

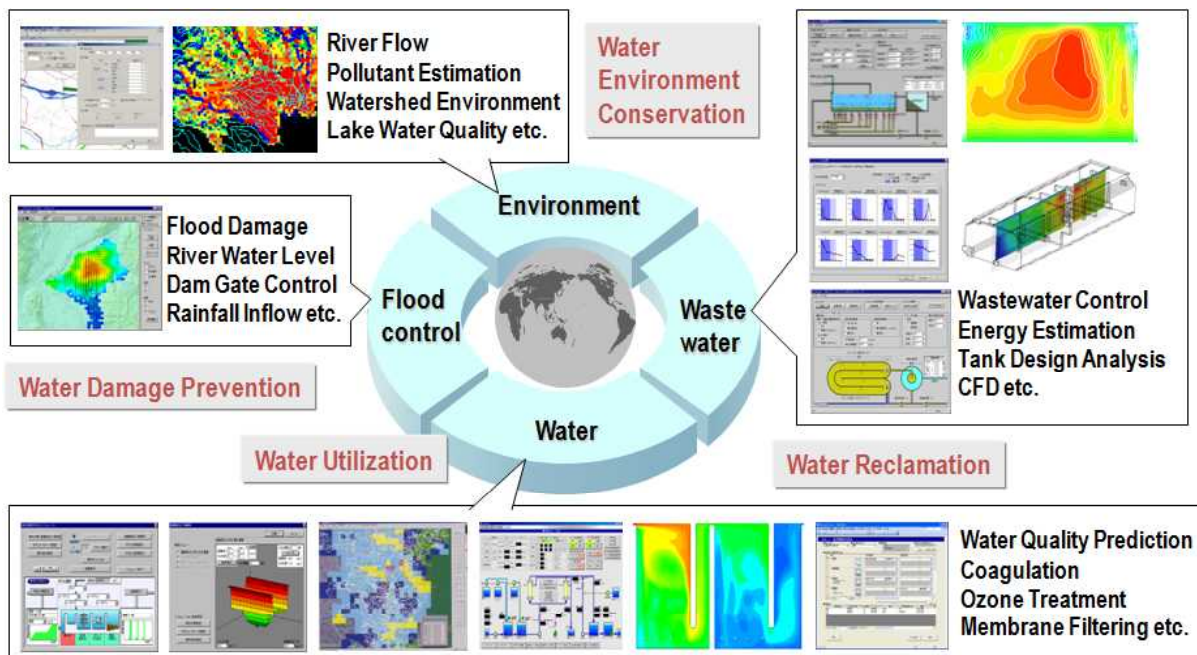
*Water Treatment Systems for Safe and Secure Water Use*  
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**Abstract :**

For the contribution to safe and secure water use, a comprehensive range of water treatment and management systems with new devices and ICT (Information and Communication Technology) has been developed over thirty years in Hitachi Research Laboratory (HRL). In this presentation, the outline of HRL water-related R&D activities will be presented.

As a topic of on-going research theme which is conducted with the National Project “CREST” of the Japan Science and Technology Agency (JST), new treatment process for wastewater reuse will be presented. There is growing emphasis on the wastewater reuse against a worldwide water shortage. To meet water quality requirements by municipal and industrial use, the tertiary treatment is needed after the conventional secondary process (e.g. activated sludge process). Ozonation is known as one of the most widely used tertiary processes for the purpose of disinfection, deodorization and decolorization. However, treatment cost reduction is an essential challenge to be in wider spread use. To remove the cost bottleneck, we have developed micro-bubble technology for the ozonation process.

Since the developed ozonation process is characterized by small buoyancy and large specific surface of the micro-bubbles, comparing with conventional millimeter-bubbles, higher reaction efficiency of ozone is realized, and this leads to the improvement of cost influential factors such as the contact tank size, the ozone dosing rate. In the presentation, results of long-term pilot plant tests, etc. will be explained in detail.



**Fig. Hitachi's R&D Activities on Water**