Five challenges in water resource management

The United Nations has warned that water could become a growing source of tension and fierce competition between nations. It has also reported that 18% of the world's population is without safe drinking water. If the present trend continues, this figure is likely to rise to 40% and 67% in 2015 and 2025, respectively. To address this issue, the Third World Water Forum was held in Japan in March this year. As a follow-up activity to the forum, the APO organized an "International Symposium on Water Resource Management and Green Productivity" in Singapore on 7–9 October. The objective was to introduce APO member countries to successful cases of water resource management in the region and the world and to enable them to plan for better water resource management.

The symposium was implemented by SPRING Singapore, with support from the Singapore Public Utilities Board and Nanyang Technological University. Twenty participants from 17 APO member countries took part. The guest of honor at the inaugural session was the Singapore Minister for the Environment, Mr. Lim Swee Say. The Minister, in his keynote address, laid down five challenges in water resource management that the world must address to prevent future shortages of safe drinking water.

The first challenge is water resource protection. As less than 1% of the water on earth is suitable for drinking and as water is a limited resource in most, if not all, countries, Minister Lim said that it is important to ensure that water resources are not polluted, for example, by urbanization and industrialization. As prevention is better than cure, Minister Lim pointed out that it is much wiser to prevent the pollution at source.

On the second challenge, which is the use of advanced technology for water treatment, Minister Lim said that with conventional water treatment technology it was not economical to treat rainwater to achieve drinking water standards. This source of water was thus allowed to go to waste. With new membrane technology, however, it is now possible and cost-effective to treat even seawater and wastewater to drinking water standards. The use of such advanced technology will enhance available water resources.

The next challenge is reducing water leakages, which occur in every water supply system. This is a major waste of investment as every drop of leakage has been treated to bring it to drinking water standards. With water as a limited resource, it is important to ensure that every drop of treated water reaches the customers.

Water conservation is the fourth challenge. The Minister said that in every water usage activity, it is not difficult to see that water is being wasted. The consumers should be encouraged to conserve water, and one way to do this is for water pricing policy to reflect the scarcity of water. The Minister added that the water industry should develop water-saving appliances so that every home can be water-efficient.

The last challenge in water resource management described by Minister Lim is closing the water loop. This means that the water supply system should be designed to collect used water for treatment and recycling. In this way, every drop of water will be used two or more times, and the productivity of water supply will be increased by not just 10% or 20% but by 100% or more.

At the close of the symposium, the participants recommended that the APO undertake a survey based on the five challenges enunciated by Minister Lim to be conducted among its member countries. The survey findings should be reported at the water resource management conference the APO has scheduled for October 2004.

Other speakers at the symposium were Dr. Chizuru Aoki, United Nations Environment Programme International Environment Technology Center, Japan; Santosh Gondhalekar, Gangotree, India; Dr. Totaro Goto, Water Re-use Promotion Center, Japan; Dr. Yokito Sugimura, Water Resources Development Public Corporation, Japan; Wendy L. Nero, CH2M HILL, USA; Dr. Dee Dee Ng, Hyflux Ltd., Singapore; Dr. Jerry Liu Jianlin, SUT Sakra Pte. Ltd., Singapore; Ng Han Tong and Ong Key Wee, both from the Public Utilities Board, Singapore; Paul Tan, Systems-on-Silicon Manufacturing Co. Pte. Ltd., Singapore; and Prof. Tay Joo Hwa, Nanyang Technological University, Singapore.

Minister Lim delivering the keynote address

Presentations in the symposium were organized around three main themes: Global perspectives on water resource management; Demand management; and Water reclamation. Global perspectives covered the practice and optimization of water demand and supply; strategic water resource management and assessment; watershed management; and integrated urban water management. Demand management dealt with water conservation and the efficient use of water. Discussions under water reclamation focused on seawater reclamation (desalination); Singapore NEWater; waste water recycling; non-industrial water recycling and reuse; and the use of membrane technology.