



Wastewater treatment, Thailand

This project is engaged with mitigating global warming and local air pollution at a Thai starch plant by capturing methane and generating sustainable energy and social benefits for local communities.

Location



The wastewater cycle was installed in a starch plant in Kamphaeng Phet province in Western Thailand. The region's main economic sector is agriculture.

Project



Only a few years ago, the inhabitants of the surrounding villages could smell the open lagoons used for clearing the starch wastewater. Today, not only the local air and water quality has improved significantly, at the same time the starch plant managed to reduce its fossil fuel use significantly. The now clean wastewater cycle even allows for fish farming in the water that is finally released from the new process. In addition, the project and the resulting carbon revenues generated jobs for locals and support social and educational activities in the community to enable sustainable development.



Technically, the project activity involves the installation of a closed anaerobic wastewater treatment facility (Upflow Anaerobic Sludge Blanket technology) at a starch manufacturing plant with a large output of waste water every day. Before the installation of the project the wastewater in the plant was treated through cascading open lagoons with a retention time of more than a year. The mix of the lagoon size, atmospheric and water temperature, resulted in an anaerobic environment in the ponds. These conditions led to methane generation from the organic content of the wastewater which was steadily released into the atmosphere. Methane is a greenhouse gas 21 times stronger than CO₂.

Now, the captured methane is being used for clean energy production in a newly installed gas engine, and for thermal energy production in a burner on the plant site to dry the starch. Thus, the emission reduction project has a double effect, keeping methane from heating up our climate and at the same time avoiding the burning of thousands of tons of fossil fuel per year.

Project achievements



Socio-economic impact:

- Scholarships are provided by the project owner to employees' children to support education and sustainable development.
- The project owner is supporting the farmers delivering their cassava by taking over transportation cost.
- Local farmers are allowed to bring their cattle to graze on the fields surrounding the treated wastewater lagoons; in addition, they can harvest the fruit growing there, and can fish in the last lagoon with the cleaned wastewater.
- Employees enjoy benefits above average working conditions, e.g. sport facilities for recreation.
- A local health facility has received support in the form of medical instruments from the project owner.

Environmental impact:

- With the now covered lagoons and the UASB reactor in operation, air pollution and strong odour from the wastewater have been reduced significantly.
- All water from the wastewater cycle can be re-used in the plant which reduces water consumption.
- No solid waste is generated but sludge that is given to local farmers as fertilizer.
- Regular tree planting activities are organized by the project owner.

Checklist Projekt 300 467



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✓ Additionality and permanence:	according to the rules of the VCS
✓ 3 rd party verified:	by TÜV NORD
✓ Transparency:	provided by Markit Environmental Registry
✓ Annual CO ₂ -reduction:	22,000 tCO ₂ e
✓ Social and environmental benefits:	as documented in our database
✓ Marketing material:	pictures available

For further information and to learn about availabilities please contact:

South Pole Carbon Asset Management Ltd., Sales Department

sales@southpolecarbon.com

+41 43 501 3550

www.southpolecarbon.com

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