



## Why to Recycle ?

At present, the availability of natural water resources is limited, and the drought is influenced from weather change. The global water demand has been also increasing especially in agriculture, industries and society growth. It results in the water shortage problem and insufficient water supply to all demanders. In order to save the raw water and reduce the environmental impact, the recycle system is very important and necessary.

### Possible Sources

- 1) Treated effluent from WWTP
- 2) Cooling blow-down wastewater
- 3) Rinsing water from production process
- 4) Backwash water from filtering system
- 5) RO brine and etc.

### Recycle



### Industrial Reuse

- 1) Production Process water
- 2) Make up water for cooling tower
- 3) Boiler feed water
- 4) General use water e.g. Toilet flushing, Floor washing, Vehicle washing

### Merit

- ✦ Reduce amount of used raw water
- ✦ Reduce discharge water
- ✦ Reduce environmental impact

### Feature of Recycle Treatment

- ✦ Meet the environmental regulation
- ✦ Produce the recycled water quality as target
- ✦ Compact system and small footprint
- ✦ Simple operation and maintenance
- ✦ Optimize operating cost
- ✦ Generate the minimized wastewater

### Some Technologies for Recycle



Filter



MF/UF



RO

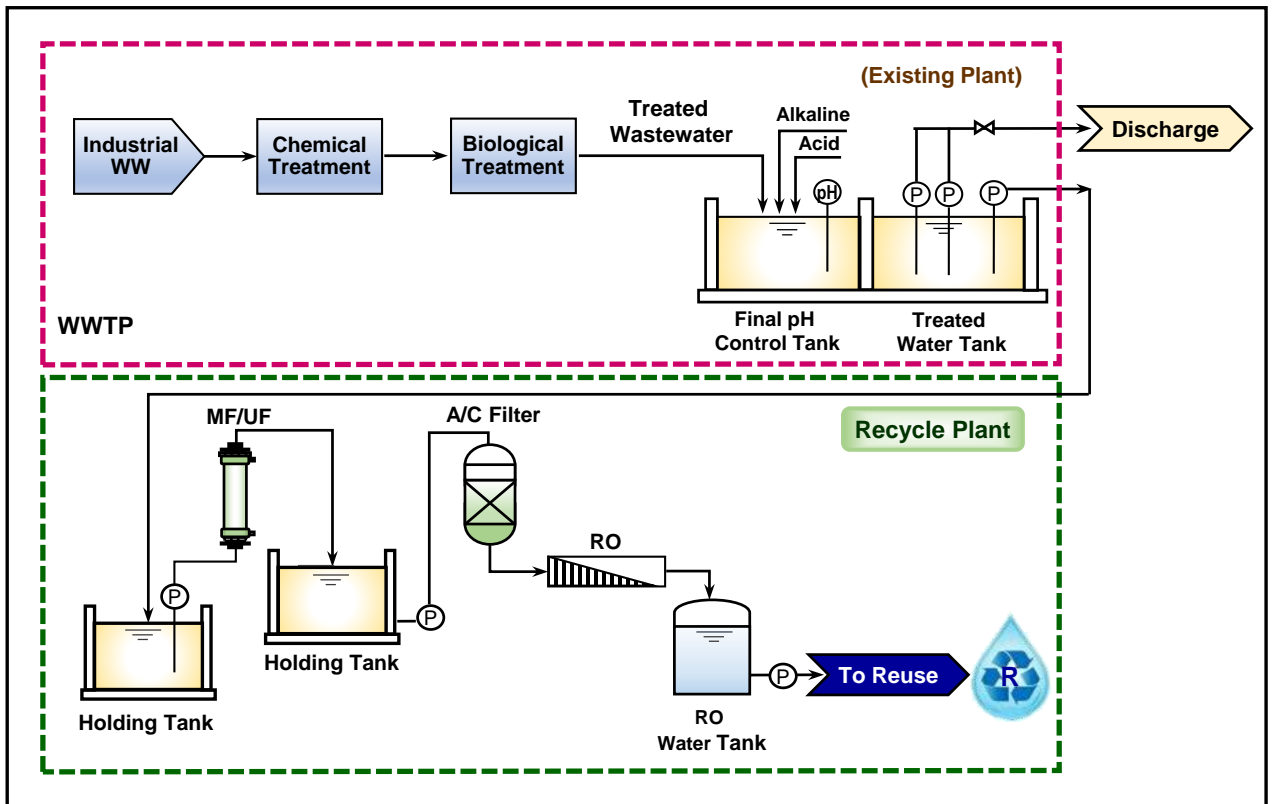


### Potential Customers for Wastewater Recycle System

- |                            |                              |                     |
|----------------------------|------------------------------|---------------------|
| ✦ Pulp and Paper           | ✦ Power Plant                | ✦ Shopping Mall     |
| ✦ Optical and Glass Lens   | ✦ Petrochemical              | ✦ Business Building |
| ✦ Electronics              | ✦ Electroplating             | ✦ Hotel             |
| ✦ Precision Glass          | ✦ Metal Processing and Steel | ✦ etc.              |
| ✦ Car Assembly, Auto parts | ✦ Food and Beverage          |                     |

# Recycle System

## ☆ Recycling from Treated Effluent



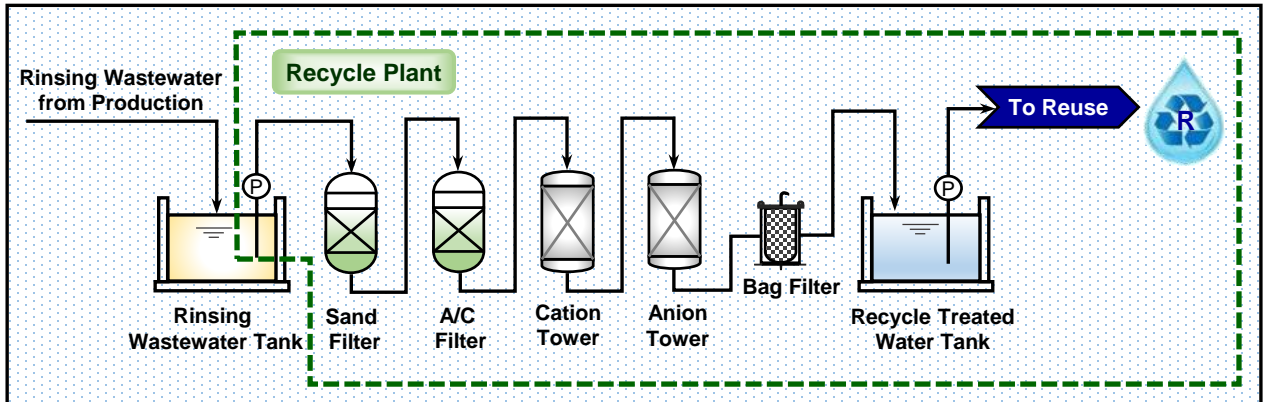
※ The treatment systems will be changeable according to the feed inlet quality.

With water shortage situation, several industries are also compelled to take water management into account for all activities, including the manufacturing process. The industries, which follow to the industrial effluent standard can minimize their water usage by recycling the treated effluent through our effective system designs by the conventional filtration (sand filter, D/L filter, A/C filter) and/or membrane filtration (MF/UF, RO) to be supplied for the production process, make-up water for cooling tower and boiler, and so on.



# Recycle System

## ☆ Recycling the rinsing wastewater from production



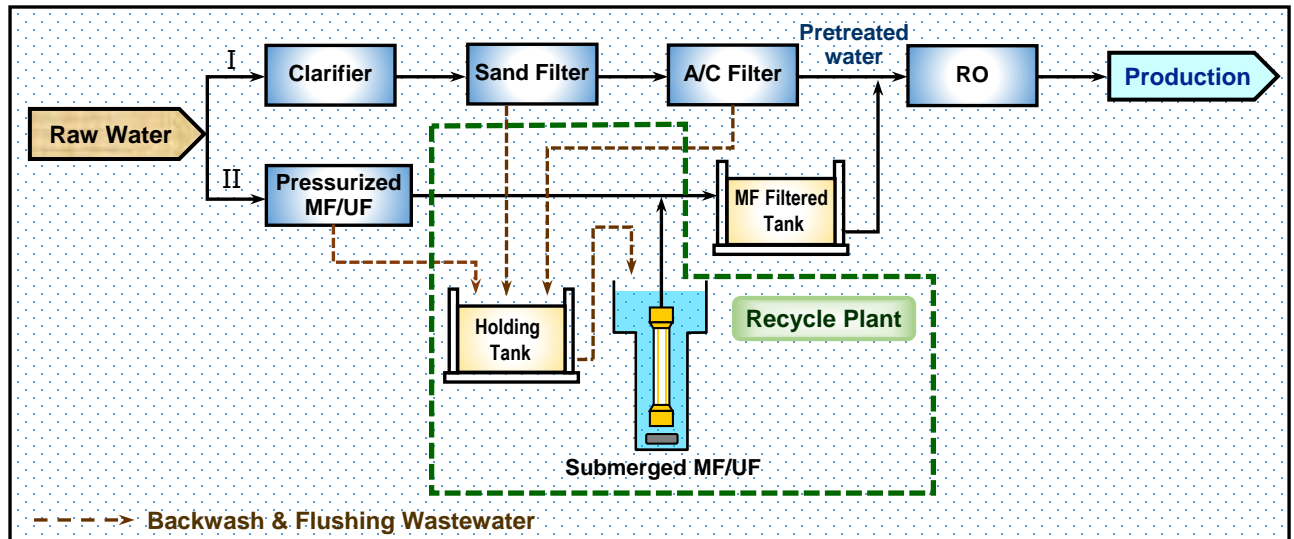
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Since the electronics industries typically use ultra-pure water of the high-quality grade, it is important to consider whether the rinsing wastewater from various manufacturing steps may be recycled in order to save the raw water supply and reduce the environmental impact on natural resources. The features of polluted rinsing wastewater, the target of used points, footprint, and total system cost will affect the selection of treatment technologies, which makes water recycling an economic possibility. In addition to membrane technology, the deionization system is an option to recycling of rinsing wastewater from the electronics manufacturing process.



# Recycle System

## ★ Recycling the spent filter backwash water



※ The treatment systems will be changeable according to the feed inlet quality.

As a part of the primary water treatment process, the conventional filter (e.g. sand filter, D/L filter) or MF/UF pressurized membrane filter typically removes the suspended solids (SS), and colloidal particles. After a certain interval of filtration time, these filters become clogging. So the filters will be backwashed by a large quantity of water to remove the deposits. In this situation, we can suggest the submerged MF/UF filtration with high permeate flux to treat the highly turbid spent filter backwash water and save the water consumption by up to 99% or more. The submerged MF/UF membrane's extremely small pore size enables it to create high-quality water that is delivered as pretreated water for RO systems, industrial water, and other general uses.



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