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Snapshot of Project

Context and rationale:

- Large number of agri-processing enterprises, particularly micro/ household-scale ones (93,000 tea processors in Thai Nguyen province alone)
- Current sources of energy for processing include wood and coal together accounting for more than 90%, gas and electricity
- Existing processing practices are unsustainable and harmful to environment due to high GHG emission as well as product quality, e.g. smoky and dusty
- Large amount of biomass (mostly from forestry and agriculture sectors) is locally available (2.88 mill tons in 4 project sites, CCS 2019) and being inefficiently utilized or dumped to the environment causing pollution



Snapshot of Project

Continued biomass gasification technology - CBGT:

- A continuous gasifier can transform various types of available biomass into burnable gas through gasification process
- Small investment (only an additional gasifier needed, existing processing line is utilized)
- Emission of almost zero smoke and dust
- Easy to install, user friendly and safe





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Snapshot of Project

Implementing organizations:

- Oxfam in Vietnam: Project Coordinator and Lead Applicant
- Center for Creativity and Sustainability Study and Consultancy (CCS) Coimplementer and Co-applicant

Local partners:

- 4 Provincial People's Committees and their subordinates (i.e. Departments of Industry and Trade, Agriculture and Rural Development, Women's Union, Science and Technology, Natural Resources and Environment)
- Business Associations

Donor:

• Switch-Asia Programme, European Union



Snapshot of Project

Target groups:

- 2,500 Agri-MSEs
- 100 mechanical businesses
- 400 biomass collection businesses

Final beneficiaries:

• 1.2 million people (50% are women) – benefiting in terms of income and health

Location: 4 provinces in Northern Vietnam (Thai Nguyen, Tuyen Quang, Son La, Yen Bai)

Duration: 48 months (June 2020 - May 2024)

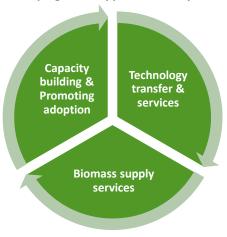




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Snapshot of Project

Implementing approach: Developing local support service system





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Objective & outcomes

Overall Objective: To promote sustainable agri-food processing and contribute to enhancing waste management in Vietnam by facilitating the adoption of CBGT as renewable energy among agri-MSEs

Outcome 1: Agri-MSEs in four provinces (Thai Nguyen, Tuyen Quang, Son La and Yen Bai) achieve improved product quality and efficient energy consumption and contribute to managing rural waste

Outcome 2: Increased availability of mechanical and biomass supply services and access to finance for agri-MSEs to deploy CBGT consistently Outcome 3: 'Buy-in' and support from relevant government agencies for further adoption and replication of CBGT in agri-food processing and other industries

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objective & Indicators

50% MSEs improved business viability due to deployment of CBGT

2,500 MSEs adopting CBGT

Effective advocacy for replication of CBGT in other sectors/areas

1.4 million tonnes of biomass are collected and used as for CBGT 1.08 million tonnes in 3 years (300 MSEs * 1,200 tonnes/year)

0.36 million tonnes in 3 years (2,200 MSEs * 54 tonnes/year)

GHG emissions reduced by 2 million tonnes of CO2 equivalent

1.15 million tonnes of CO2 equivalent in 3 years (2,500 MSEs reduced use of 460,000 tonnes of coal x 2.5 tonnes of CO2 equivalent/1 tonne of coal burnt)

1 million tonnes of CO2 sequestrated from not burning 350,000 tonnes of biochar – equal to 280,000 tonnes of CO2 (friendly use of biochar)

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Outcomes & Indicators

Agri-MSEs improve product quality and efficient energy consumption and contribute to managing rural waste

2,500 agri. MSEs adopt CBGT as their main energy source

2,500 agri. MSEs report improved product quality and reduced energy cost

Increased availability of mechanical and biomass supply services and access to

Government 'buys-in' and supports to

90% of agri-MSEs (deploying CBGT) are satisfied with local biomass supply and mechanical services

50% of enterprises (in need of improved investment finance) report satisfaction with project support

4 provincial authorities promote CBGT to energy intensive enterprises in other sectors

3 policy processes (laws, sub-law documents, and national programs) are influenced by the Action's advocacy

25% of the Action's policy recommendations accepted into the relevant laws and policies

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Outputs & Indicators

OP 1.1. Comprehensive cost – benefit calculations for CBGT developed 8 comprehensive cost-benefit calculations in 4 provinces

OP 1.2. Agri-MSEs have increased knowledge and capacity to deploy CBGT

3,500 agri-MSEs improve their knowledge and understanding of CBGT

,500 agri-MSEs receive in-depth capacity building to eploy CBGT

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Outputs & Indicators (cont.)

OP 2.1. Local mechanical enterprises provide tailor-made CBGT equipment, on-site services and promote CBGT to MSEs

consistent CBGT application

OP 2.3. Agri-MSEs, mechanical and biomass enterprises are

100 mechanical enterprises trained on CBGT equipment production and services and able to provide installation & maintenance services

50 mechanical enterprises can produce CBGT equipment at reasonable price

40 technicians have thorough knowledge and know-how of ull CBGT specifications (to adjust, design and promote the CBGT beyond the Action's scope)

400 biomass supply businesses are developed (50% led by women and/or employ many women) reliable biomass supply for

2,500 MSEs report their satisfaction with local biomas supply

25 FI staff have improved knowledge on CBGT and its benefits

50 agri-MSEs, mechanical and biomass supply service providers have improved borrowing proposals on CBGT related investments

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Outputs & Indicators

OP 3.1. Provincial governmental agencies improve policies and mechanisms to support CBGT deployment in other industries Evidence of supportive policy development and/or enforcement at provincial level

Evidence of provincial authorities replicating the Action's best practices in other industries

50 of public officials reached through workshops and direct lobbying (including ministries and national business associations)

OP 3.2. National agencies are influenced to replicate the Action's model of promoting CBGT to large number of small enterprises

100 media coverage (print and online/blogs) of the advocacy

3 policy recommendations submitted to centra government representatives

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CBGT – the technology

Strengths of the CBGT:

- Lower production cost (by 50% compared with coal, by 80% with diesel or gas)
- High heat efficiency (up to 80%; 65% and 75% for coal and diesel, respectively)
- Applicable for various types of biomass, including high moisture biomass
- · Continuous biomass supply
- · Reduced GHG emission to environment
- Locally available and stable supply of biomass
- · Additional income from biochar





Estimated cost

Processing capacity (tons of product /year)	Cost (in EURO)
2-3	120 - 300
80 - 100	4.800 – 10.000

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Sustainability

Economic impact:

- New and higher incomes
- · Reduced production cost
- Employment generation

Social impact:

- Enhanced participation and social positions of women and ethnic minorities
- · Improved awareness and environmentally-friendly attitude
- · Improved living environment

Environmental impact:

- Reduced GHG emission
- · Better waste and environment management
- Contribution to successful implementation of NDC and NAP

