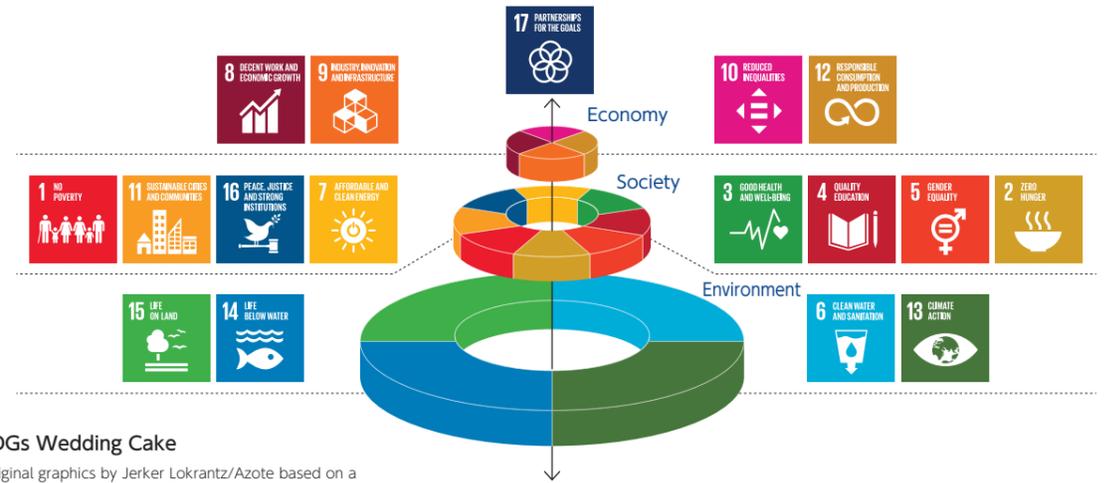


# Initiatives for ESG

The Toho Gas Group has heretofore supported customers' lives and manufacturing in the region through the supply of energy, contributing to the development of the region and transformation into a low-carbon society, and ESG has been the very business activities themselves.

Going forward, we will promote ESG management so as to be able to meet the trust of our customers, the local communities, shareholders and investors, employees, and other stakeholders.



SDGs Wedding Cake

Original graphics by Jerker Lokrantz/Azote based on a concept by Johan Rockström and Pavan Sukhdev; modified with their permission by MS&AD InterRisk Research & Consulting, Inc. (Unauthorized reproduction or transfer prohibited)

## Contribution to Sustainable Development Goals (SDGs)

SDGs are international goals for realizing a sustainable world, with 17 goals established in aims of improving the economy, society, and the environment in an integrated way by 2030.

The wedding cake shown above is composed of the four goals relating to the environment as its base layer, with the eight society-related goals above that, and the four economy-related goals forming the top layer. The Toho Gas Group will continue contributing to achieving SDGs through its business activities.

## Environment Report

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Biodiversity Conservation	P46

## Social Report

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Board of Directors and Audit & Supervisory Board Members	P59



## Perpetuating the Okamoto Spirit

The first president of Toho Gas, Sakura Okamoto, believed in a management philosophy that "Customers, shareholders, employees form a trinity, and the coexistence and coprosperity of such stakeholders in the company is indispensable." We strive in the practical application of this. Furthermore, we apply this way of thinking in our approach to service in social and public aspects, advocating promotion of community welfare, and integration with the local communities.

Okamoto was a manager who thought constantly about the company as a social public institution, and we continue to pass on his spirit, which forms part of the company's DNA.



Sakura Okamoto, the first President (Term of office: 1922-1935)



# Management of Environmental Preservation

## Basic Concept

Toho Gas Group established the environmental management system by setting its Environmental Action Principles and Environmental Action Guidelines, to help the realization of an environmentally harmonious society. We set environmental action goals for the Group and conduct various activities to achieve the goals.

## Environmental Action Principles

The Environmental Action Principles (established in 1993; final revision in 2011) are regarded at Toho Gas's business policy.

Basic Policy	Toho Gas and its Group companies recognize the importance of preserving the environment on regional and global basis. By giving priority to supplying clean energy, the Group will do its utmost to create an environmentally harmonious society through all its business activities.
Principles	Principle 1 The Group will contribute to reducing the impacts of its business activities on the environment related to customers.
	Principle 2 The Group will reduce the impacts of its business activities on the overall environment.
	Principle 3 The Group will contribute to environmental preservation in collaboration with local communities and the global community.
	Principle 4 The Group will step up research and development regarding environmental preservation technologies.

## Environmental Action Guidelines

Our Environmental Action Guidelines (established in 2011), which set out the concept and content of key environmental activities that the Group is engaged in, comprise six categories.

Global Warming Countermeasures	The Group will reduce customer CO <sub>2</sub> emissions and promote effective and realistic global warming countermeasures through the expansion, highly-efficient use, and high-degree application of clean energy sources, such as environmentally-friendly natural gas, and the utilization of renewable energy. The Group will work to reduce CO <sub>2</sub> emissions in its business activities through continuous improvement of its operational activities.
Resource Recycling	The Group will promote the effective use of resources in each stage of business activities and reduce, reuse and recycle waste to minimize external emissions.
Biodiversity Conservation	The Group recognizes the importance of biodiversity and will work to grasp and analyze the impact of business activities on biodiversity as well as promoting biodiversity-friendly activities.
Environmental Social Contribution	The Group will conduct environment-related social contribution activities by participating in environmental activities/projects in collaboration with local communities and the global community.
Technology Development	The Group will promote technology development that contributes to reducing our environmental impact, such as the highly-efficient and high-degree application of city gas/LPG gas.
Environmental Management	Recognizing the impact of its business activities on the overall environment, the Group will rigorously enforce environmental management, and develop human resources who are environmentally conscious and can act on their own initiative.

## Organizational Structure for Management of Environmental Preservation

We have set up the Group Environmental Preservation Board, consisting of Toho Gas and its major affiliated companies. The committee aims to reduce impacts of Group activities on the environment and promote the Group's compliance with laws and regulations related to environmental preservation. Specifically, the committee is designed to formulate the Group's basic policy on environmental preservation activities while setting goals regarding such activities. It is also intended to discuss and study measures aimed at achieving these goals, and manage implementation of the measures. Regarding environmental action goals in particular, we have established an Environmental Promotion Meeting in each department to verify progress and realization planning in

conjunction with the Group Environmental Preservation Board. We deploy staff to handle environmental affairs at each department of Toho Gas and its affiliated companies. "Environmental promoters" are tasked with undertaking specific environmental activities. "Environmental auditors" are in charge of reviewing what has been achieved through environmental preservation activities and checking if these activities are consistent with relevant regulations. "Environmental controllers" are assigned to control the activities of the "environmental promoters" and "environmental auditors." The deployment of these environmental experts is meant to get the PDCA cycle (plan, do, check, act) running smoothly.

### Organizational Structure for Management of Environmental Preservation



## Environmental Action Goals (FY2019-FY2021)

The environmental action goals are formulated seamlessly in conjunction with the Medium-term Management Plan and efforts to reach them are promoted.

FY2019 was the first fiscal year for the period of the environmental action goals based on the Medium-term Management Plan announced in November 2018, and we made favorable progress in the goal areas.

Type	Goal item	Goal value	FY2019 results	
Global Warming Countermeasures	CO <sub>2</sub> reduction target related to customers	600 thousand tons-CO <sub>2</sub> *	141 thousand tons-CO <sub>2</sub>	
	CO <sub>2</sub> emissions reduction in business activities	CO <sub>2</sub> emission intensity of city gas plants	11.5 tons-CO <sub>2</sub> /million N m <sup>3</sup> or less (gas sales volume)	9.6 tons-CO <sub>2</sub> /million N m <sup>3</sup>
		CO <sub>2</sub> emission intensity of the Energy Center	75.1 tons-CO <sub>2</sub> /thousand GJ or less (heat and electricity sales volume)	73.4 tons-CO <sub>2</sub> /thousand GJ
		CO <sub>2</sub> emission intensity of offices	79.8 tons-CO <sub>2</sub> /thousand m <sup>2</sup> (total floor area)	73.2 tons-CO <sub>2</sub> /thousand m <sup>2</sup>
	Initiatives to reduce CO <sub>2</sub> emissions in the electricity business		Start of solar power generation (2.7 MW)	
Resource Recycling	Zero emissions at city gas plants	Continuation (1% or lower final disposal rate)	Continuation (0.10% final disposal rate)	
	Recycling of waste generated after gas pipeline construction	Recycling rate of 99% or more	Recycling rate of 99.7%	
	Reduction in use of natural mountain sand and detritus in gas pipeline construction compared with use under conventional engineering methods	15% or lower	Natural mountain sand and detritus usage amount of 11.2%	
	Recycling of general waste	Recycling rate of 80% or more	Recycling rate of 80.7%	
	Promoting "3R" (reduce, reuse, and recycle) through green procurement and the recycling of used gas equipment		·Green procurement amount (11.7 million yen) ·Recycling of used gas equipment (850.8 tons)	
Biodiversity Conservation	Promoting biodiversity conservation through business activities, etc.		·Forest conservation activities in Toho Gas Forests ·Biotope management, elimination of invasive species - 10 times	
Technology Development	Promoting technology development for reducing CO <sub>2</sub> emissions and improving efficiency		·Centrair hydrogen station operation launch (including beach cleanup) ·Home demand response verification testing conducted ·Participation in Keidanren "Challenge Zero"	
Collaboration with Local Communities	Promoting initiatives such as environment social contribution activities and environmental education for the next generation in collaboration with local communities		·Local-community cleanup activities (including beach cleanup) ·Special classes at elementary schools, etc. (201 times) ·Environmental learning at the Toho Gas Energy Exhibition Hall (Number of Hall visitors: Approx. 22,000)	

\*Cumulative value of FY2019 - FY2021

Note 1: Unspecified values are average values of FY2019 - 2021.

Note 2: The CO<sub>2</sub> emissions factor for purchased electricity is pegged at 0.474 kg-CO<sub>2</sub>/kWh (Chubu Electric Power), a figure recorded in the base year (FY2009).

Note 3: The effects of efforts to reduce CO<sub>2</sub> emissions through private power generation are calculated using the CO<sub>2</sub> emission factor (the emission factor for thermal power source) for marginal power source in the base year (FY2009) of 0.69 kg-CO<sub>2</sub>/kWh.

## Environmental Management System (EMS) Certification

Toho Gas Group is working proactively to acquire EMS certification to enhance its environmental management. We have obtained the ISO 14001 certification, an international standard, and affiliated companies have obtained Eco Action 21 certification from Japan's Ministry of the Environment. In addition, we have also gained environmental certification from the local authorities, such as Ecological Enterprise Certification from Nagoya City.

Types	Certified companies (offices)
ISO 14001*1	Toho Gas (Chita-Midorihamma Works, Chita LNG Terminal, Chita Calorific Value Adjustment Center, Yokkaichi Works)
Eco Action 21*2	Mizushima Gas Co., Ltd., Toho Real Estate Co., Ltd., Toho Gas Engineering Co., Ltd., Toho Gas Techno Co., Ltd., Chita Tansan Co., Ltd.
Certification programs of municipalities*3	Toho Gas (headquarters, Hoshigaoka Sales Office, Kita Sales Office, Nakamura Sales Office, Kasadera Sales Office, Seto Sales Office, Kasugai Sales Office, Minato AQUUS Energy Center) Toho Real Estate Co., Ltd. (Building Business Unit Imaike Gas Building, Cherry Minato Shop, Howa Green, Howa Sports Land, Howa Seminar Plaza, Howa Minato Golf) Toho Liquefied Gas Co., Ltd. (Nagoya Sales Office, Meiko LPG Terminal, Shiromi Eco Station) Toho Gas Techno Co., Ltd. (Headquarters Office, Fukue Office) Toho Gas Engineering Co., Ltd.

\*1 An international standard for reducing environmental load and improving environmental management levels

\*2 Certification and registration system to recognize effective and efficient environmental efforts in a wide range of businesses

\*3 Environmental certification systems promoted independently by local governments

## Compliance with Environmental Laws and Regulations

The main environmental laws and regulations related to the Group are described below. In FY2019, we continued to respond to them appropriately, and experienced no accidents having a serious environmental impact, or any legal violations or penalties. We will continue to promote education concerning environmental laws and regulations and conduct self environmental audits to ensure compliance.

Classification	Main environmental laws and regulations
General	Basic Environment Act
Global Warming Countermeasures	Act on the Rational Use of Energy, Building Energy Efficiency Act, Act on Promotion of Global Warming Countermeasures, Act on Rational Use and Proper Management of Fluorocarbons, Act on the Protection of the Ozone Layer
Resource Recycling	Basic Act on Establishing a Sound Material-Cycle Society, Waste Management and Public Cleansing Act, PCB Special Measures, Act on the Promotion of Effective Utilization of Resources, Construction Material Recycling Act, Electrical Appliance Recycling Act, Containers and Packaging Recycling Act, Food Recycling Act, Small Electrical Appliance Recycling Act, Act on Recycling, etc. of End-of-Life Vehicles
Pollution Prevention	Air Pollution Control Act, Water Pollution Prevention Act, Noise Regulation Act, Vibration Regulation Act, Soil Contamination Countermeasures Act, Mercury Pollution Control Act, Law concerning Pollutant Release and Transfer Register (PRTR), Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Offensive Odor Control Act, Land Subsidence-related Law

## Environmental Education

Toho Gas Group provides environmental education by target employees.

We hold environmental seminars on themes, such as environmental policies and social trends, for senior management. We also conduct environmental law training seminars and e-learning courses tailored to different levels of managers and employees to raise awareness and knowledge of environmental laws and regulations and to bolster our response capabilities. In FY2019, we conducted specialized training seminars and e-learning courses concerning the Act on Rational Use and Proper Management of Fluorocarbons ahead of its enactment. We also conducted SDG Study Meetings for environmental auditors to boost understanding of SDGs.

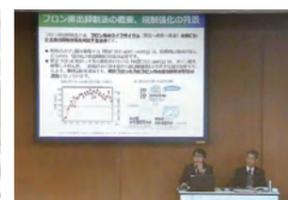
In addition, we encourage employees to acquire environment-related certifications, such as Qualified Person for Energy Management and the Certification Test for Environmental Specialists (Eco Test).

Name	Target
Environmental training seminars	Senior management*
Environmental law training seminars	Different levels of managers and employees
SDG Study Meetings	Environmental auditor
New employee training	New employees

\* In FY2019, this was conducted for a limited number of participants due to the impact of COVID-19 measures.



Environmental law training seminar



Training seminar on the revised Act on Rational Use and Proper Management of Fluorocarbons

## Self Environmental Audits

Toho Gas Group has conducted self environmental audits since FY1994. We conduct annual audits at workplaces of Toho Gas and affiliated companies whose operations relate to environmental laws and regulations. We use a duplicate audit system of primary audits at workplaces of Toho Gas and its affiliated companies that are related to environmental laws and regulations, and secondary audits at each department and company.

### Implementation of self environmental audits

Implementation period	Jul. 2019-Sep. 2019
Audit target	Workplaces of Toho Gas and affiliated companies whose operations relate to environmental laws and regulations
Environmental auditors	Persons appointed at each department or affiliated companies

Classification	Points checked at time of audit
Waste Management and Public Cleansing Act	Utilization of preliminary checksheets prior on the outsourced disposal of industrial waste, appropriate operation of temporary storage areas, etc., accommodation of mercury-containing waste regulations, manifest delivery and storage, regular reporting, etc.
Act on Rational Use and Proper Management of Fluorocarbons	State of storage of GHP and other regulated containers under the Act on Rational Use and Proper Management of Fluorocarbons
Other environmental laws and regulations	Accommodation of the Water Pollution Prevention Act in the event of oil-leakage accidents, status reporting and of compliance with regulation criteria with respect to the Air Pollution Control Act and legislation restricting noise and vibration

## Green Procurement Guidelines

In order to reduce our environmental load and conserve biodiversity, Toho Gas has established the Green Procurement Guidelines for gas pipeline materials, construction work, and office supplies, and is conducting green procurement together with its Group companies.

Main contents of Green Procurement Guidelines	Promotion of purchasing energy saving products, etc.
	Enhancement of "3R" (reduce, reuse and recycle)
	"Green delivery" with low-emission vehicles and eco-driving



## Basic Concept

Materiality 4

As an energy business operator, Toho Gas Group is implementing countermeasures against global warming, taking into consideration the value chain. We are implementing various specific measures, including the establishment of targets for the reduction of CO<sub>2</sub> emissions by customers and targets for reduction of the CO<sub>2</sub> emissions basic unit in our business operations.

## Initiatives with Customers

Toho Gas has set a goal of reducing cumulative total of CO<sub>2</sub> emissions at customers from FY2019-FY2021 by 600 thousand tons-CO<sub>2</sub> in the new Medium-Term Management Plan and the Environmental Action Goals, and is working hard to achieve this goal.

The amount of CO<sub>2</sub> emissions reduced in FY2109 was 141 thousand tons-CO<sub>2</sub>, surpassing the planned target for the first fiscal year, making for favorable progress. CO<sub>2</sub> emissions from customers by using city gas were 8,190 thousand tons-CO<sub>2</sub>.

## Popularization of High-efficiency Equipment and Systems in Industrial-use Areas

### Energy-saving Governors

Our city gas supply area is a region containing many companies in the automotive industry, and the production of metal components for automobiles is also flourishing. To support this region in terms of technology, Toho Gas is providing energy-saving support for the burners needed in the processes that perform heat treatment for metal. At the Technical Research Institute, we have developed energy-saving burners, and in addition to proposing these at the time when a fuel switchover is made, we also make energy-conservation proposals on a day-to-day basis, supporting sustains energy savings and reductions of CO<sub>2</sub> emissions by our customers.

#### <Example of Implementation> Hidaka Kogyo Co., Ltd.



Heat-treatment furnace installed with a single-end radiant-tube burner



Burner



#### <Customer Comments>

We are grateful that we were able to consult the company, as energy experts, about many matters, including production processes.

What sealed the decision to go ahead with adoption was the high efficiency and the ability to reduce CO<sub>2</sub> emissions by 5% compared with

conventional gas burners, as well as the excellent durability. Actual wear and replacement of burner materials has also been reduced, so this contributes to reduced waste materials and cost reductions as well. We also plan to implement these in our new factory. We look forward to more proposals regarding energy-related services.

### Gas Burner Air Ratio Visualization System

In 2019 we developed the Air Ratio Visualization System, a system for monitoring the state of combustion in gas burners. We will contribute to global warming countermeasures by means of proposals that lead to energy savings and efficient maintenance at customer sites through such utilization of digital technology.



Gas Burner Air Ratio Visualization System

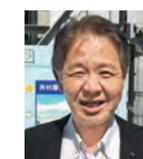
### Gas Cogeneration Systems

Gas cogeneration systems are energy-saving systems that generate electrical power using a gas engine or gas turbine together with collecting exhaust heat. In particular, since the 2011 Tohoku earthquake and tsunami, customer expectations have risen from the perspective such matters as ensuring electrical-power security and conserving electricity as objectives in business continuity plans (BCPs). We are devoting effort to developing high-efficiency cogeneration systems encouraging their adoption in hospitals, commercial facilities, office buildings, factories, and other locations, and thereby contributing to environmental-load reductions and BCPs.

#### <Example of Implementation> Imuraya Co., Ltd.



Gas engine cogeneration system



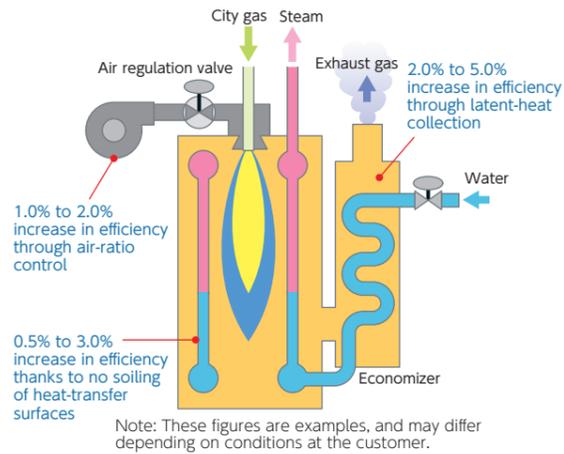
#### <Customer Comments>

The island-wide blackout from the 2018 Hokkaido Eastern Iburi earthquake spurred us to revise our BCP. At that time, we decided to introduce a cogeneration system that would be effective in achieving energy savings and reductions in CO<sub>2</sub> emissions during normal times, as well as enabling the supply of electrical power in the event of an emergency. We look forward to proposals of a variety of services that lead to stable supply and reduced CO<sub>2</sub> emissions.

## Popularization of High-efficiency Equipment and Systems in Industrial-use Areas

### ● Steam and Hot-water Boilers

City gas boilers offer excellent energy-saving performance compared to conventional oil-burning boilers, thanks to high combustion efficiency and high-efficiency operation matched to load. Also, no fuel-storage space is needed, making it possible to maintain a clean operating environment, and handling is also simple, reducing the workload of boiler operators. Its has become popular in a broad range of varied areas, enjoying use in healthcare facilities, linen laundering, bathing facilities, factories, and elsewhere, and contributes to greater energy savings, greater space savings, and management maintenance burden for customers.



#### <Example of Implementation> Kariya Toyota General Hospital



#### <Customer Comments>

This hospital is engaged in energy-conservation activities every day in order to achieve its goals as a Type 1 Designated Energy Management Factory. On this occasion, by converting a portion of our kerosene-burning boilers to city gas, we have been able to reduce the environmental load by conserving energy and lowering CO<sub>2</sub> emissions, as well as to achieve energy diversification as a core disaster hospital. Going forward, we will devote effort to continuing energy-conservation activities and augmenting disaster healthcare.

#### <Example of Implementation> Model Sha Co., Ltd.



#### <Customer Comments>

When we were considering replacing our aging diesel boiler, we received a great proposal. By switching to clean natural gas, which offers low CO<sub>2</sub> emissions, we are not only contributing to mitigating global warming, but are also improving consideration for our urban neighbors in terms of less odor from emissions and parking problems for fuel-delivery tank trucks, for which we are tremendously grateful. Going forward, we would like to change other factories over to city gas.

### ● Kitchen Equipment

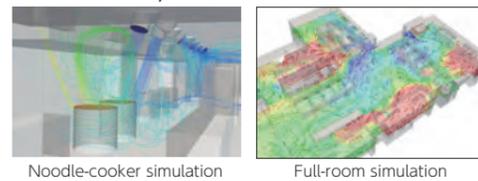
Suzu-chu\*\* kitchen equipment that curbs rises in room temperatures helps maintain a comfortable kitchen environment and the to save energy and reduce CO<sub>2</sub> emissions by lowering the air-conditioning load.

Pro Chubu OISIS, one of the Tokai region's largest experience-oriented commercial kitchen showrooms, which opened at Minato AQUUS (Minato-ku, Nagoya City, Aichi Prefecture), is a sourcepoint for communicating the appeal of gas kitchens and the latest food-related information to kitchen professionals such as cooks and nutritionists at restaurants, hospitals, hotels, schools, and other facilities. Through displays of Suzu-chu and equipment installed with safety features as well as by hands-on experience of the functionality on actual equipment, visitors can verify for themselves the comfort and safety of gas kitchens, as well as their economy and ease of use for cooking. Other incidental equipment for commercial kitchens such as ventilation and sanitation systems for maintaining food safety are also on display, enabling efficient collection of kitchen-related information.

\* Suzu-chu® is a registered trademark of Osaka Gas Co., Ltd.



#### ■ Ventilation-system Simulations



## Popularization of High-efficiency Equipment and Systems in Residential-use Areas

Eco-JOES is a hot-water heater that achieves hot-water-supply thermal efficiency of approximately 95% (conventional devices: approximately 80%) by collecting\* latent heat in combustion exhaust gas. Going forward, we will work to popularize it in stand-alone residential houses and condominiums.

\* Latent-heat collection Collection of heat (latent heat) produced when water vapor in combustion exhaust gas is returned to water.



## Initiatives in Business Activities

Toho Gas Group strives to reduce CO<sub>2</sub> emissions in its business activities. Our CO<sub>2</sub> emissions in FY2019 were 118 thousand tons-CO<sub>2</sub>. With respect to our Environmental Action Goals, we have set separate base-unit goals for city gas plants, area heating and cooling (energy centers), and offices, and are engaged in making reductions.

### ● Initiatives at City Gas Plants

CO<sub>2</sub> emissions at city gas plants have been significantly reduced by switching energy resources from coal to petroleum and to LNG. Moreover, we strive to reduce CO<sub>2</sub> emissions through energy conservation in operations, such as through strict implementation of energy management standards.

In addition, we are focusing on facility and technical measures, including development and introduction of reliquefaction equipment for efficient processing of BOG (boil off gas) occurring in LNG tanks, and the use of LNG cryogenic energy.

### ● Initiatives in Area Heating and Cooling (Energy Centers)

The Toho Gas Group is devoting effort to area heating and cooling, which efficiently performs air conditioning and hot-water supply for multiple structures in a fixed areas.

Also, at locations such as Minato AQUUS **P26** where an advanced energy system has been implemented, we are also working to reduce CO<sub>2</sub> emissions through such means as improvement in terms of the operation of area heating and cooling and upgrading to energy-saving equipment. We are also tackling heat exchange by networking the Nagoya Station south and Nagoya Station east regions.

#### ■ List of Area Heating and Cooling Sites (Energy Centers)

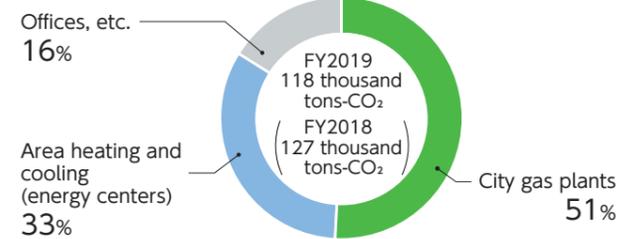
##### Operated by Toho Gas

Nagoya City	● Imaike	● Sakae 3-chome north
	● Nagoya Station south	● Sakae 3-chome
	● Chiyoda	● Higashi Sakura
Komaki City	● Johoku	● Minato AQUUS
	● Komaki Station west	

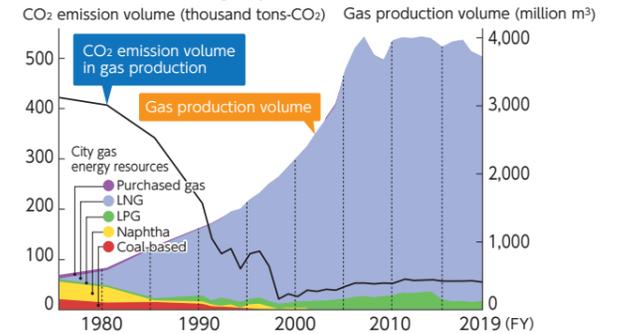
##### Operated by Companies in Which Toho Gas Holds an Equity Stake

Nagoya City	● JR Central Japan Nagoya Station area	● Nagoya Station east
	● Quality Life 21 Johoku	● Sasashima Live 24
Tokoname City	● Chubu Centrair International Airport	

#### ■ Amounts of CO<sub>2</sub> Emissions Due to Business Activities



#### ■ Transition of city gas energy resources and CO<sub>2</sub> emissions in gas production



### ● Initiatives at Offices

Toho Gas Group strives to reduce CO<sub>2</sub> emissions with energy-saving at offices. We are promoting initiatives in various fields, including the introduction of highly efficient gas air conditioning, LED lighting and low-emission vehicles. In an effort to encourage energy-saving behavior by employees, we have affixed "awareness stickers" to remind employees to turn off devices.



### ● Initiatives in the Power-generation Business

We are working to reduce the amounts of CO<sub>2</sub> emissions through such means a expanding adoption of renewable energy.

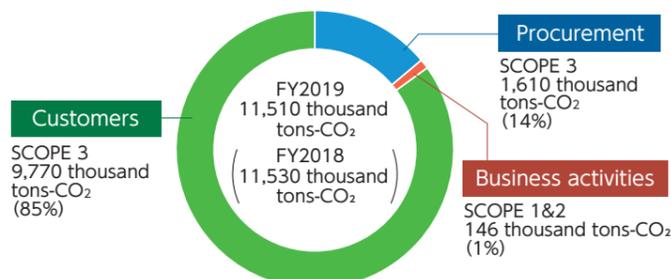
### ● Carbon Offset Utilizing J-Credit Scheme

Toho Gas is working to reduce CO<sub>2</sub> emissions utilizing carbon offsets under the J-Credit Scheme\* for certifying greenhouse-gas (GHG) emissions reduction operated by the national government.

\* A scheme whereby the national government approves GHG emissions reduction and absorption as credits for reductions achieved by initiatives such as introducing energy-saving equipment and forest operation.

## Amounts of CO<sub>2</sub> Emissions in the Toho Gas Group Value Chain

P43-44



- SCOPE 1** Direct emission by business operator
- SCOPE 2** Indirect emissions accompanying use of electricity and heat supplied by other companies
- SCOPE 3** Indirect emissions other than SCOPE 1 & 2 (Emissions of others related to business activities of the operator)

## Environmental Load of the Value Chain

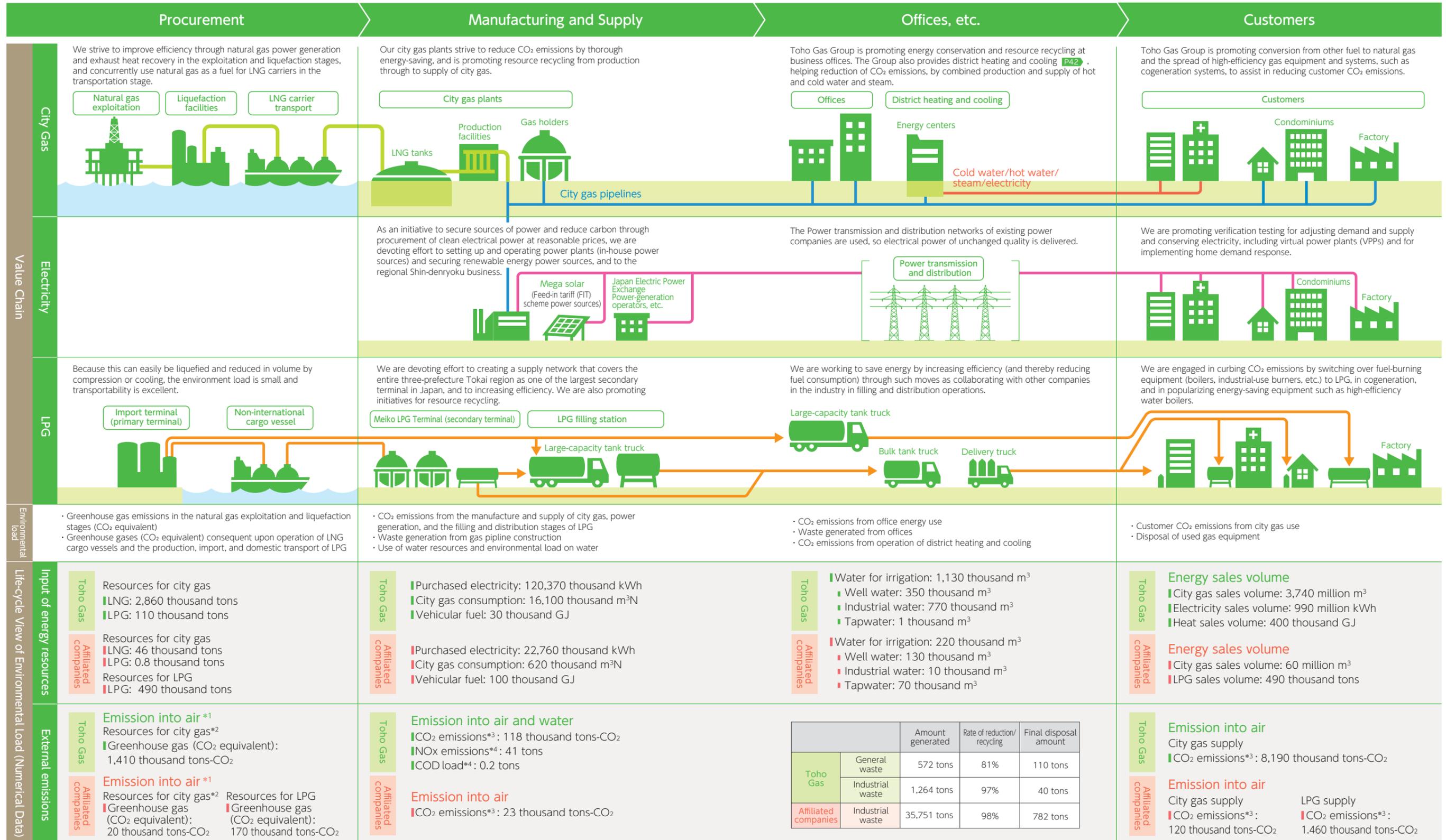
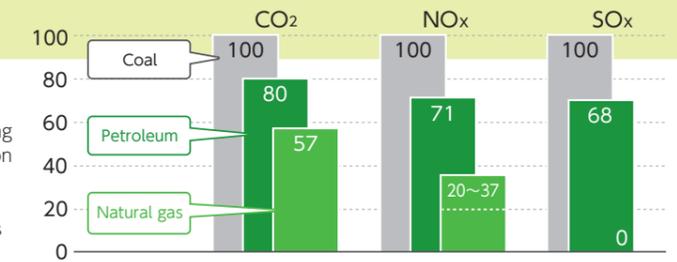
Toho Gas Group strives to recognize and reduce the environmental burden generated through its business activities and in the factor value chain, including energy resource procurement sources, and city gas and LPG customers.

**第三者保証** The following quantitative information is covered by third-party guarantee by Deloitte Tohmatsu Sustainability Co., Ltd.

### Environmentally Friendly Energy

Natural gas is an environmentally-friendly energy, even among fossil fuels, that generates less CO<sub>2</sub> and NO<sub>x</sub> during combustion and does not emit SO<sub>x</sub>.

Sources: Regarding CO<sub>2</sub>: Report of Research into Demonstration of Atmospheric Impact Technology for Assessment of Thermal Power Plants (March 1990), The Institute of Applied Energy; Regarding NO<sub>x</sub> and SO<sub>x</sub>: Natural Gas Prospects to 2020 (1986), IDA



Note: Detailed data, annual changes, calculation standards, factors, etc., and affiliated companies included are described in the ESG Data online.

\*1 Sources of CO<sub>2</sub> emission factors used for calculation

• City gas: Japan Gas Association website

• LPG: Calculated based on LNG and city gas 13A life-cycle greenhouse gas emission forecast from the Journal of the 26th Annual Meeting of the Japan Society of Energy and Resources (Vol. 28-2, published in 2007) (gross calorific value basis)

\*2 Calculations of amounts of greenhouse gases released into the atmosphere are made using resources for LNG (not including resources for LPG).

\*3 CO<sub>2</sub> emission factors used for calculation (main emission factors) -City gas:2.29 tons-CO<sub>2</sub>/thousand m<sup>3</sup>N -LPG:3.00 tons-CO<sub>2</sub>/ton  
-Electricity:Value released by electric utilities operator in accordance with the ministerial ordinance under the Law Concerning the Promotion of the Measures to Cope with Global Warming (cf. the ESG Data online)

\*4 Target: manufacturing-related equipment for city gas and heating



Basic Concept

Materiality 4

Toho Gas Group is striving to realize a recycling-oriented society. The Group is promoting initiatives, taking into consideration the natural gas value chain, such as "3R" (reduce, reuse and recycle) at customers and with collaboration with gas equipment manufacturers, as well as in our business activities.

Initiatives in Business Activities

We are striving to implement the "3R": reduce, reuse and recycle, in handling soil and waste resulting from construction work, as shown in the table below.

Main waste materials generated in business activities

Plants and offices	Industrial waste: sludge, waste plastic, scrap metal General waste: waste paper, combustible waste
Gas pipeline constructions	Soil from construction: debris removed from excavated soil Valuable materials: cast iron pipe and steel pipes Industrial waste: waste plastic (polyethylene pipe), debris (asphalt, concrete lumps)

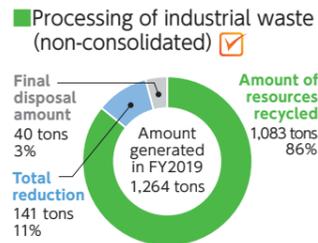
Note: Most waste from pipeline construction is generated by construction companies.

Initiatives at Plants and Offices

Both industrial and general wastes are generated at Toho Gas Group plants and offices. As a result of efforts to reduce the weight of industrial waste materials and to recycle more, the final amount of Toho Gas waste disposed of in FY2019 totaled 3% of the volume generated. At city gas plants, we set a goal of zero emissions [P38], which we have continued and consecutively achieved since FY2009.

Recycling general waste materials is also addressed in our Environmental Action Goals, and we recycled 80.7% of general waste by collecting waste paper that accounts for the majority of waste generated.

As a result of appropriate implementation of water conservation and quality control for waste water, the amount of water used in FY2019 was 1,125 thousand m<sup>3</sup>, and the COD load was 0.2 tons.



\* COD: Chemical oxygen demand

Initiatives in Pipeline Construction

Pipeline construction generates excavated soil as well as asphalt and concrete lumps. In an effort to suppress these, we have introduced shallow-layer pipe installation, the trenchless pipe installation method\*, the pipe rehabilitation and repair construction and installation method\*\*, and promotion of use of temporary filling material in construction requiring re-excavation. In FY2019, we reduced the amount of waste generated by 27% compared with conventional construction methods.

By striving to recycle excavated soil and asphalt and concrete lumps, we have reduced the amount of excavated soil externally disposed of by 73%, the amount of sand and natural quarried stone used by 87% compared with conventional methods, and almost all asphalt and concrete was recycled.

Almost all used gas pipes were recycled in FY2019 and 86% of used gas meters were reused through maintenance, including part replacement, and inspection.

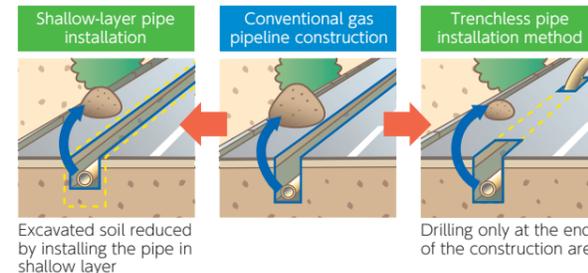


Trenchless pipe installation method

\*1 Construction method of drilling at both ends of the construction area and pulling the gas pipe underground

\*2 Construction method for repairing and renewing gas pipe from the inside

\*3 Polystyrene blocks used as temporary backfill



Excavated soil reduced by installing the pipe in shallow layer

Drilling only at the ends of the construction area

Reduction of Construction Filler Soil Through Use of Gas-pipeline Protective Materials

We developed protective material for medium-pressure B polyethylene pipeline jointly with Daito Denzai (Suita City, Osaka). By enhancing this to eliminate the gap between the pipe and the side panels on the left and right, we succeeded in reducing the amount of excavation work and filler soil used in construction.

Initiatives with Customers

Toho Gas Group has organized a system to collect used gas equipment and packaging materials from customers, facilitating efficient resource recycling. In FY2019, this resulted in collection of 850.8 tons of used equipment and 35.4 tons of packing material. Results for recycling of resources subject to the Containers and Packaging Recycling Act were 5.5 tons of plastic containers and packaging and 0.9 tons of paper.

We also recovered refrigerant fluorocarbons generated during maintenance and renewal of commercial air conditioning equipment. In FY2019, all of the fluorocarbons were recovered from the target equipment and processed appropriately (1,342 units, with 14.3 tons of fluorocarbons recovered).



Basic Concept

Materiality 3 4

Initiatives for conservation of biodiversity form the basis for social and economic sustainability as addressed by SDGs. The Toho Gas Group is promoting support for local communities through conservation efforts for the ecosystems that support these communities and opportunities for learning about these efforts.

Initiatives in Business Activities

In our business activities, we devote effort to such moves as conservation of region ecosystems through the establishment of biotopes. In gas pipeline construction, we strive to protect habitats through minimizing the amounts of natural mountain sand and detritus used.

Biotope Establishment

In 2000, we established a 7,500-m<sup>2</sup> biotope at the Chita-Midorihama Works, and in 2010 we established the 600-m<sup>2</sup> Biotope Place at the Gas Energy Exhibition Hall. We also installed an 800-m<sup>2</sup> biotope at Group-incepted Minato AQUUS. In these and other ways, we are working to conserve ecosystems, including rare local species, and to nurture endemic species. These facilities also serve as venues for educating the coming generation about biodiversity in collaboration with local governments.



Biotope at Chita-Midorihama Works

Weed Control Using Goats at Chita-Midorihama

At the Chita-Midorihama Works, thanks to a suggestion made in an internal idea contest, "eco-weeding" using plant-eating goats on the grounds has been taking place since FY2018. The goats, which eat an amount of grass covering an area of approximately 10 m<sup>2</sup> per day, show high adeptness in areas humans find hard to work in, such as on slopes and in places of dense growth, and not using herbicides or fuel for mowing equipment reduces the environmental load and helps conserve biodiversity.



Weed-eating by goats

Initiatives in Local Communities

In local communities, we are engaging in such efforts as forest-conservation activities in Toho Gas Forests and in satoyama - natural woodlands that coexist with nearby populated areas - as well as biodiversity education programs for the coming generation.

Forest Conservation Activities in Toho Gas Forest

In FY2016, we entered into an agreement with Odai-cho, Mie Prefecture, and Mitake-cho, Gifu Prefecture, to create forests at two sites, Toho Gas Forest Odai and Toho Gas Forest Mitake, and promote activities there. At each activity site, Toho Gas Group employees and their families engage in forest conservation activities including tree planting, thinning, and undergrowth-clearing with cooperation from the local community. In May 2020, we opened a third site, Toho Gas Forest Seto, in Seto City, Aichi Prefecture.



Tree-planting in Toho Gas Forest Odai

Satoyama Conservation Activities

Since FY2008, Toho Gas Group employees and their families have taken part in volunteer conservation activities for satoyama -- sustainable human-influenced environments. These activities occur at Higashiyama Forest in Nagoya City, which Japan's Ministry of the Environment has selected as an important satochi-satoyama with respect to biodiversity conservation, and at Chikurin Hiroba Park in Gifu City. In FY2019, a total of 31 persons took part.



An activity in the Nagoya Higashiyama area

Education on Biodiversity in Collaboration with Local Communities

Working in collaboration with local governments, we have been establishing learning opportunities on biodiversity for the members of the coming generation. We have held lectures on biotopes at Nagoya Open University of the Environment in cooperation with Nagoya City, and as an endeavor with Aichi Prefecture, we are participating in the planning for the Chita Peninsula Ecosystem Network Council, and are fostering the next generation of leaders through living-creature monitoring surveys as an Inochiwotsunagu Project ("Connecting Life' Project").



Tanuki photographed by a fixed-point camera installed in a biotope for a living-creature monitoring survey

Nature Conservation Activities Overseas

The Toho Gas Group has been a member of the Keidanren Committee on Nature Conservation since FY2014.

Through the committee, we are providing aid for nature conservation activities by environmental NGOs in Indonesia and elsewhere around the world.

Endorsement of the Keidanren Declaration of Biodiversity and Action Policy

Toho Gas endorsed the Keidanren Declaration of Biodiversity and Action Policy in July 2020. The company's endeavors are congruent with this declaration and action policy, and we will continue to devote effort accordingly.