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Water quality trends after the sewage treatment plant operations in the lower region of the Nakdong River

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Joman River is a tributary of the Seonakdong River and has the branch rivers such as Haebanchon Stream. The Haebanchon Stream received all of the waste and sewage coming from the municipality, currently about 250,000 permanent inhabitants. The river became increasingly eutrophic and was regarded as severely polluted water body after the surrounding urbanization. In 2000, sewage treatment plants (STP) was constructed in lower parts of the Joman River. All the wastewaters were collected and transported to the lower parts of the Joman River. Water quality of the Joman River and Haeban Stream significantly changed after the sewage treatment. In Haebanchon Stream, SRP, TP, NH_4 concentrations gradually declined after sewage treatment, while SRP, TP, NH_4 , TN concentration significantly increased in the lower parts of the Joman River. In spite of the sewage treatments, phosphorus and nitrogen were excessively loaded from the effluents of the STP and excessive loadings were derived from the nightsoils combined into the sewage. The nightsoil or human wastes are combined with sewage wastes into the treatment facilities to level up the treatment efficiency, as carboneous BOD concentrations reach less the optimum conditions under the combined sewage overflow(CSO) system and the water quality criteria of nightsoil effluents are gradually raised and strengthened. Other constituents such as BOD and COD little varied after the sewage treatments. Phytoplankton biomass of both the Haebanchon Stream and the Joman River decreased after the treatment. Water quality of the river systems after the construction of STP showed the complex and inconsistent results.