

## Discussion

### Satoshi Takizawa

**Q:** In the 1960s and 1970s when water was scarce in the Tokyo metropolitan area, did the water supply bring any waterborne infectious disease?

**A:** Occasionally there were outbreaks of waterborne infectious diseases before the 1970s. However, the reasons were varied. In the area of the Tamagawa water-supply district, a disease suspected as Kashin-Beck disease occurred. People suspected the relationship with the quality of water; however, investigations did not verify the relationship with the quality of supplied water.

**Q:** Ultrasonic cell-disrupters have been developed for practical use in the United States for the removal of algae in reservoirs. Is there any similar method for practical use in Japan or for your case?

**A:** I examined methods for disrupting algae including ultrasonic methods, but I found that disrupting methods are difficult for practical use because algae in general tends to spread all over the reservoir. It is very difficult to collect algae that has spread.

**Q:** Were there any epidemic diseases after the big Indonesian Tsunami?

**A:** I heard that wastewater was brought into wells by the tsunami. Newspaper articles reported epidemic diseases after the tsunami, but I do not know the actual situation because I did not investigate this issue.

**Q:** How important is waterborne infectious disease as a cause of mortality?

**A:** (Answer from the floor): In the United States, the average life span was extended from the latter half of the 19th century to the beginning of the 20th century. It is somewhat certain that increased safety in the water supply played an important role.

### Shinta Seto

**Q:** Is it possible to observe snow (amount, cover and depth) instead of soil moisture?

**A:** It is probably difficult by this method; however, I cannot say it is impossible.

**Q:** Is microwave observation transparent to clouds?

**A:** The frequency and methods for this case are almost transparent.

**Q:** How do you make use of these observations for water problems like drought?

**A:** It is difficult to answer the question directly. However, in general, basic information on water distribution is essential, and lacking currently, in water management.

**Q:** How much does one satellite cost?

**A:** (After the session, a floor member said that the satellite costs on the order of several tens of billion JPY and ground-based radar costs on the order of one billion JPY.)

**Paul K. Westerhoff**

**Q:** I heard other substances as well as arsenic are problematic. I guess the appropriate filter for arsenic is different from the appropriate filter for others substances?

**A:** Yes, I should take that into account.

**Q:** What about the arsenic after removal?

**A:** In Bangladesh, the removal of arsenic by filters is sometimes similar to postponement. There is a challenge for adequate technology.

**Q:** What is the current status of monitoring methods?

**A:** Because regulations have been changed in the United States, monitoring methods have been advancing day by day, particularly by big companies.

**Q:** How long is each filter in service before exchange?

**A:** This is an issue of engineering configuration, and there is no single answer. An important point is the capability of online-sensors for arsenic concentration. Depending on the capability of the sensor, each filter may be in service for a longer period.

**Q:** Can the removed arsenic be used for commercial purposes?

**A:** No, because the concentration is low and arsenic is not a rare material.