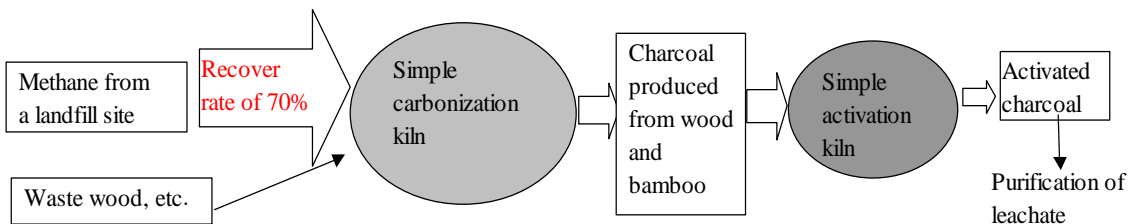


**Study on utilization of methane gas generated at solid waste landfill sites: charcoal production by combustion of methane gas and using it for leachate treatment in Metro Manila, the Philippine**

*An overview of field studies and plans* meant for an existing landfill site Using methane gas generated from the San Mateo landfill site, experiments on the production of charcoal from waste wood and leachate treatment with activated charcoal are performed in an attempt to evaluate the effects in terms of the methane gas reduction and water quality improvement of leachate. The study results will be used across the entire metropolitan area of Manila.



**Prevention of global warming**

Result from the San Mateo landfill site (amount of waste: 5,990,000 tons/(1991-2001))

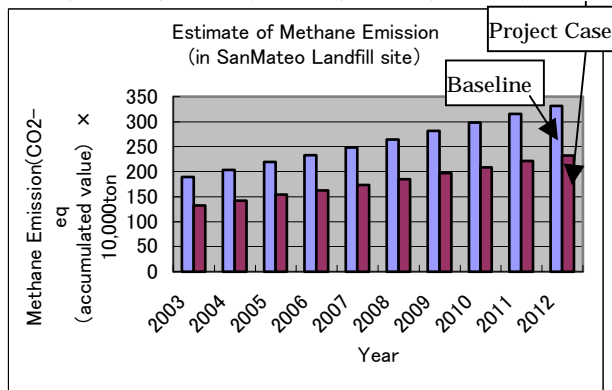
Amount of methane reduction 110,000 tons (CO<sub>2</sub> equivalent 2,330,000 tons) ←2002.10-2012 (over a decade)

Cost-effectiveness 67 yen/ ton CO<sub>2</sub>

The above-mentioned result is applied to the entire metropolitan area of Manila

Amount of methane reduction 88,000 tons (CO<sub>2</sub> equivalent 18,400,000 tons)

←2002.10-2012 (over a decade)



**Other effects**

- Drastic reductions in the number of fire and explosion accidents due to methane gas generated from landfill sites
- Production of charcoal from waste wood → recycling of waste wood → extension of the life of landfill sites
- Production of activated charcoal → provision of an adsorbent for the treatment of leachate from landfill sites

**Problems**

- Landfill gases contain hydrogen sulfide → sulfur oxides are emitted by combustion → countermeasures are required
- The government of metropolitan Manila has no systems for the recovery and management of landfill gases → new systems must be organized
- Many people around landfill sites of large cities live on valuable materials collected from refuse so projects must be designed to institute systems to improve the living standard of these people
- The Philippine government is taking a negative position against the CDM → coordination is required

Although further coordination with the Philippine government is necessary, a simple small-scale charcoal-processing kiln that was proposed has been attaining universality and sustainability and is likely to be adopted in other areas.