Communication Improves Environment Protection and Cooperation

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Last year, I was recommended by Chinese Association of Environmental Sciences (CAES) as candidate of JSWE-IDEA Water Environment International Exchange Award for the 48 th Japan Society on Water Environment (JSWE) Annual Conference. It is my great honor to attend this conference, and accept this award. Every time I came to Japan, I was impressed by the environment, especially the water and the air. As you know, nowadays, contamination of water and air is a wide spread environment problem in China. Therefore, I always hope that I have more opportunities to communicate with other researchers from different countries including Japan. JSWE give me a precious opportunity to communicate with Japanese researchers. In those three days, I have communicated with many researchers and learned a lot. It was a wonderful and meaningful three days to me. I greatly appreciated the CAES and JSWE. I have confidence that the cooperation between Chinese and Japanese researchers will be a great help for not only the environment protection but also the friendship between the Chinese and Japanese people in the future.

In my presentation, I talked about the investigation and risk assessment of emerging contaminants during groundwater recharge by reclaimed water in China. In recent years, a lot of researchers have focused on emerging contaminants in surface water as it is easier to monitor than groundwater in some respects and emerging contaminant in surface waters as these are likely to contain greater concentrations discharges. However, the research on the fate of emerging contaminant in groundwater in China is almost unknown. In China, most wastewater after treated by WWTPs was discharged into water body such as river, which required to determine the discharge impact on the extent of migration of emerging contaminant through soil and unsaturated zone and their potential to leach to groundwater. In this research, the occurrence of more than 60 emerging contaminants of different group was studied. The aim of this study was to investigate emerging contaminants from WWTPs. The level of the occurrence of different compounds in the groundwater near the discharge site has also been studied in order to assess the treated water discharge impact into the aquifer. The study results showed that in the investigated 16 cities, reclaimed water and groundwater contamination have different degrees of emerging contaminants. EDCs, PFOCs, and antibiotics were detected in almost all samples, while PBDEs were not detected in most cities both in reclaimed water and groundwater. Although there were detections in groundwater, there were more compounds detected in the surface water samples, perhaps indicating that more effluents from WWTPs are reaching surface water. At least one compound in all 7 compounds (EDCs), E1, E2, EE2, E3, BPA, NP, and OP have been detected in groundwater in most samples. BPA constitute the most detected substance among EDCs, in frequency and concentration, and in the groundwater concentration is still relatively high. Further studies in the occurrence and fate of BPA in groundwater are needed to predict their behavior under field conditions. Results of the study indicate although at least one contaminant in each group have been detected in reclaimed water and groundwater, not all active compounds monitored and consumed will end up in the environment. Although due to the short monitoring period, seasonal variations associated to pattern consumption have not been observed in samples, the results presented here are a first attempt to provide groundwater data from such a large group of compounds in China. The presence of these contaminants cannot be underestimated because they may act stealthily to impart subtle changes that have large effects on ecosystems. Further studies addressing persistence and transport of detected compounds in the aquifer media are required to assess fate and distribution in soil and groundwater.