer	EDGE-BUY	30986	14-Jul	583.00	4202		X
5	Office Equipment			APPROX	11889.85	4202	40735.25	X
3	Test Equipment	DAVIS	30727	2-Jun	10271.50	4203		CLAIM
9	Equipment	C & H SALES	30988	12-Jul	158.70	4203		X
10	Data Acquisition	IOTECH	30987	12-Jul	2410.00	4203		X
12	Neste - Controller	NESTE	30991	14-Jul	280.00	4203		X
15	Solapak Controller	INTERSOLAR	30990	16-Jul	174.93	4203		X
16	Compass/Inclinometer	EDMUND SCIENTIFIC	30989	21-Jul	145.55	4203		X
6	Hydrometer	COLE-PALMER	30729		98.00	4203		X
7	Data Logger	LICOR	30728		9659.00	4203	23197.68	X
11	Neste - Modules	NESTE	30997	13-Jul	46447.69	4205		X
14	Solarcomm Solar Modules	SOLARCOMM	30994	15-Jul	57997.50	4205		X
17	Label Writer (Printer)	ALS-COMPUTER	30992	21-Jul	115.44	4205		X
18	Solarex - Modules	SOLAREX	30993	27-Jul	52096.00	4205		O
19	Siemens - Modules	SIEMENS	30995	29-Jul	57820.00	4205		X
20	Solapak Controllers (200)	INTERSOLAR	31342	16-Sep	7610.00	4205		X
21	Solarex - Modules (60/20 & 83)	SOLAREX	31337	17-Sep	12870.00	4205		X
22	Solatek Kits	SOLATEK	31338	17-Sep	9997.01	4205		X
23	Solarex - Modules (60/340 & 83)	SOLAREX	31346	28-Sep	158969.60	4205		X
24	R & S Controller	R & S	31378	29-Sep	13135.00	4205		X
25	IOTA Inverters	IOTA	31433	5-Oct	4520.00	4205		X
26	Solar Lanterns	LUOWIG-BOLKOW	31434	5-Oct	1067.00	4205		X
28	Inverter Components	SEMICONDUCTOR SUF	31377	14-Oct	4616.42	4205		X
30	Fluorescent Lampholder	Vossloh-Schwabe Gmb	31500	18-Oct	2257.00	4205		X
31	Gateway Computer	CODATEC MEDIA	31530	21-Oct	6500.00	4205		X
32	Voltage Dropper Electronic Co	Mouser Electronics	31563	26-Oct	594.36	4205		O
33	Electronic Test Component	Mouser Electronics	31563	28-Oct	594.35	4205		O
34	Test System Components	C & H Sales Co.	31562	26-Oct	792.15	4205		X
35	Flourescent Lamp Order	Osram Munich	31502	27-Oct	2760.74	4205		O
36	Bodine Inverter ballast	Bodine Company	31569	27-Oct	4400.00	4205		O
37	Solar Equipment Order	Alternative Energy Engi	31564	28-Oct	1546.07	4205		O
38	Transformer Components	A. Andrews & Co	31379	1-Nov	2206.00	4205		O
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43	Computer/TV Graphics Hardwz	EDGE-BY EXPRESS	31529	22-Nov	714.00	4205		O
44	Photowatt Solar Module	Photowatt Corp	31661	23-Nov	16966.30	4205		O
42	Solarex Solar Module & Battery	SOLAREX CORP			125136.86	4205		O
8	Reference Solar Modules	SOLAREX			1050.00	4205		X
45	Helios Controller & Light	Helios Technology			14645.26	4205	534673.98	O
TOTAL PURCHASE ORDERS FOR 93 -->							706903.81	O

GEF to fund solar power project

Post Reporter

THE United Nations Global Environmental Facility is funding an ambitious project aimed at promoting the use of solar photovoltaic lighting systems in rural households, co-operatives and small-scale farms.

According to the national manager of the project, Dr Gibson Mandishona, the Zimbabwe Global Environmental Facility, the programme will enhance and upgrade the indigenous solar manufacturing and delivery infrastructure through technical assistance; technician training and provision of crucial inputs to cut down on constraints on

manufacturing.

"Using solar energy for electric power will provide the major benefits of rural electrification to thousands of Zimbabwe homes without any pollution produced by fossil fuel powered electric plants," Dr Mandishona, well known for his experiments with biogas, said in Mutare recently.

He said the GEF programme aims at addressing the issue of global warming and greenhouse gas emissions by providing a sustainable model of solar electricity dissemination in rural areas.

Negotiations are in progress to set up a revolving fund to assist rural homeowners in purchasing solar home electric systems. Because the con-

straints will be shared, people, the revolving loan financing scheme shall have relatively low deposits and low interest rates on repayments.

Dr Mandishona says consultations have been made with district councils and a workshop to sensitise the district officials was held last August in Harare.

Participants at the workshop, held at the ZFSA training centre, agreed on the need for an aggressive national awareness campaign to expose the majority of rural Zimbabweans to the benefits of solar electric technology.

In March this year, a one-day workshop on the GEF was held with participants drawn from

Government ministries, district councils, NGOs, solar equipment suppliers and installers, educational institutions and the mass media.

Dr Mandishona, a former director of the Central Statistics Office, said the Zimbabwe GEF project will not be confined to local needs, but for the sub-regional and other developing countries.

In Zimbabwe, for the successful dissemination of the solar PV systems, a number of concurrent and envisaged activities are included. They include installation, repair and maintenance, public awareness training, popular participation, and backstopping, Dr Mandishona said.

State and UNDP embark on \$45,5 m promotion of solar systems

By Victoria Tapfumaneyi

THE Government and the United Nations Development Programme has embarked on a US\$7 million (about Z\$45,5 million) Zimbabwe Global Environment Facility to promote the use of solar systems in rural areas.

The five-year project is also expected to address the greenhouse effect by providing sustainable model of solar electricity in rural areas.

In an interview early this week, the national project manager, Dr. Gibson Mandishona, said the project targeted rural communities, schools, clinics, co-operatives, small businesses and other institutions in rural areas.

"The programme will enhance and upgrade the indigenous solar manufacturing and delivery infrastructure through technical assistance, technician training and provision of critical inputs to ameliorate constraints on manufacturing," he said.

A key feature of the programme is to develop an expanded commercial market in rural areas for affordable domestic solar lighting systems by providing low interest financing through existing institutions to allow householders to buy home solar systems.

"The Agricultural Finance Corporation will administer loan facilities to rural farmers who will be expected to pay a 15 percent deposit and an annual interest of 15 percent," said Dr Mandishona.

Since the project was funded by a United Nations GEF and administered by the department of energy in the ministry of Transport and Energy, most of the equipment would be imported duty-free and tax-free.

Dr Mandishona said that so far the response from the rural community and institutions had been overwhelming. Donor agencies and some non-governmental organisations had also approached him offering to finance the installation of the solar photovoltaic systems in schools and clinics.

It was hoped that between 10 000 and 20 000 households nationwide would be solar-electrified within the next three years.

"The project promises to be a success and we expect a great change in rural life both economically and socially," said Dr Mandishona.

Output 4 Annex I

FIELD TRIPS BY THE GEF PERSONNEL

	Personnel	Aims of the Trip
August to Nov. 1993	Dr. Mandishona, NPM Mr. Murove, Assistant Director	<ul style="list-style-type: none"> Develop Terms of Reference For NGOs Participation in the Project in all Provinces
	Mr. Chigwada Mr. Pfaira Mr. Burris	<ul style="list-style-type: none"> Appraise and orientate AFC Field Staff of the project. (all Branches)
	Mr. Mupaya Mr. Muchenje	<ul style="list-style-type: none"> Give AFC Field Staff some understanding and appreciation of the Technology and the Interaction procedures as is agreed upon by the PMU and AFC (HQ) working team. (all Branches) Participate in the NANGO organised workshop as Presenters. Participate in the District organised workshop as presenters. (Gweru) Establish a base for the participation of groups and Cooperatives both as project groups and clients. (Heifer Projects International groups and AFC groups). Public awareness and gather feedback from clients and other implementing agencies e.g. NRB, AGRITEX, HEALTH and local government. Introduction of the Project personnel and try to create a rapport with NGOs, installing companies outside Harare and all other implementing agencies. <p>Places: AFC Branches: Mutare, Marondera, Bindura, Guruwe, Murewa, Masvingo, Gokwe, Gweru, Kwekwe, Chegutu, Chinhoyi and Karoi.</p>

UNITED NATIONS DEVELOPMENT PROGRAMME

REPORTS

Title of report, paper, etc	Remarks
1. Solar PV and the Environment. (Minister H.M. Murerwa)	G.E.F. launch workshop, March 1993
2. G.E.F. Solar Concept and objectives. (Mzezewa, Director, Dept. of Energy)	G.E.F. launch workshop, March 1993
3. Qualification of P.V. Systems. (Pfaira, Government - seconded coordinator)	G.E.F. launch workshop, March 1993
4. Criteria for PV system installation. (Burriss, G.E.F. - PV specialist)	G.E.F. launch workshop, March 1993
5. Delivery Modes of the G.E.F. Solar Project. (Mandishona, National Project Manager, G.E.F.)	G.E.F. launch workshop, March 1993
6. N.G.O. participation in the G.E.F. Project. (Mandishona, G.E.F. Project Manager)	Workshop for Government executives August 1993.
7. Linkages and Modes of Delivery within the G.E.F. project. (Pfaira, Government coordinator)	Workshop for Government executives August 1993.
8. Status of the G.E.F. project (Mandishona, G.E.F. Project Manager).	Workshop for Solar Energy Industry Association, August 1993.
9. Interim PV Component and Installation Standards. (Burriss, P.V. Specialist).	Workshop for Solar Energy Industry Association, August 1993.
10. A.F.C. Solar Finance Scheme. (Muchenje, Government economist).	Meeting with installers, Sept. 1993
11. Project Status Report (Mandishona).	G.E.F. Advisory Group Meeting, Oct 93
12. Background to the G.E.F. Solar Project (Murove, DOE Supervisor)	G.E.F. Advisory Group Meeting, Oct 93

Exit Briefing

**SUMMARY OF THE PRINCIPAL FINDINGS AND RECOMMENDATIONS
OF THE INDEPENDENT REVIEW TEAM**

UNDP/GEF Technical Assistance Project

Zimbabwe - Photovoltaics for
Household and Community Use

Project No. ZIM/92/G31/A/1G/01

July 14, 1994

Prepared by

Mark Mwandosya (Tanzania)
Daniel Ndlela (Zimbabwe)
Anjali Shanker (France)
Jerome Weingart (U.S.)

Prepared for

United Nations Development Programme
Regional Bureau for Africa
Global Environment Facility

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1. Acknowledgements

The members of the independent evaluation team are pleased to acknowledge the high level of support and cooperation experienced during their mission in Harare. We especially thank the members of Government, staff and management of the UNDP Country Office, the Project Management Unit (PMU), the Agricultural Finance Corporation (AFC), members of the Solar Energy Industries Association of Zimbabwe (SEIAZ) and other industry participants, SCOTFIN, The Standards Association of Zimbabwe, the Zimbabwe Electricity Supply Authority (ZESA), several non-governmental organizations (Plan International, Biomass Users' Network, and Heifer Project International), the national coordinating committee for ISES '95, and others, who all gave very freely and graciously of their time. We also want to thank the staff of the PMU who arranged and participated in the two-day field visit by the entire team to Mutare. This cooperation has made it possible for the team to complete its work in a timely and efficient manner.

2. Mission Overview

A four-person international team has been recruited by the UNDP/GEF (Global Environment Facility) to conduct an independent review of the UNDP/GEF technical assistance project supporting the diffusion of photovoltaic (PV) technologies for rural household and community applications. The purpose of the present mission is to assess the status and progress of the project, to identify issues that require resolution for the project to proceed successfully, and to propose specific actions to address these issues. The mission also reviewed the original project design, its realization and modification in practice over the last year, and changes in the financial, economic, and institutional setting of the project. A specific focus of the team's review is the Revolving Fund - its operation, management, and monitoring, and its effectiveness in providing rural credit for PV installations. The recommendations of the team are to include a discussion of the current administrative, management, financial, technical, and accountability issues. The mission is also reviewing the implications of the proposed change in execution modality, including the identification of suitable roles for DDSMS and other U.N. organizations.

The team spent the better part of two weeks in July in Harare, including a field visit to Mutare, reviewing the project and meeting with key participants and stakeholders. The mission report and recommendations will be completed and submitted in August.

3. Summary Findings

- 3.1 After a slow start, the project has finally become operational, effectively starting at the beginning of 1994
- 3.2 The structure and operations of PMU are seriously flawed, and these need immediate restructuring and strengthening
- 3.3 The role played by AFC in supplying credit to end users was found to be effective and essential to the success of the project
- 3.4 The project has clearly interfered with the PV market process in Zimbabwe, in both positive and negative ways
- 3.5 The PMU lacks the necessary management experience, capabilities, resources, and procedures to conduct the necessary project activities; the staff is inadequate in terms of numbers, insufficiently trained, and clearly overstretched.
- 3.6 The Revolving Fund is being professionally managed by the AFC, but there remain important issues regarding seeding of the fund, adequacy of the fund, and establishment of mini-revolving funds.
- 3.7 There is a significant unmet need for capacity building and training of project staff and industry personnel.
- 3.8 The challenge of sustainability has not been addressed by the project.
- 3.9 The present facilities housing PMU are woefully inadequate for the needs of the project.

4. Summary Recommendations

- 4.1 Initiate a formal process to examine the advisability of a change of execution modality from DDSMS to national execution (Government and UNDP Country Office)
- 4.2 Initiate a strategic business plan and management exercise covering restructuring, recruitment, and salary structures for PMU, as well as training aspects (to be coordinated by UNDP Country Office with support of expert management consulting firm)
- 4.3 Conduct (under contract) an expert and financial, legal, and management analysis of the Revolving Fund (RF) with a view to addressing the issues of seeding the RF and establishment of the mini-revolving funds.
- 4.4 Immediately streamline certain procedures which are now bottlenecks (PMU signatures for IMPREST account and NPM authorization of in-country travel by project staff)
- 4.5 Arrange for short-term hire of expert personnel to lift immediate bottlenecks, especially in inspection
- 4.6 Establish a regular forum for industry, PMU, and UNDP to discuss critical issues and resolve major differences
- 4.7 Initiate the search for suitable office space and associated facilities
- 4.8 Initiate a process to identify the requirements for the long-term sustainability of the project

5. Expanded Discussion of Selected Findings

The Team, in its review of the PRODOC, has concluded that the PRODOC has very serious defects and liabilities that have directly led to many of the problems facing the PMU today. There are many objectives specified in the PRODOC that are not accompanied by identification of the processes and resources required for their achievement; many of the objectives do not even appear feasible.

- 5.1 Despite a very slow start, the project has finally become operational since the beginning of 1994. However, achievement of the strategic goals of the project will require significant project reformulation and additional inputs.
- 5.2 The structure and operations of the Project Management Unit (PMU) are seriously flawed, and unless these flaws are attended to, it is highly unlikely that the project will succeed. Some of the defects in project structure, resources, and operations require immediate attention.
- 5.3 The Project has facilitated the establishment of an important rural credit mechanism (a new activity of the long-established Agricultural Finance Corporation) for financing PV installations country-wide. This is a significant step because effective financing mechanisms are essential to the success of sustainable wide-spread diffusion of decentralized renewable energy systems.
- 5.4 The Project has clearly interfered with the PV market process in Zimbabwe in both positive and negative ways. On the positive side (1) the Project has facilitated the emergence of over a dozen new indigenous PV supply/installation companies and (2) fostered widespread awareness of PV systems availability and financing in the rural areas of the country, and (3) brought a new financing mechanism into play. On the negative side, (1) some of the local PV companies have claimed a short-term decrease in sales before the project became operational, due to public anticipation of cost savings after the project came on line, and (2) establishment of a two-tier pricing system for PV modules.
- 5.5 The PMU lacks effective management expertise and procedures, and the present staff is inadequate in number, insufficiently trained, and over-stretched. Followup and coordination of the revolving fund, selection and training of inspectors, training of installers, qualification of companies, technical support of suppliers, etc. are all inadequate. There is no effective planning (training, outreach, forecast and management of the revolving fund, etc.). In spite of the obvious enthusiasm of PMU staff members, the operation lacks a professional business focus.

- 5.6 The Revolving Fund has an unclear legal status, and requires improved monitoring procedures. As presently constituted it is not able to function as described in the PRODOC, especially regarding the creation of the mini-revolving funds for NGOs and ZESA.
- 5.7 There is a significant need for capacity building and training including (1) technical training for PMU staff and installers, (2) management training, (3) data and records management, and (4) financial management.
- 5.8 Planning and preparation for long-term sustainability has not been considered in the project operation and activities
- 5.9 The present facilities housing the PMU are extremely inadequate; their shortcomings also severely compromise the PMU in its support of the project

6. Expanded Discussion of Selected Recommendations

6.1 Initiate a formal process to examine the advisability of a change of execution modality from DDSMS to national execution (Government and UNDP Country Office)

The team recommends that the process for change of execution modality for this project be specified by UNDP headquarters and implemented by the concerned parties (Government, UNDP/HQ, and UNDP/Country Office). UNDP/HQ includes GEF, Regional Bureau for Africa, and DDSMS. This needs to be carried out both expeditiously and deliberately. This process should include a careful identification of the technical, financial, and institutional resources required by both the Government and the UNDP Country Office to carry out national execution in a smooth and non-cumbersome manner. The process should also serve as a model in the event that there is a request for change in execution modality in other UNDP/GEF projects after project inception.

6.2 Initiate a strategic business plan and management exercise covering restructuring, recruitment, and salary structures for PMU, as well as training aspects (to be coordinated by UNDP Country Office with support of expert management consulting firm)

A practical goal-oriented work plan should be developed immediately, in collaboration with professional project management consultancy.

A clear and effective functional structure has to be established, with well-defined roles and responsibilities for all staff members. The team recommends that a highly qualified local professional consultancy be engaged to work with the PMU to develop and implement a program of restructuring and expansion of the PMU's capabilities. This consultancy would also address PMU process and procedures, staff profiles and training needs, information and data management, technical and financial reporting, accountability, management information systems, etc. The project partners should undertake to streamline the salary structure while maintaining adequate incentives to attract and retain capable personnel.

It is also urgently required to decide how to strengthen the PMU structure and choose between the following options: the first option would be to bring in a chief operations officer with a strong technical background, certainly Zimbabwean, and a PV technical expert if possible from the region; another option would be to recruit a technical manager, with PV and proven managerial experience, preferably Zimbabwean. The PMU could in both cases have the option to source short term technical international consultants.

6.3 Conduct (under contract) an expert financial, legal, and management analysis of the Revolving Fund with a view to addressing the issues of seeding and establishment of the mini-revolving funds.

It is especially important to examine the issue of the seeding of the revolving fund as the foreign exchange component of typical PV systems is less than 50% of the total cost of systems. Given that nearly 90% of systems are paid on credit, there is a structural deficit in the revolving fund. This could be covered either by seeding from some other source or by considering that the 4 Million USD fund for procurement should also cover the Zim dollar component of systems. Both options require careful professional scrutiny and a decision needs to be expeditiously taken before September 1994, when the revolving fund will be running at a deficit (the initial seeding of 250 000 USD of which 3 000 000 ZIM dollars are left as of July 8th. would have been absorbed.)

Because this is a very innovative project, it is recommended that regular (monthly) reports be provided on the running of the revolving fund: payments to installers, loans committed and disbursed, repayments, arrears and defaults, and a real time monitoring and forecasting of the Revolving Fund be instituted.

6.4 Immediately streamline certain procedures which are now bottlenecks (PMU signatures for IMPREST account and NPM authorization of in-country travel by project staff)

The Team is of the opinion that the National Program Manager and the Financial Administrator of the PMU have signature authority for the IMPREST account, in order to facilitate the day-to-day operations of the project. Similarly, the NPM (or a PMU staff member designated by the PM when the PM is unavailable) should have full authorization for any in-country travel by the PMU staff.

6.5 Arrange for short-term hire of expert personnel to lift immediate bottlenecks, especially in inspection

For immediate purposes, bottlenecks should be identified, such as inspections, data and records management ... for which staff could be recruited on a temporary basis.

As an immediate measure, some of the inspections might be subcontracted to qualified individuals or organizations, and in the longer term, another approach might be developed, such as sampled inspections or building a commitment to and incentives for after-sales service within the system. Another possibility for the longer term, and possibly

even in the near term, is to take advantage of the existing agricultural extension service to train and compensate Agritex staff as PV systems inspectors throughout the country.

Because there is a substantial local pool of retired highly qualified ZESA electrical engineers, the PMU should immediately explore the possibility of recruiting and training some of these people to act as inspectors. Specialized training both for PMU staff and the recruited professionals should be conducted in conjunction with SEIAZ and, if necessary, with expert PV systems training services from abroad.

6.6 Establish a regular forum for industry, PMU, and UNDP to discuss critical issues and resolve major differences

SEIAZ should take all opportunities that are given by the PMU to attend PMU meetings GEF steering committee meetings as per the Project Manager's invitation letter dated February 28 1994.

It is essential in this forum to ensure that the processes and criteria used for qualifying the installers are clear, transparent and equally applied to all applicants. In the interest of long term quality and sustainability of the market, adequate monitoring and training should be provided to installers.

6.7 Initiate the search for suitable office space and associated facilities

6.8 Initiate a process to identify the requirements for the long-term sustainability of the project

A culture of reflexive research to adapt to the continuous challenges of project execution should be introduced into the project.

7. Action Plan/Schedule for Completion and Submission of the Mission Report

The report of the evaluation mission will be finalized and submitted by the end of July, as shown in the timetable below. It is anticipated that the report will be transmitted electronically from UNDP Headquarters in the mid-August, and that the team leader will present the findings at UNDP Headquarters at that time.

Current Evaluation Mission

Date/Period	Action/Activity	Responsible person(s) and organization
July 14	Review of team recommendations, submission of summary report of findings and recommendations to UNDP Country Office and PMU management and staff	Evaluation team
August 18-25	Finalization of evaluation report	J. Weingart in collaboration with other team members
August 26	Electronic transmission of evaluation report to UNDP/Harare	J. Weingart/C. McNeill (UNDP/RBA/GEF)
August 26	Presentation of findings and submission of project evaluation report to UNDP/RBA/GEF	J. Weingart

Subsequent Activities

Date/Period	Action/Activity	Responsible person(s) and organization
after Aug. 26	Preparation and implementation of action plan for project reconfiguration	UNDP (New York and Harare) with support, as needed, from the project evaluation team
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Annex I

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Annex II

SUMMARY TERMS OF REFERENCE

At least one member of the mission will be briefed in New York by UNDP/RBA, UNDP/GEF, and UNDDSMS, and will prepare a report for the other team members from these briefings. The entire team will spend approximately one to two weeks in Zimbabwe carrying out the following activities:

1. Meeting in Zimbabwe with all relevant participants in the project, including the project management unit, Government of Zimbabwe, UNDP Country Office staff, the Agricultural Finance Corporation (AFC), Solar Energy Industries Association (SEIAZ), and independent concerned parties as may be appropriate. Meetings may also be held with representatives of participating/collaborating bilateral agencies, private sector participants, and others as appropriate;
2. Reviewing the project design, including arrangements for execution and implementation, and review the current project status and activities;
3. Assessing how well the project is proceeding in terms of the goals, timetable, budget, and executing and implementation modalities defined the Project Document;
4. Reviewing the Audit Report of the project that was carried out by the UN internal Auditor, Mr. Hy, in early 1994, and assess the relevance of the findings to the mission's own observations;
5. Identifying any issues that are currently affecting the ability of the key participants to carry out the project;
6. Preparing recommendations/proposed actions that will enhance the chances for the project to achieve its goals;
7. Prepare a detailed report documenting the findings and recommendations of the mission (draft report to be prepared in-country, final report to be prepared upon completion of the ion-country mission)

As soon as practical after arriving in country, the consultant team shall have an inception meeting with the Resident Representative and/or designated representative(s). An exit meeting will be scheduled at or near the end of the in-country mission, at which time a preliminary report will be presented to the Resident Representative.

Annex III

PROVISIONAL OUTLINE OF THE MISSION REPORT

I. SUMMARY OF FINDINGS AND OF RECOMMENDATIONS

II. PROJECT CONCEPT AND DESIGN

A. Context of the project

1. UNDP/GEF developmental and environmental goals
2. National context - government policies and private sector activities
3. Significant developments of the context
 - a. Foreign exchange access
 - b. Devaluation of the local currency
 - c. Changes in the Sales Tax Act
 - d. Removal of import duties on solar components
 - e. National economic issues
 - f. ISES '95
 - g. Donor support
 - h. World Bank lending for renewable energy for rural electrification
 - i. Electricity tariff reform
 - j. Zimbabwe Rural Electrification Master Plan
4. Changes in Project Setting
 - a. Dropping out of ZIMBANK/SCOTFIN
 - b. Recruitment of AFC
 - c. Proposed change in project execution modality
 - d. Unclear role of ZESA
 - e. NGO participation
 - f. Dissolution of Ministry of Energy, Water Resources, and Development
 - g. Department of Energy reorganization
 - h. Government working with ODA and ESMAP to create an energy efficiency agency.
 - i. PMU activities future move to a specialized agency
 - j. SEIAZ expansion
 - k. Emergence of PLAN International as major NGO client
5. Sector and subsector
 - a. World Bank and rural electrification sector
 - b. Tariff study
 - c. World Bank conditionality for further lending
 - d. Rural Electrification Master Plan
 - e. Solar industry manufacturing subsector
 - f. ZESA survey of patterns of rural energy consumption

B. Project document

III. PROJECT IMPLEMENTATION

Review of activities, quality of monitoring and backstopping.

1. Availability of inputs for Zimbabwe's PV industry.
2. Access to local commercial funds for end-users.
3. Utility sponsored dissemination.
4. Institutional mechanisms for village, district and community levels.
5. Training of qualified P.V. technicians and installers.
6. Launching of awareness campaigns.
7. Technology transfer and development of appropriate system.
8. Standardization and licensing.

IV. PROJECT RESULTS

- A. Outputs
- B. Immediate Objectives
- C. Development Objectives
 1. Development objectives addressed by the project
 - a. Expansion of indigenous companies
 - b. Rural social development
 - c. Rural economic development
 2. Project results in terms of development objectives
 - a. Rural credit outreach
 - b. Entrance of small indigenous companies into the PV marketplace
 - c. Integration of PV systems into NGO operations
- D. Unforeseen Effects of the Project
 1. PV market disruption
 2. Bottlenecks in the inspection process
 3. Antagonism between industry and the project
- E. Sustainability
 1. Objectives for continuity and sustainability
 2. Specific actions required to achieve continuity and sustainability
 - a. Institutional continuity
 - b. Reduction and eventual elimination of market distortions
 - c. Limitation of Government subsidies to targeted social development goals
 - d. Maintenance and strengthening of the revolving fund
 - e. Support of small-scale industry
 - f. Incorporation and integration of decentralized renewable energy technologies into the Rural Electrification Master Plan
 3. Relevant project results to date
 - a. Results supporting continuity and sustainability
 - b. Results conflicting with continuity and sustainability
- F. Follow-up

V. FINDINGS

- A. Changes in the context, setting, and circumstances
- B. Overall macro/organization of the project
- C. Organization and operations of the PMU
 - 1. Staffing and management structure
 - 2. PMU processes and procedures
- D. Role and needs of the private sector/PV industry in the project
- E. Scope of the project (technologies, end users)
 - 1. Present scope (focus on homes, some NGO support)
 - 2. Future scope (clinics, schools, water pumping, links with other projects such as rural infrastructure activities supported by the European Union)
- F. Financing modalities and mechanisms
 - 1. End-user financing
 - 2. Industry financing
 - 3. Revolving fund [add section here]
- G. The delivery system, infrastructure, and modes [discussed above]
 - 1. AFC
 - 2. ZIMBANK/SCOTFIN (working capital)
 - 3. ZESA
 - 4. NGOs
- H. Capacity building and training and technology transfer
 - 1. PMU
 - 2. Industry
- I. Monitoring, evaluation, and feedback
- J. Findings from the field mission to Mutare

VI. RECOMMENDATIONS

- A. Changes in the context, setting, and circumstances
- B. Overall macro/organization of the project (Government, UNDP/CO, UN/DDSMS)
- C. Organization and operations of the PMU
- D. Role and needs of the private sector/PV industry in the project
- E. Scope of the project (technologies, end users)
 - 1. Present scope (focus on homes, some NGO support)
 - 2. Future scope (clinics, schools, water pumping, links with other projects such as rural infrastructure activities supported by the European Union)

- F. Financing modalities and mechanisms
 - 1. End-user financing
 - 2. Industry financing

- G. The delivery system, infrastructure, and modes
 - 1. PMU
 - 2. AFC
 - 3. ZIMBANK/SCOTFIN (working capital)
 - 4. ZESA
 - 5. NGOs

- H. Capacity building and training
 - 1. PMU
 - 2. Industry

- I. Monitoring, evaluation, and feedback

VII. LESSONS LEARNED

VIII MAJOR FINDINGS AND RECOMMENDATIONS

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