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Pouring cold water over global warming!

Rajiv Tikoo

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Using natural cold water to cool interiors warmed by emissions from human related activities may not seem a breakthrough invention, but could be important in coping with global warming by reducing consumption of energy and emission of greenhouse gases.

Come 2009, and cold water from Lake Geneva will cool offices and apartments in the UN region in Geneva. The Geneva Lake Nations Project is expected to cost \$30 million and in turn slash the city's consumption of conventional energy by 29% and save 20,00,000 litres of heating fuel annually, according to the project report.

Water at 10 degrees will be pumped from 30 metres below the ground to the UN district 2-km away, which will be then linked to a water distribution network connecting 14 old and new buildings.

Cooling takes place using heat exchangers between cold lake water and the building's existing cooling system, explains Eric Lumis, Geneva sub-project coordinator, TetraEner, Concerto Project, Geneva Cantonal Energy Service (ScanE).

Air-conditioners are no longer required but are kept for back up. Heating is achieved using heat pumps that use electricity. Since electricity in Geneva is mostly hydraulic, there are no local emissions due to heating when this system is used, he adds.

The returning water from the thermal exchange network will replace 4,00,000 cubic metres of drinking water that is used currently to irrigate parks and gardens, thereby saving on energy required for purifying and processing that much drinking water, says the project report.

This project is primarily meant for international organisations based in Geneva to enable them to demonstrate their commitment to sustainable development, says Eric Bachmann of the contracting authority, Industrial Services of the State of Geneva (SIG).

The Building Foundation for International Organisations (FIPOI) was the first one to sign an agreement with SIG for the International Conference Centre Geneva, says Sophie Simon, Chargée de la gérance d'immeubles, FIPOI. It set the pace for beginning the work because the organisation is responsible for providing premises to international organisations in Geneva.

The signatory organisations will have buildings retrofitted by the Centre for the study of Energy Problems at the University of Geneva. The Federal Polytechnical Institute of Lausanne is working on computer models to simulate system responses to take care of temperature changes of the lake water. The institute has also done the technical feasibility evaluation. The project is being managed by a special purpose company, ESCo (Energy Service Company).

The European Commission's programme for the development of renewable energies, Concerto, is supporting the project with \$2 million. The SIG is providing the remaining \$28 million. The main aim of the Concerto programme is to improve the performance of energy systems for new and/or existing communities and to improve the sustainability of these systems.

Accordingly, every project focusses on reducing energy consumption in buildings by using world-class energy efficient building techniques and renewable energy sources to meet the significantly reduced energy demand, says Lumis.

SIG and ScanE are being guided by global biotechnology major Merck-Serono, which has been tapping into Lake Geneva to cool its headquarter buildings since January 2007. Says Project director James Grozier, "Over 70% of the energy consumed in the Merck-Serono headquarters is derived from renewable sources. While 50% of the energy requirements is being met by water of Lake Geneva, another 20% is met by hydroelectric power."

Similar hydrothermal cooling projects are already running successfully in Toronto and Stockholm. Says Ken Mackay, senior partner of Mackay Partners, "This approach can be used internationally. The only requirement is to have a large body of cold water close to the building site or a pump-able distance." He should know since his firm was involved in designing the Merck-Serono headquarters. Maybe it's also time for India to tap into its cold water reservoirs to explore the possibilities of keeping cool naturally.

—(The writer was in Geneva on Media21 Fellowship)