



Tropentag, September 10-12, 2025, hybrid conference

“Reconcile land system changes  
with planetary health”

## Investigating women’s perspective on long-term sustainability adoption of small-scale biogas in rural areas

HIDAYATUL FITRI<sup>1</sup>, VAN HAU DUONG<sup>1</sup>, JANA MAZANCOVÁ<sup>1</sup>, LE DINH PHUNG<sup>2</sup>, LE THI HOA  
SEN<sup>3</sup>, HYNEK ROUBIK<sup>1</sup>

<sup>1</sup>*Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Sustainable Technologies, Czech Republic*

<sup>2</sup>*Hue University of Agriculture and Forestry, Dept. of Animal Science, Viet Nam*

<sup>3</sup>*Hue University of Agriculture and Forestry, Agricultural Extension and Rural Development, Viet Nam*

### Abstract

Biogas technology has evolved as a sustainable energy source for rural households where women directly experience the biogas-based cooking technology. Women, as the primary users of household energy specially in cooking technologies, are crucial to long-term usage of biogas system. Understanding their motivations for long-term use is important to ensure the sustainability and effectiveness of biogas program. This study examined the key factors influencing continued use of biogas technology, with focus on women perspective in rural communities. This study employed a qualitative approach, using semi-structured interviews with women biogas users to explore their perspective on long-term biogas adoption. A purposive sampling method was used to select participants with varied usage durations, providing for a more in-depth understanding of how long-term use affects their views and decisions. Finding indicated that women tend to continue due to its economic benefits such as cost saving on firewood and LPG, as key driver of sustained adoption. Additionally, the availability of livestock as continuous feedstock source is crucial in ensuring reliable and steady biogas supply, strengthening long-term use. Women reported that biogas reduces daily burdens by minimising firewood collection and enhancing cooking convenience. While biogas has obvious benefits, several challenges remain, including additional firewood for specific cooking tasks and maintenance costs. Understanding motivations from women’s perspectives is crucial to support long-term adoption of biogas programme and sustainable cooking-based energy solutions in rural areas. By centering women perspectives into biogas programs, rural energy transitions can be strengthened to expand biogas adoption and promoting sustainable cooking solutions in developing regions.

**Keywords:** Benefits, biogas-based cooking, motivations, sustainability adoption, women’s perspective