

Development of next generation MBR for sustainable utilization of urban water resources

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【Outline of survey】

This research aims to innovate a new submerged MBR to be used for creation of a sustainable urban water cycle system. Two prototypes will be developed for small-scale decentralized wastewater treatment and large scale centralized wastewater treatment. This will be accomplished by the following: significant improvement of energy efficiency by developing a compact module, establishment of a control method of sludge concentration by introducing an acceleration of sludge settlement device to achieve an environmentally friendly maintenance, and creation of small scale decentralized urban water cycle system with accomplishing both advanced treatment and energy recovery by a development of anaerobic nanofiltration MBR.

【Expected results】

It is expected that the new MBR is readily applied to innovation of existing large scale wastewater treatment plants by achieving the significant improvement of energy efficiency and zero excess sludge operation by the sludge control method. It is also expected that anaerobic nanofiltration MBR will contribute to create safe rechargeable water with energy recovery by introducing garbage treatment, as well, from household at a smallest scale.

【References by the principal researcher】

Yamamoto, K., Hiasa, M., Mahmood, T. and Matsuo, T. (1989), Direct solid liquid separation using hollow fiber membrane in an activated aeration tank, Water Science and Technology, Vol.21, No.4-5, 43-54.

【Term of project】 FY 2005 - 2009

【Budget allocation】 84,200,000 yen

【Homepage address】

none