Annex A: Terms of Reference

DEPARTMENT OF ENERGY
STRENGTHENING OF BIOGAS PROGRAM
INVITATION TO TENDER

TERMS OF REFERENCE

1.0 INTRODUCTION

The Government of Fiji through the Department of Energy (MOE) is seeking a Consultant with experience in biogas plant technology to carry out an assessment of the existing biogas program in Fiji that will enable the implementation of biogas projects on a wide-scale basis.

2.0 BACKGROUND

Imported petroleum fuel is one of the primary sources of energy that supports Fiji’s growing economy. Growth in energy demand for manufacturing and other services in the country have been placed under severe constraints by the ever-increasing prices of petroleum fuels. The transport sector is the most affected due its heavy reliance on imported fossil fuels. Rural services overall are affected equally by the high fuel prices and this is a concern for Government given that majority of the population live in the rural areas.

To address the situation Government is keen in developing its renewable energy resources to diversify its energy sources and to help cushion the impact of rising imported fuel prices and in addition, to provide some degree of energy security for the populace. One particular resource that is in abundance in the country is the animal waste produced by the dairy and piggery industries. The waste can be effectively converted into biogas – an ideal source of gas for cooking in rural households.

The Department in collaboration with the Department of Agriculture has started a programme targeting small piggery and dairy farmers. A number of biogas plants based on models used in China and India have been installed and trialled out in some small farms. The Department would like to expand its biogas programme and in doing so would like to recruit an expert in the area to develop a more structured programme that includes capacity building, and institutional structures for the promotion of biogas in the country.

3.0 OBJECTIVE

An expert is required to provide advice to the MOE on the design, construction and management of biogas plants. In addition the expert will be required to carry out training for the private sector, government officials and rural communities with the aim of building capacities on biogas plant design, construction, maintenance and management.

4.0 SCOPE OF WORK

The scope of works is in two distinct parts:

(i) Compilation of an assessment report of the Biogas Programme
(ii) Development of appropriate frameworks:

• a framework for implementing the Biogas Plan
• specifications for models appropriate for local use
4.1 COMPILATION OF AN ASSESSMENT REPORT OF THE BIOGAS PROGRAMME

In compiling the report, the Consultant’s work shall include but not limited to the following activities:

- Undertake a review and analysis of the Government’s biogas programme with the view to identifying the barriers and constraints to the development of biogas programme. This review will also evaluate the institutional mechanism in place for implementing biogas projects;
- Based on dot point one above formulate appropriate strategies and activities for removing the barriers, and develop appropriate action plan with timelines;

4.2 DEVELOP APPROPRIATE FRAMEWORKS OR GUIDELINES

Three guidelines are required to be prepared as detailed in part 4.21 to part 4.23 below.

4.21 Develop a framework for implementing the Biogas Plan

The Consultant’s activities shall include the following:

- Evaluate the institutional mechanism in place for implementing biogas projects;
- Recommend the appropriate institutional set up for the construction, maintenance and management of biogas plants;
- Develop a training programme for relevant stakeholders (farmers/communities/private sector/carpenters/government) on the design, construction, maintenance and management of biogas plants;
- Provide appropriate training to ensure that the institutions task with the implementation of the plan have the capacity to carry out their designated tasks (Institutional strengthening);

4.22 Develop specification or standard for appropriate models that can be used in Fiji

The Consultant’s activities shall be guided but not limited to the following:

- Produce an inventory of the common models of biogas plants in use that can be applied to the country’s situation. The inventory is to also include biogas energy conversion systems for heating, lighting and electricity production;
- For each model that can be locally used, provide detail information including waste requirements, gas production, materials specification, strengths and weaknesses of each model;
- Recommend the most appropriate model(s) to be used in the country

4.23 Develop a criteria for selecting sites for biogas projects

The Consultant shall be guided but not limited to the following activities:

- Survey and evaluate three potential sites for biogas plants;
- Develop a criteria for assessing potential sites;
- Provide practical training to MOE staff on the use of the assessment and evaluation criteria

5.0 TASKS AND ASSOCIATED OUTPUTS

<table>
<thead>
<tr>
<th>#</th>
<th>TASK</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Compilation of an assessment report of the Biogas Programme:</td>
<td>Provide two copies of the final report and two copies of the work plan and an electronic copy of each document. Prior to finalising the report and the action plan, it has to be discussed through power point presentation with the</td>
</tr>
</tbody>
</table>
Develop three appropriate framework or guidelines: (refer part 4.21 – 4.23) Provide two copies of the final report and an electronic copy of the same. The report is to detail all the activities carried out. Prior to finalising the report it has to be discussed through power point presentation with the Director of Energy.

6.0 SCHEDULE OF PROJECT ACTIVITIES

The consultancy work is expected to commence in June 2006 for a three-month period.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>June</th>
<th>July</th>
<th>August</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Assessment report and work plan for biogas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report compilation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Framework for implementing plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report of activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Specification/standard s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report of activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Site selection criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 surveys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report of activity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.0 QUALIFICATION

The consultant will be selected on the basis of qualifications and experience in the area of biogas implementation. The person must have 10 years experience and in-depth knowledge in the design, installation and maintenance of biogas systems. As the medium of communication/instruction is English, a through understanding of the English language is necessary. It is expected that the Consultant will possess good communication skills. Training experience is also essential.

8.0 FACILITIES TO BE MADE AVAILABLE TO THE CONSULTANT

The Department of Energy will provide office space and office equipment to the consultant during the consultancy period.

9.0 TENDERING INFORMATION

Tenders must be accompanied with the following information:

- Detailed curriculum vitae including previous works of similar nature which have been successfully completed;
- Tenders must be quoted in Fiji dollars and VAT inclusive. For international consultants tenders are to be in US$ and consultancy fee is subject to 15% withholding tax.

9.1 Form of Tender
Tenders shall be submitted on the tender form enclosed. The tender form for any contract must be complete to be accepted.

Tenders must be in sealed envelopes, giving the name and address of the tenderer and shall be addressed to:

The Director
Department of Energy
P O Box 2493
Government Buildings
Suva

The tender envelope shall show the Title of the work as given on the top of the tender form.

9.2 Tender closing date and time
Tenders close at 4.00pm on Friday, 19 May 2006

9.3 Tender validity period
The tenders shall be valid for a period of six calendar months from the closing date of the tenders.

9.4 Fixed Price Basis
The tenderer shall quote for the contract on a fixed price basis. No variation to the final tender price will be accepted after the close of tender.

9.5 Discrepancies, Omissions, etc.
Tenderers having any doubt as to the meaning or intent of any part of this Invitation to Tender shall notify:

Mrs Makereta Sauturaga or Mr Paula Katirewa
Department of Energy
79 Ratu Mara Road
Samabula
Suva
Telephone: (679) 3386 006/ 3386 677
Fax: (679) 3386 301
e-mail: msauturaga@fMOE.gov.fj or pkatirewa@fMOE.gov.fj

before the closing of tenders.

The Government of Fiji is not obliged to accept the lowest or indeed any tender submitted.

The terms and conditions given in the document must be fulfilled and a penalty of Two hundred dollars (F$200) per day may be incurred for not completing work on time.

9.6 Payment
The total tender value shall be paid according to the Schedule of Payment drawn up in the contract agreement for the biogas consultancy work.