



Wastewater treatment, Thailand

By capturing methane from wastewater produced at a Thai palm oil mill, this project mitigates global warming. In addition, the project reduces local air pollution, generates sustainable energy and provides socio-economic benefits to local communities.

Location



The wastewater treatment project is situated about 800 km south of Bangkok in Trang Province, at the western shore of the Malay Peninsula. The region, situated between the Khao Luang mountains and the Andaman Sea, is dominated by agriculture production (mostly rubber plantations).

Project



Prior to the implementation of the project, locals were subjected to a foul smell coming from the open lagoons used to clear the palm oil mill's wastewater. Today, because of the project, the local air and water quality have improved significantly. In addition, the mill has reduced its use of fossil fuel. Guided by a sustainable development model, the project has generated jobs for locals and supported social and educational activities in the community.

The project activity involves the installation of an upflow anaerobic sludge blanket (UASB) technology at an oil mill with a large output of wastewater. Before the installation of the project, the wastewater in the plant was treated through seven cascading open lagoons with a retention time of more than a year. The mix of the lagoon size and atmospheric and water temperature resulted in an anaerobic environment in the ponds. These conditions led to methane (a greenhouse gas 21 times stronger than CO₂) generation from the organic content of the wastewater which was steadily released to the atmosphere.



Now the captured methane is used to fuel a 1MW burner on the plant site, replacing fossil-fuel grid power with clean energy. Thus, the emission reduction project keeps methane from heating up our climate and avoids the burning of thousands of tonnes of fossil fuel per year.

Project achievements



Socio-economic impact:

- The project has improved local air quality by reducing foul odours that are normally associated with palm oil mill production activities.
- The project owner has established training programs to teach plant operators new technological knowledge and skills.
- The project owner has promoted cultural events (e.g. the organization of local Buddhist ceremonies) and provided economic support to the local Buddhist community.
- The project has generated employment for locals—temporary employment during the construction phase and permanent employment during the maintenance phase.
- The project's successful UASB technology has been promoted at other palm oil mills in the region..

Environmental impact:

- Thanks to the covering of the lagoons, air pollution has been reduced significantly.
- The project has improved water quality.
- The project has reduced water consumption (because all of the wastewater is reused in the plant).

Checklist Projekt 300335



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