NDC PARTNERSHIP

How to create climate-resilient development in rural areas?

Burkina Faso promotes the green economy in Africa through biodigester technology.

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INTRODUCTION

Issouf Barry lives with his whole family in the commune of Tchériba in Burkina Faso's arid northwest. In 2014, Issouf acquired a guineafowl farm, which requires a large amount of energy to heat the brooding process. Energy is scarce and expensive in Burkina Faso and Issouf has encountered enormous difficulties in meeting his farm's energy needs.

Like Issouf, more than 90 percent of households in Burkina Faso do not have access to modern cooking fuels, and less than 30 percent of the population has access to electricity, a figure that reaches 2 percent in rural areas[1]. In this situation, biomass is the main source of energy for Burkinabè families—especially charcoal, which accounts for more than 80 percent of domestic and industrial

1 World Bank 2018, "Burkina Faso", https://www.worldbank.org/en/country/burkinafaso

energy consumption[2]. However, its combustion has harmful effects on the environment—particularly in terms of deforestation, which is estimated to hit more than 100,000 hectares per year (the equivalent of 140,000 football fields), with 9 million tonnes of wood used for the country's energy needs[3]. This equals the production of 16 million tonnes of CO2 per year—half of the country's CO2 emissions.

REDUCING NATIONAL EMISSIONS AND CURBING DEFORESTATION

Burkina Faso is responsible for only a small part of the world's greenhouse gas emissions. In 2016, for example, Burkina Faso emitted 39 million tons of CO2—slightly less than 10 percent of the 330 million tons emitted by France and much less than the 5.8 billion tons emitted by the United States[4].

However, the country's sustained demographic growth is leading to a rise in the demand for wood, which could result in an increase in CO2 emissions and make it more difficult for the poorest families to obtain wood.

2 PNB-Bf, "Energie propre", https://www.pnb-bf.org/index.php/en/nos-activites/energie-propre

3 International Partnership Mitigation and MRV, 2015, Burkina Faso, biomass and energy, https://api.knack.com/v1/applications/5b23f04f-d240aa37e01fa362/download/asset/5c938a1f0845272ed6544873/20152020biomassenergynama_burkinafaso_en_long.pdf

4 NDC Partnership, Knowledge Portal, Historical GHG Emissions, https://ndcpartnership.org/climate-watch/ghg-emissions

More than 80% of Burkina Faso's population depends on agriculture, but the country's arable land is suffering from the effects of climate change. Burkina Faso is facing advanced desertification in the once fertile north of the country, which is now an arid region where the dry season can last more than eight months. As a result, water becomes scarce, rivers dry up, and farms and livestock are threatened, forcing the rural population to migrate or leave the country.

Faced with these challenges, adaptation and resilience to the effects of climate change have become the priorities of Burkina Faso's development policy. A key part of the national climate action has been to develop a green way of production, particularly in the field of energy and food security, by relying on biodigester technology.

PRODUCING BIOGAS FROM ORGANIC WASTE

The domestic biodigester is a technology that allows households to produce biogas from organic waste, such as animal faeces. Each biodigester consists of a closed pit that collects animal droppings. Through a natural process of fermentation, the organic matter is transformed into methane, a flammable gas used as a clean cooking fuel and source of lighting by households. The remaining organic matter is used as an organic fertilizer to increase agricultural productivity.

Burkina Faso has committed to promoting biodigester technology since 2009 with the establishment of the National Biodigester Program of Burkina Faso (PNB-BF/ www.pnb-bf.org) which has been the result of a public and private partnership between the Government of Burkina Faso, the Netherlands Development Organisation (SNV) and the Humanist Foundation for Cooperation with Developing Countries (HIVOS). The aim of the PNB-BF is to pave the way for a viable biodigester market by stimulating demand through a system of subsidies for households, as well as by developing the production capacity of private companies involved in the installation of biodigesters.

During the first phase of implementation of the PNB-BF between 2009 and 2013, the partners subsidized the purchase of biodigesters to raise awareness for the technology and stimulate demand, which contributed to the construction of 4,013 systems. In the second phase, which began in 2014, the program aims to build on the achievements of the initial phase, with the installation of 11,905 biodigesters. The government of Burkina Faso is now managing the program and provides subsidies to private households[5], which represent 50 percent of the average purchase cost of a 4 cubic meter biodigester which meets the cooking and lighting needs of a family of 6 to 10 people. In all, more than 13,480 biodigesters had been built by January 31, 2019.

In order to develop the supply over the long term, the PNB-BF has first focused on improving the technical capacities of businesses, particularly in terms of construction as well as on training households and on after-sales services. By training masons and providing them with technical support, the PNB-BF contributed to the creation of biodigester construction enterprises (BCE) based on a franchise model. BCE activities cover demand raising, marketing, construction, support, household training, and after-sales service.

4,013

SYSTEMS BUILT

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5 Each household, regardless of the volume of their biodigester, is entitled to a subsidy of 160,000F CFA by the government of Burkina Faso in order to facilitate the acquisition of their biodigester.

THE STORY OF ISSOUF BARRY OR THE MANY BENEFITS OF BIODIGESTERS

A mason employed by of one of these Biodigester construction companies convinced Issouf Barry to invest in building a biodigester at his home in 2016. The biodigester produces the biogas needed for lighting and cooking. In addition, Issouf uses the energy produced to increase the profits of his guineafowl farm. By connecting his incubator (initially powered by oil) to the biodigester, Issouf no longer spends money on oil and has improved the hatching rate of guineafowl eggs by 30 percent, thereby increasing his income. In addition to the economic benefits of installing the biodigester, Issouf and his family have noticed a decrease in indoor air pollution in their home, which has also reduced their health problems. Thus, by diversifying the energy supply, the government's initiative to promote biodigester technology has improved the quality of life for 75,000 people like Issouf, particularly in rural areas. Biodigesters offer a low-cost source of energy, despite a significant initial investment of US$540, of which US$291 is granted and US$249 is paid by the household. In addition to the economic benefits, investing in a biodigester helps reduce CO2 emissions. Since 2010, biodigesters have reduced CO2 emissions by 125,000 tons per year and have helped preserve

20,000 hectares of forest[6]. This initiative could thus contribute to achieving the objectives set by the NDC (Nationally Determined Contribution). In the framework of the 2015 Paris Agreement, Burkina Faso committed to reducing its greenhouse gas emissions by 6 percent per year by 2030, i.e. by about 2,000 tons of CO2. This is taking place through the development of biodigesters as well as by transforming 2,000 villages into eco-villages by 2020, with major investments to develop infrastructure facilitating the use of renewable energy.

A TECHNOLOGY TO BE DISSEMINATED IN THE REGION

The government of Burkina Faso has established itself as a leader in the biodigester industry by organizing two regional conferences in Ouagadougou in 2017 and 2018 to share the results of the PNB-BF. These conferences brought together key players from different neighboring countries to promote biodigester technology and to engage the participating countries to set up national programs in their own countries. Burkina Faso thus wishes to disseminate biodigesters and set up a network of biodigester programs in Western and Central Africa. To this end, the Alliance for Biodigester in West and Central Africa was established in October 2018 in Ouagadougou, where it has also its headquarters[7].

Despite all the benefits of the biodigester industry in Burkina Faso, many obstacles remain. The deteriorating security situation in Burkina Faso and the Sahel has slowed down the creation of biodigester companies, particularly in the country's north where the need for energy and organic fertilizers is the most pressing. The security situation has also led to a retreat of financial partners. However, without the commitment of financial and microfinance institutions, biodigester companies have a reduced investment capacity, jeopardizing the long-term development of the sector.

6 Source: PNB-BF.

7 https://www.ab-aoc.org/

CREDITS

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