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Panel 3.5: Science and Practice in Creating Sustainability

Sustainable Smart City-Development of Wastewater Treatment with Water Recovery

Most of the urban cities are in mixed agglomeration with polluting industries, and the water resources are deteriorating becoming unsafe for consumption. Conventional wastewater treatment system reduces chemical and organic pollution but not Total Dissolved Solids (TDS) and salinity. The increase in TDS and salinity in water resources is becoming a serious threat for domestic and industrial use.

TDS and salinity control technology in the wastewater treatment system integrated with water recovery has been developed and is being adopted particularly in cities located in river banks such as Ganga River in India along with other parts of the World. In addition to the control TDS and salinity in the treated wastewater, it is necessary to recover water for reuse to meet the challenge of water shortage using membrane system.

Novel technological developments have been made for water recovery and reuse by integrating industrial wastewater treatment with domestic waste towards environmental protection in smart cities with community participation. This technical paper deals with environmental challenges and sustainable technological developments with case studies.