Environmental Management

Towards Value Creation

Our environmental management policy declares an active commitment to address environmental challenges facing society, including not only preventing environmental pollution but also building circular economies, delivering carbon neutrality, reducing environmental impacts, protecting water resources and conserving biodiversity as key management challenges. Under this policy we are striving to improve our environmental performance.

Environmental Management Policy

In January 2006 we formulated our Environmental Management Policy, reflecting the fact that we consider an active commitment to the environmental challenges facing society to be key management challenges. We will focus on the following six items in all business operations, whilst also communicating with a wide range of stakeholders, both internationally and locally. As a member of the GCCA and the UNGC, we will pursue a sustainable cement industry.

Formulated in January 2006
Revised in April 2024

1 Pursuing Environmentally Conscious Business Activities
We will properly evaluate the environmental impact of our business activities and work to reduce the burden on the environment by developing and adopting eco-conscious products and technologies. As a member of the local community, we will also engage in environmental conservation activities.

2 Compliance with Environmental Laws and Regulations
We will ensure compliance with all environmental laws and regulations applicable to our business activities.

3 Contribution to the creation of Circular Economies
We will contribute to the establishment of circular economies to reduce our environmental impact and promote economic growth by utilizing the characteristics of the cement industry and advancing the sophistication of recycled resource utilization technologies.

4 Initiatives to deliver Carbon Neutrality
We will work to achieve carbon neutrality throughout the supply chain as a company by maximizing the use of existing technologies and developing and sequentially deploying innovative technologies.

5 Promoting Global Technology Transfer
We will promote the worldwide transfer and deployment of our energy conservation, environmental preservation and waste utilization technologies.

6 Nature Conservation
By providing products and technologies that respect coexistence with nature, we will contribute to the conservation and restoration of water resources and biodiversity, and aim to achieve a nature-positive society.

Operational Structure

We have established an Environmental Management Committee chaired by the officer in charge of the Production Department to promote environmental management and implement the Environmental Management System (EMS).

In June 1997 we initiated ISO 14001 certification of each of our plants and attained certification of all six of our directly operated plants by 1999. In 2009, we established a company-wide Environmental Management System (EMS) that extends to our headquarters, branches, and the Central Research Laboratory, and in February 2024, we underwent our fifth renewal audit as a company by the Japan Testing Center for Construction Materials, and continue to maintain our certification.

In countries where ISO is adopted, the ISO 14001 certification acquisition rate for cement plants, including Group companies, is 100% and are actively committed to environmental conservation. Furthermore, all of our overseas cement plants where ISO is not adopted as the mainstream standard operate their own EMS.

Risk Management

Environmental risk reduction
We are taking necessary measures to prevent major environmental accidents as appropriate based on past cases.

Response to natural disasters
In recent years, the intensification of natural disasters due to abnormal weather has become a challenge. We plan to identify the risk of flooding in our plants due to heavy rain, confirm drainage routes and treatment capacity, and then invest in any necessary preventative measures.

Compliance with environmental laws
To ensure compliance with environmental laws throughout the Taiheiyo Cement Group, we regularly conduct environmental patrols at our group companies to confirm their compliance status.

Roadmap for Achieving this Goal

We will implement continuous improvement activities through the reliable operation of our EMS, and will steadily work on the following points:

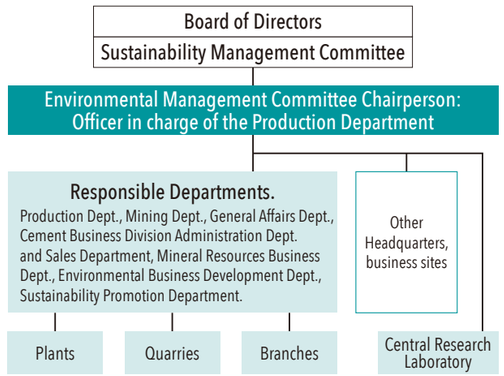
1 Zero serious environmental accidents and complaints
We provide training using past cases of serious environmental accidents. To eliminate environmental accidents and complaints caused by dust emissions, we will completely transition the cement kiln exhaust gas treatment equipment from electrostatic precipitators to bag filters at six directly managed plants and three group company plants.

2 Creating plants that are resilient to emergencies (earthquakes, tsunamis, oil spills, torrential rains, fires, dust emissions)
By reviewing manuals for each emergency situation and conducting regular education and training, we will develop human resources with the on-site capabilities to respond to any emergency. We aim to create plants that are resilient to emergencies by identifying environmental risks and planning and implementing countermeasures.

3 Establishing a system for compliance with environmental laws throughout the Group
For group companies, we will conduct regular environmental patrols using checklists that reflect revisions to environmental laws, and establish a system to maintain compliance with environmental laws and regulations.

FY2024 Results	Plan for FY2027	Our Vision (2030)
1 Zero serious environmental accidents and zero serious environmental complaints	1 Zero serious environmental accidents and serious environmental complaints	1 Zero serious environmental accidents and zero serious environmental complaints
2 Developed manuals for earthquake and tsunami response, strengthened oil spill prevention system	2 Implement measures to address the risk of flooding in plants due to torrential rain	2 Create plants that are resilient to emergencies (earthquakes, tsunamis, oil spills, torrential rains, fires, dust emissions)
3 Operated environmental law compliance checklists and twice conducted environmental patrols at related group companies.	3 Strengthen fire prevention systems for equipment	3 Establish a system for compliance with environmental laws throughout the Group

Company-wide EMS Readiness



Training to respond to environmental accidents (Oita Plant)

Internal Environmental Audits

We conducted internal environmental audits at all our sites in FY2024. This year's audit focused on confirming compliance evaluations for environmental laws and other requirements, reviewing external communications, and verifying corrective actions for unmet targets. For plants, it also included following up on corrective and preventive actions for environmental non-conformities and assessing flood risk to equipment from natural disasters, including the formulation of countermeasures; and for branches, it involved verifying emergency response procedures at service stations.

Results of internal environmental audits

	Total number of identified issues	Number of requests for improvement	Number of corrective actions taken
FY2022	40	3	3
FY2023	29	3	3
FY2024	26	5	5

Environmental Management – Reducing Environmental Impact –

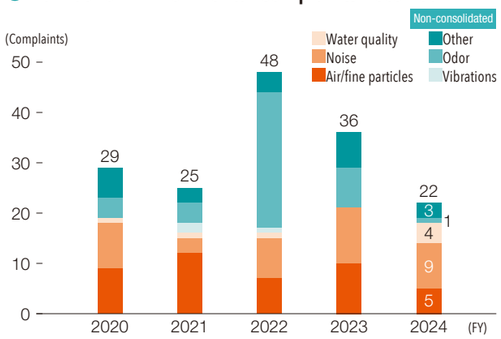
Policy and Operational Structure

Based on our environmental management policy, we comply with environmental laws and regulations and engage in business activities that consider the environment.

Each plant maintains emergency response plans in preparation for possible environmental accidents. They also conduct periodic fire-fighting drills in cooperation with local fire departments. Other training includes how to reduce environmental impact when an environmental accident occurs, and how to report it to local authorities.

In addition, as we increasingly utilize ever more diverse forms of waste and by-products, the number of environmental issues we need to consider also increases. Therefore, we are ramping up our efforts to reduce environmental impact through activities such as expanding indoor storage facilities and the use of sealed containers for waste and by-products, and improving our flue gas stacks. On receiving an environmental complaint, whenever possible we quickly travel to the site in question to check the situation, investigate the cause and provide an explanation. If we find that our activities are the cause we implement improvements.

Number of Environmental Complaints Received

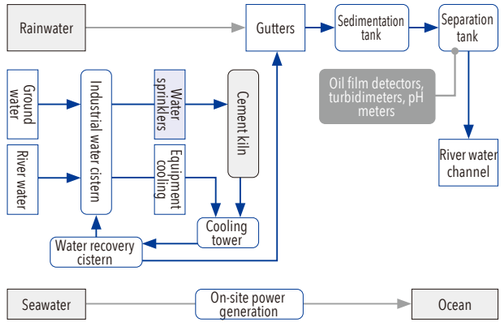


Risk Management

Water Contamination Prevention

Most of the industrial water discharged from our plants to public watercourses is cooling water and not polluted as defined in the Water Pollution Control Act. At our cement plants all water resources are reused as circulation water to minimize industrial water discharge into watercourses. Moreover, we are taking measures to prevent the leakage of contaminants by installing bunds around oil tanks and acid/alkali tanks, as well as installing sedimentation tanks, water-oil separation tanks, oil film detectors, pH meters and suspended solid sensors on water discharge routes that connect to publiccourses.

Example of Water Circulation Flow at a Cement Plant



Air Pollution

Air pollutants generated from cement production are primarily NOx, SOx and dust in combustion gases emitted from cement kilns. To ensure the proper management of these substances we strive to reduce air pollutant emissions through measures such as installing equipment to continuously monitor emission concentrations, improving NOx reduction systems and installing bag filter equipment to capture dust. Our target is to maintain our FY2011 emissions levels.

Specific emissions of main pollutants

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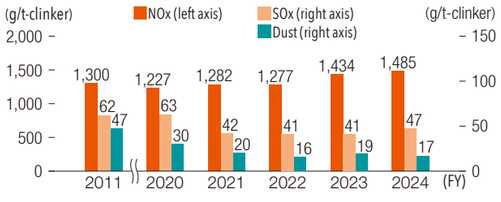

Monitoring Rate

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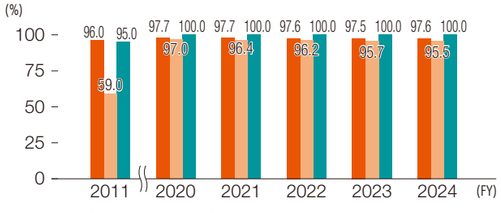


Percentage of clinker volume manufactured in a kilns equipped with continuous NOx measurement
Percentage of clinker volume manufactured in a kilns equipped with continuous SOx measurement
Percentage of clinker volume manufactured in a kilns equipped with continuous dust measurement

Soil Contamination Prevention

Across FY2008 and FY2009, we evaluated the risks associated with cement plants that may be sited on contaminated ground by appointing an expert consultant to undertake a land history survey, conduct drilling surveys, and verify whether or not the soil is contaminated. Actions have been taken as necessary based on the findings, such as the installation of observation wells to monitor ground water contamination and the removal of contaminated soil. We are also working to eliminate the possibility of soil contamination via measures to prevent the leakage of wastewater from scrapyards or fluid from oil tanks, acid/alkali tanks, pipes and so forth.

Management of PCB Waste

We properly store and dispose of high and low concentrations of PCB waste in accordance with the Amendment to the Law concerning Special Measures for Promotion of Proper Treatment of PCB Wastes (hereinafter referred to as the PCB Special Measures Law).

For high-concentration PCB waste with an early disposal deadline as stipulated by the PCB Special Measures Law, we signed a processing contract with the Japan Environmental Safety Corporation (JESCO) in 2006 and have prioritized processing.

In FY2024, we disposed of six PCB contaminated items, such as electrical ballasts, from the former Osaka Plant and the former Kawara Plant, completing the disposal of all high-concentration PCB waste. However, two contaminated items were subsequently discovered at the Kumagaya Plant and the former Onoda Plant and are currently being stored. We will respond appropriately in accordance with instructions from local authorities.

Treatment of High-concentration PCB Waste

Non-consolidated

(No. of items)

Waste	Treated in FY2023	New Targets for FY2024	FY2024 processing results	Stored in FY2024	Treatment Scheduled for FY2025
Capacitors	0	0	0	0	0
Transformers	0	0	0	0	0
Electrical ballasts	6	2	6	2	2
Total	6	2	6	2	2

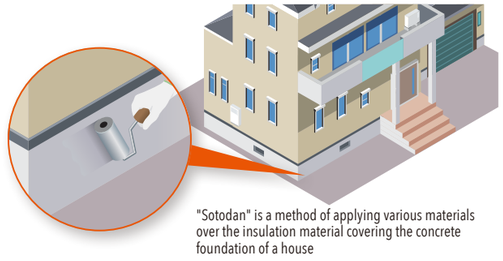
Environmentally Sound Products

Foundation insulation system "Sotodan"

The housing industry is promoting the spread of ZEH*, with excellent environmental performance, towards the delivery of carbon neutrality by 2050. ZEH requires high thermal insulation performance to reduce energy consumption. One way to improve thermal insulation performance is the foundation insulation method, which covers the concrete foundation with insulation material. This makes it possible to keep the underfloor temperature constant, making it cool in summer and warm in winter. Furthermore, by combining this with roof and wall insulation, energy consumption for air conditioning and floor heating can be significantly reduced. "Sotodan," developed by Chichibu Concrete Industry Co., Ltd. for foundation insulation, is a construction method that protects the insulation material on the outside of the foundation from impact, wind, rain, and ultraviolet rays, and adds design value. It is a simple construction method that allows various materials to be applied over the insulation material without any special skills or tools, and it has excellent adhesion and durability.

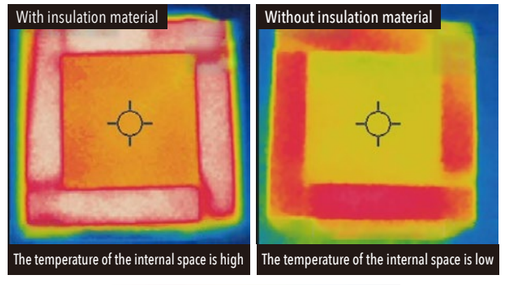
As compliance with energy-saving standards will be mandatory for all new buildings from April 2025, ZEH is expected to increase further in the future, and demand for "Sotodan" is also expected to increase accordingly.

* ZEH: Abbreviation for net Zero Energy House, meaning "a house with zero or negative energy balance" consisting of three elements: energy saving, high thermal insulation and energy generation, contributing to CO_2 reduction.



"Sotodan" is a method of applying various materials over the insulation material covering the concrete foundation of a house

Verification of the effect of insulation material installed on a test specimen simulating the concrete foundation of a house (comparison when placed in a low-temperature environment for 3 hours)



When placed in a low-temperature environment for 3 hours, the temperature of the internal space of the concrete test specimen is kept high under the condition with insulation material installed (left figure)

Circular Economies – Improving resource efficiency –

Towards Value Creation

We are promoting the recycling of waste and by-products into alternative raw materials and fuels for cement towards the creation of circular economies. This reduces the depletion of natural resources and also contributes to extending the life of final disposal sites.

We will continue to create new added value and grow by flexibly responding to cement demand trends and social demands, while achieving circular economies at the same time as carbon neutrality.

Policy and Operational Structure

We have set the establishment of circular economies as part of our environmental management policy, and have identified it as a material management challenge. We aim to reduce our environmental impact and achieve economic growth by utilizing the characteristics of the cement industry, aiming for further sophistication of recycled resource utilization technologies, and launching and developing new businesses that contribute to deepening them. The Taiheiyo Cement Group not only recycles difficult-to-treat waste using the cement manufacturing process, but also recovers various useful resources such as through phosphorus recovery technology (Rintoru), useful metal/precious metal recovery technology in the cement manufacturing process, and lithium-ion battery treatment technology, enabling reuse through collaboration with other industries.

We will promote this under the basic policy of sustainability management, while developing and sharing it in each business and research and development department.

Roadmap for Realizing the Long-term Vision

Based on the current social situation, such as domestic cement demand trends and the promotion of carbon neutrality initiatives, we will promote the following initiatives as a roadmap for achieving circular economies by 2030.

1. Securing the superiority of existing businesses
2. Further improvement of the thermal energy substitution rate by securing the amount of waste treatment in cement production
3. Securing coal ash sources for use as supplementary cementitious materials in blended cement.

Furthermore, to contribute to the deepening of circular economies, we will promote the following initiatives:

1. Recycling lithium-ion batteries, which are one of the difficult-to-treat materials
2. Participating in the phosphorus recovery and fertilizer from the sewage sludge resources demonstration project, which does not depend on the cement business, and the waste solar panel treatment business
3. Establishment of technology for recovering precious metals and removing heavy metals from incineration residues from municipal waste

FY2024 Results

The amount of waste and by-products used was 5.476 million tonnes, a decrease year-on-year due reduced cement production. However, the utilization rate was 421.9 kg/tonne-cement, an increase on the previous fiscal year. The amount of waste plastic accepted as an alternative fuel increased by 0.7% year-on-year.

Plan for FY2027

We will work to accept recycled products that were previously considered difficult to treat, increase the amount of waste treatment, improve the thermal energy substitution rate by increasing the amount of fuel waste treatment in cement production, and launch new businesses that contribute to the deepening of circular economies at an early stage.

Our Vision (2030)

While cement production is decreasing, we will expand new businesses that contribute to the deepening of circular economies and strongly promote activities that can contribute to the local community.

Resource Recycling with Local Communities

In addition to industrial waste, we also use general waste generated by local governments, municipal waste incineration residues, water purification sludge and sewage sludge as raw materials and fuel to manufacture cement.

The national waste generation volume in FY2023 was 40.34 million tonnes, of which 3.37 million tonnes, including non-utilized incineration residues and waste that could not be incinerated, were landfilled at final disposal sites.

The Group's systems for recycling municipal waste that meet the needs of society include the Incineration Residues Recycling System, the AK System, and the Ecocement System. We use these three technologies to recycle municipal waste and strive to make effective use of such resources and resolve environmental issues.

Resource Recycling with Industries

We accept coal ash produced at coal-fired thermal power plants and use it as a substitute for clay as a cement raw material. In addition, we operate Ash Centers to use more ash effectively. We supply limestone powder to power plants as a desulfurization agent for sulfur oxides generated by coal combustion, and we also take back and effectively utilize the by-product gypsum generated from the reaction as a cement raw material.

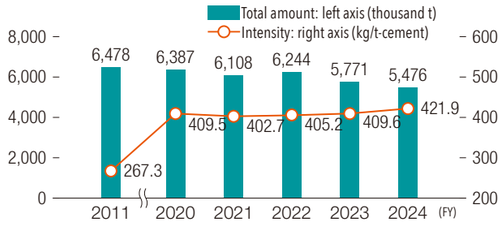
Steelmakers employ a refining process to remove impurities from iron ore as it's transformed into steel. We supply the limestone and quicklime used in the refining process. We also take in by-products such as blast furnace slag generated after refining, and use them as cement raw materials and as supplementary cementitious material.

Materiality KPIs, targets and results

KPIs and targets	FY2022	FY2023	FY2024
Promote the use of alternative raw materials and fuels Maintain waste usage intensity of 400 kg/tonne-cement or more	405.2 kg/t-cement	409.6 kg/t-cement	421.9 kg/t-cement
Waste emissions Maintain volume of waste to landfill at or below 40 tonnes	1.3 tonnes	1.9 tonnes	2.0 tonnes

Trends in Amount and Intensity of Waste and By-products Used

Non-consolidated



Demonstration facility of the Ministry of Land, Infrastructure, Transport and Tourism's "Demonstration Project for Innovative Sewage Technology (B-DASH Project)"

Initiatives at Service Stations

Service stations (SS) reduce the waste handled by waste disposal contractors by accepting any residual cement that remains in silos after switching the cement products. Returned cement is recycled as raw material. The recycling rate in FY2024 increased by 14.6% compared to the previous fiscal year.

Recycling Ratio

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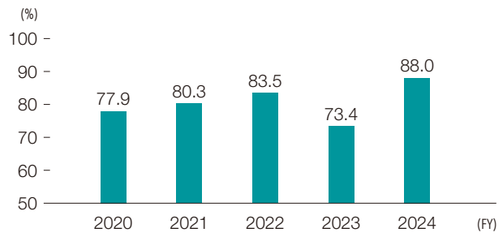


External Economic Benefit (EEB)

We evaluate the socioeconomic benefits from environmental impact reduction due to increased recycling of waste in monetary terms.

Basic approach

We use the external economic benefit (EEB) evaluation method through our Recycled-Waste-to-Cement System to express, in monetary terms, our evaluation of socioeconomic benefits from environmental impact reduction due to increased recycling of waste accepted from outside the company. We calculate that we created a social benefit of 88.6 billion yen in FY2024. In FY2024, the amount of natural raw materials reduced increased from the previous fiscal year, and the economic effect increased by about 2% year-on-year.

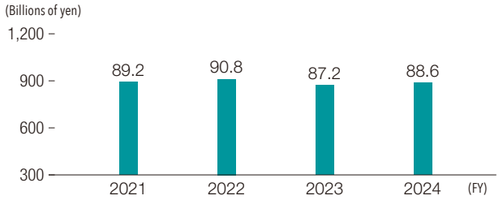
External Economic Benefits (FY2024)

Non-consolidated

Impact	Inventory	Reduction (t)	Inventory Market Price (Yen/t)	External Economic Benefits (Billion yen)
Climate change mitigation	CO_2	1,986,899	3,000	60
Depletion of energy resources	Crude oil	108,397	18,400	20
Depletion of mineral resources	Natural resources	6,823,222	1,000	68
Shortage of landfills	Waste	4,923,390	15,000	739
Total				886

Taiheiyo Cement's External Economic Benefits Evaluation

- We have developed a unique evaluation method to estimate the contribution to overall environmental benefit to society by utilizing waste materials from other industries.
- We use information, including data collected for the GCCA Cement CO_2 Protocol, to calculate the reduction in consumption of fossil energy and natural resources associated with the use of waste and by-products.
- Economic benefits are calculated by multiplying reductions in consumption (effects of environmental conservation) by set market prices. The market values of the inventory items are set at FY2001 levels, and are estimated on the basis of the following considerations: CO_2: Carbon tax of 3,000 yen/tonne, Crude oil: Import price, Natural raw materials: Purchase price (assumed), Waste: Treatment cost at a managed disposal site (Tokyo metropolitan area)
- A portion of the External Economic Benefits is accounted for in our profit and loss statement.



Climate Change – Preventing Global Warming –

Towards Value Creation

A considerable amount of CO_2 is emitted during the cement manufacturing process, of which 40% is energy derived and 60% is derived from the decarbonation of limestone, the main raw material. Therefore, while it is theoretically possible to reduce energy-derived CO_2 emissions to zero by switching to clean energy, there is a major challenge in that CO_2 emissions from raw materials cannot be reduced to zero as long as limestone is used.

To contribute to the prevention of global warming and achieve sustainable growth, we have set forth our "Carbon Neutral Strategy 2050," which includes 2030 interim targets, and are promoting CO_2 emission reduction measures from a medium- to long-term perspective.

Policy and Operational Structure

Based on our "Carbon Neutral Strategy 2050" we have established a project team (currently the Carbon Neutral Technology Development Department) to work on achieving carbon neutrality as a growth strategy and are promoting the development and practical application of innovative technologies that contribute to carbon neutrality.

Furthermore, under the Carbon Neutral Strategy Committee, we have established five working groups (2030 WG, Medium- to Long-Term WG, Finance WG, CCS WG, and CN Plant WG) as cross-organizational groups to promote activities toward achieving our goals.

Roadmap for Realizing the Long-term Vision

In order to achieve our interim goals for 2030, which are "reducing specific CO_2 emissions by 20% or more across the entire supply chain compared to 2000" and "reducing CO_2 emissions in Japan by 40% or more," we have set goals for energy conservation, fossil fuel substitution and expansion of the use of supplementary cementitious material, development of low-CO_2 cement, and completion of the development of CO_2 recovery and utilization technologies.

FY2024 Results

- Commenced study of the carbon neutral model plant concept
- Started demonstration testing of C2SP Kilns
- Decided to introduce gas engine power generation equipment at the Fujiwara Plant

Plan for FY2027

- Accelerate the shift to blended cement
- Development of a system for procuring supplementary cementitious materials
- Promoting alternatives to fossil energy

Our Vision (2030)

- New standardization of blended cement
- Gas firing using methane, hydrogen, etc.
- Development of new grinding aids
- Low CO_2 cement (CARBOFIX cement)
- CO_2 sequestration (CARBOCATCH)

Reducing CO_2 Emissions during Transportation

We contract the delivery of our raw materials, fuels and products to transportation companies and are striving to reduce CO_2 emissions as a specified consigner designated under the Act on Rationalizing Energy Use. As part of our key initiatives, in the trucking division we are encouraging the planned implementation of round-trip transportation and eco-driving, as well as the introduction of energy-saving equipment such as digital tachometers and eco-tires for each vehicle. In shipping, we operate new ships that are equipped with various energy-saving features. We are also supporting energy-saving operations for conventionally powered ships.

Our FY2024 CO_2 emissions were appoximately 2% lower than in FY2023.

CO_2 Emissions by Mode of Transportation (FY2024)

Non-consolidated

Mode of transportation	Transportation volume (thousand t)	Average distance transported (km)	Transported tonne-kilometers (thousand t/km)	CO_2 emissions (thousand t)
Ship	15,955	502	8,013,408	108
Truck	12,135	61	741,154	41
Railway	4,864	26	125,322	3
Total	32,954	269	8,879,884	152

Materiality KPIs, targets and results

KPIs and targets	FY2022	FY2023	FY2024
Delivering carbon neutrality (2030 Interim Targets) Reduce specific CO_2 emissions*1 by at least 20% (compared with 2000)	9.7%	10.5%	11.6%
Reduce domestic CO_2 emissions*2 by 40% or more (compared with 2000)	36.0%	42.7%	46.8%

*1 Scope 1 (excluding fossil energy substitution) + Scope 2 + Scope 3 (Categories 1, 3)
*2 Scope 1 (excluding fossil energy substitution) + Scope 2
(Note) Calculation results were reviewed and retroactively revised

Specific CO_2 emissions in the supply chain

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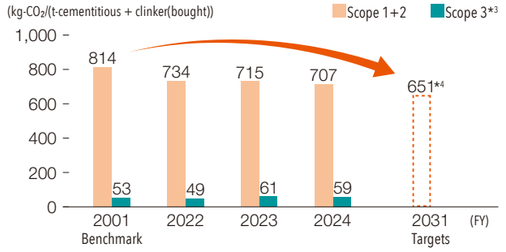

(Note) Calculation results were reviewed and retroactively revised
*3 For Scope 3, refer to the "Emissions Unit Values for Accounting of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.2) Ministry of the Environment" and the "LCI Database IDEA version 3.2 (before FY2023), version 3.4 (FY2024)."
*4 Excluding Scope 3

Specific CO_2 emissions in Scope 1+2 decreased compared to the previous fiscal year. We have achieved an 11.6% reduction toward our 2030 goal of reducing CO_2 specific emissions by 20% or more across the entire supply chain (compared to 2000).

We are also promoting the examination of appropriate evaluation methods for the CO_2 reduction effect through concrete absorption in cooperation with the GCCA.

Total Domestic CO_2 Emissions

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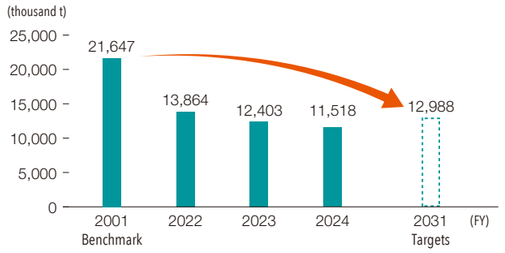


Emissions decreased due to the decrease in coal consumption resulting from the increase in fossil fuel alternatives and the decrease in cement production volume, and we exceeded our 2030 interim target of reducing total domestic CO_2 emissions by 40% or more (compared to 2000).

Environmental Accounting by Project – Introduction of Gas Engine Power Generation Equipment at the Saitama Plant

Gas engine power generation equipment uses an internal combustion engine that burns gaseous fuels such as city gas, and generates electricity by converting the driving force obtained from combustion into electrical energy.

In FY2024, we introduced two 7,800 kW gas engine power generation units at the Saitama Plant, the second case for our domestic plants. This power generation equipment is state-of-the-art equipment with high power generation efficiency and excellent environmental performance, and the introduction of this equipment enables stable availability of electric power necessary for operation and the use of energy-saving and low-CO_2 emission electric power. We will continue to aim for further CO_2 reductions and reductions in our environmental impact.

Gas engine power generation facility at Saitama Plant

Investment amount: Approx. 3.6 billion yen **Reduction in CO_2 emissions: 5,809 tonnes/year**

Disclosure Regarding Recommendations of the TCFD

Setting Scenarios

We focused our scenarios, evaluation and analysis on the business risks and opportunities that climate change will pose to the Group by the year 2050. We identified events that will materially impact climate-related risks and opportunities, based on climate-related, long-term scenarios founded on science, such as the World Energy Outlook (WEO) and Energy Technology Perspectives (ETP) published by the IEA, and The Fifth Assessment Report (AR5) published by the IPCC. Then we created two CO_2 emission reduction-related scenarios, 1.5°C and 4°C, that will impact the business operations of the Group, along with appropriate carbon price assumptions for the 2030s using the IEA World Energy Outlook 2021 as a reference. To follow up, we analyzed the business impacts of every scenario by size and time horizon (short, medium and long).

Process of Selecting Material Climate-related Risks and Opportunities and Scenarios

STEP 1 Conduct a benchmark survey to identify climate-related risks and opportunities for the cement industry and identify relevant drivers

STEP 2 Determine the causal relationships between climate-related drivers, interim outcomes and implications. Then identify key drivers

STEP 3 Create climate-related scenarios for each key driver, referring to the published climate-related long-term scenarios that were developed based on scientific grounds

STEP 4 Evaluate the anticipated business impacts of each scenario

STEP 5 Review responses to the business impacts which are, in our view, positively or negatively significant in our evaluation

	1.5°C scenario (consistent with the Paris Agreement)	4°C scenario (ineffective response to climate change)
Reference Scenarios	IEA net-zero Emissions Scenario (NZE) Carbon Emissions Pathway: RCP 2.6	IEA Stated Policies Scenario (STEPS) Carbon Emissions Pathway: RCP 8.5
Assumed Carbon Price	US$130 (approx. 17,550 yen)/tonne-CO_2	US$30 (approx. 4,050 yen)/tonne-CO_2

1.5°C Scenario	4°C Scenario
Government and industry are working together toward carbon neutrality. Development consistent with the industry's transition to carbon neutrality (CO_2 capture, utilization and storage technologies) is progressing. The effects of climate change are being addressed to a certain extent through national resilience policies and other measures.	There is a mismatch between our efforts towards carbon neutrality and the regulations applicable to the cement industry, which would put us at a competitive disadvantage. Profits from the development of the innovative technologies that we promote are limited. In addition, the effects of climate change are becoming more severe, such as frequent extreme climatic events.

Scenario Overview

Business Impact

Category	Drivers	1.5°C Scenario		4°C Scenario	
		Negative	Positive	Negative	Positive
1. Policy and Regulatory	• Introduction of regulated carbon pricing Tighter CO_2 emission regulations		Medium	Medium	
2. Market	• Soaring fossil energy prices	Small		Medium	
	• Increased demand for low-carbon construction materials		Large		Medium
	• Reduced operation of coal-fired thermal power plants	Medium		Small	
3. Technologies	• Progress in the development of CO_2 capture and utilization technology		Large	Medium	
	• Improved technologies for resource recycling and advanced circular economies		Medium		Small
4. Reputation	• Increased awareness of delivering carbon neutrality		Medium	Medium	
5. Physical events	• Chronic - Higher average temperatures, higher sea levels	Small	Small	Medium	Small
	• Acute - Intensification of climatic events (e.g., flooding, high temperatures)	Small	Small	Large	Small

Large: Impact of about 100 billion yen in terms of net sales
Medium: Impact of about 1-10 billion yen in terms of net sales
Small: Impact up to about 1 billion yen in terms of net sales

Disclosure Regarding Recommendations of the TNFD

Governance

To promote sustainability management, we have established a "Sustainability Management Committee" chaired by the president and composed of all directors and managing executive officers. The Environmental Management Committee and the Risk Management & Compliance Committee, which are specialized committees under the Sustainability Management Committee, are working to solve problems associated with climate change and natural resources capital for the Taiheiyo Cement Group, formulating action plans and conducting self-evaluations of activity results. The content is deliberated by the Sustainability Management Committee, and the results are reported to the Board of Directors.

Strategy

The Taiheiyo Cement Group's quarry operations are conducted with the recognition that limestone mining for raw materials depends on and affects nature, and we are continuously implementing measures to conserve the natural environment of the quarries and surrounding areas. In cement production, we utilize water resources for cooling plant equipment. We are working to analyze water risks and understand water usage to ensure appropriate use, as water-related challenges may arise in the future.

In the future, in order to clarify our contact points with nature, we are considering using methods such as the LEAP*2 approach based on the recommendations of the TNFD*1 to understand the risks and impacts on nature, and incorporating them into our strategy as a long-term plan.

*1 Abbreviation for Taskforce on Nature-related Financial Disclosures.
*2 Guidance developed by the TNFD, which stands for the four phases: "Locate," "Evaluate," "Assess" and "Prepare"

Risk and Impact Management

Based on materiality, we are formulating quarry restoration plans and managing water resources, and we understand the risks and situations of our quarries and plants.

Biodiversity P.86~87

The Taiheiyo Cement Group's quarry operations extract limestone, so the impact on the environment and ecosystem in the development area is unavoidable. In quarry development, based on environmental surveys of the development area, including biodiversity and water resources, we conduct preliminary assessments of the impact of development with the cooperation of experts, and formulate development plans while exchanging opinions with stakeholders. We regularly monitor the surrounding environment and report on environmental impacts to stakeholders.

In addition, based on the GCCA guidelines, we have set a target quarry restoration plan formulation rate of 90% or more.

Conservation of water resources P.88

The water used at the Taiheiyo Cement Group's cement plants is not a raw material for cement products, but is mainly used for cooling plant equipment and, as a result, it evaporates. We are working to reduce the impact on water areas by recycling all water used in our plants, except for household wastewater, and we are analyzing water resource risks at our cement plants using the WRF*3. In addition, we are conserving water sources by managing water resources based on the GCCA guidelines.

*3 Abbreviation for Water Risk Filter, a water risk map developed by the World Wide Fund for Nature (WWF)

Indicators and Targets

We have positioned proactive efforts toward natural resources capital, such as the conservation and recovery of water resources and biodiversity, as an important management challenge in our environmental management policy, and we are conducting impact assessments and management in our business activities with the aim of achieving a nature-positive society. In the future, based on the recommendations of the TNFD, we aim to improve the accuracy of our analysis methods and review the scope of our assessment and priority areas. We will also examine the indicators and targets to be managed based on the results of the assessment of the impact of our business activities.

Overview of Assessment of Impact and Dependence on Nature

The following is an overview of the Taiheiyo Cement Group's dependence and impact on nature.

Process	Office	Dependence on Nature	Impact on Nature
Limestone quarrying	Limestone quarries	・Quarrying of mineral resources ・Other natural resources	・Land conversion ・Impact on ecosystems (terrestrial and fresh water)
Cement production	Cement plant	・Use of water resources (fresh water, sea water, ground water)	・Water use (fresh water, sea water)

FY2024 Results

- Analysis of biodiversity risks at quarries using IBAT*4
- Analysis of water resource risks at cement plants using WRF

*4 Abbreviation for Integrated Biodiversity Assessment Tool provided by BirdLife International

Plan for FY2025-FY2027

- Promote information disclosure in line with TNFD
  - ・Assess impacts and dependencies along the LEAP approach
  - ・Assess risk opportunities along the LEAP approach
  - ・Examine indicators and targets
  - ・Continuous improvement

Our Vision (2030)

- Promoting nature-positivity throughout the Group

Natural Resources Capital – Biodiversity –

Towards Value Creation

The Taiheiyo Cement Group believes that it is important to balance the conservation of the local ecosystem with the promotion of local communities when developing and operating limestone quarries, which have the greatest impact on biodiversity among our business activities. We aim to realize a nature-positive economy advocated by the Taskforce on Nature-related Financial Disclosures (TNFD) through collaboration with local communities, from quarry development and operation to the use of post-mining sites. Specifically, we strive to operate our quarries in a way that minimizes environmental impact, including the prevention of mining pollution and the conservation of biodiversity and water resources, while taking into account the opinions of local governments, local communities and academics.

Policy and Operational Structure

Cement production starts with quarrying limestone, the primary raw material for cement. We also quarry many mineral resource products used as aggregates and industrial raw materials. The Taiheiyo Cement Group recognizes the importance of actively contributing to biodiversity protection as a key management priority and has incorporated natural conservation into our "Environmental Management Policy." In addition to the conservation of rare animals and plants and the greening of mining areas and sites that we have traditionally carried out at our quarries, we will participate in the "30by30 Alliance for Biodiversity" and the "Keidanren Nature Conservation Council" promoted by the Ministry of the Environment from FY2024 to promote more proactive activities.

Risk Management System

The main limestone quarries of our group are located near cement plants. Based on the GCCA guidelines, we use the Integrated Biodiversity Assessment Tool (IBAT) provided by BirdLife International to check if any of our group's limestone quarries are in any of the protected areas defined by the International Union for Conservation of Nature (IUCN) and conducted a biodiversity assessment. Quarries located in areas considered to have biodiversity value are operated with consideration for the environment under the operating permits from the local governments. During development and operation, we regularly monitor the surrounding environment and report on the environmental impact of development and operation to stakeholders to manage risks. We are also formulating and operating mining plans that include environmental restoration, such as greening after mining is completed.

Limestone Quarries of the Group

GCCA

Region	Quarries	Site area (ha)	Applicable*1 quarries
Japan	13	2,835	2
America	4	1,903	0
Asia	2	617	0
Ratio of quarries with recovery plans (%)			95

*1 A protected area whose purpose is to conserve habitat mainly through management activities. Includes IUCN Protected Areas Category IV (habitat or species management area)

Roadmap for Realizing the Long-term Vision

The Taiheiyo Cement Group has been promoting greening activities in mining areas and post-mining sites at limestone quarries, which are related to biodiversity. In mining areas, forests are cut down, topsoil is excavated, and limestone is extracted, so bedrock and ground are exposed and there is no vegetation. However, if no quarrying work is expected for some time we strive to green such areas as soon as possible.

In addition, in the 30by30 Alliance for Biodiversity, we are promoting specific initiatives toward the realization of a nature-positive society.

Furthermore, in the Keidanren Nature Conservation Council, we will cooperate with biodiversity protection through activities such as information sharing and dissemination with companies and organizations.

FY2024 Results

- Biodiversity
  - Participate in the 30by30 Alliance for Biodiversity
  - Participate in the Keidanren Nature Conservation Council
- Quarry greening
  - Seeding 27,000 m²
  - Planting 1,760 seedlings

Plan for FY2027

- Biodiversity
  - Promote the initiatives of the 30by30 Alliance toward achieving the 30by30 target
- Quarry greening
  - Seeding 71,000 m²
  - Planting 8,000 seedlings

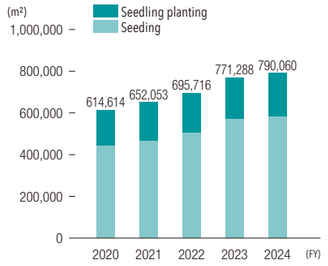
Our Vision (2030)

- Biodiversity
  - Promote nature-harmonious business activities and contribute to the realization of a nature-positive society
- Greening of quarries (total for 2027-2030)
  - Seeding 128,000 m²
  - Planting 17,900 seedlings

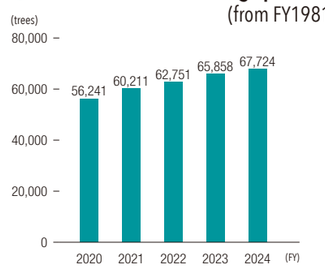
Materiality KPIs, targets and results

KPIs and targets	FY2022	FY2023	FY2024
Develop quarry rehabilitation plans Rate of developing quarry restoration plans: 90% or more	94%	94%	95%

Total greening area (from FY1995)



Total number of seedlings planted (from FY1981)




Tree planting ceremony (Buko Quarry)

Biodiversity Protection

When environmental impact assessments determine that protection is required at a limestone quarry that we own, we protect rare species via measures such as installing protective equipment, transplanting and restricting development work.

Chichibu Taiheiyo Cement Corporation is actively involved in the conservation of rare plants. At the Kanouyama Quarry located in Kanna Town, Tano District, Gunma Prefecture, 38 rare plants native to the quarry have been transplanted into a botanical garden set up at the quarry with the cooperation of a local nature conservation group. In addition, at the same company's Miwa Quarry, which is conducting limestone extraction on Mt. Buko, located in Chichibu City and Yokoze Town in Saitama Prefecture, we are preserving and increasing the population of 68 native plant species together with local experts and using the Central Research Laboratory's biotechnology.

At the Fujiwara Quarry of Mie Taiheiyo Mining Company (formerly Ishizaki Co., Ltd.), we have been engaged in conservation activities since 2012, including transplantation and post-event surveys in cooperation with experts, for a Mie Prefecture-designated rare animal species that is found in the limestone area around Mt. Fujiwara.


Silene keiskei (Kanouyama Quarry)


Iwakinbai (Kanouyama Quarry)

Initiatives in the 30by30 Alliance for Biodiversity

The Taiheiyo Cement Group joined the 30by30 Alliance for Biodiversity in FY2024 and is examining the implementation of the participation requirements.

30by30 is a target to conserve at least 30% of land and sea areas as healthy ecosystems by 2030. It was agreed at the 2021 G7 Summit that each country would achieve this goal, and it was further included in the Kunming-Montreal Global Biodiversity Framework at the 2022 Biodiversity COP15.

Our Mining Department, the group companies that manage our quarries, and the Central Research Laboratory will cooperate to promote initiatives in the 30by30 Alliance for Biodiversity and contribute to achieving the 30by30 target.

Participation Requirements for the "30by30 Alliance for Biodiversity"

(Work on one of the following)

- Register owned or managed land in the international OECM*2 database
- Expand protected areas or support their expansion
- Support the management of protected areas and areas registered (or expected to be registered) in the international OECM database
- Incorporate the 30by30 target into local government strategies and recommend support for the expansion of protected areas, registration in the international OECM database, and their management

In addition, participants will actively disseminate these initiatives externally.

*2 Abbreviation for Other Effective area-based Conservation Measures: Areas where conservation is carried out through private sector initiatives, or areas where management that is not intended for conservation also contributes to the protection of the natural environment.

Natural Resources Capital – Water Source Conservation –

Towards Value Creation

As water-related challenges may arise in the future, we strive to ensure the appropriate use of water resources at the Taiheiyo Cement Group's cement plants by analyzing water risks and understanding water usage.

Policy and Operational Structure

We have positioned proactive efforts toward natural resources capital, such as the conservation and recovery of water resources, as an important management challenge in our environmental management policy, and are aiming to achieve a nature-positive society. In addition, we are conserving water sources in accordance with GCCA guidelines.

At the Taiheiyo Cement Group's quarries, we are also working to conserve water resources such as rivers and springs. From the viewpoint of water resource conservation, spring water and rainwater are discharged after passing through a regulation pond to minimize the impact on the external environment. In some quarries we drill wells for domestic water and supply this water to local communities for everyday use.

Risk Management

An analysis of water risks at the Taiheiyo Cement Group's cement plants using the Water Risk Filter (WRF)* shows an average basin physical risk score of 2.76, weighted by cement production volume across all plants, with the highest score being 3.82 for one particular plant. In addition, from FY2025, we have revised the evaluation accuracy with a focus on water basin physical risks to better understand the impact on the environment. In the analysis of the situation of plants with high evaluation points, no urgent challenges have been found, and we will continue to strive for the appropriate use of water resources.

* A tool developed by the World Wide Fund for Nature (WWF) to assess physical risks and business risks in water resource basins, with the highest evaluation point of 5.0 indicating the greatest risk.

Water Consumption

Most of the water used at our cement plants is for the cooling of equipment, exhaust gas and on-site power generators. Therefore, the water discharged from the plants is mostly cooling water, which is not polluted as defined in the Water Pollution Control Act. All the fresh water used at the plants is circulated and reused, except for the household wastewater, as we strive to reduce our water withdrawal and lessen the impact of wastewater on bodies of water. Seawater is used to cool on-site power generation facilities at our plants near the ocean and then released back into the sea after use.

Our total fresh water use in FY2024 was about 10.38 million m3 and our fresh water used to produce one tonne of cement was 0.4m3. Most of this freshwater is not used as a raw material for products, but is used for cooling equipment and gas and is then evaporated.

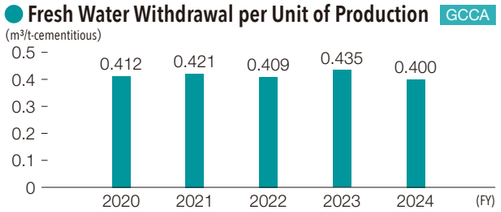
Water Consumption

GCCA (Unit: thousand m³)

	FY2020	FY2021	FY2022	FY2023	FY2024
Surface water	5,626	5,355	5,527	5,346	4,374
Ground water	18,656	18,759	18,706	17,673	16,740
Industrial water	3,325	3,078	2,108	1,630	2,289
Total fresh water withdrawal (I)	27,607	27,192	26,341	24,649	23,403
Total seawater withdrawal	147,372	146,232	146,894	145,476	145,758
Total water withdrawal	174,979	173,424	173,235	170,125	169,161
Total fresh water discharge (O)	13,674	13,447	13,246	12,792	13,021
Total seawater discharge	147,377	146,368	147,062	145,639	145,927
Total water discharge	161,051	159,815	160,308	158,431	158,948
Total fresh water used (I-O)	13,933	13,745	13,095	11,857	10,382

Fresh Water Withdrawal per Unit of Production

GCCA



Appropriate Use of Water Resources

Currently, there are no particular concerns regarding water resources between us and the local community, but we are making efforts to reduce water withdrawal from the viewpoint of water resource conservation. In the future, we will maintain close communication with local communities and contribute to the appropriate use of local water resources.

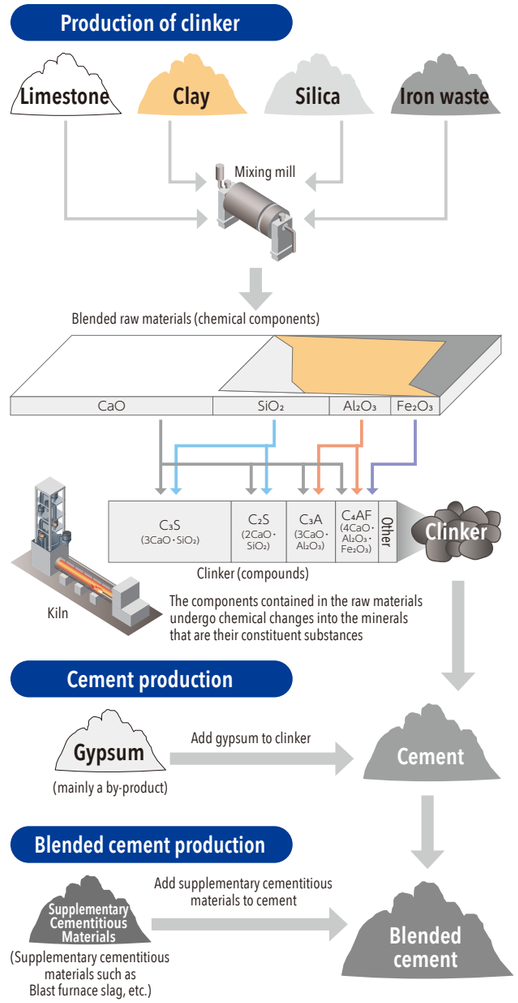
Taiheiyo Cement Philippines, Inc. supplies tap water to the community from wells dug for factory industrial water. At CalPortland Company's Rocky Canyon Aggregate Quarry in California, USA, a system for the sustainable use of water has been built to improve the collection and storage of rainwater and spring water at the site. This has enabled us to secure water sources, maintain the supply of water necessary for operations without increasing the number of wells or the amount of groundwater pumped, and minimize off-site wastewater discharge under strict regulations.

Utilization of Waste and By-products in Cement Manufacturing

Cement can utilize various types of waste and by-products as raw materials and fuel by taking advantage of the characteristics of its manufacturing process.

One of the reasons is the manufacturing process of clinker, an intermediate product. Most of the clay and iron waste used for clinker production are currently waste and by-products, and by blending these with natural raw materials such as limestone and silica stone in appropriate proportions and grinding them in a raw material mill, blended raw materials are produced. Cement manufacturing technology blends raw materials with various compositions to achieve a certain quality.

Clinker is produced by a chemical reaction when this blended raw material is fired in a kiln, and waste such as waste plastic is used as an energy source as fuel. Clinker is then ground with gypsum (mainly a by-product) to become Portland cement. Blast furnace slag and other supplementary cementitious materials are added to cement to make blended cement, taking advantage of their pozzolanic properties of hardening when stimulated by cement.



Amount and intensity of main waste and by-products used

Non-consolidated

Waste and By-products	Amount used (t)	Intensity (kg/t-cement)
Coal ash	1,686,689	129.9
Blast furnace slag	947,365	73.0
By-product gypsum	456,459	35.2
Unburned ash, dust	429,905	33.1
Dirt and sludge	359,497	27.7
Construction soil	181,113	14.0
Waste oil	146,704	11.3
Wood chips	20,157	1.6
Waste plastic	222,150	17.1
Water treatment plant sewage sludge and ash	327,527	25.2
Incineration residues from municipal waste	137,055	10.6
Municipal waste	21,707	1.7
Other	540,065	41.6
Total	5,476,393	421.9
Alternative raw material	4,923,390	379.3
Alternative fuel	553,003	42.6
Total	5,476,393	421.9