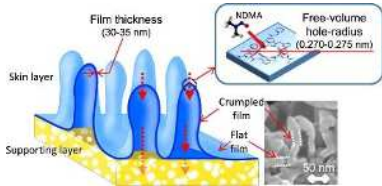
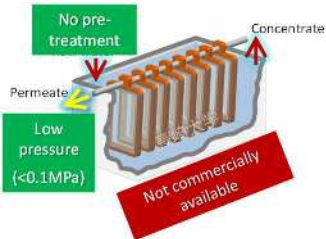
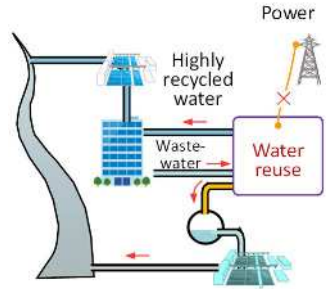


Name FUJIOKA Takahiro	Job Title Professor	Area of Expertise Environmental Engineering
1. Main Research Topics ① Development of high-rejection reverse osmosis membranes We are developing high-rejection reverse osmosis membranes that remove chemicals that are difficult to separate, which is an issue in the United States and other countries where sewage is purified and reused for drinking. Specifically, we remove <i>N-nitrosodimethylamine</i> (NDMA), a disinfection by-product.  ② Development of advanced water purification technology directly from polluted river water In countries without well-developed sewage systems, such as Southeast Asia, the deterioration of water quality in tap water sources is a problem, and we are developing technology to perform advanced purification of these polluted water sources at low initial investment and operating costs. Specifically, we are developing nanofiltration membranes with pore sizes of a few nanometers and related technologies, and by omitting pretreatment, we aim to achieve an introduction cost that is 80% lower than conventional advanced water purification treatment.  ③ Development of net-zero energy advanced water reclamation technology We aim to significantly reduce water reclamation costs by introducing submerged nanofiltration membranes that do not require pretreatment when reclaiming sewage. In addition, energy is generated by subjecting the concentrated liquid generated during treatment to anaerobic treatment (methane fermentation treatment). By combining these energy-saving and energy-creating technologies, we aim to establish water reclamation technology that reduces overall power consumption to zero.  ④ Development of automatic algae measurement technology We are developing technology to automatically measure the concentration of algae (cyanobacteria and diatoms) present in surface water by species. 		
2. Keywords Water treatment, Online water quality monitoring, Membrane separation		
3. Remarks and Websites researchmap: https://researchmap.jp/taka_fujioka Laboratory: http://www.waterenviron.com/ SATREPS project: https://www.nusatrebs.com In this laboratory, we are conducting research to optimize the removal of trace organic compounds and pathogenic microorganisms using reverse osmosis and nanofiltration membranes as well as the other advanced water treatment technologies (ozone, activated carbon, ion exchange resins, ultraviolet-based advanced oxidation).		