

# Unpresendant Piggery Waste Resource and Resurvie Approach

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## Abstract

Piggery waste is one the tree major water pollution sources in Taiwan. Piggery waste should be viewed as resource and not waste. Conventionally, three stage wastewater treatments are too costly and hard to operate. Direct application to soil can be a remedy if the application rate is careful managed. Taiwan EPA ambitiously launches piggery manure direct apply to soil policy. It might the panacea to water pollution control.

**Keywords:** Piggery; Taiwan EPA; Manure

## Background

Sewage, industrial wastewater and piggery waste are tree primary water pollution sources which are so different from most developed countries. Piggery never will be the major concern and attribute the predominantly water pollutions sources in those countries.

Three stage piggery waste water treatment including soil liquid separation, anaerobic digestion and then aerobic treatment which is not well received and popular due to costly and difficult operated I Taiwan. Particularly, the anaerobic component is always a headache.

EPA mandated pig farmer to comply with Effluent standard, will collect water pollution fee from year 2017. Piggery industries need to report their water quality and quantity to the environmental agency, If they fail to comply with the aforementioned policy the penalty will be 60,00-600,00 NT . If serious divert their wastewater will be highly punished 20,000,000 NT

Each pig creates BOD and TN 150 and 20 g per head per day, respectively. Within 3.8 kg manure produced each day per pig, 375 g is volatile suspended solid (VS). In Taiwan, 8137 pig farms compass the capacity 5000 heads create 8137 tons organic pollutants and 198 tons total nitrogen per day.

Gas generate from anaerobic segment has never been well collected. Each pig produces 0.1 cubic meter methane while methane is a greenhouse gas and the impact factor to greenhouse effect twenty five times high than carbon dioxide.

## Enforcement policy

Without illegals dumping into water bodies, environmental and agriculture entities cooperate to promote modified piggery manure paddy field direct application

- With comply with the required regulatory criteria, it can relief waste control policy and will not view as soil treatment.
- With promote piggery industries and entrepreneur commit to anaerobic digestion, methane creating electricity, green electricity, carbon right holding or selling, economic incentive can be optimistically enhanced

## Action plans

1. Start from high capacity piggery farmland willing to comply with the policies as well as anaerobic processes operating properly.
2. Amend current regulation, hold workshop to promote policies.
3. EPA refused to subsidize remodeling of private pig farms.

Focus on serious and medium polluted river water segment, TMDL will be enforced.

## Future challenge.

- Shipping and transportation cost will be 57-95 NT per ton for Central collect piggery manure. Piggery farmer cannot afford it. In addition, odor during the transportation also a concern.
- The feasible approach is to set a centralized methane production facility to purify, electricity as well as heat generation, and gay for motor.

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