INNOVATION

BIOGAS TO GO

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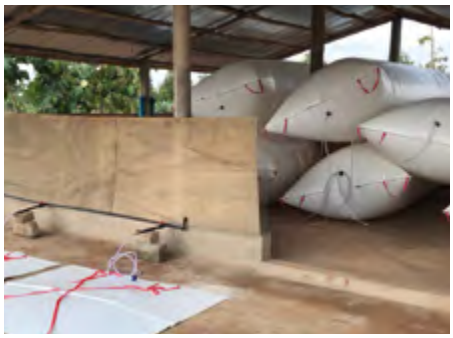
In the tales of the Brothers Grimm, Rumpelstiltskin could spin straw into gold. Katrin Pütz, an agricultural engineer and trained carpenter, has performed a feat far more remarkable; she has actually managed to turn animal waste products into money. Pütz has developed a biogas plant – mainly for use in the rural regions in Africa – in which cow dung is used as the primary energy source, and where the resulting gas can be transported in a backpack.



The mini power plant produces up to three cubic metres of biogas per day. © ReBin

The idea came to her when she was working abroad in Africa. "I saw what development aid was doing then, and had difficulties understanding the approach," says Pütz in an interview with the German-African Business Association. Instead of focusing on technical improvements and an entrepreneurial approach to promote the financial independence of local people, the projects of international aid organisations kept people in their roles as grant-dependent recipients of aid. "This didn't make sense to me," says Pütz. Approaches were often based on subsidies and overly expensive technologies, especially in the biogas industry. "I couldn't imagine that this would ever become an independent industry."

In order to change this, Pütz developed the biogas backpack as part of her master's thesis, aimed at making biogas transportable and thus economically viable. She then added a simple and cost-effective household biogas digester to the concept, and founded her social enterprise (B)energy. At the heart of the plant is a six-metre-long plastic bag that is filled with up to 60 litres of water and the same amount of organic substrate (i.e., dung or organic waste) on a daily basis. Up to three cubic metres of biogas is produced per day during the subsequent fermentation process, which is accelerated by heat from the sun. The biogas can be filled into a backpack via a tube, and either connected directly to a gas cooker or sold, so that the plant and the backpack not only help the owner find a clean source of energy, but also pay for themselves through the sale of excess gas, even offering a source of income in the medium term. The plant and backpack are both made of materials that are available in Africa, so both components can be manufactured on the African continent and do not need to be imported. The installed plant costs between 400 and 900 euros depending on the country where it is to be implemented, and includes four backpacks and three gas cookers.

With her company, Pütz wants to set an example in the biogas sector, where Africans are usually turned into aid recipients. She works with business partners, who take a three-day training course in Cologne, Rwanda or Sierra Leone, where they learn everything they need to know about biogas science, installation and the business with (B)energy. They can then import the technology into their respective countries and – with the support of (B)energy – set up their own company. "The advantage in Africa is that there is still no energy infrastructure, so there is great freedom in design, and modern and environmentally friendly technologies can be directly implemented," says Pütz.

Pütz has received numerous awards for her invention, including the Empowering People Award from the Siemens Foundation (Siemens Stiftung), as well as a great deal of positive feedback. Her company has customers in around half of Africa's 54 countries, and representatives in Cameroon, Guinea, Kenya, and Benin – partners in Nigeria and Rwanda are planning to follow suit soon. Africans living in Germany are also buying the plant for relatives back home. Pütz says that she declines offers to cooperate with development aid organisations on a daily basis, and that not a single cent of aid is invested in her company. She is currently developing an app that local installers of plants can use to attract new customers and get support with installation, maintenance, and general questions about the system, the technology, and their business as installers. •

The plant and backpack offer a clean source of energy and pay for themselves through the sale of excess gas. © (B)energy