Resource Recycling

Basic Concept

Due to the increase in resource usage amounts caused by the rise in the global population and economic growth, there are concerns that problems such as depletion of water and other natural resources and marine pollution by waste materials will become more serious.

Based on the Environmental Action Principles and Environmental Action Guidelines, Toho Gas Group has set Environmental Action Goals in the area of Resource Recycling, and is promoting the 3R (reduce, reuse and recycle) toward the reduced consumption of natural resources and the effective use of recycled resources through efforts that include zero emissions from industrial waste at city gas plants, recycling the waste generated from gas pipeline work, and the promotion of paperless business.

Initiatives to Reduce Waste Materials and to Reduce Resource Usage Amounts in Our Business Activities

Industrial waste at city gas plants – Toward the achievement of zero emissions

At city gas plants, we have been working since FY2008 to achieve zero emissions (reduction of the final disposal rate for waste materials). As an environmental action goal, we have set a target of achieving a final disposal rate of 1% or less and have continued our activities accordingly.

For waste materials at plants, recycling of the sludge and mixed waste materials at seawater intake ports is an issue, and these account for 80% of the final disposal rate. For this sludge, we turned our attention to "graded recycling," which creates stable fluidization treatment soil by separating sludge by grain size into slurry, sand, silt, and cohesive soil and recompounding, and improved the recycling rate.

Additionally, for mixed waste, we have diligently sorted and separated materials to enhance the recycling rate.

Recycling of Industrial Waste Materials Produced in Gas Pipeline Construction and Reduction of Amount of Natural Mountain Sand Used

Gas pipeline construction generates industrial waste in the form of asphalt and concrete lumps, which is classified as rubble, and used polyethylene pipes, which is classified as waste plastic. In an effort to limit asphalt concrete lumps and excavated soil, we have introduced shallow-layer pipe installation*1, the trenchless pipe installation method*2, and the pipe rehabilitation and repair construction and installation method*3, and promoted the use of temporary filling material*4 in construction requiring re-excavation. In FY2022, we reduced the amount of waste generated by 25% compared with conventional construction methods.

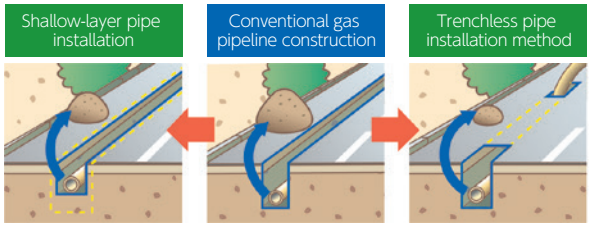
Furthermore, excavated soil is processed and recycled at the Soil Modification Centers, aiming for resource recycling as backfill material for gas pipeline construction. This effort has reduced the amount of external outflow of excavated soil by 75% compared to conventional methods. Additionally, in conjunction with the use of recycled crushed stone, the amount of natural mountain sand and natural crushed stone used in gas pipeline construction has been reduced by 10% from the amount used in conventional methods.

By reducing the new extraction of mountain sand, this initiative also contributes to minimizing the impact on ecosystem biodiversity.

Almost the entire volume of asphalt and concrete lumps is recycled a reclaimed asphalt mixture (pavement material). Used polyethylene pipes are recycled as raw materials for components that secure gas pipes and other uses. As a result, a recycling rate of 99.7% for industrial waste generated from gas pipeline construction has been achieved.

Trenchless pipe installation method

*1 Refers to burying a gas pipeline in a roadway at approximately half the conventional depth.
*2 Construction method of drilling at both ends of the construction area and pulling the gas pipe underground
*3 Construction method for repairing and renewing gas pipe from the inside
*4 Polystyrene blocks used as temporary backfill



Recycling of Used Gas Equipment and Other Materials

The Toho Gas Group has organized a system to collect used gas equipment and packing materials from customers, facilitating efficient resource recycling. In FY2022, this resulted in collection of 1012.7 tonnes of used equipment and 39.7 tonnes of packing material. Results for recycling of resources subject to the Containers and Packaging Recycling Act were 4.2 tonnes of plastic containers and packaging and 0.3 tonnes of paper.

Recycling used gas equipment

Reduction of waste materials and recycling resources

We are working to recycle general waste at our offices. Since 1996, we have been consistently devoting efforts to collecting waste paper, which accounts for the majority of waste generated. While the Toho Gas Group has long been advancing paperless practices, starting from FY2020, we have significantly increased the proportion of electronic approvals for business processes and further promoted paperless practices in major meetings and many other scenarios.

For kitchen waste from cafeterias, we are promoting recycling into fertilizers.

Initiatives by Subsidiaries

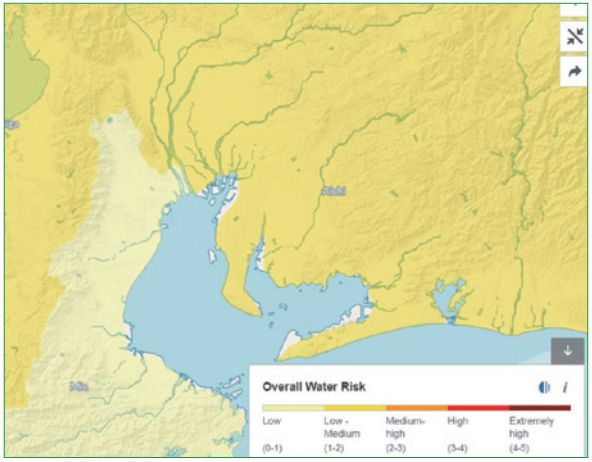
Toho Real Estate Co., Ltd. had been placing amenities in every room of the Howa Seminar Plaza training facility with accommodation, but has changed to amenity bar style to provide amenities to only those that need them in response to the Act on Promotion of Resource Circulation for Plastics that went into effect in April 2022. Steps have also been taken to reduce plastic use, such as by switching from plastic straws to paper straws at the Cherry bakery cafe at Minato AQULS.

Amenity bar at Howa Seminar Plaza

Responses for Water Risks (Water Security)

Evaluation of the Effects of Water Stress

The Toho Gas Group uses water resources for various purposes, such as gasification of LNG, and is aware of the importance of the effective utilization of water and evaluates the water stress and impact of the risk. We conduct evaluations using Aqueduct, which is issued by the World Resources Institute (WRI) every year, and confirm that the areas where the Group's major places of business and factories are located all have low water stress.



Taken from the Aqueduct Water Risk Atlas

Compliance with Regulation Criteria

In FY2022, we complied appropriately with regulations and agreements on water, and have experienced no accidents having major environmental impact, or any legal violations.

The seawater used as a heat source for gasification of LNG at city gas plants we design manufacturing facilities to ensure the temperature difference between water intake and water discharge falls within a certain range with the aim of reducing our impact on ecosystems.

Management of Water Usage Amounts and Discharge Amounts

We assess the amount of water used generally in the form of municipal potable water in offices, the amount of industrial water, and the amount of well water, and work to conserve water used. For discharged water, we assess the amount of water discharged at discrete discharge sites and manage the quality of water discharged in accordance with laws and regulations concerning discharge as well as ordinances of local governments.