

Background

Thousands of households in Dong Hoi are raising pigs without appropriate manure treatment facilities such as biogas digesters. In addition, large gaps have been identified in the knowledge of digester end-users, particularly regarding the use of bio-slurry as an organic fertilizer. It is often discharged into the environment releasing CH₄ (methane), a powerful GHG which contributes to Climate Change.

Women are the primary decision-makers regarding domestic energy consumption and waste management, but because they are often excluded from biogas-related trainings, they do not have the opportunity to learn about the use and benefits of bio-digesters. This means that they do not gain the necessary knowledge and tools to enable them to respond to climate change. The biogas sector in Vietnam has been driven mainly by men, because women's lack of masonry experience and essential skills has made them ineligible to join biogas construction training.

The ADB regional technical assistance (RETA)

project, which aims to empower women in productive roles and as active agents of change in response to climate change, understands the important roles of women. It believes in the benefits of women's active engagement in climate change mitigation and is working with local partners Dong Hoi Women's Union (DHWU) and Urban Environment Company (URENCO), to pilot gender inclusion in the biogas sector. This is providing opportunities for local women masons to participate in the biogas supply chain as well as giving women biogas end-users the chance to build businesses and generate income from manure and waste.



Barriers	Solutions
Few role models for Women masons	Identify the challenges for women to enter into the mainstream biogas construction program in leadership roles.
Gender stereotype in construction work	Develop an inclusive and sensitised selection process , focussing on women who already work away from home as mason assistants and enabling those selected to attend training with a partner – husband, family member, friend or other acquaintance.
Women have limited masonry skills	Provide additional introductory training for women (and inexperienced men) to improve their basic masonry skills and develop self-confidence, enabling them to join the standard biogas construction training.
Gender mainstreaming was not considered in BP. Mason trainers were inexperienced in training women	Gender-sensitize existing training materials and programs to address technical and soft skills required to successfully operate a Biogas Mason Enterprise (BME). Provide sensitisation sessions and review of training methodologies to BP trainers to reduce gender-biases.
Women masons take longer to master the technical issues	Provide intensive coaching and mentoring to build skills and confidence to work independently. After the first 8 days' coaching and mentoring, all 9 men felt confident to work independently, while all 9 women requested an additional 5 days' coaching and mentoring. The third round of 3 days' coaching was mainly for biogas piping and appliances.
Lack of soft skills for communication and business development	Provide two trainings on business development skills and effective sales skill for all BMEs and WU staff in order to improve capacity for BMEs and WU staff to sell biogas digesters.

Co-benefits

Women become leaders of biogas enterprises

In 12 years, the National Biogas Program (BP) trained over 1,700 masons of which less than 0.2% were female. The pilot project in Dong Hoi focuses on engaging women in the biogas supply chain, and in cooperation with the BP has successfully trained 18 biogas masons of whom 9 are women. All 18 have been certified by the BP and received mason codes. In cooperation with the DHWU, a gender-inclusive approach has been designed to effectively increase women's participation in the biogas sector.

This process equips masons with essential technical, construction, business and marketing skills to establish their bio-digester supply business.



Source: SNV pilot project

Eight Biogas Mason Enterprises (BMEs) have been established of which 7 are women-led, enabling these women to almost double their income by changing

from assistant to leadership roles. Women work slightly more slowly than men, so while payment is a per digester, the daily pay rate for female BME leaders can sometimes be lower than for male BME leaders. However, women masons are more careful with detailed work, such as mortaring and pipe connections, improving digester quality and making end-users more satisfied.

	Assistant's pay (per day)*		BME Leader's pay (per day)*	
Men	300.000 VND	15 USD	400.000 VND	20 USD
Women	200.000 VND	10 USD	350.000-400.000 VND**	17.5-20 USD

* Indicative amounts

** Differences in daily rate are a result of higher number of days invested by women in construction

Two female-led BMEs also joined the supply chain for composite digesters as sales agents, so they now act as biogas service providers for both technologies. From each installed composite digester the BME earns 400,000 VND (20 USD) for providing technical advice and end-user training. It is expected that the new BMEs will install 300 bio-digesters by the end of the project.

By end of March 2016, 72 fixed dome digesters have been constructed and around 25 composite digesters have been installed by project BMEs. There are 5 BMEs still active in selling biogas digesters almost a year after joining the project.

Women take on microfinance management

Access to finance is crucial to enable sufficient market development to make the expanding biogas construction sector, and in particular, the female-led BMEs, viable. To support this market development, the project has made available 200,000 USD to establish a dedicated Revolving Fund, specifically to provide loans for domestic biogas installations. The fund is administered by the DHWU, and loans of up to 15 million VND (750 USD) are available to Women's Union members (all female) in the 7 communes

and wards where the project operates, through 31 Credit and Savings Groups. While the RETA is financing the start-up of this fund, it is anticipated that it will operate independently by the end of 2016.

Capacity building is being provided to improve essential skills among the DHWU cohort at all levels to ensure sustainable management of the fund beyond the life of the project. Around sixty Women's Union members at district and commune/ward levels have been able to enhance their skills in financial management, the use of

associated computer software and the management and operation of the Revolving Fund. These DHWU members have also been trained in the sale and operation of domestic biogas digesters, including negotiation and presentation skills to support BMEs and to boost the biogas sector. As a result the Women's Union members have increased self-esteem and capacity to fulfil the role of Revolving Fund

management, and they continue to work on enhancing experience and knowledge about biogas within the communities.

In the first 10 months of operation the Revolving Fund has supported 90 domestic biogas loans, with the target of 300 digesters by the end of 2016.

Women create valuable biogas-related businesses

Through the use of biogas and bio-slurry, end-user families can also improve their financial position as a result of savings and new income generation. A 2012 ADB survey showed that end-user training often reaches only men, while it is usually women who operate and use the products of the digester.

This cycle has now been interrupted, and through the project gender sensitised materials, including example business cases, have been developed to train both female and male farmers on the effective use of biogas and bio-slurry for income generation. This results in reduced reliance on fossil fuels and chemical fertilizers, reduced greenhouse gas emissions and generation of economic benefits for households by increasing income and

improving quality of life, especially for women.

The first 47 households that received a loan were invited to the first round of end-user training, with 45 female participants and 2 male. Demonstration farms with real life examples will be developed for follow-up end-user trainings.

Each well-operated digester helps women save 1-2 hours every day for cooking and 50,000-100,000 VND (2.5-5 USD) monthly for fuel as well as significantly reducing the burden on women who otherwise would have to collect firewood. With the time saved, women have the opportunity to participate in social activities in the community, take care their families, or develop farming or small business activities to increase the family income.

Women contribute to climate change mitigation

Each biogas digester operated appropriately reduces around 5 tons CO₂eq per year. With the installation of 300 new digesters targeted by the end of the project, women led BMEs in Dong Hoi and the DHWU could contribute to avoiding around 1,569 tons CO₂eq annually.

Furthermore, the utilization of bio-slurry as a source of fertilizer will avoid the production and use of chemical fertilizer, which significantly contributes to GHG emission reduction, and is therefore also an effective tool to respond to climate change.

Around 400 people, including suppliers, end-users and DHWU members (90% women), have gained knowledge and skills in natural resource and energy management to support climate change mitigation in Vietnam. Women have increased understanding of their key role, their opportunities and their rights and are actively involved in promoting sustainable development through addressing the important issues of climate change, gender equality and poverty reduction.



This publication is developed by SNV Netherlands Development Organisation in cooperation with IGES.