A successful collaboration for green businesses and bioenergy in Indonesia

The Horizon 2020 GREENWIN and TRANSRISK projects have joined forces through a case study on coffee production and bioenergy development towards decarbonisation in Indonesia. Following this collaboration, a pilot business on production of sustainable coffee kicked off by using a low carbon technology (biogas).

Several local farming communities are strongly involved and might directly benefit from the projects results. They receive support in becoming more climate resilient, to increase their income and get access to clean, renewable energy - three factors that might improve their living conditions.

Climate smart agriculture

One of the GREENWIN objectives is to investigate how climate change mitigation and adaptation can be achieved together with sustainable development goals, such as ensuring access to clean energy and reducing poverty, by exploring green business models.

Indonesian farming systems such as rice paddies are already affected by increasing temperature and water scarcity due to climate change, which also reduces the farmers' income. In the Indonesian case study [4], a climate smart agriculture approach is piloted. Farmers shift from producing rice to coffee, which is a less water-intensive crop, with higher market value (climate change adaptation) and biogas used as a renewable energy source instead of fossil fuels for roasting the coffee beans [5] (climate change mitigation). The biogas is produced from cow manure and agricultural waste streams in small scale bag digesters, which were also designed and installed during the pilot. Moreover, the slurry that remains after biogas production (digestate) can be used as an organic fertiliser for the crops, replacing energy-intensive mineral fertilisers. The Indonesian consortium partners from both projects, Udayana University and su-re.co are managing this pilot together with SEI (Sweden) in Java and Bali. They are also looking into the available marketing options for the nicely smelling and tasty end-product: sustainable coffee.

Policy dialogue and bio-energy development in Indonesia

The projects also look into the possibility of using biogas on a larger scale as a clean and renewable energy source in households, for cooking and generating light. Nowadays about 33% of Indonesian households still rely on primary biomass, such as firewood, as their energy source with negative health effects due to indoor air pollution. GREENWIN and TRANSRISK partners are therefore investigating the potential of biogas and other bio-energy sources, like bio-ethanol and biomass pellets, to contribute to Indonesia's renewable energy targets (23% by 2025). In order to do so, they are assessing which financial and policy incentives are needed to support bio-energy development in Indonesia.

TRANSRISK offers a top-down approach case for decarbonisation of the Indonesian economy by proposing the policy pathway to follow, including a cost-benefit-risk analysis. The analysis carried out in Indonesia is multifaceted. It tries to identify the contribution that bioenergy from sugarcane, rice and other feedstocks in Bali and East Java could make to Indonesia’s climate, energy and sustainability objectives. It tries to highlight the institutional and market changes required in order to pursue these bioenergy transition pathways. It tries to determine the key enabling policies and measures to achieve these pathways’ objectives. The assessment of associated risks and opportunities are pursued throughout the case study.

For the bioenergy sector, the government has identified two targets: by 2025, 30% of diesel consumption should be met by biodiesel and 25% of gasoline should come from bioethanol. Both
climate and energy policies, however, are interacting with other policies, such as the National Medium Term Development Plan 2015 – 2019, which seems to place more emphasis on traditional fossil fuel developments than on renewable energies.

Contribution to the EU-ASEAN meeting in Myanmar

The results from the sustainable coffee pilot and bio-energy development have been showcased on the 7th high-level EU-ASEAN Dialogue on Science and Technology and the ASEAN Ministerial Meeting [6] on 19-20 October 2017 in Myanmar.

This joint effort enabled the project results to feed into the Indonesian National Medium Term Development Plan, and also highlights potential scalability to other ASEAN countries' economies.

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