



Non-technical summary of the project: “Metro Group Energy WWT Project”

“Metro Group Energy WWT Project” is being implemented by Metro Group Energy Co., Ltd at the Chaophyapeuchrai 2999 (Kamphaengphet) Co., Ltd., a tapioca starch processing plant in the north of Thailand (Prankatai district, Kamphaengphet province). The starch plant has a design starch production capacity of 250 tonne per day, producing around 60,000 tonne of starch per annum.

At present, the wastewater from the starch plant is treated through open lagoons. With the depth of these ponds being greater than 2 m and the mean temperature in the area being in the region of 28 °C, there is a suitable anaerobic environment with the ponds that will result in the breakdown of organic compounds in the wastewater. This consequently leads to methane generation from the organic content (characterised by chemical oxygen demand or COD).

The proposed project activity entails the installation of an anaerobic wastewater treatment facility, based on “Up flow Anaerobic Sludge Blanket” (UASB) system, to complement the existing open lagoon based system. The implementing system enables recovery of methane that would have been released into the atmosphere and utilize it for thermal and electricity generation. In the case of thermal energy generation, the captured methane will be fired in existing heat generating device for the process of drying the wet starch (displacing fuel oil under the previous system). In addition, the power produced by the captured methane may not only facilitate the electricity requirement of the plant but can also be fed to national grid under the power purchase agreement with the Provincial Electricity Authority (PEA). Excess methane will be flared in an enclosed flare system.

The quality of the treated wastewater, although is not discharged outside the factory, will improve substantially due to higher efficiency and improved process control under the UASB system, as compared to its open lagoon counterpart. In fact, such efficiency improvement of the biogas reactor system allows the starch factory to use the treated effluent of better quality into the raw cassava cleaning process; thus further ensuring the conservation of water supply. Not only the project activity contributes to a reduction of anthropogenic GHG emissions, it also delivers a number of benefits in the form of sustainable development. The project indeed creates new jobs and increases income to the region via fostering of contracts to local firms for the construction, operation and maintenance of the plant.

Furthermore, the implementation of this project activity can reduce odour and nuisance normally associated with open lagoon wastewater system. Utilisation of methane for fuel oil replacement and electricity generation can be regarded as a mean to reduce dependency on import energy products, which in turn improves the energy security status of Thailand. In addition, it can be expected that the proposed project activity will promote technological excellence and enriching further research in biotechnology in the region.