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

**Site ID: 09**

**Date: 22 June, 2021**

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

**Interviewee:** It was brought here by BEAM, Beautiful Malawi Trust.

**Interviewer:** Who designed it?

**Interviewee:** I can’t really recall the specific name, was it [name redacted]. I can’t recall it was long ago.

**Interviewer:** When was it?

**Interviewee:** It was one or two years, I can’t really remember.

**Interviewer:** Who else funded the digester?

**Interviewee:** I believe it was Beautify Malawi Trust**.**

**Interviewer:** Who built it?

**Interviewee:** It was that man – [name redacted]

**Interviewer:** It was one man?

**Interviewee:** Yes, it was one man.

**Interviewer:** What was your role?

**Interviewee:** As QECH we simply identified a suitable place for the digester to be built – close to the kitchen, close to the feedstock.

**Interviewer:** Okay, we have many public hospitals in Blantyre, how were you selected as a beneficiary?

**Interviewee:** They saw that QECH produce much waste as compared to other hospitals, so to reduce waste management problems at the facility they decided to build the digester as a waste management solution as well as an energy source.

**Interviewer:** What was the selection process?

**Interviewee:** I don’t know what the selection process at Beam was. As for us, we were just told by the administration to welcome them so that they should work comfortably.

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

**Interviewee:** Of course, I just heard that pit latrines can be used to produce gas for cooking. But, when they came and installed it here, it was a whole different thing as it was using food waste and all.

**Interviewer:** Okay, what were your expectations?

**Interviewee:** We were excited because we usually need to cook food as quickly as possible for our patients, for instance, fast porridge for diabetic patients, or people on tubes so we thought it was going to help in those circumstances – That’s why we welcomed with warm hands.

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

**Interviewee:** There was nothing we were told to expect. They just installed it. Of course, they were always around during installation. After installation, our expectation was that they would be coming to monitor, but they never came. We expected them to be coming to assist us on its functionality and also for us to ask questions to be conversant with the technology, but they never returned after installation. As a result, we were left frustrated.

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

**Interviewee:** No……. of course, we had a little training, so let me accept that we had training. We were told what to feed and what not to feed the digester. Number 2, on the digester there was something where there water converts I can’t remember what, so we were told to refill the water once we see it was running out of water. And finally, we were taught how to switch it on and off.

**Interviewer:** what type of waste were you told to feed the digester?

**Interviewee:** We were told to feed biodegradables, for example, we were told not to feed stones and mango seeds. We were told to put all those things that can be digested and release gas. We were told to put this continuously so that it wouldn’t run out of gas.

**Interviewer:** How many were trained?

**Interviewee**: All the cooks including supervisors. In this department, we have 3 cadres – supervisors, kitchen attendant and cooks. The responsibility of kitchen attendant is it distribute food to patients, cooks cook and manage food waste. Thus, all 3 cadres were trained.

**Interviewer:** Okay, probably, how many people were involved?

**Interviewee:** I would say 15 – 20 people.

**Interviewer:** How prepared to run operate the reactor did you feel you were?

**Interviewee:** (Laughs) that’s a hard one. I feel it was 50 – 50. I feel what we learnt was enough to use it without problems. However, I feel the training didn’t focus much on its maintenance so it was inevitable that when it failed we were not going to be in a position to fix it. Like I said, we were only taught how to fix it and how to feed it and all that.

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

**Interviewee:** We were using electric cookers.

**Interviewer:** Okay, how did you manage your manure waste before the intervention?

**Interviewee:** We were disposing of waste in waste bins then it was transferred to where food waste is assigned to be disposed. But from there we didn’t know where and what happening to the waste; whether it collected by waste pickers for pig farming or something.

**Interviewer:** How did the system work after commissioning?

**Interviewee:** Of course, it worked very well during the first days, and it had no shortfalls. But with time it started developing producing little gas. Unfortunately, it didn’t work for long - it only worked for not more than a month.

**Interviewer:** You are saying it worked quite well during its early days, what do you mean? Can you elaborate on that?

**Interviewee:** (Laughs)when we switched it on as advised, it was producing gas sufficient for cooking, and food would get cooked very well.

**Interviewee:** How much gas was being produced?

**Interviewee:** The stove had holes where gas was produced and was burning. At first, all the holes were producing gas, but with time only 2 or 3 holes were burning, Of course, we knew it was because of a drop of gas production in the digester, and after time the stove stopped burning.

**Interviewer:** Okay,how many holes were on the stoves?

**Interviewee:** Around 12 – you will be able to see the stove yourself.

**Interviewer:** Apart from cooking, how else did you use the gas?

**Interviewee:** There was nothing else – we were only using it for cooking porridge, boiling water, Nsima for few patients and all that.

**Interviewer:** I heard that you were told to use food waste as feedstock, what were other operation requirements?

**Interviewee:** It was only food waste – Cabbage, Nsima and all that.

**Interviewer:** Okay, how much waste was needed?

**Interviewee:** Of course, we were given a specify quantity. I think it was 15 Kgs per day, if I’m not wrong. Yes, it was 15 Kgs. We used to feed it every morning, and there was one chef who was very interested in it, he was the one who used to load it most of the times. And when we had surplus feedstock, we used to store feedstock behind the kitchen so that we could use it the following day.

**Interviewer:** 15kgs of food waste, that’s food waste the size of a 15L bucket……

**Interviewee:** (Laughs) it depends with the type of food waste, for example if it was cabbage; you need a number of 20L buckets to reach 15 kgs.

**Interviewer:** (Laughs) Okay, I see. So how were you measuring food waste?

**Interviewee:** We have a scale, so every time we were loading feedstock we would measure its quantity.

**Interviewer:** Okay, How much water did you add?

**Interviewee:** (Laughs) I can’t really remember, but we were told to add water to the recipe.

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

**Interviewee:** We were simply breaking down food waste and then add water – The person who is more familiar with this is on off today – he could have explained better.

**Interviewer:** Who was responsible for feeding the digester?

**Interviewee:** It was a chef.

**Interviewer:** Only one?

**Interviewee:** All the chefs, but one had a keen interest than all the other chefs. He said he was interested in owing one at his place. Just like myself, I was also interested in biogas because I wanted to install one at my house because it’s cheaper and better than firewood as it can make use of fallen leaves, waste and all that. In truth, most people here were interested to see its performance so that they could adopt it in their house. But in the end it was a disappointment to everyone – it was a flop (Laughs)

**Interviewer:** (Laughs) If it had performed……...

**Interviewee:** If it had performed well, without a doubt I would have ensured that I had one at my house because it seemed cheap and good value for money than firewood.

**Interviewer:** Okay, what were the maintenance requirements?

**Interviewee:** He did not talk about maintenance or who to communicate with in case of failure. The way he left was less like he was forced to come and install the biogas. The way I see it, he was just sent to do his work forcefully, or like he wasn’t paid. I’m saying this because under normal circumstance, you expect an installer to train people on maintenance issues or at least have a maintenance plan, or leave a contact to communicate to in case of failure. He just left after the work, and he was never seen again.

**Interviewer:** Why do say that?

**Interviewee:** In my view, he was not paid accordingly. I think he had issues with BEAM that’s why he stopped following up. He talked about building one at Chichiri Prison, and how it was performing. So, we expected him to be monitoring our biogas too and ensure that it was working perfectly in order to build a reputation that he installed a perfect biogas system at QECH. Unfortunately, after installation they never followed up - it was just like it was dumped here and a lot of money was lost in the process.

**Interviewer:** Okay, did it meet your needs?

**Interviewee:** Like I said after it was installed it worked perfectly well. During the first month we were using it whenever we wanted it, it met our needs.

**Interviewer:** Okay, what other challenges did you encounter apart from what you have already discussed?

**Interviewee:** The time it was working, we had no problem with it. But, after it stopped working it became a nuisance and made the place look unpleasant. And when we think about it, we wish it never came because it makes the place look unpleasant especially during rainy season as it cause water to stagnate and breed mosquitoes. As a result, it cause and increase malaria cases among patients.

**Interviewer:** How did the challenge manifest?

**Interviewee:** Like I said, after installation it was producing sufficient gas. However, after a little time gas production started diminishing, as if there was a hole somewhere that gas was escaping from……….What he could have done, he could have left us his contact to reach out to him whenever it stopped working. I tell you the biogas system was really important to us because it helped us to cook light food in a short time unlike when we use electric cooker as it takes time to hit up. So, when biogas was working we were able to cook porridge for emergency patients within 10 – 15 minutes.

**Interviewer:** Okay, when it stopped working, what did you do? Did you call the installer?

**Interviewee:** No, we didn’t call because we were expecting the installer to come and monitor the biogas, and see how we were managing it. When he didn’t come to monitor, we reported to our supervisor that the biogas had stopped working. But, we don’t know if he was able to reach out to the installer or to the hospital director.

**Interviewer:** Have you seen something like this (show table of interventions)? What do you think about this kind of information and do you think it would have helped you?

**Interviewee:** For the table of intervention like this to be helpful, one would need the installer to take them through the information for a month or 2 month. Only then, such information can be useful because to understand it vividly, you need someone to explain and to see first-hand.

**Interviewer:** How would you describe the current state of the digester?

**Interviewee:** It’s on zero (Laughs)

**Interviewer:** (Laugh), okay, what do you mean

**Interviewee:** (Laughs) It`s dead. I don’t think it will work again. Though the bag is still there, I don’t it can work again. Some pipes are still in place, some are out of place. All in all, we have forgotten about it. I don’t think it can be rejuvenated.

**Interviewer:** In your opinion, what is the cause?

**Interviewee:** It reached this state because of Beautify Malawi. I don’t know what their objective was in trying to bring a biogas system here. We were using to using electricity for cooking, and biogas was a new thing to us so they should have ensured that we were well versed with the technology before abandoning it. To be frank, it reached this state because they wanted it to be this way. If they wanted it to work they would have followed up everything and made a proper monitoring plan to ensure that it was working and sustainable.

**Interviewer:** We are going towards the end; we have about 20% remaining. What do you do for energy now that the reactor isn’t working?

**Interviewee:** we are using electric cookers

**Interviewer:** Sure, how do you manage waste now that the reactor isn’t working?

**Interviewee:** We dispose of waste close the eye department building, and there is a team that handles that. In some instances, people do come here to ask for cabbage waste for their rabbit and pig farming.

**Interviewer:** We have done 90% of the interview; we are going toward the end. How much did the reactor cost to build?

**Interviewee:** I don’t know how much money was involved to build the biogas.

**Interviewer:** But you are certain Beautify Malawi paid for it?

**Interviewee:** Yes, money came through Beautify Malawi.

**Interviewer:** Did you or your organization have to contribute anything in kind?

**Interviewee:** I don’t think QECH contributed anytime other than land for the biogas to be constructed on. Everything else were provided for, cement and everything.

**Interviewer:** How much labour do you think went into building digging?

**Interviewee:** I don’t know how much labour was involved because I was busy involved with cooking duties. Besides, we were only invited to be part of the biogas team after construction and installation of the biogas.

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

**Interviewee:** I don’t think anything else was imported. We were not told that some materials were imported. Besides, nothing looked imported.

**Interviewer:** We are going towards the end of our interview. We are remaining with two questions. What is your opinion of biogas?

**Interviewee:** In my opinion, biogas is a feasible technology provided one is determined and committed. Also, biogas is very beneficial in terms of waste management as it facilitates collection of waste on premises. Also, biogas is a cheap technology to implement as it makes use of waste to produce energy, and lastly, it easy and fast to use.

**Interviewer:** When you say it needs determination and commitment, could you be specific with me on that? What needs to be done at institution level like this one for it to be feasible and viable?

**Interviewee:** Okay, when a biogas system is installed at an institution people need to be thoroughly trained about the technology, how to operate and maintain it, and also there must be a proper communication and monitoring plan to reach out to installer so that major issues that cannot be solved within can be solved by installers or experts. For example, let’s take our electric cooker, there are some problems that we are able to solve within the institution, however, there are some problems which we reach out for outside assistance to help us fix the issues. Our cooker is very old, it was brought here during Kamuzu era, but because we know where to reach out when it has a problem we have been able to maintain up to this day.

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

**Interviewee:** I believe any intervention would help this institution, whether it be solar or whatever. However, whoever brings the intervention should monitor and pay uttermost attention to the intervention to ensure that it’s functioning. For example, we have solar technology, yet the installer closely monitors the system to ensure that it’s working, that’s why up to date those solar panels are still working.

**Interviewer:** Thanks for the interview,

**Interviewee:** Welcome.