

Summary of KI Biogas IEE

The initial environmental examination (IEE) report of the project “*KI Biogas Co., Ltd. Wastewater Treatment for Energy Generation, Nakhon Ratchasima*” presents the impacts to the location of plant and surrounding areas that caused by the activity of applying biogas technology for wastewater treatment system. The objective of the project is to upgrade wastewater treatment system from a traditional, open, anaerobic pond with uncontrolled release of methane into the atmosphere to a close system with digester lagoons and biogas capture and utilization. Primary data was collected through the stakeholder consultation meetings and opinion survey of people living in the nearby area. Map, other basic information of the study area, and an Environmental Evaluation Assessment report (EEA) that was evaluated for the ethanol plant and is approved by the Ministry of Industrial were also collected as secondary data.

The project’s location and surrounding area comprised of agricultural, industrial, and municipal area with existing wastewater treatment lagoons, community, schools and temples within 2 kilometers. There are approximately 2,761 people (Moo 15, 17, 19-21) living in the area.

To make an initial environmental evaluation, the stakeholder consultation meeting and opinion survey had been organized 2 times in order to inform stakeholder and receive comments and concerns from the surrounding people’s perspective. Governmental officers from Ministry of Industry, Department of Industrial Works, Ministry of Natural Resource and Environment, representatives from medical center, schools, farmers, people who are involved to the project or lives nearby the factory area were invited. All information obtained is considered in the study.

In this study, the prediction impact of the physical and biological natural resource, human’s access to resources, and quality of life have been assessed by using data from measurements, secondary data, and calculation modeling. An environmental impact mitigation and monitoring plan has been developed to be a guideline for actual management to minimize the impact and to meet the regulation of the Thai government.

The results of the study are as follows

- Physical natural resource:
 - Air pollution (dust) can be created during biodigester construction. To reduce dust distribution out of the project area, spraying water at least twice a day, cover truck by plastic sheet and create a wall surrounding the area could help minimize the impact to be at low level and in order to meet the standard. During operation, 65% of biogas produced from wastewater will be captured in close system. Thus the emission of Green House Gas and odor will be reduced. The estimated air pollution impact during operation is low.
 - There will be some foundation work for the digester on the ground. However, the project area is located in an existing pond system, thus there is no significant impact expected to geological and soil condition.
 - The project will not consume water as well as not release water to the natural receiver thus there will be no significant affect to natural and ground water quality and quantity as these water resources are not involved in the project activity. However, some part of wastewater will be treated and reused in the ethanol production process in the ethanol plant; this part could help reduce raw water consumption in the ethanol process.
 - Noise pollution might occur during construction from machineries. In case the noise level is higher than 90 DB, protection equipment (encapsulation) must be used along with working period restriction. During operation period, pumps and motors might create noise. Housing these equipments could reduce the impact to be at low level.

- Biological natural resource:

There is no significant impact to the local ecological system as the project area is located in the existing wastewater treatment area surrounded by agricultural area with no important flora and fauna nearby. The project activities will be managed in the factory area of KI Biogas Co., Ltd.
- Human's access to natural and infrastructural resources:
 - Land use: The project plan considers installation of a new biogas digester system in the existing open pond system. There is no alternate of land utilization, thus there is no significant impact on land use.
 - Transportation: There will be low impact on transportation during construction period. However, preventive measures will be managed to minimize the impact. The transportation during operation will not change compared with the present situation.
 - Water usage: The project activity is not involved with natural water consumption or releasing in the receiving water. There is no tap water, ground water and other water source related in the project activity, thus, the estimated impact is low.
- Quality of life:
 - Social and Economic condition: The project activity reduces the host country's dependency on fossil fuels, as the produced biogas is an autonomous, renewable energy. The project activity might constitute a positive example for other ethanol plants in Thailand. Applied on a large scale, the project type may have macroeconomic benefits by reducing the need for fossil fuel imports. Additionally, such decentralized types of power generation help to minimize governmental expenses for power production infrastructure, thus an overall contribution to the increase of quality of life can be expected
 - Health and Safety: The project captures biogas in low pressure and anaerobic condition to prevent fire or explosion. Health and safety plans have been prepared to minimize impacts to local environment and community.
 - Culture: There is no impact to local cultural and tourism, etc. as the project activity is in an existing factory area.
 - Job Opportunity: The project creates additional 28 job opportunities. Local applicants will be considered on first priority.

Conclusion

The IEE elaborated for the CDM purposes shows that there is no significant impact from the project activities to local environment and community. Mostly the impact will occur during construction period which is short term and considered in the mitigation and environmental management plan. The project will not effect to sustainability of local area.