



# Interview: Professor Taikan Oki

RIISING TO THE CHALLENGES OF THE WORLD'S WATER NEEDS

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**P**ROFESSOR Taikan Oki heads the Global Hydrology and Water Resources Engineering lab at the University of Tokyo's Institute of Industrial Science. A recognized leader in the freshwater field, he has been the recipient of awards both inside and outside Japan. He is actively involved in water resources research overseas, beginning with field surveys following floods in Thailand in 2011. We spoke to Professor Oki about the water problems facing the world and the water situation in Japan.

### **What are some of the major problems you see impacting global water supplies today?**

There are three main problems. The first is accessibility. There are currently 700 million to 800 million people worldwide who don't have access to safe drinking water. In many countries, people have to either risk their health drinking from unclean sources or travel long distances to obtain water with reasonable quality. Traveling for water takes time, and when we consider that in many parts of the world it's seen as a woman's task to fetch water, with children often helping out, this affects children's education. So inaccessibility to water relates to many other problems, often resulting in the hindrance of economic development.

The United Nations included a target to halve, by 2015, the proportion of people without sustainable access to safe drinking water among its Millennium Development Goals. We can see the results: In 1990, out of the world population of 5.3 billion, 1.1 billion people did not have access to safe drinking water however,

taking into account the increased world population of 7 billion, there are now 700 million to 800 million people without water access. The main points of these international aid efforts were the construction of wells and the securing of more water storage for areas with prolonged dry seasons, and support for water pipe construction in city centers. City residents were also taught maintenance procedures, which demonstrated the significance of providing technological support and capacity development in coordination with social support.

The second problem concerns quantity of water. As rates of economic development increase, demand for water will increase as well. The reason why people lack water in some parts of the world today isn't simply because water distribution is imbalanced, but rather due to a lack of good infrastructure that allows for a stable, accessible quantity of water for everyone. If we examine how Japan dealt with rising water demand, we can look at the Kanda and Koishikawa Rivers, which provided water to Tokyo in the Edo period. When the population increased, these two small rivers were insufficient to meet demand, so a 40-kilometer canal was built to tap the Tama river. Hundreds of years later, a larger number of artificial reservoirs were also constructed to meet the substantial increase in domestic and industrial water demands during our rapid

economic growth period. Over time, Japanese people developed systems that allowed for the sustainable use of water even in densely populated areas.

The third problem is water degradation. We often assume most water pollution is caused by factories, but this isn't the case. Ninety percent of water used in developing countries is in fact used in agriculture. Furthermore, industrial, domestic and agricultural water use - such as waste from households and the over use of fertilizers - lead to the contamination of the public water body. Water purification should be a priority, but its expense pushes its implementation down on the checklist. Sewage management, septic tank construction and industrial wastewater management need to be points of focus both today and into the future.

### **What can ordinary people do to help resolve water problems?**

That's a difficult question to answer, because a lot of the time the most fundamental issues can only be tackled on the governmental level. However, we're consumers and we ought to put that power to better use. For example, we can choose to purchase products we know have been manufactured in a factory that's eco-friendly or purchase fair-trade products. But for the public to make these choices, industries have to disclose their water recycling and purification systems.



Above: Pathum Thani, near Bangkok, during the gigantic flood in November, 2011  
Below: Golombo, Mali, May 2010.

Households and regular citizens might begin to see themselves as concerned stakeholders and act to reduce their ecological footprint if environmental impact data associated with their water usage were publicly disclosed. I think it's also important to strengthen elementary and secondary school water education, with managing water included as an earth science unit that studies water as a living part of the world.

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Many people in Japan are conscious of water conservation in their daily lives, and the issue is promoted on the governmental level. However small, the dedication of every individual is sure to make a contribution toward meeting the world's water challenges. 