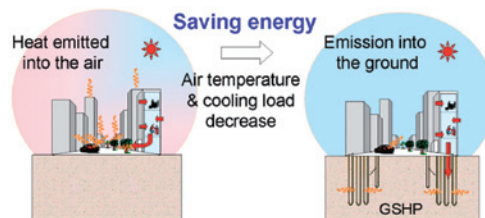


# A Countermeasure for Heat Island Effect using a Ground Source Heat Pump System

Heat island effect in summer becomes now one of the most serious social issues in Tokyo. More energy is required for cooling systems, when air temperature rises.

We proposed a new countermeasure for the heat island effect such as a district heat supply and air-conditioning system using a ground source heat pump (GSHP). GSHP suppresses the emission of exhaust anthropogenic heat and thereby acts as a possible countermeasure against the heat island effect. The GSHP system is expected to decrease the maximum air temperature in office area by 1°C compared with the present temperature level in Tokyo.



A new countermeasure for heat island effect

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# Evaluation of Greenhouse Effects for Building A Sustainable Society

- IWE and ITWE as new evaluation methods -

New and convenient global warming evaluation methods for a sustainable society are proposed. One method is the Integrated Warming Effect (IWE: 1 IWE = 1 kg of CO<sub>2</sub>, ITH = 100 years) instead of Global Warming Potential (GWP: 1

GWP = 1 kg of CO<sub>2</sub>). Another method is Integrated Total Warming Effects (ITWE). ITWE is calculated the same way as TEWI, but using IWE instead of GWP. Long-term warming evaluations are made using these new evaluation methods.

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	ITH (year)	CO <sub>2</sub>	CFC-12	HCFC-22	HFC-134a	CF <sub>4</sub>	HFE-245cb2	HC-C5
IWE	20	0.3	3039.7	1383.8	995.7	1140.9	574.7	0.9
	100	1.0	10600.1	1700.5	1300.8	5700.0	580.9	3.1
	500	3.2	16657.0	1702.0	1303.6	28386.4	582.8	10.1
	1500	7.2	16771.5	1704.1	1307.1	84314.5	586.4	22.7
	∞	60.0	16778.5	1728.1	1347.2	2850000.0	631.1	186.7

IWE values of several greenhouse gases in a different Integrated Time Horizon (ITH)