**Hong Kong**

**Combined Heat and Power Generation System**

**Summary**
In 2007, Hong Kong began using a 330 kW Combined Heat and Power Generation System (CHP) at the city’s Shek Wu Hui Sewage Treatment Works (SWH STW). This system utilizes the biogas generated by the sewage treatment process as combustion fuel for generating electricity and thermal energy. The system generated about 3 million kWh equivalent electrical power in 2007. This resulted in savings of HK$2.4 million in recurrent costs for electricity and avoided about 2100 tCO₂ in emissions.

**What is it?**
Dual fuel engines, gas-fired boilers and gas engine-driven blowers have been used in various sewage treatment works in Hong Kong. To enhance the total energy management at sewage treatment works, a 330kW CHP was installed at the SWH STW. The CHP utilizes biogas as fuel for the generation of renewable energy in the form of electricity and hot water.

**How does it work?**
The electricity generated by the CHP supplies power for the facilities within the sewage treatment works, while the recovered thermal energy supplies heat for the sludge digestion process via recirculation water.

**CO₂ Emissions Reductions**
Biogas offers substantial reductions in greenhouse gas emissions and its use in this CHP system has avoided around 2100 tCO₂ in emissions.

**Costs**
The capital investment of the CHP is HK$7 million.

**Next steps**
With the successful experience, more CHPs are going to be installed in other sewage treatment works in Hong Kong. Additional biogas generators of about 600kW are planned to be installed at Tai Po STW and SWH STW in 2008 and 2009 respectively. This will make better use of the biogas generated by sewage treatment processes, and improve the efficiency of electricity and heat generation. Moreover, these new biogas CHP installations will contribute towards reduction of greenhouse gas emissions in Hong Kong.

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The facts and figures in this case study have been provided by the highlighted city governments to the C40.