

BIOGAS TECHNOLOGY APPLICATION AS ONE OF THE REALIZATION OF KKN PPM INTEGRATED IN AGRICULTURAL DISTRICT Kanagarian kasang Batang Anai Padang Pariaman

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Abstract

Manufacture of biogas as a fuel substitute households in the face of fuel prices continue to rise and reduces environmental pollution from cow manure waste and can help provide solutions to the issue of availability of fertilizer that can generate economic benefit, improve social welfare and improve the environment in Kanagarian Kasang Subdistrict Batang Anai, Padang Pariaman District of West Sumatra Province. The formulation of the problem as follows: (1) How does the process of making biogas? (2) What are the other benefits of biogas production on the environment? Devotion in the form of KKN-PPM aims (1) to provide additional knowledge to the public about the application of biogas technology, and (2) In order for the community to get the economic benefits of biogas production in the form of slug into organic fertilizers that are environmentally friendly and cheap. Deploy methods of preparation and debriefing activities range includes student recruitment, and socialization permits users to target communities KKN PPM program, equipment preparation, implementation and monitoring and evaluation activities. Activities already carried out training and practice of waste processing cow manure into biogas used as fuel by involving farmers farmer groups wonderful sakato 1 further utilization of waste biogas in the form of slug for organic fertilizer in rice plants that provide economic benefits and improve the welfare of local communities as well as environmentally friendly. Devotion performed during one month in the area Korong Tong Blau Kanagarian Kasang District of Batang Anai, Padang Pariaman District of West Sumatra Province. The method used in this devotion is a lecture and demonstration and experimentation (trial). The lecture method is a method of giving the introductory ordinance making biogas and deliver the benefits of using biogas, the method of demonstration is a direct method of biogas installations as well as the practice of making a direct application in the form of biogas waste slug to the rice crop. Their practice activities directly in the field will be more interesting for the public.

Keywords: biogas stove, slug, organic fertilizer, rice plant

I. INTRODUCTION

Activity Field Work Experience (CCN) is a field activity for students who take the final part of the education program S-1. This program actually is mandatory for all students, because the university believe that the program is able to encourage empathy students, and can contribute to the completion of persoa-lan in the community. By learning together with the community, will be a lot of new things encountered students. The public will learn from the students and vice versa many students will gain knowledge of the society. Interactions like these are expected to emerge and make this program a program that is fun and has significant benefits for students (Univer the capacity for / Institute / High School), the communities and stakeholders or partners. For (University / Institute / High School), this unique learning activities that will be well-documented in the report and will be a lecturer in the classroom learning materials. This is an added value to the academic life on campus. Research-based community service get real shape in the activities of Real Work Lecture. This program is also a tangible manifestation of the role of partners (industry / local government) in helping to resolve the problems of society. Service learning activities into the shape of a real contribution to the community college (Anonymous, 2013).

The growing need for life and an increase in the price of fuel oil (BBM) and the decreasing availability of natural resources that are not renewable, it is necessary to find an alternative way to replace the energy resources with renewable energy resources. The energy needs in fact it is the energy required to produce and distribute it evenly means the fulfillment of basic human needs (Susilaningsih, 2007).

Many forms of energy has been used by humans, such as coal, petroleum, and natural gas are non-renewable fuels. In addition, other resources such as firewood is still used, but the use of firewood has a limited amount with the reduction in the forest as a source of timber. With the increasing number of people, especially those living in rural areas, household energy needs is still an issue that needs to be addressed (Susilaningsih, 2007).

Energy has a very big role and is very important and can not be released in human life, especially, today almost all human activities is highly dependent on energy. Various support tools such as lighting, motor, household appliances and industrial machines can be used if there is energy. Basically the use of energy such as solar energy, water energy, electrical energy, nuclear energy, oil and gas, and energy minerals and coal, had been done long ago. The utilization of renewable energy is not excessively can lead to a crisis and the problem of energy crisis. One of the symptoms of the energy crisis that occurred lately that the scarcity of fuel oil (BBM) .This material fuel such as kerosene, gasoline, diesel This is because the level of demand is very high and is increasing every year. Meanwhile, petroleum and raw materials for fuel amounted limited and takes millions of years for the formation process (Rinilaili, 2014).

Increased activity farm will certainly have a positive impact and negative. The positive impact of increased farmer incomes, expansion of employment opportunities, and increase food availability. However, if not managed properly will have disastrous ling-kungan problems, namely in the form of solid waste, air and liquid, such as feces, urine, food waste, and air. According to the UN Food and Agriculture Organization (FAO) in 2006 the farm is a major contributor to greenhouse gases. It is estimated that greenhouse gas emissions equivalent to 7,516 million metric tons of equivalent CO₂ (CO₂e) per year, or 18% of greenhouse gas emissions each year are caused by livestock, cattle, sheep, goats, camels, horses, pigs, and poultry , This amount exceeds the combined emissions from all transport in the world such as motorcycles, cars, trucks, planes, and others which accounted for 13 percent of greenhouse gas or electricity generation worldwide world who donate 11 percent of greenhouse gases (sudaryono, 2012).

Various factors that cause global warming, global warming is generally an event caused by the temperature increase resulting from an increase in greenhouse gas emissions resulting from human activities daily. Greenhouse gases are gases in the air are commonly mebyerap hot, so kebera-daannya can increase the temperature on earth. CO₂ gas produced from smoke pollution motor vehicle can be a barrier reflection geothermal, and it caused the emergence of geothermal. The removal of trees on a large scale by the perpetrators of illegal lumberjacks also cause problems ling-kungan, because trees that play a role in absorbing CO₂ and supply of fresh air is now diminishing presence. Farming activities also include one of the largest greenhouse gas approximately 18%, resulting gases consist of CO₂ (9%) CH₄ (37%) gas N₂O (65%) and NH₃ (64%), These gases generated from livestock waste and affect people's health (Suryani 2011).

Nagari Nagari kasang is one that is located in the district of Batang Anai, Padang Pariaman District with an area of 37.76 km². Geographically located in the 0011'5 Nagari Kasang - 30 30 'South latitude and 98036-100040' east longitude. The distance from the central province of ± 25 km, and 65 km from the center of Padang Pariaman and the distance from the District of Batang Anai ± 7 km. Natural resources contained in Nagari Kasang include fertile agricultural land, irrigation adequate, clean water that can be used for daily needs as well as the forests and the hills are broad

enough to produce oxygen and are also used as a plantation by local communities , The average community of farmers have domesticated cows, ie the farmers have 2 cows (Nagari kasang in figures, 2015). Problems experienced by the farming community so far is not yet optimal use cattle dung, sometimes discarded in vain not utilized, while farmers are still very high dependence on chemical fertilizers, and sometimes difficult for farmers to obtain fertilizer when in need of fertilizer. On the other hand the problems customs a society of farmers still meman-advantage of wood in the forest for fuels such as cooking purposes. This activity is done because kerosene is very expensive, and people not accustomed to using LPG, citing fears of exploding. The existence of the above problems that need to look for solutions.

Through applied technology of making biogas from manure likely to be an alternative solution to the problem of difficulty in obtaining kerosene fuel and an increase in agricultural production integrated with livestock towards food security and encourage improvement of the environment and solve the problem fertilizer needs of farmers in Kanagarian Kasang District of Batang Anai District Padang Pariaman. One of the applied technologies that are environmentally friendly, cost-effective and easy to apply and is in accordance with the conditions at the moment is the manufacture of biogas from manure or may also be a mixture of manure with plant materials that can be in the form of farming or farm waste. Biogas power of an excellent fuel, no smoke so the food remains clean, safe from the risk of explosion. Biogas is a gas that comes from living things, in this case dealt from manure and crops. In this sat fuel consumption of gas progressively decreases, it is because the longer the population is increasing, so the need for fuel will also be more and more needed in human life. Consumption of fossil fuels diminishing lead the men-find alternative fuels that can replace fossil fuels. Moreover, people today are looking for renewable fuel sources that can always be updated so that the fuel can still be produced continuously (Suryani 2011).

The utilization of renewable energy is not excessively can lead to an energy crisis. One of the energy crisis of late is the scarcity of fuel oil (BBM), such as kerosene, gasoline, diesel and so on. Kelang-kaan energy not only in Indonesia but also in other countries, it is not directly impacted the country's economy, particularly for poor and developing countries, including Indonesia. The rising price of oil news for household needs increasingly disturbing the public. Besides expensive, fuel is also increasingly rare in the market. Efforts to overcome these encouraging thinking will need to search alternative energy sources that fuel needs can be met without damaging the environment (Sudaryono, 2012).

As a result of rising fuel prices, people's lives both in villages and cities increasingly difficult. Residents are vying for alternative energy sources, there is the use of solar energy, water energy, and wind energy. But so far they have not found a source of energy that can actually replace fossil fuels. But, there is actually an alternative energy source that is relatively simple and very suitable for rural communities, namely biogas energy. Utilization of farm waste (livestock manure) is very appropriate to address the rising prices of fertilizer and fuel scarcity. Moreover, the use of manure as a fuel source in the form of biogas. Utilization of manure as an energy source, does not reduce the amount of organic fertilizer derived from manure. This is because in making biogas manure that has been processed is returned to its original condition is taken only of methane (CH₄), which is used as fuel (Sudaryono, 2012).

The basic principle of biogas is the decomposition of organic material by microorganisms-materials in the absence of air (anaerobic) to produce a mixture of

several gases, including methane and CO₂. Biogas is produced with the aid of bakterimetanogen or methanogenic which is naturally present in the mngandung waste organic material such as animal waste and organic waste (Wahyuni, 2011). Advantages PENGO waste-land is used for waste treatment process that is natural, necessary land smaller than the land for the composting process. Benefits in terms of energy is to produce clean energy, fuel produced high quality and can be renewed and the biogas produced can be used for a variety of uses.

In connection with the above, then it is done musty-dian cattle breeders to the farmers so that the farmers are interested in the use of cow manure waste. Manufacture of biogas as a fuel substitute households in the face of fuel prices continue to rise and reduces environmental pollution from sewage sapid an can help provide solutions to the issue of availability of fertilizer that can generate economic benefit, improving the welfare of a society of and improve the environment in Kanagarian Kasang District of Batang Anai, Padang Pariaman district.

The formulation of the problem as follows: (1) How does the process of making biogas? (2) What are the other benefits of biogas production on the environment? Devotion in the form of community work is aimed (1) to provide additional knowl-knowledge to the public about the application of biogas technology, and (2) In order for the community to get the economic benefits of biogas production in the form of slug organic fertilizers that are friendly to the environment.

II. METHOD OF EXECUTION

2.1 Preparation and Debriefing

Steps That Will Do in the implementation of KKN PPM stages 1,2 and 3 as follows:

Step 1. Recruitment of students.

Students will be included in the activities of KKN-PPM has the following criteria:

1. Semester VI upwards mainly from the Faculty of Agriculture, Engineering, Law and Faculty of Social and Political Sciences
2. Willing to stay in the location of corruption at least 1 month
3. Want to cooperate with farmers.
4. Willing to take the training before going down to the location.

After the data the students collected then be selected by a committee of the University of KKN PPM Ekasakti the implementation team, only students who meet the above requirements can be KKN PPM program participants. Determination of the participants performed before the students took to the location of activities. Furthermore, students who had been recruited and qualified predetermined to be given a briefing on campus. Briefing material is:

1. Introduction raw material for biogas
2. The procedure of making Biogas
3. Application of organic fertilizer in the form of waste biogas (slug) for paddy crop fertilizer.

After debriefing is complete, students and organizers made an agreement containing consent of activities to be implemented.

Step 2. Clearance Permit and socialization to the community of users KKN PPM program.

Implementing activities will disseminate these activities to the relevant agencies, local governments, community leaders, traditional leaders, scholars, clergy and peasants. Before starting with the socialization begins administering licensing to Kesbangpolinmas Padang Pariaman district. Once the new exit permit dissemination

to relevant agencies and farmers who conducted through meeting farmers' groups will be involved in these activities are already willing to become partners.

Step 3. Preparation of equipment.

Supplies to be prepared is a license to the relevant agencies, from the field as student supplies work clothes. Biogas for making equipment such as plastic polypropylene 0.2 mm thick, the pipe inlet and outlet pressure gauges gas, biogas stove complete with gas pipes and other equipment supplies are already prepared, equipment pengakut liquid organic fertilizer in the form of grobak was prepared. Liquid fertilizer in the form of slug made will be applied to food crops (rice)

2.2.Activities

Activities already carried out training and practice of making biogas Furthermore, the application of waste biogas in the form of slug to plant crops rice farmers with doses of 600 liters / ha, giving the slug was given as much as 2 times that at the start of processing the soil and by the time the rice entered into the phase of generative (pregnant). Before the training activities carried out, first designed training materials in accordance with the conditions of the field. Other material given in the training adapted to field conditions is the introduction of organic farming systems with the use of local materials. Group dynamics, enhance the entrepreneurial spirit, and the processing of agricultural waste into animal feed and organic fertilizer by using homemade decomposers (ROTAN) as well as the utilization of untapped be disintegrating / decomposers and as an organic pesticide.

Activities to make biogas. Waste Biogas manure as involving farmer groups wonderful breeder sakato 1 with the number of cattle of about 10 animals, but for the technology component biogas production is done entirely by the students guided by Mr. Marsilan (experts in the field of biogas production). The series of the installation of biogas digesters assembled began the manufacture of 6 meters long with a diameter of 1.2 meters, the installation of polypropylene plastic wear thickness of 0.20 mm, equipped with plastic pipe inlet and outlet diameter of 2.5 inch, 1/4 inch pipe, gas pressure gauge, biogas stoves designed themselves using cans and casted using cement. Biogas stoves used as a substitute fuel further household waste utilization of biogas in the form of slug for organic fertilizer rice plants that provide economic benefits and improve the welfare of local communities as well as environmentally friendly. Devotion to do in the area Korong Tong Blau Kanagarian Kasang District of Batang Anai, Padang Pariaman District of West Sumatra Province.

The method used in this devotion is a lecture and demonstration and experimentation (trial). The lecture method is a method of giving the introductory ordinance making biogas and deliver the benefits of using biogas, demons-tration method is a direct method of biogas installations as well as the practice of making a direct application in the form of biogas waste slug to the rice crop. Their practice activities directly in the field will be more interesting for the public. The stages of biogas production process as follows (Sudaryono, 2012):

Once construction is completed then started digester biogas production process with the following steps:

1. Cow dung mixed with water to form a slurry with a ratio of 1: 1 on a container vessel while. Stirring is carried out to form a slurry of cow dung. Forms will facilitate entry into the sludge digester.
2. Mud from the mixing tub while then flowed into the digester through a hole in revenue. At first charging the digester to be filled to the brim. In this initial charge

- required slurry manure in large numbers until the full digester (leaving an empty space 1/3 of his).
3. Where required the addition of a starter as much as 1 liter and fresh rumen contents from abattoirs (slaughterhouses) as much as 5 sacks for digester capacity from 3.5 to 5.0 m² or addition of water hyacinth.
 4. On day 1 until the 8th of gas produced discarded because of gases is CO₂ gas. While on day 10 to day 14 the new methane (CH₄) formed began to increase gas being CO₂ begins to decrease.
 5. On day 14 of gases began to be used to light a gas stove or other needs. On the composition of CH₄ (54%) and CO₂ (27%), the biogas will light. Biogas does not smell like the smell of cow dung. Furthermore, the sludge digester kept filled continuously cow dung to produce biogas which is optimal.
 6. Lumpur compost (slurry) coming out of the digester tank at capacity in the mud. Dry organic fertilizer ready to be used as organic fertilizers that are environmentally friendly. The documents biogas production and biogas waste in the form of slug like news below.



[HOME](#) | [VERSI DESKTOP](#)



Amazing! Mahasiswa KKN-PPM Universitas Ekasakti Padang Bangun Pengolahan Biogas Rumahan

Sabtu, 30/07/2016 | 20:07

PADANG-Mahasiswa KKN-PPM Universitas Ekasakti Padang Sumatera Barat melaksanakan sosialisasi pembuatan tempat biogas skala rumah tangga yang lokasinya di Kabupaten Padang Pariaman, Kecamatan Batang Anai Kenagarian Kasang Korong Tong Blau.

Dosen Pembimbing Lapangan (DPL), Ir. I Ketut Budaraga M.Si mengatakan tujuan dan manfaat pembuatan biogas tersebut adalah untuk memanfaatkan limbah guna peningkatan pendapatan petani.

"Sementara manfaatnya untuk menunjang perekonomian mereka. Agar bisa meringankan beban pengeluaran keluarga, juga menunjang kebersihan lingkungan. Karena kotoran-kotoran sapi yang berserakan diambil dan digunakan sebagai bahan biogas. Serta mengacu dalam bidang kesehatan karena jauh dari pencemaran lingkungan," beber Ir. I Ketut Budaraga M.Si, Sabtu (30/7/2016).

Salah satu mahasiswa Pertanian Jurusan Agroteknologi juga selaku Anggota TNI bernama Ermen mengatakan, sisa atau limbah dari biogas tersebut bisa dijadikan pupuk padi oleh para petani dimana dalam menggunakan pupuk dari limbah tersebut lebih bermanfaat karena tidak menggunakan bahan pestisida.

"Saat manusia mengkonsumsi makanan yang belum tercemar dari bahan kimia hasilnya baik bagi kesehatan," tambahnya.

Di tempat yang sama, saat Kordinator Wilayah Dr. Febby Mutia Yusuf M.Si datang memantau pelaksanaan program Mahasiswa KKN-PPM, berkomentar tentang program tersebut.

"Amazing! Ini penelitiannya luar biasa sekali yang dilakukan oleh Pak Ir. I Ketut Budaraga M.Si. Jika lebih menggunakan interdisiplinari ilmu seperti menggunakan orang-orang teknik dalam perancangan akan lebih langsung dirasakan oleh masyarakat dan harapan kami agar ini dilanjutkan dengan memanfaatkan disiplin ilmu lainnya," katanya.

Ditambahkan juga oleh Dr. Ifone Ayesa MP., selaku Ketua Lembaga Pemantau Penelitian dan Pengabdian Masyarakat. Bahwa dampaknya biogas ini benar-benar positif sekali bagi para petani dan berharap kepada mahasiswa agar lebih menghimbau masyarakat untuk bisa benar-benar memanfaatkan limbah rumah tangga agar tercipta peningkatan produksi bagi para petani. (BT)

Figure 1. News Online media Terrific Riau.com University Students KKN PPM Ekasakti Padang Build Biogas Processing Home-Based



HOME | VERSI DESKTOP

7 0 7

Mahasiswa KKN - PPM Unes Padang Bagi Ilmu ke Petani Soal Pupuk Organik

Rabu, 03/08/2016 | 09:07



PADANG-Para mahasiswa Kuliah Kerja Nyata - Pembelajaran Pemberdayaan Masyarakat (KKN - PPM) Universitas Ekasakti (Unes) melaksanakan salah satu program utama kegiatan sesuai dengan tema "Penerapan Pertanian Terintegrasi Terhadap Ketahanan Pangan", yakni penyemprotan booster pada tanaman padi organik.



"Manfaat pemberian booster pada tanaman padi organik adalah untuk meningkatkan mutu padi, menjaga agar daun padi tak rontok," terang salah satu mahasiswa KKN-PPM UNES Fakultas Pertanian Prodi/jurusan Agroteknologi, Ermen, Selasa (2/8/2016).

Kata mahasiswa yang juga anggota TNI ini, penggunaan booster dilakukan saat memasuki masa generatif dan hanya sekali

penyemprotan hingga panen.

"Bahan pembuatan booster ini juga tak begitu susah. Kita hanya menggunakan telur bebek 2 butir, madu 100gram, air kelapa 5 liter, kurma 1 ons, susu murni 1 liter, serta air 15 liter. Maka dengan menggunakan pupuk organik ini dapat menghasilkan padi yang berkualitas tanpa terkontaminasi pestisida. Serta tak hanya pada tanaman padi, penggunaan booster tersebut bahkan berlaku untuk semua tanaman," bebernya.

Senada dengan itu, Marsilan, petani yang terbilang sukses di Korong Tong Blau - Nagari Kasang - Kecamatan Batang Anai - Kab. Padang Pariaman, juga mengakatakan bahwa penggunaan pupuk organik sangat disarankan.

"Mahasiswa KKN-PPM selain sudah mengusai tentang apa yang dilakukan alangkah lebih bagusnya dikembangkan pada daerah-daerah lain, " kata Marsilan yang merupakan ketua kelompok tani padi organik se Sumatera Barat ini.

"Karena ini merupakan gebrakan untuk lebih meyakinkan para petani bahwa menggunakan pupuk organik tersebut sangat jauh lebih baik dari pada menggunakan pupuk kimia," kata pria yang pernah meraih penghargaan dari Istana Kepresidenan beberapa waktu lalu.

"Kami di Nagari Kasang Korong Tong Blau ini juga berterimakasih pada mahasiswa KKN-PPM Unes Padang atas penyaluran ilmu yang telah didapat di bangku kuliah dalam menunjang perkembangan tanaman padi organik di Sumatera Barat," tandasnya. (BT)

Figure 2. News Online media Terrific Riau.com. Students KKN - PPM unes Padang Petani Problem For Science to Organic Fertilizer

Advisory services to farmers in the field.

To be effective, the student activities on assisting farmers directly in the field together with the agricultural extension field. Students under the guidance by the Field Supervisor (DPL) helped farmers in terms of preparation tools and raw materials, the practice of making biogas organic fertilizer production, manufacture decomposers, liquid organic fertilizer production and application. Assistance will be conducted during the first month after implementation KKN-PPM. Students will record the conditions before assistance including production, then students will also be documenting changes during the mentoring is done. So there is a kind of recording activities on the ground.

Monitoring and evaluation

This activity will be monitored and evaluated either by the proposer, Faculty, LPPM and related institutions such as the district, department of agriculture and animal husbandry, including CPC Padang Pariaman District of Batang Anai. Monitoring will also be carried out by the donors namely the Directorate of Research and Community Services Directorate General of Higher Education Ministry of Education and Culture.

2.3 Volume of Work

Each student must do the work of 144 JKEM for at least 1 month of KKN PPM. In KKN PPM activities by LPPM Ekasakti University conducted during one month (July 18 to 18 September 2016) involving 30 students. Effective Student Work Hours (JKEM) an average of 6 hours a day. The total number of JKEM total = 144 JKEM. Total volume activity = number of students (n) x total JKEM, = 30 x 144 = 4320 JKEM JKEM. Students involved in the activities of KKN PPM consists of 30 students from various courses in the University Ekasakti.

3. RESULTS AND DISCUSSION

KKN PPM students participating in a number of 30 people, divided into 30 courses covering the main program, additional program while the auxiliary program is done in groups. Especially for the program biogas production and utilization slug biogas into organic fertilizer rice is done by two students that one person of students of Industrial Engineering, Faculty of Engineering to program the system design of biogas installations scale household saving and efficient dan1orang of students of Agro Technology Faculty of Agriculture Ekasakti University. The activities carried out as follows:

Biogas production using balloon-type plant

Construction is simple, made of plastic polipropilen thickness of 0.20 mm along a 6 meter diameter of 1.2 meters at its ends mounted inlet pipe (inlet) for manure and pipe exit (outlet) peluapan slurry with 2.5-inch diameter pipe. While at the top mounted gas exit pipe. Advantages: cheap manufacturing cost, easy to clean, easy to move. The disadvantage is relatively short wear time and easily damaged, and dependent care. In the treatment that this digester durable plastic cultivated protected from the sun, and protected from the reach of children and animals. If good care can last up to 5 years. Economically manufacture biogas balloon type pant is very cheap, and people can enjoy biogas for cooking purposes. The risk of negative use of biogas is almost non-existent, even very advantageous, especially in terms of expenditure savings of purchasing fuel for farmers. On the other hand is very good for the environment and health because it can reduce the greenhouse effect and can produce organic fertilizer.

The shape of the balloon-type digester biogas stoves part and materials as shown below.



Figure 3. digester balloon type 6 meters long part.



Figure 4. Materials biogas stove maker of paint cans that use cement casted



Figure 5. The gas pressure gauge is made from a used plastic bottle

Their program cooker manufacture biogas from cow waste is very good for the environment. On average every house there are 1-4 cows in the head of the household. The area is very supportive to the use of cow manure waste, because cattle farm managers no longer need to confusion throw cow dung. Therefore, manure can be turned into fuel for stoves and fertilizer. In addition, a wide area and many residents of cow dung is an opportunity to cultivate in order to avoid environmental pollution. Housing residents are quite extensive home page can be used as a place of installation Biogas technology. The author in collaboration with local residents do uci simply trying to manufacture biogas manure that has been collected, put into the septic tank of plastic to be used as biogas. Biogas can be used for domestic purposes, including cooking. Therefore, from inside the septic tank there is a small hole into which paralon. Paralon is connected with a hose connected kekompur gas in the home kitchen.

To meet the gas needs of a family with four members of the family, it takes two to three cows. Every day, perekor cow dung can reach about 10 kg. Thus, of the three cows can be obtained up to 60 kg of dung. Besides produce Biogas, residual fermentation of cow manure can produce a liquid organic fertilizer. Families who use Biogas is already not require the purchase of fuel having been able to fulfill their needs of manure that was maintained. For those who usually seek / cut firewood in the forest is now the time can be used for activities that provide economic added value, with other odd jobs. Costs dikeluarkanpun only for the purchase of equipment.

Based on the research results Susilarningsih (2007) that a comparative analysis of the use of biogas, kerosene stoves and gas stoves, that the use of manure as a substitute fuel more households provide economic benefits, because the menggunakan Biogas can be efficient cost compared with applications of the other fuels. Another benefit of making Biogas can be used as manure with good quality, which is the remainder of the fermentation process to obtain biogas and manure that can be used directly as fertilizer on crops as a substitute for chemical fertilizers. While the effect of the application of biogas to the development of the farm is very good that the number of farmers and ranchers will multiply automatically increase livestock

numbers. If we want self-sufficient in food inevitably, the name of the livestock population must be improved. Approach towards it is to increase community interest in beef cattle.

3.2 Sustainability Plan Program

Long-term planning and follow-up programs related to program management, partners and community involvement, including: 1) Institutional strengthening. 2) Keep the strengthening / formation and advisory agencies

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Based on the description above can be concluded as follows:

- a. KKN-PPM implementation Ekasakti University consists of two activities: a) a core program / major; b) additional programs and c) auxiliary program. Core program / major deals with the theme of KKN PPM Ekasakti University linked to the theme of the proposer, the additional program is a program that supports major programs adapted to the fields of science, as well as the auxiliary program is a program in the form of assistance to communities such as gotong royong, enliven HUT RI.
- b. Society farmer groups are able to create biogas at low cost
- c. Community groups can take advantage of farm waste biogas in the form of slug as organic fertilizer rice plants.

4.2 Recommendations

- a. Identification of potential productive activities during the implementation of KKN-PPM should be done beginning with through debriefing la-intensive food dilapang. To students.
- b. To achieve maximum results from the program to consider improving the quality of human resource administrators farmer groups through training, regular meetings and involved departments / agencies and coordinated manner be realized

THANK-YOU NOTE

Scientific article is part of a report Real Work Lecture-Learning Community Service (KKN-PPM) with the title APPLICATION OF AGRICULTURE Terin-TEGRASI FOR INCREASING INCOME FARMERS IN ORDER TO ACHIEVE KETAHANAN FOOD Nagari kasang SUB Batang Anai Padang Pariaman funded DGHE 2016. On this occasion, please allow authors expressed thanks and appreciation to: 1) Strengthening the Directorate General research and Development of the Ministry of research Technology and Higher Education of the Republic of Indonesia; 2) Rector of the University Ekasakti and Dean of the Faculty of Agriculture, University Ekasakti which has given approval nomination proposal KKN-PPM, 3) Chairman LPPM Ekasakti University who has given consent KKN-PPM proposing this proposal; 4) Farmers Beautiful Sakato 1, 5) The local government Padang Pariaman district, through the Head kesbangpollinmas, Head Batang Anai, walinagari Kasang who has given us kesem-opportunity to implement KKN-PPM in Kanagarian Kasang so that the program can be implemented; 6) Co-lecturer who helps the implementation of KKN PPM is unlikely mentioned one by one; 7) Students KKN-PPM participants and villagers' Kasang; 8) All parties that we can not mention one by one that has provided moral and material support, ease and facility, for the implementation of the program KKN-PPM

5.REFERENCES

- Anonymous, 2013, Grant Implementation Guide Field Work Experience - Community Learning (KKN-PPM), Directorate of Research and Community Services, the Directorate General of Higher Education Kemendikbud - Jakarta.
-, 2016, KKN-PPM Implementation Guide Ekasakti.Padang University.
- Arnold Y 2012, production of biogas from water hyacinth "chemical technology and industry journals, vol.1 # 1. it 412-417.
- Anton, 2011, fuel gas which is environmentally friendly, research papers.
- Jessung. 2011. "Journal engineering vol 12 1 juni 2011
- Panggih 2012 "Production of biogas from water hyacinth" Thesis Chemical Engineering, ITS
- Rinilaili, 2014. Water hyacinth BIOGAS AS A FRIENDLY ENVIRONMENT. Scientific Journal Tekno. Vol. 11.No.1. April 2014 ISSN: 1907-5243
- Sudaryono, 2012. BIOGAS UTILIZATION OF WASTE WASTE ANIMAL SEBAGAI ELECTRICAL ENERGY SOURCE Sutenjaya case study in the village, Lembang, West Java. Environmental Technology Center Agency for the Assessment and Application of Technology Building 820 Geostech Lt-2, Pusiptek Region, South Tangerang, Banten 15314
- Susilaningsih, 2007. PROGRAM KREATIVITASMAHASISWA UTILIZATION OF WASTE MATERIAL IN LIEU OF COW DUNG BA-KAR HOUSEHOLD TO GIVE MORE BENEFITS EKO-KAN-Nomis. Muham-madyah University of Malang. Poor
- Suryani 2011 "Paper Sustainable Renewable Energy Biogas and Berke-advanced" National Science Congress (KIP-NAS) to 10, Jakarta, 8 to 10 November 2011
- Wahyuni, S. Biogas, Penebar Governmental, 2011. Jakarta