Co-benefits Type Air Conditioning System Using Solar Thermal Energy in Indonesia

Issues of air pollution in Indonesia

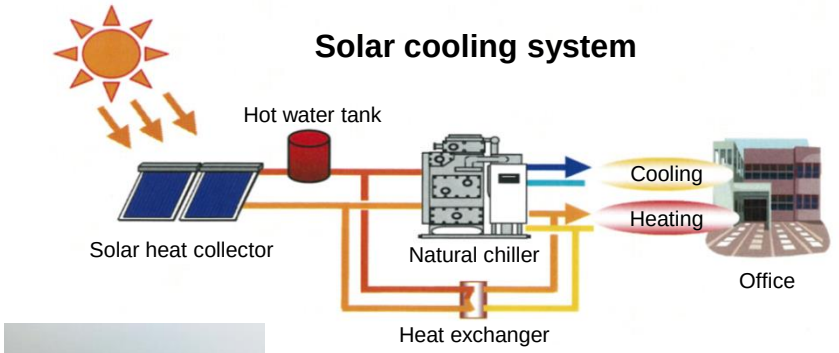
- The country sets a goal to reduce greenhouse gas emissions by 26% through its own effort by 2020. On the contrary, total CO_2 emission is on the rise due to strong demands for electricity in the economic development.
- As a result of the population shift to urban areas and a rapid industrialization in recent years, air pollution is becoming conspicuous. In particular in Jakarta, NO2 concentration has increased in 2000 by five times from the level in 1992.
- Exhaust gas restriction which has just started in 2008 only sets upper limit of emissions at present.

Benefits of implementing the project

- In Indonesia which is located in the Sunbelt with abundant solar radiation, the environment is desirable for utilizing solar heating energy.
- Air conditioning will be enabled by using natural gas as main fuel that is produced in abundance in Indonesia together with solar heat without using almost no electricity.
- There is a growing interest in air conditioning using solar heat in Indonesia, which is also supported by the Ministry of Environment of Indonesia. In this situation, introduction of the facility is highly probable.

Project schedule

	2011	2012	2013	**2014**
Project activity	Feasibility study for the project and dissemination survey	Design and coordination with Indonesia and the University of Indonesia	Arrangement of verification test facility, test operation, preparing a maintenance manual, verification of effects	**Monitoring, verification of co-benefits effect**



Installed heat collector

Schoolhouse with equipment installed

Solar absorption chiller-heater

Expected co-benefits effects (outcome in Japan)

Comparison between the introduced solar absorption chiller-heater and the existing electric refrigerating facility

- CO_2 reduction: 78 t CO_2/year
- SOx reduction: 748 kg SOx/year
- NOx reduction: 418 kg NOx/year