Introduction
Solid waste management has become a critical issue in Southeast Asia since the most popular form for waste disposal still employs open dumping. Around 5 million tons of Municipal Solid Waste (MSW) is produced in Bangkok Metropolitan Area (BMA). Although the proper handling of MSW is high on the public agenda, issues related to sound MSW management - including recycling programs, waste reduction, and disposal - have not been addressed adequately. This project evaluates the potential of MSW incineration in Thailand and Vietnam for greenhouse gas mitigation and promotion of biomass-based electricity production in a more sustainable direction.

Objectives
- To establish sustainable development of MSW management as well as to promote an expansion of biomass-based electricity.
- Reduce greenhouse gas (GHG) emissions.
- Suggestion national strategies regarding biomass resources which can be locally implemented.
- Investigate energy recovery potential from MSW including suggestion of energy applications for tropical urban area.

Method
In order to develop sustainable development in MSW management chain, it is important to properly define overall approach taken, i.e. starting from MSW generation, collection, transportation, treatment, and disposal.

MSW Incineration & Hybrid Dual-fueled Cycle
Incineration of MSW with energy recovery still represents the best option among other MSW conversion technologies for waste disposal. However, MSW incineration provides very poor electrical efficiency, around 22-24%.

Greenhouse Gas Reduction (CO2)
In this example, hybrid dual-duel cycles provide a significant CO2 reduction in comparison with current electricity power plant in Thailand. Hybrid dual-fueled cycle can reduce 1,758 thousand tons CO2, while gasification and MSW incineration can reduce 697 and 397 thousand tons CO2 in 2030, respectively.

Future Work
Figure 4 illustrates how this often processes can be integrated to maximize the utilization of MSW. Concerning heat-driven cooling technologies, KTH is a partner in PolySMART, a major EU project with 33 partners.