

Fuji Electric promotes the 3Rs (reduce, reuse, recycle) across the supply chain in accordance with its Basic Environmental Protection Policy and Environmental Vision 2050 in order to contribute to the realization of a recycling-oriented society. As part of these activities, we seek to make efficient use of water resources while complying with wastewater requirements.

Efficient Use of Water Resources

Against the widespread problem of global water resource depletion, Fuji Electric has been making diligent efforts to comply with wastewater requirements. In addition to this and in order to enhance our effective use of water resources, targets have been set for minimizing the water intake per unit of sales.

In fiscal 2021, our semiconductor business, which used a lot of water in the production process, saw a production capacity expansion in Japan. However, our year-on-year water intake was reduced by 3.5% from the previous fiscal year as a result of enhancing the recycled water generators at the Yamanashi Factory. Overseas, meanwhile, we reduced the year-on-year water intake by 59.2%, as the Malaysia Factory terminated its HD media manufacturing business in July 2021. Combined with our Japan operations, our global water intake decreased 26.8% from the previous fiscal year.

Our efforts to effectively utilize water resources are focused on water recycling.

In fiscal 2021, we recycled overall 2.56 million tons of water, a year-on-year decrease of 14.7%, due to the decrease of recycled water overseas following the termination of HD media manufacturing at the Malaysia Factory. Meanwhile, the recycling rate* came to 20.8%, up 2.4 points year on year. Our efforts to improve the recycling rate include the measures to combat filter membrane clogging at the Matsumoto Factory, which have been implemented since fiscal 2019. Furthermore, we started in fiscal 2021 to increase the amount of water recycling through the measures at the Yamanashi Factory to sort wastewater by processes and bolster the recycled water generators.

* Recycling rate: Recycled water / Water usage (= Water intake + Recycled water)

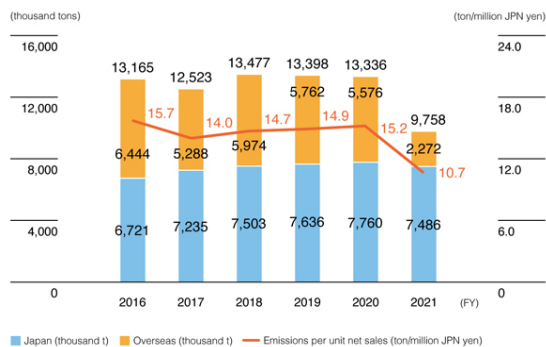
Water Intake (Global)

Note: Japan — volume of tap water purchased + volume of industrial water purchased + volume of groundwater used (only groundwater *1 used in production activities)

Overseas: Industrial water *2

*1 Volume of groundwater does not include groundwater used for soil cleanup, for agricultural purposes, or for melting snow.

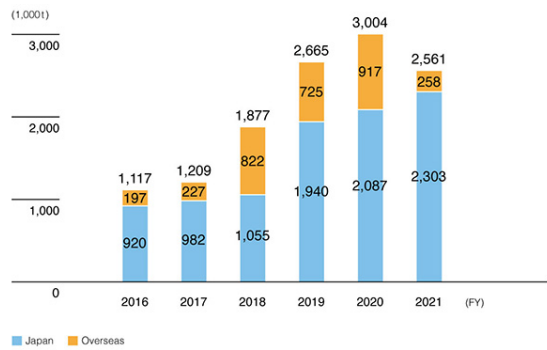
*2 Roughly 1,000 tons of groundwater is used annually at Fuji Electric Consul Neowatt, our new subsidiary in India (acquired in fiscal 2019)



Recycled water

ESG

- Contribution to SDGs
- ESG Material Issues
- Environmental Vision
 - Environment
 - Polices, Environmental Vision 2050
 - Basic Polices on Environmental Protection
 - Message from the Environmental Officer
 - Environmental Vision 2050
 - Approach to Disclosing Climate-related Information In Accordance with TCFD Recommendations
 - Environmental Management
 - Environmental Management Organizational Framework
 - Environmental Management Initiatives
 - Environmental Achievements
 - Environmental Management Targets and Achievements
 - Interplay between Business Activities and Environmental Impact
 - Environmental Accounting
 - Environmental data
 - Third-Party verification
 - Achieve a Decarbonized Society
 - Action Plan to Reduce Greenhouse Gas Emissions
 - Reducing Greenhouse Gas Emissions During Production
 - Reducing Society's CO₂ Emissions through Products
 - Target for Reducing Greenhouse Emissions Across the Supply Chain
 - Recycling-Oriented Society
 - Reducing Waste in Business Activities
 - Efficient Use of Water Resources
 - Initiatives for Reducing Environmental Impact of Products
 - Society that is in Harmony with Nature
 - Managing Chemical Substances
 - Preserving Biodiversity
 - Society
 - Governance
 - ESG Index
 - Comparison with ISO26000
 - External Evaluation
 - Activity Archives
 - Participation in initiatives



[Water Risk Assessments]

Fuji Electric carries out assessments*1 to confirm whether there is any risk of water shortages at manufacturing sites in Japan or overseas. These assessments have indicated that the Shenzhen Factory in China is the only site with a high risk of water shortage.

1. Results of global water stress assessments by region through Aqeduct Water Risk Atlas of the World Resources Institute.
2. Volume of water consumption
3. Water supply infrastructure

*1 Comprehensive judgment of a base's water stress based on three indices

Status of Shenzhen Factory (production facility with water risk)

The Shenzhen Factory is our only facility in the region deemed to have a water risk. Reliable supply of water is essential for the production of photoconductors. Since water supply is restricted during the dry season, we are taking two major risk countermeasures.

First, we are installing water tanks. This enables us to avoid any impact even if water supply is temporarily suspended. Second, we are introducing equipment to recycle wastewater. Our current recycling rate is 80%, which is higher than the 70% target decided by Shenzhen City. This has helped us build a good relationships with the local government and establish a production system that allows for the stable use of water.

Water purchased and used at our sole facility with water risk

Status of facility with water risk	FY2019	FY2020	FY2021
Volume of water purchased (thousand tons)	242	256	240
Volume of water consumed (thousand tons)	305	319	302
Risk ratio	1.8%	1.9%	2.5%

(Note) Water usage: Volume of Water purchased + recycled

(Note) Water risk ratio: Volume of water purchased (Shenzhen Factory) / Total Group water intake

Status of water intake management

Most of Fuji Electric's production facilities are located in industrial parks, which are supplied with both industrial water and drinkable tap water. In addition, some of our facilities use groundwater. We provide local governments with annual reports on groundwater intake volumes and make efforts to contribute to the optimization of water intake volumes in these regions. We use groundwater at 15 of our 20 facilities in Japan, and groundwater accounts for 52.0% of our total water intake volume. The groundwater intake volumes to report represent only groundwater used for production.

In the past, intake of groundwater has been a cause of land subsidence in Japan, which is a social problem. Today, however, the government determines the appropriate level of water intake for each area to adjust groundwater levels. Accordingly, social issues like land subsidence caused by water intake are almost non-existent.

All of our overseas facilities* use only industrial water supplied to their respective industrial parks for production use.

Moreover, we promote recycling water at four production bases: Three factories such as Matsumoto, Yamanashi and Tsugaru factories in Japan which consume particular large amounts of water in front-end semiconductor process, and the Shenzhen Factory, thereby controlling water intake volumes.

At other bases, as well, we invest in the introduction of water recycling systems, implement water conservation measures, repair leaks and install above-ground piping (visualization) to reduce water intake in cases where ISO 14001 environmental impact assessments identify impacts due to water consumption.

* Roughly one thousand tons of groundwater is used annually at Fuji Electric Consul Neowatt Private Limited, our new subsidiary in India (acquired in fiscal 2019)

Status of wastewater management

We strictly control wastewater at factories that use chemical substances. We have also established our own standards for wastewater management, which are stricter than those mandated legally. If an abnormality is detected in the wastewater treatment system, we have resident repair personnel in place to respond immediately. If we detect inadequate pH adjustment or similar problem, our drainage outlets are automatically shut down to prevent wastewater that does not meet official standards from being discharged externally. This substandard wastewater is kept in drainage reservoirs until remediation is completed.

By strictly managing wastewater in these ways, we strive to minimize the impact of our activities on the ecosystem.

Efforts to effectively utilize water at our production sites

At the Yamanashi Factory, where large amounts of water are used in its front-end semiconductor process, we implement measures to reduce water intake volumes in order to reduce its environmental load. For example, we have separated wastewater pipes by processes and optimized the arrangements of treatment facilities that filter out foreign objects from respective effluents. Despite the increased production of semiconductors, the water intake during fiscal 2021 was 11.1% lower than that of fiscal 2020, achieving an 11% improvement on recycling ratio. We will continue to pursue water recycling efforts up ahead and further enhance our reduction activities.

Topics

Efficient use of water resources at Matsumoto factory

Our Matsumoto Factory, where we make semiconductor wafers, uses large amounts of pure water in the wafer fabrication process and a lot of water for cooling production equipment. Therefore, it is important that we reduce water usage and utilize our water resources effectively.

Pure-water recycling initiatives:

Wastewater from the manufacturing process is sorted and relatively high-quality portions are recycled as raw water for pure water production. To enhance recovery of wastewater from the washing process, we have successfully made bioactivated carbon filters with Microbacteriaceae, known for its treatment capability of organic substances, and thus improved the recovery rate. For wastewater containing fluorine, which is harmful to the environment, we have introduced a dedicated wastewater recovery system that uses a reverse osmosis membrane to concentrate wastewater and reduce its volume. Moreover, clean water that has passed through the membrane is reused as raw water for making pure water.



Wastewater recovery system

Reducing chemical use at hydrofluoric acid treatment facilities:

The water purification process requires regular regeneration of ion exchange resins. This produces a mixture of acidic and alkaline wastewater that previously was discharged into the public sewage system after terminal treatment. In response, we devised and introduced a new wastewater recycling system that separates high-concentration alkaline solution from wastewater and reuses it to adjust pH levels as required in hydrofluoric acid treatment equipment. This enabled us to reduce the amount of chemicals used, as well as overall costs.

Improved wastewater recovery system using integrated wastewater management (IWM):

For the factory's final treatment process, we installed an integrated wastewater management (IWM) system. Under the system, wastewater that previously was discharged into the public sewage system is reclaimed (through filtration treatment and the like) and reused as water for the plant's cooling towers and toilets (approximately 1,000 tons/day). Recently, the recovery rate has improved due to improvements in filtration membrane maintenance methods, etc. In fiscal 2022, we are considering introducing a new drainage recovery service, which aims to further reduce water costs and reduce water resources.