Help to Self-help in Africa

This Norwegian organization - now established as NGO in Kenya - has a clear idology.

We will illustrate our mission by telling this story about Willy. When we met Willy in 2009 he had a job as apprentice for being a mason. However, Willy had higher dreams and wanted to learn more about how to escalate his income. He became interested in our vision about help for Biogas in Africa and made link to some of the Biogas Africa organizations where he discovered the need for trained entrepreneurs for building biogas plants.

We supported him with the needed money to fullfill his education and he got his lisence to construct and guarantee for governmental subsidy for the plants. Today Willy is running his own firm with two employees and he has put up more then 70 no. of biogas plants in the rural areas around Nairobi. We will let Willy tell his story.

In December 2009 I got the possibility to become the Biogas man for Help to Self-help. I was 21 year old and as an apprentice in mason work for 3 years, I got my mason certificate. In order to meet the requirements as being a certified biogas technician I was in need of the theoretical and practical training for obtaining this license. I was asked by this organization if I would like to become their "biogas technician" and I sure was. It was the fulfillment of my dream. Today, in the end of 2012, I am having my own firm with two employees and my order book is often full. We have made more then 70 small and medium plants and they are all certified by Kenya International Domestic Biogas Program, (KENDBIP) and they are functioning well. I am married, having one child and my wife have recently started a little shop which she is very happy about. I just love my job and I'm most thankful. I want to develop this trade to its best potential.

Why biogas plants?

Oh Wow! There are so many advantages with Biogas.

1. It is produced from animal dung.
2. This dung becomes a much better fertilizer after the metan gas is eliminated.
3. It is totally clean and burns with no smoke.
4. You do not need firewood or charcoal.
5. You save the forest, which is vital.
6. You or your wife does not need to carry fire wood or buy it.
7. You lit the fire when you need it and turn it off when you do not need it.
8. You save your throat and your eyes health by avoiding smoke.
9. If you have enough gas you can use it for light.
10. And I want to continue to find many, many more applications for use.

What about the size of the tank and the amount of dung?

6 m^3	You need abt. 40 kg (Two buckets) of dung from cow. From Pig the needed amount is lesser, as the Pig dung is more efficient
8 m^3	This is the most common size if you have two cows and can collect all the droppings and the urine. This will give you abt. 70 kg and is sufficient for 3 – 6 hours with fire. 1 cow + 5 Pigs gives abt. 60 kg of dung, which is enough for 8 m3 size. In our hot climate the process is going faster. This is a big advantage.
12 m^3	Here you need abt. 100 kg every day. 4 – 5 cows or abt. 8 – 12 Pigs.
38 m^3	180 kg of dung. Give 5 – 10 hours of cooking. Alternative, 15 – 20 Pigs.
48 m^3	240 kg of dung. Gives 12 – 20 hours of cooking. Tanks of this size are normally constructed in institutions with large kitchen; Universities, schools, prisons, etc. Help to Self help have put up two no. of this size. Our estimate is that you can obtain this amount with a production of 100 – 120 slaughter pigs per year.

What about the cost of a project? Is it likewise beneficial?

Let me use a family of five as example. If the family owns 2 cows and have a little chamba. They have to prepare three meals per day. The family will use firewood, charcoal and kerosene and their total cost is app. Kenya shilling. 2000 per month. If they decide to invest in a Biogas plant with the size of $8m^3$, the following scenario will appear:

1. Buy the material like: Sand, Concrete, Cement, Stone, Reinforcement iron, galvanized piping, some planks, Pvc piping and the actual burner. The total cost of this is app Kenya shilling 60 – 80 000. Included here is the labour and Fundi salary. The family must dig the hole and prepare the foundation for the tank, the outlet and the inlet chamber.
2. When the plant is completed and accepted by KENDBIP who shall control all installed plants, the family are guaranteed a refunded

amount of Kenya shilling 25 000. Meaning the total cost for the family is app. Kenya shilling 35 – 55.000. We assume this to be saved within 2 – 4 years. In addition they will produce more vegetables due to the better fertilizer.

How do you present and sell your product?

First I point out the potential customer and make a visit. If the family shows their interest, I make a calculation and look at the site if the plant can be placed there. Then I have to evaluate the number of animals, type of animals and the need of energy for the family. I figure out how the family can run the plant and if they understand what the family itself have to participate in and to look after for maintenance.

As soon as the family have got hold of the material, excavated the cave for the tank, I can start constructing the digester, which takes about 8 days for a tank of $8m^3$. Usually I stay with the family who cares for his needs during the period. At the same time he have excellent opportunity to instruct and train the family to handle the plant.

I visit the family often in the beginning in order to follow up the absolutely care they have to take for the plant for correct maintenance. It is my experience that not every family are clever enough to do the right things for proper efficiency. I have learned that some plants have stopped and when I am being contacted, the most common failure is linked to the filling via the inlet chamber. The filling, which shall take place regularily and with the right amount, shall be a mixture of dung and water to an exact consistence. The correct crushing of the dung particles and the mixture with water is the whole secret to the efficiency.

We have found that Willy has used the option he got fully

When we met Willy in December 2009 he appeared as a modest and careful 21 year old boy. He lived in the slum in Nairobi. His talents and attitude towards doing proper and skilled work was of high character. He usually took the jobs that become rejected by his colleges. During these jobs he obtained experience and made contacts with important people and discovered the most important attitude, the trust. Today Willy has become very well informed and independent person. He is very “busy” and his phone is ringing constantly. He has already obtained a large

contact area and many good friends due to the jobs. He is solid and can be trusted and very keen of being helpful to others. He loves to do proper work with high quality. He says that by doing good jobs, you are guaranteed jobs in the future.

Today Willy is married, he has got a son and he lives with his family that he founded in 2011. He is doing well and is able to stay without projects in a couple of months. He has earned enough money to invest in a little shop for his wife. Also this shop is running well. Willy is proud of the status he has achieved and he is a very good example for his like. He is now engaged to be the "fundi" for our environmnetal plant nr. three in Kenya. That will be his largest job up to now.

KENDBIP – Kenya Domestic Biogas Program

One international program with Netherland in front, implements biogas in Africa. The program was started in 2009 and is planned to go for 5 years. Only in Kenya alone there is decided to build 8000 no of plants. Those plants will mainly be of the size 6 and 8 m^3. Willy has proven his cooperation with this company which is super visioning the plants and he uses their approved drawings.

More about biogas and Help to Self Help

Pig breeding in combination with a biogas plant is multi functioning. The plant is dependant upon the pig manure and the pigs are the most valuable food for sale and use. Pig breeding also gives work for a couple of pig handlers and shall in the long run result in income for the investor. Its outcome is gas and fertilizer of first class. It gives cooking without smoke.

Help to selfhelp in Africa means to make it possible for people with initiative and responsibility can receive enough help to develop their own business. Our aim is to involve the local people to use the local material and resources and by own ability utilize the biogas. Read more about our projects on our Homepage: **www.selvhjelpiafrika.org**

Biogas plants and international effort

A number of biogas plants has been built in East Africa. It is our wish that biogas shall continue to grow also by constructing this plant can obtain new and needed knowledge in order to take part in this new technique.

To hinder the deforestation is also for the Vest very central. Norway takes effort in the international work for the reduction of CO_2 emission. Ref is made to our prime ministers article in Aftenposten 22nd April 2008. He has visited East Africa and South America where the deforestation has been the most important issue.

The above mentioned Pig breeding program, followed by a biogas plant and gas cooking facilities, will give excellent food, clean gas for cooking, reduce health problems and reduce the emission of CO_2 with more than 15 times. We can refer to the African initiative "Biogas for better life" who have generated a program involving 2 millions of biogas plants in Africa until 2020.

Down below is shown the principle of production by using animal dung. The process is called anaerobe, ie. (Process without oxygen) The bacteria will start the process of fermentation where it will be generated metan gas and carbon dioxide (CH_4 + CO_2) The below sketch shows the principle for a plant.

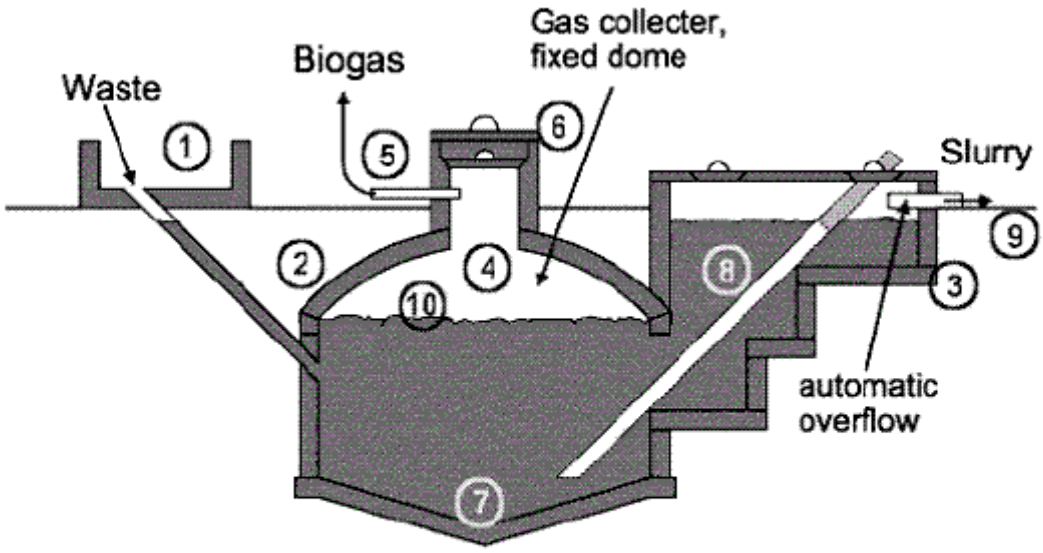

Figure 1: Fixed dome plant Nicarao design: 1. Mixing tank with inlet pipe and sand trap. 2. Digester. 3. Compensation and removal tank. 4. Gasholder. 5. Gaspipe. 6. Entry hatch, with gastight seal. 7. Accumulation of thick sludge. 8. Outlet pipe. 9. Reference level. 10. Supernatant scum, broken up by varying level.
Source: TBW

During the process the pressure will increase, the level in the digester will be pressed
down and the slurry will be pressed accordingly out through the outlet and are ready
to be used as a very good fertilizer. When the gas is being used, the pressure falls and
and the inside level in the digester will rise.

Our concept is fitted for use in Africa, as it involves the high number of positive elements. It takes care of the environment and lies inside all the main milieu and assistance profile preferred by our government. The project is sustainable and fits very well into the other projects performing in developing countries. Our concept is beneficial for the environment, health, the Schools in the area, families and has an economic approach. It is also rooted in local authorities in Kenya and is a project meant for the long-term development. It transfers knowledge, experience good practice from Norway.

The main goal is to achieve growing economic business. This business shall be built on renewable local resources and are aiming towards

possible sustainable and self-generating profit. It will have influence into the societies infrastructure and give many synergy effects.

The principle – Hjelp til Selvhjelp

”Give a man a fish and he will have food for the day”. ”Give a man a fishing rod and teach him to fish and he will have fish for his whole life”. This Chinese proverb is the basic principle of the “Help to Self Help” program. The right talented man shall have enough help to manage to create his own business on his own. He shall manage to give his family a way of living. The opposite is to create lasting dependant help.

Examples:

- √ Focus towards transition of knowledge and competence.
- √ To establish competence and skilled persons – experts.
- √ To give help with funds for financing.

Help to Self Help has contributed to give many persons the possibility to run their own business. They now have income from their work. The projects have resulted in many work places. We have found that the most efficient way is to concentrate the support in one district, which in turn will give more impact in the infrastructure. We have our main work in Kitui in Kenya, although we also are having project in other districts, like Kisumu and Nairobi. We want to participate actively in the trade and industry life, the cultural associations and like to have meetings with the politicians and staff in the communities. We are also supporting local Churches.

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