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TAISEI CORPORATION Annual Environmental Targets

| Environmental Targets for FY2023 and result for FY2022

	Annual Targets	FY2022		FY2023 Target Values (Medium-Term Business Plan 2021-2023)
		Target Values	Result	
Decarbonized Society 	At construction stage *1: KPI Reduction of CO ₂ emissions per sales (intensity)	-38%	-47.5%	-41%
	At construction stage*1: KPI Reduction of total CO ₂ emissions	-51%	-60.5%	-46%
	At building operation stage*1: KPI Reduction for design-build projects estimated CO ₂ emissions (including dissemination and promotion of ZEB)	-42%	-49.8%	-43%
Recycling Oriented Society 	Adoption of green (environmentally conscious) procurement items at building design stage	11 items per project or more	12.8 items per project	12 items per project or more
	Reduction of final disposal rate of construction waste	3.3% or less	2.8%	3.2% or less
Nature Co-Existing Society 	Promotion of projects contributing to improvement in biodiversity	40 projects or more	50 projects or more	40 projects or more

※1 Compared to FY1990

KPI Key performance indicator

TAISEI Group Material Flow (FY2022)

INPUT		
Total fossil fuel use	78.3	10 ³ kL
Diesel	58.3	
Kerosene	4.1	
Heavy oil	14.0	
Gasoline	1.9	
Total electricity use	167	10 ⁶ kWh
Sites (construction sites)	109	
Factories	35	
Offices	23	
Total quantity of the main construction materials	—	—
Ready mixed concrete	1,060	10 ³ m ³
Cement	66	10 ³ t
Aggregates (gravel, crushed stone, etc.)	155	10 ³ t
Steel	405	10 ³ t
Water (consumption)	2,390	10 ³ m ³



OUTPUT		
Total CO ₂ emissions(Scope1+2)	291	10 ³ t-CO ₂
Sites (construction sites)	211	
Factories	64	
Offices	16	
Scope 1	217	10 ³ t-CO ₂
Scope 2	75	
Construction by-products volume	2,420	10 ³ t
Quantity recycled	2,335	
Quantity of direct final disposal	85	
Water (discharged)	3,134	10 ³ m ³

Supply chain CO ₂ emissions(Scope3)		
Scope 3	5,284	10 ³ t-CO ₂
Category 1	2,105	
Category 11	2,856	
Other Category	323	




















Total CO ₂ emissions(Scope1+2)		
Taisei Corporation	189	10 ³ t-CO ₂
Taisei Rotec Corporation	94	
TAISEI U-LEC CO., LTD	5	
Five other companies	3	

Construction By-product volume		
Taisei Corporation	2,012	10 ³ t
Taisei Rotec Corporation	332	
TAISEI U-LEC CO., LTD	60	
Five other companies	17	

TAISEI CORPORATION Material Flow

| INPUT

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Total energy use	10 ⁹ MJ	4.14	4.39	3.60	3.77	3.24 
Construction site (building)	10 ⁹ MJ	1.61	1.99	1.04	1.45	1.32 
Construction site (civil engineering)	10 ⁹ MJ	2.31	2.18	2.35	2.10	1.70 
Offices	10 ⁹ MJ	0.22	0.22	0.22	0.22	0.22 
Total fossil fuel use	10 ³ kL	79.0	76.7	61.4	62.7	50.9 
Diesel	10 ³ kL	77.8	75.2	60.0	62.2	45.1 
Kerosene	10 ³ kL	0.5	0.6	0.9	0.5	0.9 
Heavy oil	10 ³ kL	0.8	1.0	0.5	0.1	5.0 
Total electricity use	10 ⁶ kWh	111	145	122	136	125 
Construction site (building)	10 ⁶ kWh	43	57	21	34	49 
Construction site (civil engineering)	10 ⁶ kWh	52	73	87	85	59 
Offices	10 ⁶ kWh	15	15	15	16	16 
City gas (offices)	10 ³ m ³	140	213	259	165	118 
GTL	10 ³ kL	—	—	—	—	0.3 
Quantity of the main construction materials* ¹						
Ready mixed concrete* ²	10 ³ m ³	3,375 (10 ³ t)	4,066 (10 ³ t)	3,855 (10 ³ t)	1,523	1,060 
Cement	10 ³ t	695	263	172	120	66 
Aggregates (gravel, crushed stone, etc.)	10 ³ t	2,038	2,514	387	315	155 
Steel	10 ³ t	414	506	534	539	405 
Water (consumption)* ³	10 ³ m ³	1,436	1,414	1,412	2,266	2,279 
Construction site	10 ³ m ³	—	1,348	1,363	2,215	2,220
Office	10 ³ m ³	—	66	49	51	59
Proportion by worksites water intake destination* ⁴						
Tap water / water for industrial use	%	—	82	67	22	57
River water / groundwater / etc.	%	—	18	33	78	43
Seawater	%	—	0	0	0	0

*1 Up through FY 2020, the contract quantities were tabulated. Beginning in FY2021, sales quantities for the four main construction materials (ready-mixed concrete, cement, aggregates, and steel) were tabulated. In FY2022, sales quantities for Taisei Corporation's independent construction projects and turnover quantities for joint venture constructions according to Taisei's sales were tabulated, calculated, and disclosed.

*2 From FY 2018 through FY 2020, quantities have been shown as "10³t."











*3 Consumption = Intake quantity. The discrepancy between the consumption quantity and the discharge quantity is mainly due to the fact that naturally gushed out spring water, ground water, etc., at the worksites are not included in the consumption quantity, but are included in discharge quantity as they are subject to management.

*4 Proportion calculated from intake and discharge quantities at sampled worksites. *Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

TAISEI CORPORATION Material Flow

OUTPUT

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Total CO ₂ emissions (Scope1+2)	10 ³ t-CO ₂	261	267	216	224	189 
Construction site (building)	10 ³ t-CO ₂	102	124	66	91	78 
Construction site (civil engineering)	10 ³ t-CO ₂	148	133	140	123	101 
Offices	10 ³ t-CO ₂	11	10	10	10	10 
At construction stage Reduction of CO ₂ emissions per sales (intensity)	t-CO ₂ /JPY 100 million	19.5	18.8	19.1	19.1	14.4 
Total CO ₂ emissions	10 ³ t-CO ₂	261	267	216	224	189 
Scope 1 ^{*1}	10 ³ t-CO ₂	204	198	159	162	133 
Scope 2 ^{*2}	10 ³ t-CO ₂	57	69	57	61	56 
NO _x	t	1,345	1,302	1,039	1,085	813 
SO _x	t	205	200	158	162	151 
Quantity of Chlorofluorocarbon and halon recovered ^{*3}	t	15	21	—	—	—
Construction by-product	10 ³ t	2,020	2,411	1,787	1,976	2,012
Quantity recycled	10 ³ t	1,924	2,283	1,715	1,914	1,939
Quantity of direct final disposal	10 ³ t	96	128	71	62	73
Water (discharged) ^{*4}	10 ³ m ³	4,483	4,288	6,625	9,677	3,014
Construction site	10 ³ m ³	—	4,228	6,578	9,627	2,955
Office	10 ³ m ³	—	60	47	50	59
Proportion by worksite discharge destination ^{*5}						
Sewer, etc.	%	—	34	19	11	66
River / lake / agricultural drainage ditch	%	—	65	77	89	33
Ocean	%	—	1	4	0	1

^{*1} Since in FY2021, in accordance with the Japan Federation of Construction Contractors guidelines, emissions at Taisei worksites from fuel are listed under Scope 3, which in FY2020 were included in Scope 1.

^{*2} Total CO₂ emissions in FY2022 include the effects of reduction of 113t- CO₂ from using renewable energy which non-fossil certificates.

^{*3} Up to FY2019, the quantities of fluorocarbons and halons emitted by Taisei that have been recovered have been tabulated and disclosed (halon recovery quantities since FY 2018), in accordance with the Fluorocarbon Recovery and Destruction Act. In FY2020, leak quantities were tabulated in accordance with the Act for Rationalized Use and Proper Management of Fluorocarbons. Leak quantities were minute and were therefore not disclosed.


^{*4} The discrepancy between the consumption quantity and the discharge quantity is mainly due to the fact that naturally gushed out spring water, ground water, etc., at the worksites are not included in the consumption quantity, but are included in discharge quantity as they are subject to management.



^{*5} Proportion calculated from intake and discharge quantities at sampled worksite.

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

TAISEI CORPORATION Material Flow

| Supply Chain CO₂ Emissions(Scope3)

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Scope 3 Total	10 ³ t-CO ₂	—	—	4,491	3,878	4,616
1. Purchased goods and services ^{*1}	10 ³ t-CO ₂	—	—	1,347	1,283	1,889 
2. Capital goods	10 ³ t-CO ₂	—	—	4	0	13
3. Fuel-and-energy-related activities	10 ³ t-CO ₂	—	—	32	33	28
4. Upstream transportation and distribution	10 ³ t-CO ₂	—	—	9	8	5
5. Waste generated in operations	10 ³ t-CO ₂	—	—	179	209	143
6. Business travel	10 ³ t-CO ₂	—	—	1	1	1
7. Employee commuting	10 ³ t-CO ₂	—	—	5	5	5
8. Upstream leased assets	10 ³ t-CO ₂	—	—	1	0	0
9. Downstream transportation and distribution	10 ³ t-CO ₂	—	—	—	N/A	N/A
10. Processing of sold products	10 ³ t-CO ₂	—	—	—	N/A	N/A
11. Use of sold products	10 ³ t-CO ₂	—	—	3,371	2,284	2,495 
12. End of life treatment of sold products	10 ³ t-CO ₂	—	—	40	51	35
13. Downstream leased assets	10 ³ t-CO ₂	—	—	5	5	3
14. Franchises	10 ³ t-CO ₂	—	—	—	N/A	N/A
15. Investments	10 ³ t-CO ₂	—	—	—	N/A	N/A

*1 For FY2020 and FY2021, the CO₂ emissions for the four main construction materials (ready-mixed concrete, cement, aggregates, and steel) were calculated. From FY2022, those for all items were calculated. The CO₂ emissions in FY2022 for the four main construction materials were 933 (103t- CO₂).

















※ Beginning in FY2020, values based on the GHG Protocol, etc. are disclosed.

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

Material Flow for Group Companies

| INPUT


Third-party assured values are indicated with the  mark









Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Total energy use	10 ⁹ MJ	1.62	1.68	1.70	1.70	1.70 
Sites (Construction site)	10 ⁹ MJ	0.39	0.32	0.37	0.42	0.47 
Factories	10 ⁹ MJ	1.10	1.23	1.20	1.15	1.12 
Offices	10 ⁹ MJ	0.12	0.12	0.13	0.12	0.12 
Total fossil fuel use	10 ³ kL	26	26	27	27.4	26.7 
Diesel	10 ³ kL	12	10	11	12.2	13.2 
Kerosene	10 ³ kL	2	3	3	2.7	2.5 
Heavy oil	10 ³ kL	11	11	11	10.8	9.0 
Gasoline	10 ³ kL	2	2	2	1.7	1.9 
Total electricity use	10 ⁶ kWh	40	43	43	43	42 
Sites (Construction site)	10 ⁶ kWh	1	1	1	1	1 
Factories	10 ⁶ kWh	33	35	35	35	35 
Offices	10 ⁶ kWh	7	7	7	7	7 
City gas	10 ³ m ³	4,628	5,692	5,056	4,169	4,589 
GTL	10 ³ kL	—	—	0	0.2	0.1 
LPG	t	378	485	575	598	1,231 
Water (consumption)	10 ³ m ³	115	138	109	102	111

*Note: Data are from TAISEI Group Company is excluding Taisei Corporation(domestic).

Material Flow for Group Companies

| OUTPUT

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Total CO ₂ emissions(Scope1+2)	10 ³ t-CO ₂	100	101	102	101	102 
Construction site	10 ³ t-CO ₂	27	22	25	29	32 
Factories	10 ³ t-CO ₂	66	72	70	66	64 
Offices	10 ³ t-CO ₂	7	7	7	6	6 
Total CO ₂ emissions	10 ³ t-CO ₂	100	101	102	101	102 
Scope 1 ^{*1}	10 ³ t-CO ₂	80	81	83	83	84 
Scope 2 ^{*2}	10 ³ t-CO ₂	20	20	19	18	19 
NO _x	t	257	227	224	280	295
SO _x	t	107	103	105	107	97
Quantity of Chlorofluorocarbon and halon recovered	t	3	2	2	6	6
Total industrial waste generated	10 ³ t	266	485	416	476	408 
Quantity recycled	10 ³ t	256	475	406	465	397
Final disposal quantity	10 ³ t	10	10	10	11	12
Water (discharged)	10 ³ m ³	109	74	76	108	120

*1 Since FY 2021, in accordance with the Japan Federation of Construction Contractors guidelines, emissions at Taisei worksites from for fuel are listed under Scope 3, which in FY 2020 was included in Scope 1.

*2 The quantities of fluorocarbons and halons emitted by the Group companies that have been recovered have been tabulated and disclosed (the quantity of halons recovered until FY2018).

*Note: Data are from TAISEI Group Companies is excluding Taisei Corporation (domestic).

Material Flow for Group Companies

| Supply Chain CO₂ Emissions(Scope3)





Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Scope 3 Total	10 ³ t-CO ₂	—	—	—	753	668
1. Purchased goods and services ^{*1}	10 ³ t-CO ₂	—	—	—	246	216
2. Capital goods	10 ³ t-CO ₂	—	—	—	19	12
3. Fuel-and-energy-related activities	10 ³ t-CO ₂	—	—	—	17	12
4. Upstream transportation and distribution	10 ³ t-CO ₂	—	—	—	9	5
5. Waste generated in operations	10 ³ t-CO ₂	—	—	—	13	18
6. Business travel	10 ³ t-CO ₂	—	—	—	1	1
7. Employee commuting	10 ³ t-CO ₂	—	—	—	1	1
8. Upstream leased assets	10 ³ t-CO ₂	—	—	—	0	0
9. Downstream transportation and distribution	10 ³ t-CO ₂	—	—	—	5	5
10. Processing of sold products	10 ³ t-CO ₂	—	—	—	N/A	N/A
11. Use of sold products	10 ³ t-CO ₂	—	—	—	405	361
12. End of life treatment of sold products	10 ³ t-CO ₂	—	—	—	9	7
13. Downstream leased assets	10 ³ t-CO ₂	—	—	—	28	28
14. Franchises	10 ³ t-CO ₂	—	—	—	N/A	N/A
15. Investments	10 ³ t-CO ₂	—	—	—	N/A	N/A

※ Beginning in FY2021, values based on the GHG Protocol, etc. are disclosed.

*Note: Data are from TAISEI Group Companies is excluding Taisei Corporation (domestic).

Projected CO₂ Emissions and Reduction Rate in the Building Operation Phase

Third-party assured values are indicated with the  mark


Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Projected CO ₂ emissions	10 ³ t-CO ₂	10	15	42	19	13 
Calculated values according to 1990 standard	10 ³ t-CO ₂	17	25	72	34	26 
(reduction rate)	%	40.2	39.5	41.4	44.6	49.8 
Emissions by floor space	kg-CO ₂ /Year·m ²	30	23	32	17	11 

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

Total Construction By-product (Waste /valuable resources)

| Total Construction By-product

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Total Construction By-product	10 ³ t	2,020	2,411	1,787	1,976	2,012 
Excluding sludge and specially controlled industrial wastes		973	1,268	1,066	1,119	1,314
Final disposal quantity		96	128	71	62	73
Excluding sludge and specially controlled industrial wastes		88	74	51	38	42
Quantity recycled		1,924	2,283	1,715	1,914	1,939
Excluding sludge and specially controlled industrial wastes		886	1,194	1,016	1,082	1,272




*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

| Emissions (10³t) and recycle rate by type (FY2022) Third-party assured values are indicated with the mark

Construction By-product	Civil engineering	Building construction			Total	Recycling rate (%)
		New Construction	Demolition	Subtotal		
Concrete remnants	133	268	508	776	908	100
Asphalt- concrete Remnants	53	64	10	74	127	100
Construction site sludge	390	222	32	254	644	—
Mixed waste	6	32	6	38	44	77.6
Wood scrap	21	10	4	14	35	94.9
Metal scrap	2	13	12	26	27	99.6
Waste plastics	2	5	1	6	8	68.8
Miscellaneous	83	99	36	135	218	74.5
Total	689	714	608	1,322	2,012	—

| Recycling Rate

Third-party assured values are indicated with the  mark

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Concrete remnants	%	100	100	100	100	100 
Asphalt- concrete Remnants		100	99.5	100	100	100 
Wood scrap		95.0	95.0	95.0	95.0	94.9 

※ The above three items are specific construction material waste based on the Construction Material Recycling Act.

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

Management of Hazardous Wastes

| Hazardous waste quantity

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Specially controlled industrial wastes	10 ³ t	10	10	3	3	3
Waste asbestos etc.		1	2	1	3	3
Industrial wastes containing asbestos		4	14	5	15	17
Mercury-using products		0	0	0	0	0

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

| PCB wastes

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
Quantity of PCB wastes generated and discarded	kg	—	0	0	31	27

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

| Volatile organic compounds (VOC emissions)

Category	Units	FY2018	FY2019	FY2020	FY2021	FY2022
VOC emissions*	t	—	N/A	N/A	N/A	N/A

* As of November 2022, there were no items that fall under the heading of volatile organic compound discharging facilities and discharge criteria subject to regulation as established by the Volatile Organic Compound (VOC) Discharge Control System (Ministry of the Environment).

*Note: Data are from TAISEI Corporation (non-consolidated) (domestic).

Environmental Data / Indicator Calculation Method / Criteria

Target organizations	<ul style="list-style-type: none"> - Domestic enterprises of Taisei Group companies (Taisei Corporation, Taisei Rotec Corporation, Taisei-Yuraku Real Estate Co., TAISEI U-LEC CO., LTD, Seiwa Renewal Works, Taisei Setsubi Co., Ltd., J-FAST Co., Ltd., Taisei Housing Corporation) - The target organizations cover more than 90% of the sales of the entire Taisei Group.
Category by type of worksite	Construction site (civil engineering / building), office (not including development projects and other projects) or factory
CO ₂ emissions Scope categories	<ul style="list-style-type: none"> - Scope 1: CO₂ emissions from burning of fossil fuels (including transport of construction by-products from worksites) - Scope 2: Indirect CO₂ emissions from the use of power, steam or hot and cold water - Scope 3: CO₂ emissions from other companies involved in business activities

Taisei Corporation Material Flow

INPUT		Calculation method/criteria
Fossil fuel use	10 ³ kL	<p>Aggregation criteria Aggregated in conformance with the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, Act on Promotion of Global Warming Countermeasures, the GHG Protocol, the Japan Federation of Construction Contractors guidelines, etc., and based on in-house regulations relating to environmental data management, the Taisei Group environmental data aggregation manual, and the Taisei Corporation environmental data aggregation manual.</p> <p>Calculation of use</p> <ul style="list-style-type: none"> • Offices: Annual purchase quantity and usage are aggregated for each month • Construction site (Civil Engineering and Building worksites): Annual consumption was aggregated for 167 sampled worksites and the consumption per unit of construction sales (basic unit) for the period was calculated. The annual consumption for the sampled worksites was aggregated (for 2 months until FY2021) and combined with the annual consumption of the other worksites, derived by multiplying the basic unit by the construction sales of Taisei and calculated. For civil engineering, this calculation is performed for each construction type. <p>*Energy-related: Major fossil fuels (heavy oil, light oil, gasoline (office), kerosene), electricity, city gas, GTL, steam, and hot and cold water consumption and their energy-equivalent values</p> <p>*The total of energy usage is the value of fossil fuel usage + power usage + city gas (office) usage + steam and hot and cold water usage converted into joules.</p>
Electricity use	10 ⁶ kWh	
City gas (offices)	10 ³ m ³	
Water (consumption)	10 ³ m ³	
Quantity of the main construction materials	—	<p>Calculation method of the main construction materials usage:</p> <ul style="list-style-type: none"> • The purchase quantity of main construction materials (ready-mixed concrete, cement, aggregates and steel) purchased for construction by Taisei Corporation is calculated. For independent construction work by Taisei Corporation, the directly purchased quantity; and for construction work as the representative of a joint venture construction, the purchased quantity multiplied by Taisei's share of sales, is used. For joint venture constructions, in which Taisei is not representative, material usage is calculated based on Taisei's construction sales for the year.

OUTPUT		Calculation method/criteria
CO ₂ emissions Scope 1 and 2	10 ³ t-CO ₂	<p>Aggregation criteria Aggregated in conformance with the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, Act on Promotion of Global Warming Countermeasures, the GHG Protocol, the Japan Federation of Construction Contractors guidelines, etc., and based on in-house regulations relating to environmental data management and the Taisei Group environmental data aggregation manual.</p> <p>CO₂ emission factor Light oil, heavy oil, etc.: Calculated using the emission factor in the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy and Act on Promotion of Global Warming Countermeasures. GTL: Calculated using the 2.36 kg-CO₂ /l computed by Shell Global Solutions. Electricity: Calculated using 0.436 t-CO₂ /MWh, the 2021 post-adjustment emissions factor from the receiving end in the figures announced by the Japan Business Federation. For offices, calculated using the post-adjustment emission factor for the FY2021 results for each electric power company. City gas: Calculated using the standard calorific value of city gas suppliers and the emission factor in the Act on Promotion of Global Warming Countermeasures. Construction stage: CO₂ emission per construction sales Calculated by dividing the CO₂ emission of Taisei worksites (Civil Engineering/ Building Construction) (not including the effects of reduction by conversion to real renewable energy through the purchase of non-fossil certificates) by the construction sales of Taisei. *Calculation of CO₂ emission of the Civil Engineering and Building Construction (worksites): Annual consumption of fossil fuels, electricity, and GTL was aggregated (for 2 months until FY2021) at the sampled worksites and combined with the annual consumption of the other worksites, derived by multiplying the basic unit by the construction sales of Taisei, and calculated by multiplying it by the CO₂ emission factor.</p>
NO _x	t	Emissions from light oil, heavy oil, and kerosene are calculated using the emission factor in the Architectural Institute of Japan "Building LCA Guidelines: Assessment Tool for Global Warming, Resource Consumption and Waste Measures (revised version)."
SO _x	t	
Construction by-product	10 ³ t	Construction by-product from independent construction work, joint venture construction in which Taisei is the representative, and construction by-products generated at owned factories, etc. (wastes/valuable resources).

Environmental data / indicator calculation method / criteria

Supply chain CO ₂ emissions		Calculation method / criteria
CO ₂ emissions Scope 3	10 ³ t-CO ₂	<p>Aggregation criteria Aggregated in conformance with the basic guidelines for calculation of greenhouse gas emissions throughout the supply chain, the GHG Protocol, etc., and based on in-house regulations relating to environmental data management and the Taisei Group environmental data aggregation manual.</p> <p>CO₂ emission factor Calculated using the emission factor in the basic guidelines for calculation of greenhouse gas emissions throughout the supply chain (LCI database IDEAv2 (for calculation of supply chain greenhouse gas emissions)).</p> <p>Category 1: Purchased products/services CO₂ emissions are calculated by multiplying the purchase quantities of each of the major construction materials (ready-mixed concrete, cement, aggregate, and steel) by the factor. Then, using the “Appendix 1.4.7 CO₂ emissions per unit price of construction based on the 2005 Construction Sector Input-Output Table for Analysis ((iii) For Overseas spillover and consumption expenditures)” of the Architectural Institute of Japan “Building LCA Guidelines” “LCA Database Ver. 1.02,” emissions of all items are calculated from the CO₂ emissions of the major construction materials.</p> <p>Category 11: Use of sold products Calculated by multiplying the total floor area of the completed building by the emission factor (calculation for each use from past 3 year’s performance) and the service life (Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) assessment manual).</p>

Projected CO ₂ emissions at the building use stage and reduction rate		Calculation method / criteria
Calculated value based on 1990 level	10 ³ t-CO ₂	<p>Of the buildings constructed by Taisei Corporation, emissions for the 1.2 million m² from 50 projects with a total floor area of 300 m² or greater were calculated using the Energy Saving Plan for each project at the design stage.</p> <p>•Energy Saving Plan: Compilation of the steps to be taken to reduce energy usage by thermal insulation and high-efficiency air conditioning equipment, etc. in accordance with the Act on the Rational Use of Energy, etc. Must be submitted at the design stage for buildings with a total floor area of 300 m² or greater.</p>
Projected CO ₂ emissions	10 ³ t-CO ₂	
Projected CO ₂ reduction rate	%	
Emissions by floor area	kg-CO ₂ /year-m ²	

Emissions and recycle rate for Construction by-product by type		Calculation method / criteria
Construction by-product	10 ³ t	<p>Construction by-product from independent construction work and joint venture construction in which Taisei is the representative, and construction by-products generated at owned factories, etc. (wastes/valuable resources).</p>
Recycle rate	%	

Environmental data / indicator calculation method / criteria

Group Companies

INPUT		Calculation method/criteria
Fossil fuel use	10 ³ kL	Aggregation criteria Aggregated in conformance with the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, Act on Promotion of Global Warming Countermeasures, GHG Protocol, and the Japan Federation of Construction Contractors guidelines, etc., and based on in-house regulations relating to environmental data management, the Taisei Group environmental data aggregation manual, and the manuals of each Group company. Calculation of use •Offices and Factories: Annual purchase quantity and usage are aggregated for each month •Construction site(Civil Engineering and Building worksites): Aggregated based on the Taisei Group environmental data aggregation manual and the manuals of each Group company *Energy-related: Major fossil fuels (heavy oil, light oil, kerosene, gasoline), electricity, city gas, GTL, LPG, and LNG consumption and their energy-equivalent values *The total of energy usage is the value of fossil fuel usage + electricity usage + city gas usage + LPG usage + LNG usage converted into joules.
Electricity use	10 ⁶ kWh	
City gas	10 ³ m ³	
LPG	t	

OUTPUT		Calculation method/criteria
CO ₂ emissions	10 ³ t-CO ₂	Aggregation criteria Aggregated in conformance with the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, Act on Promotion of Global Warming Countermeasures, GHG Protocol, and the Japan Federation of Construction Contractors guidelines, etc., and based on in-house regulations relating to environmental data management and the Taisei Group environmental data aggregation manual. CO ₂ emission factor Light oil, heavy oil, etc.: Calculated using the emissions coefficients in the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy and Act on Promotion of Global Warming Countermeasures. GTL : Calculated using the 2.36 kg-CO ₂ /l computed by Shell Global Solutions. Power: Calculated using 0.436 t-CO ₂ /MWh, the 2021 post-adjustment emissions factor from the receiving end in the figures announced by the Japan Business Federation. For certain worksites, offices, and factories, calculated using the post-adjustment emission factor for the FY 2021 results for each electric power company. City gas: Calculated using the standard calorific value of city gas suppliers and the emission factor in the Act on Promotion of Global Warming Countermeasures.
Construction by-product	10 ³ t	Construction by-product from independent construction work, joint venture construction in which Taisei is the representative, and construction wastes generated at owned factories.

Supply chain CO ₂ emissions		Calculation method / criteria
CO ₂ emissions Scope 3	10 ³ t-CO ₂	Aggregation criteria Aggregated in conformance with the basic guidelines for calculation of greenhouse gas emissions throughout the supply chain, the GHG Protocol, etc., and based on in-house regulations relating to environmental data management and the Taisei Group environmental data aggregation manual. CO ₂ emissions factor Calculated using the emissions factor in the basic guidelines for calculation of greenhouse gas emissions throughout the supply chain (LCI database IDEAv2 (for calculation of supply chain greenhouse gas emissions)).



Translation

The following is an English translation of an independent assurance report prepared in Japanese and is for information and reference purposes only. In the event of a discrepancy between the Japanese and English versions, the Japanese version will prevail.

Independent Assurance Report

July 25, 2023

TO:

Mr. Yoshiro Aikawa
President and Chief Executive Officer,
Representative Director
Taisei Corporation

Kenji Sawami
Kiyotaka Kinugawa
Engagement Partner
Ernst & Young ShinNihon LLC
Tokyo, Japan

We, Ernst & Young ShinNihon LLC., have been commissioned by Taisei Corporation (hereafter the "Company") and have carried out a limited assurance engagement on the Key Environmental Performance Indicators (hereafter the "Indicators") of the Company, TAISEI ROTEC CORPORATION*, TAISEI U-LEC CO.,LTD*, Taisei-Yuraku Real Estate Co.,Ltd.*, TAISEI SETSUBI CO.,LTD.*, TAISEI HOUSING CORPORATION*, SEIWA RENEWAL WORKS CO.,LTD*. and J-FAST Co., Ltd.* for the year ended March 31, 2023 as included in "Sustainability / Environment(E) / Environmental Data" on the Company's website (hereafter the "Report"). The scope of our assurance procedures was limited to the Indicators marked with the symbol "🏠" in the Report.

1. The Company's Responsibilities

The Company is responsible for preparing the Indicators in accordance with the Company's own criteria, which it determined with consideration of Japanese environmental regulations as presented in the Report.

Greenhouse gas (GHG) emissions are estimated using emissions factors, which are subject to scientific and estimation uncertainties given instruments for measuring GHG emissions may vary in characteristics, in terms of functions and assumed parameters.

2. Our Independence and Quality Control

We have met the independence requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is based on the fundamental principles of integrity, objectiveness, professional competence and due care, confidentiality, and professional behavior.

In addition, we maintain a comprehensive quality control system, including documented policies and procedures for compliance with ethical rules, professional standards, and applicable laws and regulations in accordance with the International Standard on Quality Management (ISQM) 1 issued by the International Auditing and Assurance Standards Board.

3. Our Responsibilities

Our responsibility is to express a limited assurance conclusion on the Indicators included in the Report based on the procedures we have performed and the evidence we have obtained.

We conducted our limited assurance engagement in accordance with the *International Standard on Assurance Engagements: Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ("ISAE 3000") (Revised) and, with respect to GHG emissions, the *International Standard on Assurance Engagements: Assurance Engagements on Greenhouse Gas Statements* ("ISAE 3410"), issued by the International Auditing and Assurance Standards Board.

The procedures, which we have performed according to our professional judgment, include inquiries, document inspection, analytical procedures, reconciliation between source documents and Indicators in the Report, and the following:

- Making inquiries regarding the Company's own criteria that it determined with consideration of Japanese environmental regulations, and evaluating the appropriateness thereof;
- Inspecting relevant documents with regard to the design of the Company's internal controls related to the Indicators, and inquiring of personnel responsible thereof at the headquarter and sites visited (2 construction site and 2 factory);
- Performing analytical procedures concerning the Indicators at the headquarter and sites visited (2 construction site and 2 factory);
- Testing, on a sample basis, underlying source information and conducting relevant re-calculations at the headquarter and sites visited (2 construction site and 2 factory);

The procedures performed in a limited assurance engagement are more limited in nature, timing and extent than a reasonable assurance engagement.

As a result, the level of assurance obtained in a limited assurance engagement is lower than would have been obtained if we had performed a reasonable assurance engagement.

4. Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the Indicators included in the Report have not been measured and reported in accordance with the Company's own criteria that it determined with consideration of Japanese environmental regulations.

* CO₂ emissions, energy use, fossil fuel use, electricity use, city gas, LPG, GTL, industrial waste emissions only