



ALICE Nyeleti cooking a meal on her biogas stove.



A FARMER picks eggs from the poultry house before collecting droppings for the bio digester.

# Biogas comes in handy

■ SNV helping to promote alternative clean energy across Zambia

HANNAH SILIYA  
Lusaka

**A**LICE Nyeleti, a dairy farmer of Chongwe without access to electricity, started using biogas energy almost three years ago.

"Every single day, I fill a cement sack with cow dung and feed the bio digester behind my house. I often have to mix the waste with four buckets of water because the water and waste should have a proportion of one to one, resembling the consistency of porridge, in something called a mixing tank," she shares.

"After it flows into a bio digester dome that is buried underground, this technology captures methane gas excreted from the dung, which I use for cooking. Organic manure, referred to as bio slurry, also pours out from the digester into a dug-up pond, near my kraal.

"I tell all my friends about it and most people from my church come to my home just to watch me cook. I prefer cooking on a biogas stove to a charcoal brazier because there is no smell or smoke. The slurry produced also acts like a natural repellent which chases away any insects. It is rare to even see a mosquito or fly around here.

"I now don't have to waste time fetching firewood nor do I turn my hands black with charcoal. I hope to have a bigger bio digester built one day so that I may power my whole house and my children and I will no longer sleep in the dark."

SNV - a Netherlands international development organisation that is helping to pave way for clean energy in Zambia - helped Alice to set up the bio digester, an underground building that uses organic material for a digestion process in the absence of oxygen, to produce gas.

SNV is helping to ensure

people exposed to harmful facilities, fumes, fuels, firewood and charcoal live in improved conditions by implementing alternative bio technology.

While Alice has a small-scale bio digester, an Indian commercial farmer, based in Chisamba, holds a massive 32,000 tonne building, which generates 420 volts of electricity from animal waste.

The 300-cubic metre green monster, which is also supplied by SNV, can run for at least 45 years before it stops lighting up the whole farm, according to SNV national bio gas support senior technical officer Austin Vwali.

Mr Vwali says both rural commercial farmers and enterprises such as Fringilla Lodge have opted for the use of biogas energy in place of charcoal or traditional electricity. He says Sinazongwe crocodile farmers are also eager to join the trade.

Overall, 3,500 bio digester plants initiated by SNV are littered around the country, covering eight provinces of the country with the exception of Luapula and North-Western provinces.

"The biogas programme for Zambia started in 2014 as a pilot project, which ran for one year, and in that year, SNV helped install about 50 bio digesters. We shortly developed another project which ran from May 2015 to April 2018.

"It was extended at no costs for one year up to December later that year and the latest extension is expected to run until December 2019," says SNV national biogas support co-ordinator Dr Katungu Mukelebai.

"In the first instalment on the new project, which was called Energy for Agriculture Project, our target covered 3,375 bio digesters. We have an additional 1,200 for this year and are eager to achieve this bar."

The gas produced by bio digesters is 60 percent methane, which can pollute the ozone



A BIO digester plant provided by SNV is in Alice Nyeleti's backyard.

layer.

"Well, methane is generated naturally, so what we have done is incinerate it into energy. People can use this gas to cook, cool or power their homes and poultry houses. Through bio technology, 20 to 40kg matter collected daily from pigs, cows, chicken waste or latrines can

power a small digester," Dr Mukelebai says.

"However, biogas digesters do not only produce biogas. This technology releases a product known as slur. It is a digested organic matter that is far much better than farm fertilisers. It is used as an organic fertiliser, soil conditioner or insect repellent.

"It is a good product in terms of [being an] input to agriculture, hence we teach users or farmers on bio slurry, too. A farmer in Chongwe is growing 100 orange trees on dry brown ground purely of slur from his poultry house."

The reduction of deforestation and use of chemical fertiliser is

an area SNV is focused on.

Dr Mukelebai says climate change is real and SNV wants to provide an easy, accessible and affordable source of energy.

"Over 70 percent of Zambia's population, including people in town, are using polluting cooking solutions and contributing to the depletion of their surroundings," he says.

The smallest bio digester needs about K1,200 to K1,500 in cash beforehand as payment for labour. However, the average cost eventually reaches K7,500 or K8,000.

"Most materials like sand and bricks can be obtained by individuals. Excavating a pit for a digester does cost a bit of investment but bio digester builders trained by us do a great job, even though these are employees of vast private institutions," Dr Mukelebai says.

SNV ensures quality control, making sure all installations are sound, inspected and functioning. The company currently has seven field officers spread across the country, mostly in Southern, Eastern and Central provinces. Once checks are made after or during construction of a digester, awareness is raised on how the technology operates and how the products produced from it can be used.

"Individuals are taught how to maintain the digester through various documents which we use and offer a user. Educating each user through a training process in groups is very important," he says.

Most of the users of bio digesters are farmers and belong to dairy cooperatives.

"We have over 60 farmer cooperatives that we have been working with. These people have greatly helped with the promotion of clean energy. In addition to that, we have slightly over 40 enterprises formed by the bio digester builders who we

call bio digester construction enterprises," Dr Mukelebai says.

"Other than these, there are some actors in the agriculture value chain who once in a while help us with marketing like Heifer International. In other regions, small enterprises, People in Need and some church-based organisations are linking their members to the facility.

"From the government perspective, we are working with the Department of Energy under the Ministry of Energy, Rural Electrification Authority (REA), Energy Regulation Board (ERB), Ministry of Fisheries and Livestock, Zambia Bureau of Standards (now Zambia Compulsory Standards Agency) and the Dairy Association."

Although SNV is on an upward trajectory, they have faced some challenges in the Zambian sustainable energy scene.

"I think our settlement patterns are quite displaced, thus the cost is probably higher in terms of logistics to get our employees around the country. We only have seven field officers, and we're dealing with vast areas that are sparsely populated, inclusive of villages and communities that breed a relatively high cost to mobilise.

"Fortunately, our cooperating partners are spreading awareness like a wildfire," Dr Mukelebai says.

"Bio builders, beneficiaries, partner organisations, member co-operatives, women's clubs and farmers are all playing a vital role in dramatically growing the biogas market in Zambia, thus the numbers are escalating. In 2018 alone, we set up over 1,700 digesters.

"We want to move our communities forward, sustainably in a healthy and safe environment. We are contributing to better sanitation, cleaner energy and a greener Zambia."

## WCFCB bids farewell to pensioner Peter Chipekule

**L**IFE on a wheelchair without legs and limbs was the fate of Peter Chipekule for 30 years following an occupational accident.

He received post-accident counselling from Workers Compensation Fund Control Board (WCFCB). He had become so accustomed to his condition and went about daily life normally but just when the day appeared well, the sun set on him. WCFCB and family members bade farewell to him in Luanshya last week following his death from a natural illness.

The client was one of the 92 highly disabled pensioners

under the WCFCB. As a pensioner, Chipekule was one of the longest beneficiaries, whom the Board has served for the past 30 years.

We have dedicated the space this week to him.

Chipekule was born in 1936. He was employed as a welder at Match Corporation Limited (MATCO) in Luanshya. On June 23, 1993, he was involved in an industrial accident occasioned by explosion of a gas cylinder while he was carrying out his duties as a welder.

Consequently, he suffered bilateral amputation of both legs at above knee joint and both upper limbs were amputated;

left arm below elbow and right arm through wrist joint. He also suffered partial loss of hearing. With such multiple injuries, Chipekule was confined to a wheelchair for the rest of his life.

Following his multiple injuries, WCFCB awarded him 100 percent disability rate and took care of him throughout his life. A dedicated rehabilitation team was

assigned to provide for his needs through a number of interventions, including

provision of wheelchairs, to promote mobility and independent living. Various medical aid items to enhance

recipient of constant attendance allowance (CAA), a monthly allowance which the Board gives to highly disabled

beneficiaries to cushion the cost of constant care that is required under such conditions, in addition to a monthly pension payment.

Unfortunately, on Tuesday, July 23, 2019, the cold hand of death struck Chipekule in Luanshya. The news of his death was received with a deep sense of loss by



his personal hygiene were also being provided on a quarterly basis. Chipekule was also a

the Board, especially that a few months ago, a team led by the commissioner and chief executive officer Dr Elizabeth Lungu-Nkumbula had visited him under the care and support programme, and he was in fairly good health.

The management and staff of the Board were deeply saddened by the passing of Chipekule, who for almost 30 years of his post-accident life, had become a member of the family.

As provided under the Workers Compensation Act No 10 of 1999 of the Laws of Zambia, a funeral grant of K5,000 was provided to the family to facilitate the burial of

Chipekule and transportation facilities were also provided.

Normally, we do not publish articles on the death of our clients. However, the case of Chipekule was exceptional as he had suffered a severe disability from the explosion at the then Match Corporation and lived under our care for almost 30 years to the extent that he had become our family member.

**The author is head of communications and customer services at the Workers Compensation Fund Control Board; Email: compensation@workers.com.zm Tel: 0212621283.**