

Bali: Combating Climate Change and Poverty – Recycling Used Cooking Oil and Transforming it into Biodiesel

Thorsten Reckerzügl

Abstract

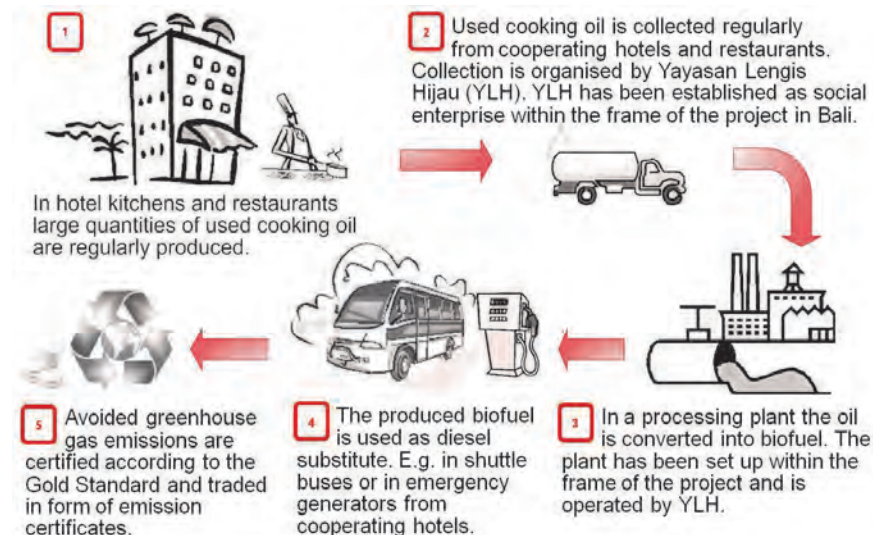
Between August 2011 and July 2013 the project has been implemented. The project's goal is to contribute to climate change mitigation by recycling used cooking oil (UCO) and transforming it into biodiesel. This biodiesel will in turn substitute fossil fuels, thereby reducing greenhouse gas emissions. The project has been implemented in cooperation with the Municipality of Denpasar, myclimate and KUONI. Within the framework of the project, the social enterprise Yayasan Lengis Hijau (YLH) has been established running the oil collection and processing system for recycling of UCO from hotels and restaurants (cf. *Process Scheme* to the right).

Besides the mitigating effect, the project contributes also to the protection of the local environment and human health. In Bali UCO is commonly discharged directly into the environment and causes pollution of water bodies, groundwater and soil. A big share of the oil is also reused as foodstuff. The reuse of UCO as foodstuff causes high health risks (cancer etc.) to consumers, who are often from a lower social strata.

The social enterprise established in the course of the project offers jobs and training to socially marginalised, underprivileged people, allowing them to improve their living conditions and the livelihoods of their families. Any financial surplus generated by the social enterprise will be reinvested in the enterprise or used for other social/ environmental activities.

The structures and mechanisms established are planned to remain running for at least ten years, constantly contributing to climate change mitigation and generating tradable emission certificates.

Process Scheme



Marketing for Recycling



Collection of Oil



Processing Oil to Biodiesel



Sale of Biodiesel



Impact

Through the project a best practise example for UCO collection has been developed and implemented. The integrated approach provides impact on different levels:

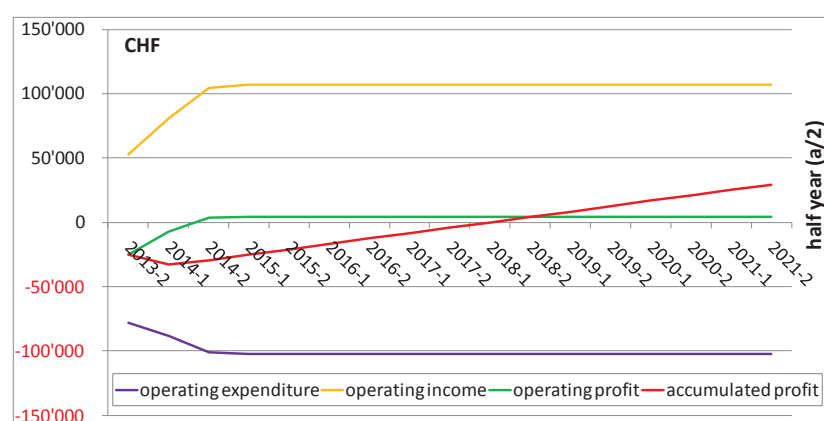
- Balinese stakeholder such as hotels, restaurants, the government, tourism associations, other NGOs and the public have been sensitized for the ecological and health risks of an inappropriate disposal or reuse of UCO.
- Knowledge on UCO recycling has been imparted to authorities from other provinces and from the national level during visits to the recycling plant.
- Trainings and income opportunities for socially disadvantaged people have been created. The number of employees is currently lower than planned, but may further rise with an increasing amount of oil recycled.
- The project contributes to climate change mitigation by substituting fossil diesel fuel with the biodiesel produced.
- For Caritas the pilot project provides new knowledge and experiences with regard to subjects like renewable energies, carbon finance mechanisms, closing material flows (circular economy) and social business approaches.
- Currently a 45 min. film documentary about the recycling project is being shot for Radiotelevisione Svizzera (RSI). Broadcasting the documentary is planned for beginning of 2014. The producers plan to use the documentary also as an educational film for schools in Indonesia and Switzerland.

Challenges

- The biggest challenge for the project is, despite a baseline study with very promising outcomes, the relatively low number of hotels and restaurants participating in the project. This is mainly caused through the competition with a very intransparent UCO black market and the lack of regulations with regard to disposal of UCO.
- A lot of hotels and restaurants pretend to have a high responsibility for environmental and social issues. But it is still very difficult to convince them to participate in the UCO recycling.
- Indonesian fuel subsidies amounting to about 50% of the world market price are a big challenge for the economic viability of the UCO recycling.

Result

The physical implementation of the project has been successfully finished. End of July 2014 the social enterprise YLH took over the management of the recycling operations. While all structures and processes have been established successfully, the amount of oil recycled is still too low to operate on a cost effective basis. Currently Caritas is still subsidising the recycling operations. In case the current growth rate can be maintained, YLH will breakeven in about one year (cf. *Projection of the economic viability...* below)



Projection of the economic viability of YLH until 2022 at a recycling quota of 1m³/d

Contact

Caritas Switzerland
Thorsten Reckerzügl
E-Mail: treckerzuegl@caritas.ch
Phone +41 41 419 24 56
<http://www.caritas.ch>