



## 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 200 km North-East of Bangkok, in a rural region with mostly agricultural background. The starch is produced from the region's main product cassava roots, grown by farmers from a radius of 30km around the plant.

### 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 by 80%. 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 CO<sub>2</sub>.

Now, the captured methane can be used for clean energy production in a burner on the plant site, replacing fossil fuel for heat generation 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:

- A local school for vocational computer trainings was set up with massive funding from the project owner to support higher education in this rural region.
- The local elementary school received support to enable the purchase of books and educational material and to build a library.
- The local kindergarden receives financial support as well.
- Jobs have been created both during construction and operation of the project.
- New qualified jobs for locals have increased the general income level which benefits all the community.
- The cleaned water from the new wastewater cycle allows for fish farming and irrigation of nearby fields, thus enabling locals to increase their income.
- The plant workers receive training on modern technologies and can increase their knowledge and skills.
- Technology transfer supports the workers' understanding of modern and sustainable applications.
- the project owner is providing employees at the plant annual health check-ups, accommodation for the ones who live far away and a provident fund to all.
- the proceeds of sales and seeding of Eucalyptus and cassava seedlings, donated by the project to school children were used to buy educational material.
- The project owner is offering a student employment program and is providing job placements for graduates at the plant.
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### 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.
- The project owner supports the fight against pests (insects) by providing training to local farmers.

## Checklist Projekt 300 044



✓ Additionality and permanence:	according to the rules of the VCS
✓ 3 <sup>rd</sup> party verified::	by SGS
✓ Transparency:	provided by Markit Environmental Registry
✓ Annual CO <sub>2</sub> -reduction:	95,000 tCO <sub>2</sub> e
✓ Social and environmental benefits:	as documented in our database
✓ Marketing material:	pictures and video available

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