

## Chapter 4

### Project Ideas for Agriculture, Forestry and Other Land Use sector/Livestock subsector

#### 4.1 Brief Summary of the Project Idea

This project idea is suggested to support the deployment of biogas technologies to reduce GHG emissions from dung fermentation. The project entitled 'Construction of a factory for production of prefabricated biogas unit accompanied with support program' aims to ease the erection process of the biogas units. Moreover, the project will support rural communities to purchase such technologies by initiating appropriate finance mechanism and suitable technical packages to ensure efficient operation of the erected units.

#### 4.2 Specific Project Idea

This project is suggested to be implemented by the National Energy Research Centre with the collaboration of the Ministry of Animal Wealth and Ministry of Social Affairs. The construction of the factory is based on importing raw material and extruding it to the agreed size. A project component is responsible for importing the suitable biogas appliances such as cookers and lamps. The project also collaborates with the private sector and civil societies, including localities, to carry out jobs such as unit construction and operation as well as conducting awareness raising activities. As the unit costs are relatively high, a financial mechanism is recommended e.g. revolving fund or instalment system. Additionally, a technical package that allows accurate sizing and providing proper operation instruction is to be produced. Construction of such factory is seen to reflect on the welfare of rural communities by increasing the level of services provided. The project is seen as a first step in the introduction of holistic concepts in waste management and also enhance the idea of consider non-traditional product in animal husbandry.

### 4.3 Project overview

Project Name	Construction of a factory for production of prefabricated biogas units accompanied with support program
Introduction	The majority of the industrial boilers in Sudan are characterized by low thermal efficiency and utilization of so called dirty fuels. This situation necessitates replacement of these old boilers with new efficient boilers that have better thermal efficiency, thus reducing fuel and GHG emissions. Different barriers hinder the diffusion of this technology as discussed in the barrier report, such as convincing factory owners and other stakeholder to support the deployment activities of this technology.
Objectives	Contribute to better performance of biogas units by reducing the possibility of technical mistakes Ease the erection process of biogas system to a normal labour level Lower the costs of biogas units Increase the availability of biogas units in the community
Outputs	Support adoption of biogas technology Contribute to rural development Technical package, promotion booklets and manual training
Relationship development priority	to Biogas system contributes to Waste management, thus- reducing health hazards Provision of services through cooking fuel, lighting and electricity Soil improvement by using bio fertilizers Livestock economy by selling of biogas
Project deliverables	Specific number of biogas units Sound technical package for sizing and operation Awareness program plot Manual training Promotion booklet Financial mechanism
Scope	Two production lines of 30 and 10 m <sup>3</sup> biogas units ability to produce 5000 units per year each
Activities	Construction of factory Production of sizing and operation manuals Production of Training and awareness manuals Establishment of finance mechanism
Time line	6 month for preparing tender document one year for construction 6 month for commissioning

Budget	Accurate budget was not possible, however the main budget lines include: Land cost and Factory construction 200,000\$ Production lines (no cost is available ) Support package including lab equipment 100,000 \$ Monetary cushion to start finance mechanism 15 % of expected value of 3000 \$ and 5000 unit /year (100, 000 \$
Evaluation	No. of biogas units produced No. of biogas systems erected
Challenges	Proper management and administration Import of raw material Hard currency fluctuation
Assumption	Availability of dung Continuation of service needed in rural areas
Responsibilities	Energy Research Centre: Implementing body Localities / CBOs: Beneficiaries Family bank: Finance mechanism Private sector: Erection and promotion Ministry of Animal Wealth: Stakeholder Ministry of Social Affairs: Stakeholder Ministry of Environment: Stakeholder