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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



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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) – Co-implementer 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



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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)

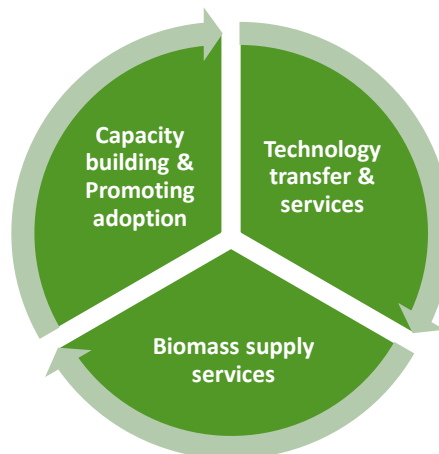
Duration: 48 months (June 2020 - May 2024)



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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)

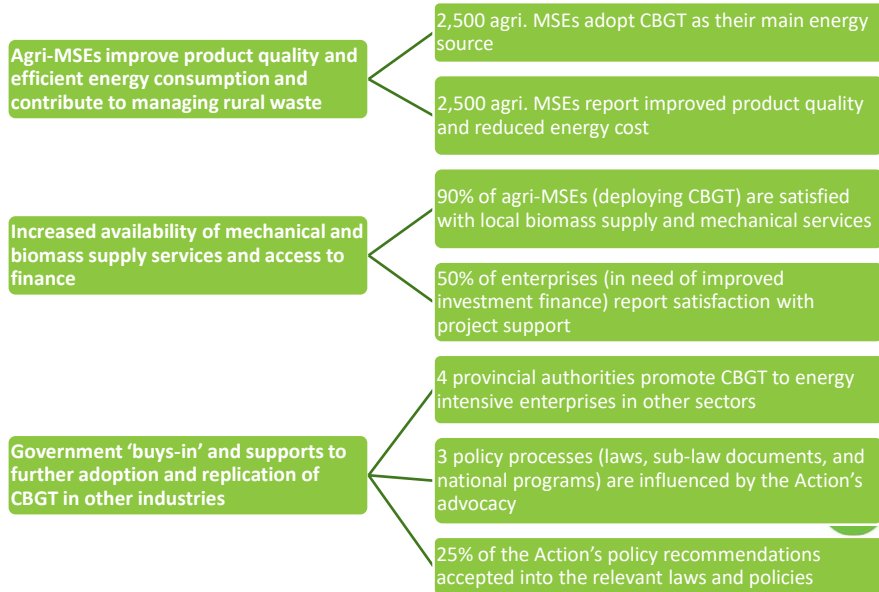
GHG emissions reduced by 2 million tonnes of CO2 equivalent

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

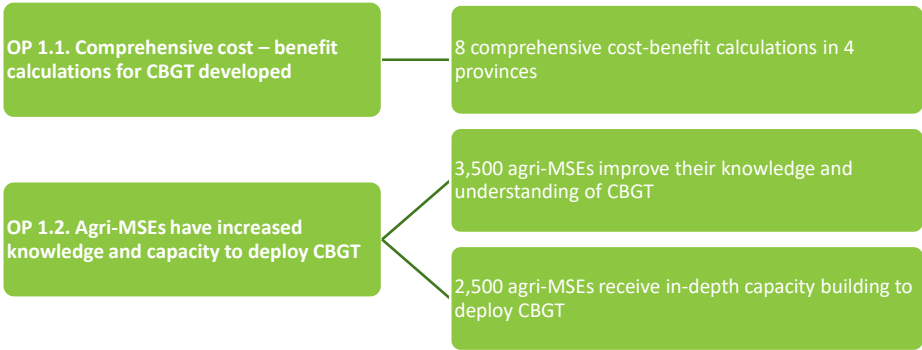
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Outcomes & Indicators



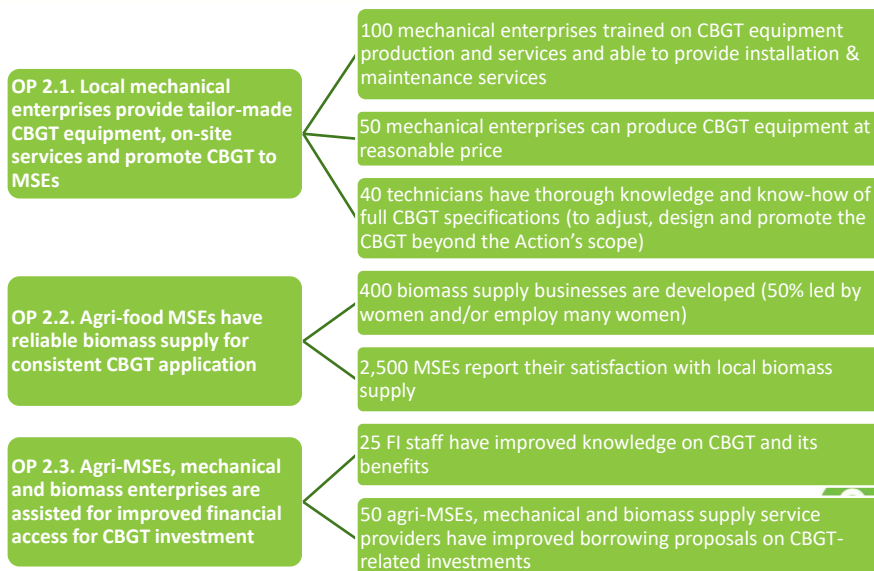
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Outputs & Indicators



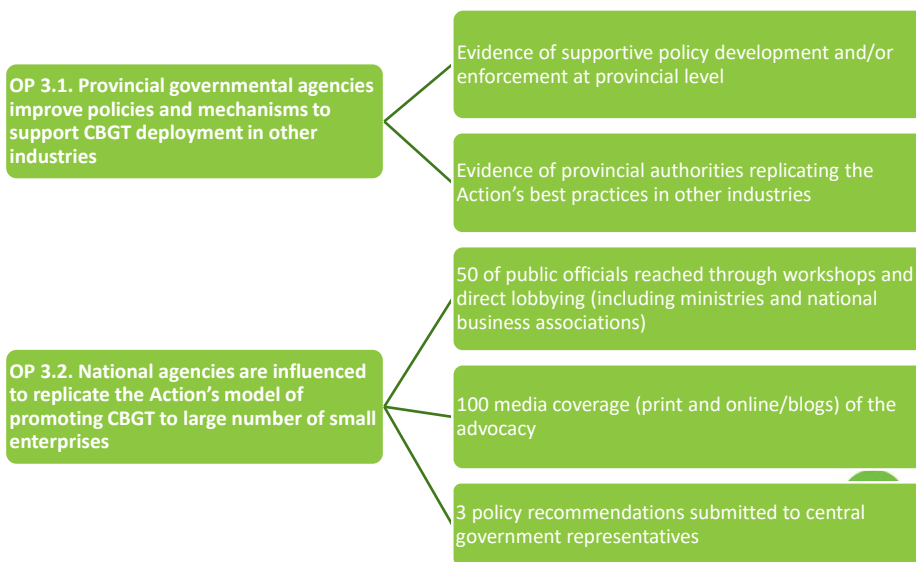
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Outputs & Indicators (cont.)



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Outputs & Indicators



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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



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