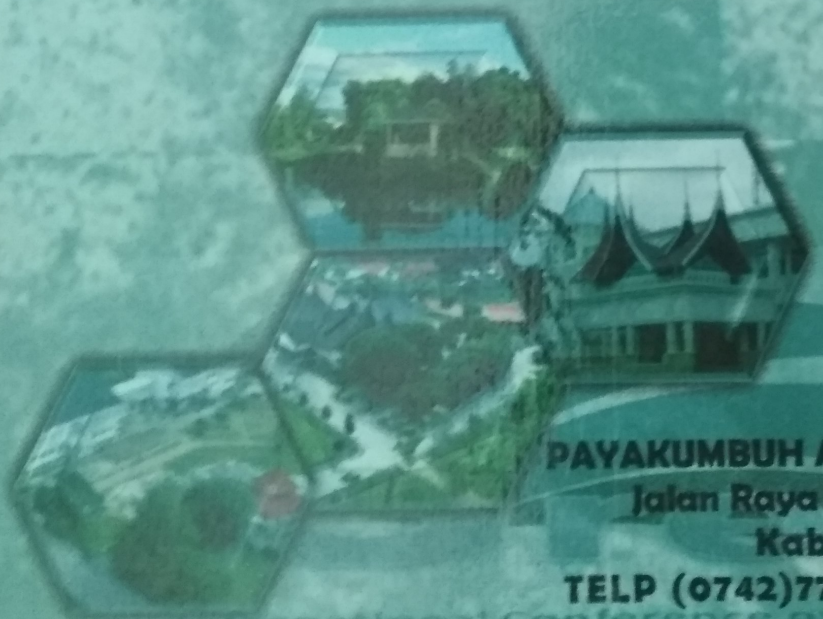
PROCEEDING

ISBN 978-979-98691-4-2

International Conference of Green City Design

"The Concept of Green City Development for Medium City
in Facing Global Warming"

Bukittinggi, 5th-7th of December 2013



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International Conference of Green City Design

Utilization Of Biogas As Electrical Energy Source And Fuel Of Biogas Stove

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A biogas system can be built associated with livestock raising. This application was ...ated in livestock farm which has 30 cows in average located in Rambatan-West ... The main part of this biogas system is digester, a biogas plant that treats farm ... To play the this role, two 1,1m³ water tank are placed upside down. This plant is fed ...imal wastes including sewage sludge and food waste. During the process, the air-...k transforms biomass waste into methane producing renewable energy about 1.44 ...er day that used for cooking and electricity by using biogas stove and biogas genset. ...iogas system produces about 6 kilo-watt for electricity per day and supply fuel for ...burner biogas stove. In other words, has reduced energy dependency of livestock ... to electrical and gas company.

...ords : *Biogas, Electrical energy, Biogas stove*

...CKGROUND

Biogas is a mixture of gases is methane (CH4), carbon dioxide (CO2) and other gases ...ed from the decomposition of organic material (such as animal manure, human waste ...plants) by bacteria metanogen parser in a biodigester. To produce biogas, biogas plant ... is called it takes a biodigester. The process of decomposition of organic material ... in anaerobic (without oxygen). Biogas is formed on day 4 – 5 and fully stocked, and ...iodigester reached a peak on day 20 – 25. Biogas generated by the biodigester composed ...ly of 50 – 70% methane (CH4), 30 – 40% carbon dioxide (CO2), and small amounts of ...gases.

... way to produce fuel form farm waste is by using biogas technology. Biogas technologies ...ides opportunities for rural communities that have livestock, either individually or in ...ps, to have daily energy needs independently. This technology has been widely used by ...ers ranchers in various countries, including India, China, even Denmark. Simple biogas ...ology developed in Indonesia focuses on small/medium-scale applications that can be ...ed agricultural communities that have 2 – 20 cattle.

...application of biogas technology in areas that have an economical advantage can give ...is operational and technical point is designed properly. Technical design include: ...digester, gas channel, and reservoir design.

... were partner group who has not yet mastered the technology of animal manure ...essing to have a cheap energy source from a by-product of liquid and organic biogas ...ilizer. Therefore the group is asking for guidance to create biogas electrical installation ...the livestock and gas for cooking. This is due to the increasing price of electricity and the ... that is burdening the public day after day.

In the implementation of the science and technology for society (IbM) was done through the approach of local government, involving Wali Nagari, farmer groups and the [illegible]. Cooperation with local authorities and relevant agencies can motivate and encourage farmers to play an active role in carrying out the activities of the application of science and technology to the community. These activities not only give knowledge and increase the income but also give solution on the limitation of fuel and the scarcity of fertilizers. This technology could be disseminated to the farmers groups around Kelompok Tani Sejahtera Rambutan and Kelompok Tani Luhak Jilantang.

By the presence of this activity, agricultural waste that is usually pollute the environment can provide additional income (in the form of organic fertilizer and liquid fertilizer) for farmers and it is expected this technology could be developed by other farmer groups engaged in the same field.

II. METHODS

To overcome the problems faced by the partners then offered some solutions which are as follows:

1. Processing technology of animal manure into biogas.
2. Biogas technology conversion into electrical energy for lighting.
3. Biogas technology conversion to produce heat energy for cooking.
4. Packaging technology of organic fertilizer and liquid fertilizers to enhance the appearance of the product side so can be marketed.

Table 1. Phases of implementation

No	Phases of Implementation	Activity
1.	Supervision and guidance	Counseling about the importance of making biogas, biogas conversion ways. FAQs and discussions about things that are not yet understood.
2.	Demonstration of making biogas	Manufacture of biogas in front of farmer/rancher
3.	Construction typical analysis for digester biogas	Making a typical analysis for digester biogas
4.	Installation electrical installation the enclosure	Installation electrical installation the enclosure
5.	Installation of gas installation	Installation the installation of gas for cooking
6.	Test the installation of electricity and gas for cooking.	See conditions and performance: installation of biogas to electricity (voltage stability, power produced per m3/biogas and the resulting gas consumption optimization

Future Work

There is a possibility to produce biogas in higher amount by utilizing ala larger scale of biogas reactors so that the need for additional funds for the building of the reactor.

Acknowledgment

We thank to Directorate General of Higher Education who has funded the research, PKM Agricultural Polytechnic of Payakumbuh with and colleagues who have helped this community development process. Hopefully provide benefits especially for farmer group who had cooperated in this activity and Indonesia citizen in general.

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