Nearshore Pollution Control of China in Ten Years

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The Chinese coastline is about 18000 km long, crossing 11 provinces. Some of the nearshore areas have been seriously polluted by wastewater discharge; even odor and black color has appeared in the seawater near Xiamen city. If two-stage process treatment plants are constructed to control the pollution, the investment of 30-40 billion yuan will be required — a sum which China can hardly afford at present.

From 1983, we have been studying the wastewater deep marine disposal technology. By this method, after the municipal wastewater is treated by the one-stage process (the poisonous industrial wastewater requires more rigorous treatment), it is piped by the marine bottom outfall to a sea area which is far and deep enough offshore; then the wastewater is discharged into the sea area evenly by the multi-bubble diffuser to obtain the maximum instantaneous dilution rate. Testified by practice, this technology can improve the nearshore seawater quality effectively and the corresponding investment can be reduced 20-40%. This technology is well suited to the conditions of China and other developing countries.

At present, China has sixteen wastewater marine disposal projects (including those being constructed), half of which are planned and designed by the Enivronmental Engineering Department of Tsinghua University, with projects in Ningbo, Shenzhen, Xiamen, Haikou, Beihai, Maoming, Huizhou and Yingkou. The total treated wastewater quantity is about 8.3 million ton/d, which is 16% of the wastewater quantity discharged by the coastal area. The pretreatment on-land process varies according to various usage functions and characteristics of sea area. The land area for the two-stage treatment process is reserved at the same time. From the on-spot monitoring data, we can see the nearshore seawater quality has been greatly improved by this technology.