

Biogas Power Plant in Malaysia Palm Oil Mills

A Review on Current, Future and Challenges

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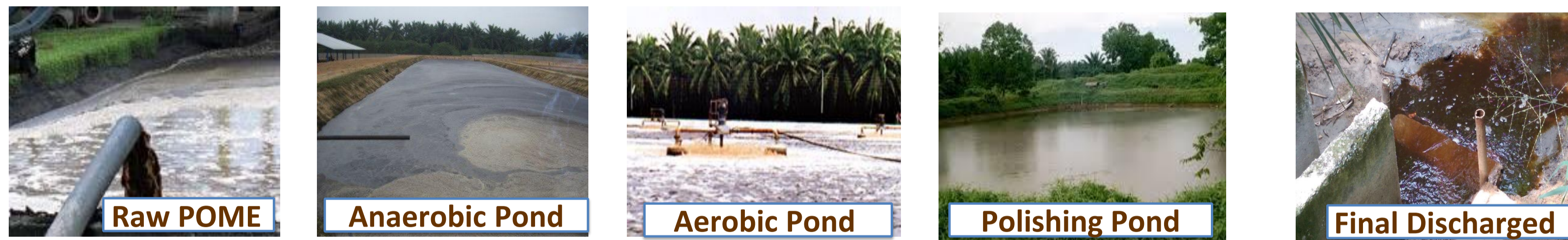
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What's the problem?

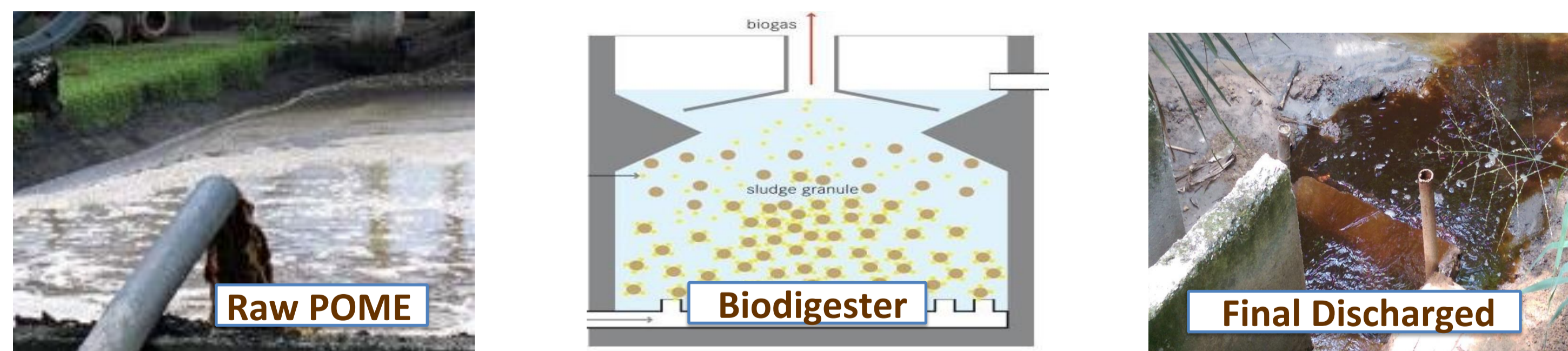


1. Palm Oil Mill Effluent (POME) comes from steriliser effluent, hydrocyclone effluent and separator sludge.
2. In 2014, 59 million tonnes of POME generated.

Conventional POME treatment



High Rate Biodigester System



Current Trend of Biogas Plant



Government's Initiative

1. Green Technology Financing Scheme (GTFS)
2. Feed-in Tariff (FiT) Scheme
3. Economic Transformation Programme (ETP)
4. Increase installation capacity for biogas, which is stated in 11th Malaysia Plan
5. Allocation of biogas plant in every palm oil mill by year 2020

To Date...

1. 60/430 POMs in Malaysia have installed biogas plant, and only 4 POMs are selling the renewable energy (RE) to the national grid.
2. This shows that we are still in the starting phase of commercialising the technology, as the development of anaerobic digestion (AD) treatment in research field is not on a par with the industry

Challenges in Biogas Power Plant

1. The quality of the treated POME is still not stable in terms of the colour and BOD (Biological Oxygen Demand) level
2. The production of Renewable Energy (RE) is not stable
3. The usage of chemicals coagulants agents to sediment the suspended solids (SS)

Future Study

1. The removal of lignin content during the aerobic process by laccase enzyme will improve the colour of the final treated effluent, as well as reducing the final BOD level.
2. Designing a set of culture that is suitable for anaerobic process will stabilise the production of RE by observing the inter-related performances.
3. *Moringa oleifera* / drumstick tree can be used as an environmental friendly coagulant, which will give the same function as the chemical coagulating agent. This will aid in reduction of overall SS and Chemical Oxygen Demand (COD).