**SMALL-SCALE BIOGAS DIGESTERS AS DEVELOPMENT AID: TALES OF HUBRIS AND FAILURE**

**Site ID: 01**

**Date: 31st May, 2021**

**Interviewer:** Okay, where did the digester originate?

**Interviewee:** It came from a certain company in Blantyre, Chileka

**Interviewer:** Okay, who designed the digester?

**Interviewee:** It was them – We just bought them the digestor and they build and installed it too.

**Interviewer:** Okay, what was the price?

**Interviewee:** We bought it at K190, 000. On top of that, there were some other cost like transport, manure and all that which made it K228, 000. And there is also another K48, 000 which I haven’t paid. So roughly, it’s K270, 000.

**Interviewer:** How did you know about biogas?

**Interviewee:** I came to know biogas through a friend. She is very interested in biogas, and she lives within the community, just after the transformer area. She went to Blantyre to meet with the guys I bought the digester from, when she came back, she told me about the meeting and biogas. Then, I became very interested too.

**Interviewer:** What interested you?

**Interviewee:** The fact that you can use waste for cooking and lighting.

**Interviewer:** What were your expectations?

**Interviewee:** Mmmh, our expectation is that we are going to be able to use biogas for cooking. We hope to reduce cooking problems as well as health problems my wife usually suffers. She suffers from respiratory diseases when she cooks using firewood. Also, we expect to stop using firewood completely due to environmental concern. On top of that, we are very much into farming and we produce more manure, and we want to expand so we hope to be able to produce even more manure and biogas for cooking

**Interviewer:** Okay, what were you told to expect from the installer?

**Interviewee:** We were told that we can use the biogas for cooking, lighting and also to generate electricity which we can use for hours but to do that we need a generator which turn biogas into electricity. All you do is, you put fuel in the generator then modify the generator by connecting it to a carburettor. Some people are even using this method for irrigation - That’s where we are going, and we will get there.

**Interviewer:** How did you know this? I mean this is so technical.

**Interviewee:** I was interested to know more about biogas so I inquired more from the supplier. The other thing about biogas is that it’s a source of manure. When the feedstock decomposes it produces effluent which can be used as manure, or can be sold. I’m sure I will get to that level once I move to my own compound where I will do things with a bit of freedom and flexibility.

**Interviewer:** Okay, what kind of training were you given by the installers?

**Interviewee:** No, but I’m a person who can easily understand things. So, whatever he said I was able to grasp and comprehend what he was saying. He talked about its operation – if it does this do that. So, that was the type of training I received. Secondly, all the information regarding biogas in on the internet, on YouTube we are able to see and learn ourselves. For example, me and my friend we have been on internet browsing and sharing these things. So to me that’s enough training, and I don’t think I need any other type of training. As a matter of fact, I can purchase and confidently install and run a biogas system.

**Interviewer:** Why did you choose to have one built here?

**Interviewee:** We wanted to make life easier for us in terms of cooking. As you can see we have lots of chicken so we want to use the manure to produce energy for cooking.

**Interviewer:** How did you meet your energy needs before the intervention? (I.e. cook)

**Interviewee:** We were using firewood, and sometimes we were using briskets and charcoal. It’s mostly firewood though**.** AndIt`s sad because such means damage the environment.

**Interviewer:** How did you manage your waste (the feedstock) before the reactor?

**Interviewee:** We used animal waste as manure in the garden and some of it we just throw away.

**Interviewer:** You said you just tried it out, and have never utilised it fully. So, how did the system work after installation?

**Interviewee:** Unfortunately, we don’t have a mechanism to measure the gas that was produced. However, we tried to cook on it, and we were excited that we were able to cook something with it. And that was what we wanted to see (Laughs)

**Interviewer:** (Laughs) what did you cook?

**Interviewee:** We cooked a side dish. But, before that we boiled water. And considering that we didn’t load adequate feedstock, we were convinced with its output.

**Interviewer:** Where were the operation requirements?

**Interviewee:** Initially, we were supposed to feed the digester with cow dung. They installer explained that first feed needed to be cow dung because it’s a ruminant and that its dung has a high bacterial load crucial to initiate the system. Thereafter, we could use any other type of manure e.g. goat, chicken and pig manure. However, we have not used it for some months now, so I have asked a certain person to bring me cow manure tomorrow to kick-start it again.

**Interviewer:** So, manure is the core operation requirement. Okay, what else?

**Interviewee:** Definitely.

**Interviewer:** How did you prepare that feedstock?

**Interviewee:** You put dung in a bucket and add water. Actually, you use fresh dung and not dry dung for this purpose. Then, you mix the mixture till it reached a level it can be easily poured from the bucket. Essentially, we add 5 buckets of water to 5 buckets of manure. We were told to feed 5 buckets of 25 Litres.

**Interviewer:** What were the maintenance requirements?

**Interviewee:** There is little maintenance that required. You need to check the frame on the stove. Also, you need to constantly monitor gas pressure in the digester to detect leakages. So, we are required to check these things time and again to ensure that it keeps on working.

**Interviewer:** Who is responsible for feeding the digestor?

**Interviewee:** This is a household so we are supposed to feed the digester. Their responsibility was to install the digester which they are only remaining with building a green house, after that everything else is our responsibility.

**Interviewer:** What challenges have you encountered so far?

**Interviewer:** The only challenge we have encountered was when we mounted the digester in a cage. The pressure was very high that it was breaking the cage time and again. So, we were reporting to the installers time and again about the problem and it was a annoying thing to do. So they came and decided that the cages containing the bags should be placed underground to resist the pressure. After, that did that we have not had any problem with the digester.

**Interviewer:** Oh, pressure was breaking metal cage?

**Interviewee:** Yes, it’s not any ordinary pressure. It`s high pressure that heats up the bag and inflated to a point you think it’s about to burst.

**Interviewer:** You have never used, excerpt the time you tried it?

**Interviewee:** It’s not long since I tried it. It’s been a month or two. I haven’t been able to finish the project because I’m also doing a house project somewhere. So, yes, that’s the only time it ever worked and I ever tried it.

**Interviewer:** Once the digester started to break the cage, did you try to fix it? What did you do?

**Interviewee:** That’s when I called the installer, and he suggested that in my case the digester bag was supposed to be buried in the ground. And since then we haven’t had the problem.

**Interviewer:** Now that it’s not working, you said you are using firewood?

**Interviewee:** Yes, we can’t say we stopped using firewood. We are still using firewood and charcoal. But if he comes with the manure tomorrow we are going to keep it up and we hope to stop using firewood. Also, I’m hoping to buy cement any day from now because I want to build a floor for the stalls so that I will be able to harvest enough and quality dung for the digester.

**Interviewer:** How much labour do you think went into building this in terms of digging?

**Interviewee:** It was about four people because they wanted to do it within 2 hours. But, I believe even one person would have managed to do it but would have taken a day or two.

**Interviewer:** Masonry?

**Interviewee:** It was one person.

**Interviewer:** Was there any other work?

**Interviewee:** Yes, fabrication which was done by one person.

**Interviewer:** What kinds of special items had to be imported from another country?

**Interviewee:** The biodigester is not from Malawi because they tried to liaise with local companies to supply them with the biodigester, but it has not worked.

**Interviewer:** What is your opinion of biogas?

**Interviewee:** Biogas is a good thing but it has taken time to reach Malawi. Otherwise, we need more people to learn about biogas because it will improve the livelihood of many people in the urban and rural community. Also, I believe has the potential of reducing deforestation, I know we can’t completely stop using firewood, but biogas can reduce firewood use drastically.

**Interviewer:** If you could have designed your own waste or energy intervention, what would you have chosen instead?

**Interviewee:** People are using solar, and I think is a good alternative of biogas because it reduces misuse of trees. And people are using solar in doing great things in Malawi, you talk of irrigation. Also, I think here in Africa solar is the way to go because we are naturally blessed with the sun, so let’s use that opportunity to produce energy.

**Interviewer:** Thanks for the interview, I truly appreciate.

**Interviewee:** Welcome.