




Environmental Data




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TAISEI CORPORATION Annual Environmental Targets

Environmental Targets for FY2024

	Annual Targets	FY2024 (Medium-Term Business Plan 2024-2026)
Decarbonized Society 	Scope1+2 Reduction of CO ₂ emissions per sales	-13% (compared to FY2022)
	Scope1+2 Reduction of total CO ₂ emissions	-1% (compared to FY2022)
	At building operation stage :Reduction for design-build projects estimated CO ₂ emissions	-6% (compared to FY2022)
	Rate of ZEB for design-build projects (Dimension ratio)	50%
Recycling Oriented Society 	Number of green procurement items adapted at building construction design stage	12 items or more/project
	Reduction of final disposal rate of construction waste	3.0% or less
Nature Co-Existing Society 	Promotion of projects that contribute to nature positive	50 projects or more

Environmental Targets and Results for FY2023

	Annual Targets	FY2023	
		Targets	Results
Decarbonized Society 	At construction stage*1 : Reduction of CO ₂ emissions per sales	-41%	-45.2%
	At construction stage*1 : Reduction of total CO ₂ emissions	-46%	-57.1%
	At building operation stage*1 : Reduction for design-build projects estimated CO ₂ emissions (including dissemination and promotion of ZEB)	-43%	-46.6%
Recycling Oriented Society 	Adoption of green (environmentally conscious) procurement items at building design stage	12 items or more per PJ	13.7 items/PJ
	Reduction of final disposal rate of construction waste	3.2% or less	2.9%
Nature Co-Existing Society 	Promotion of projects contributing to improvement in biodiversity	40PJ or more	44PJ

*1 Compared to FY1990

TAISEI Group Material Flow (FY2023)

INPUT		
Total fossil fuel use	78.2	10 ³ kL
Diesel	60.1	
Kerosene	2.8	
Heavy oil	13.6	
Gasoline	1.7	
Total electricity use	159	10 ⁶ kWh
Sites (construction sites)	105	
Factories	32	
Offices	23	
Total quantity of the main construction materials	—	—
Ready mixed concrete	1,012	10 ³ m ³
Cement	52	10 ³ t
Aggregates (gravel, crushed stone, etc.)	123	10 ³ t
Steel	421	10 ³ t
Water (consumption)	2,103	10 ³ m ³



OUTPUT		
Total CO ₂ emissions(Scope1+2)	283	10 ³ t-CO ₂
Sites (construction sites)	213	
Factories	56	
Offices	14	
Scope 1	218	10 ³ t-CO ₂
Scope 2	66	
Construction by-products volume	2,806	10 ³ t
Quantity recycled	2,699	
Quantity of direct final disposal	107	
Water (discharged)	4,021	10 ³ m ³

Supply chain CO₂ emissions (Scope3)

Scope 3	5,642	10 ³ t-CO ₂
Category 1	1,655	
Category 11	3,632	
Other Categories	355	

Total CO ₂ emissions (Scope1+2)		
Taisei Corporation	202	10 ³ t-CO ₂
Taisei Rotec Corporation	75	
TAISEI U-LEC CO., LTD.	4	
Five other companies	3	

Construction By-product volume		
Taisei Corporation	2,434	10 ³ t
Taisei Rotec Corporation	305	
TAISEI U-LEC CO., LTD.	46	
Five other companies	21	

TAISEI CORPORATION Material Flow

| INPUT

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total energy use	10 ⁹ MJ	4.39	3.60	3.77	3.24	3.26 <input checked="" type="checkbox"/>
Construction site (building)	10 ⁹ MJ	1.99	1.04	1.45	1.32	1.04 <input checked="" type="checkbox"/>
Construction site (civil engineering)	10 ⁹ MJ	2.18	2.35	2.10	1.70	2.03 <input checked="" type="checkbox"/>
Offices	10 ⁹ MJ	0.22	0.22	0.22	0.22	0.19 <input checked="" type="checkbox"/>
Total fossil fuel use	10 ³ kL	76.7	61.4	62.7	50.9	57.2 <input checked="" type="checkbox"/>
Diesel	10 ³ kL	75.2	60.0	62.2	45.1	51.7 <input checked="" type="checkbox"/>
Kerosene	10 ³ kL	0.6	0.9	0.5	0.9	0.7 <input checked="" type="checkbox"/>
Heavy oil	10 ³ kL	1.0	0.5	0.1	5.0	4.8 <input checked="" type="checkbox"/>
Total electricity use* ¹	10 ⁶ kWh	145	122	136	125	120 <input checked="" type="checkbox"/>
Construction site (building)	10 ⁶ kWh	57	21	34	49	37 <input checked="" type="checkbox"/>
Construction site (civil engineering)	10 ⁶ kWh	73	87	85	59	67 <input checked="" type="checkbox"/>
Offices	10 ⁶ kWh	15	15	16	16	17 <input checked="" type="checkbox"/>
City gas (offices)	10 ³ m ³	213	259	165	118	46 <input checked="" type="checkbox"/>
GTL	10 ³ kL	—	—	—	0.3	0.0 <input checked="" type="checkbox"/>

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

*1 Portion of renewable energy (power purchase, self-generating, purchasing non-fossil certificates) of total electricity use is 6GWh (5%)

TAISEI CORPORATION Material Flow (continued)

INPUT

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Quantity of the main construction materials ^{*2}						
Ready mixed concrete ^{*3}	10 ³ m ³	4,066 (10 ³ t)	3,855 (10 ³ t)	1,523	1,060	1,012 <input checked="" type="checkbox"/>
Cement	10 ³ t	263	172	120	66	52 <input checked="" type="checkbox"/>
Aggregates (gravel, crushed stone, etc.)	10 ³ t	2,514	387	315	155	123 <input checked="" type="checkbox"/>
Steel	10 ³ t	506	534	539	405	421 <input checked="" type="checkbox"/>
Water (consumption) ^{*4}	10 ³ m ³	1,414	1,412	2,266	2,279	2,012 <input checked="" type="checkbox"/>
Construction site	10 ³ m ³	1,348	1,363	2,215	2,220	1,950
Offices	10 ³ m ³	66	49	51	59	62
Proportion by worksites water intake destination ^{*5}						
Tap water / water for industrial use	%	82	67	22	57	91
River water / groundwater / etc.	%	18	33	78	43	9
Seawater	%	0	0	0	0	0

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

*2 Until FY 2020, the contract quantities were tabulated. From FY2021, sales quantities for the four main construction materials (ready-mixed concrete, cement, aggregates, and steel) were tabulated. From FY2022, sales quantities for Taisei Corporation's independent construction projects and turnover quantities for joint venture constructions according to Taisei's equity interest were tabulated, calculated, and disclosed.

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

*4 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.

*5 Proportion calculated from intake quantities at sampled worksites.

TAISEI CORPORATION Material Flow

| OUTPUT

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total CO ₂ emissions(Scope1+2)	10 ³ t-CO ₂	267	216	224	189	202 <input checked="" type="checkbox"/>
Construction site (building)	10 ³ t-CO ₂	124	66	91	78	64 <input checked="" type="checkbox"/>
Construction site (civil engineering)	10 ³ t-CO ₂	133	140	123	101	129 <input checked="" type="checkbox"/>
Offices	10 ³ t-CO ₂	10	10	10	10	9 <input checked="" type="checkbox"/>
At construction stage: CO ₂ emissions per sales	t-CO ₂ /JPY 100 million	18.8	19.1	19.1	14.4	15.0 <input checked="" type="checkbox"/>
Total CO ₂ emissions	10 ³ t-CO ₂	267	216	224	189	202 <input checked="" type="checkbox"/>
Scope1*1	10 ³ t-CO ₂	198	159	162	133	151 <input checked="" type="checkbox"/>
Scope2	10 ³ t-CO ₂	69	57	61	56	51 <input checked="" type="checkbox"/>
NO _x	t	1,302	1,039	1,085	813	934 <input checked="" type="checkbox"/>
SO _x	t	200	158	162	151	168 <input checked="" type="checkbox"/>
Quantity of Fluorocarbon and Halon recovered*2	t	21	—	—	—	—
Construction by-products	10 ³ t	2,411	1,787	1,976	2,012	2,434
Quantity recycled	10 ³ t	2,283	1,715	1,914	1,939	2,338 <input checked="" type="checkbox"/>
Quantity of direct final disposal	10 ³ t	128	71	62	73	96
Water (discharged) *3	10 ³ m ³	4,288	6,625	9,677	3,014	3,948
Construction site	10 ³ m ³	4,228	6,578	9,627	2,955	3,886
Offices	10 ³ m ³	60	47	50	59	62
Proportion by worksite discharge destination*4						
Sewer, etc.	%	34	19	11	66	95
River / lake / agricultural drainage ditch	%	65	77	89	33	5
Ocean	%	1	4	0	1	0

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

*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 until FY2020 were included in Scope 1.

*2 Until FY2019, the recovery quantities of fluorocarbons and halons have been tabulated, and disclosed (the recovery quantity of halons have been included until FY2018) in accordance with the Fluorocarbons Recovery and Destruction Act.

In FY2020, leak quantities were tabulated in accordance with the Act for Rationalized Use and Proper Management of Fluorocarbons. Negligible leak quantities are not disclosed.

*3 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 worksite.

TAISEI CORPORATION Material Flow

Supply Chain CO₂ Emissions (Scope3)

Third-party assured values are indicated with the mark

Category	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total CO ₂ emissions(Scope3)	10 ³ t-CO ₂	—	4,991	3,878	4,616	5,001
1. Purchased goods and services* ¹	10 ³ t-CO ₂	—	1,347	1,283	1,889	1,455 <input checked="" type="checkbox"/>
2. Capital goods	10 ³ t-CO ₂	—	4	0	13	5
3. Fuel-and energy-related activities not included in Scope 1 or Scope2	10 ³ t-CO ₂	—	32	33	28	25
4. Upstream transportation and distribution	10 ³ t-CO ₂	—	9	8	5	5
5. Waste generated in operations	10 ³ t-CO ₂	—	179	209	143	206
6. Business travel	10 ³ t-CO ₂	—	1	1	1	1
7. Employee commuting	10 ³ t-CO ₂	—	5	5	5	5
8. Upstream leased assets	10 ³ t-CO ₂	—	1	0	0	0
9. Downstream transportation and distribution	10 ³ t-CO ₂	—	—	—	—	—
10. Processing of sold products	10 ³ t-CO ₂	—	—	—	—	—
11. Use of sold products* ²	10 ³ t-CO ₂	—	3,371	2,284	2,495	3,262 <input checked="" type="checkbox"/>
12. End of life treatment of sold products	10 ³ t-CO ₂	—	40	51	35	34
13. Downstream leased assets	10 ³ t-CO ₂	—	5	5	3	2
14. Franchises	10 ³ t-CO ₂	—	—	—	—	—
15. Investments	10 ³ t-CO ₂	—	—	—	—	—

*From FY2020 emissions, values based on the GHG Protocol, etc. are disclosed.

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

*1 Category 1


- (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. Calculated using the emission factors 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)), until FY2022. From 2023, calculated using IDEAv3.3 and the emission factors of the figures that announced by Japan Cement Association LCI and Japan Society of Civil Engineers by environmentally friendly building materials. The calculation takes reduction effect of adopting the environmentally friendly building materials into consideration.
- (2)FY2023 emissions using the calculation until FY2022 is 1,859×10³t-CO₂, and the discrepancy between the calculations is in reduction of 404×10³t-CO₂.
- (3)FY2022 emissions using the same calculation as the one in FY2023 is 1,506×10³t-CO₂(Third-party assurance has not acquired). This FY2022 emissions is used as the base year emissions in TAISEI Green Target 2050.

















*2 Category 11

- (1)Emission factor by building-purposes that calculated by emissions by floor area of projected CO₂ emissions at the operational stage of 1990 standard is used until FY2022.
- From FY2023, the BELS-certified projects are included in order that ZEB results be reflected in the category. Furthermore, to allow reduction effect through in-house effort to be reflected in the category, emission factor by building-purposes that calculated by emissions by floor area of projected CO₂ emissions at the operational stage of 2022 standard was calculated using nationwide statistics of the standard primary energy consumption in the Act on the Rational Use of Energy as the standard primary energy.
- (2) FY2023 emissions using the calculation until FY2022 is 1,913×10³t-CO₂, and the discrepancy between the calculations is in increase of 1,349×10³t-CO₂.
- (3) FY2022 emissions using the same calculation as the one in FY2023 is 4,628×10³t-CO₂(Third-party assurance has not acquired). This FY2022 emissions is used as the base year emissions in TAISEI Green Target 2050.

Material Flow for Group Companies

| INPUT


Third-party assured values are indicated with the  mark









	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total energy use	10 ⁹ MJ	1.68	1.70	1.70	1.70	1.35 
Sites (Construction site)	10 ⁹ MJ	0.32	0.37	0.42	0.47	0.29 
Factories	10 ⁹ MJ	1.23	1.20	1.15	1.12	0.96 
Offices	10 ⁹ MJ	0.12	0.13	0.12	0.12	0.09 
Total fossil fuel use	10 ³ kL	26	27	27.4	26.7	20.9 
Diesel	10 ³ kL	10	11	12.2	13.2	8.5 
Kerosene	10 ³ kL	3	3	2.7	2.5	2.1 
Heavy oil	10 ³ kL	11	11	10.8	9.0	8.8 
Gasoline	10 ³ kL	2	2	1.7	1.9	1.7 
Total electricity use	10 ⁶ kWh	43	43	43	42	39 
Sites (Construction site)	10 ⁶ kWh	1	1	1	1	1 
Factories	10 ⁶ kWh	35	35	35	35	32 
Offices	10 ⁶ kWh	7	7	7	7	6 
City gas	10 ³ m ³	5,692	5,056	4,169	4,589	4,035 
GTL	10 ³ kL	—	0	0.2	0.1	0.0 
LPG	t	485	575	598	1,231	1,115 
Water (consumption)	10 ³ m ³	138	109	102	111	91

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

Material Flow for Group Companies

OUTPUT

Third-party assured values are indicated with the  mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total CO ₂ emissions(Scope1+2)	10 ³ t-CO ₂	101	102	101	102	81 
Construction site	10 ³ t-CO ₂	22	25	29	32	20 
Factories	10 ³ t-CO ₂	72	70	66	64	56 
Offices	10 ³ t-CO ₂	7	7	6	6	5 
Total CO ₂ emissions	10 ³ t-CO ₂	101	102	101	102	81 
Scope1*1	10 ³ t-CO ₂	81	83	83	84	67 
Scope2	10 ³ t-CO ₂	20	19	18	19	14 
NO _x	t	227	224	280	295	210
SO _x	t	103	105	107	97	83
Quantity of Fluorocarbons and Halon leaked*2	t	2	2	6	6	—
Total industrial waste generated	10 ³ t	485	416	476	408	372 
Quantity recycled	10 ³ t	475	406	465	397	361
Final disposal quantity	10 ³ t	10	10	11	12	11
Water (discharged)	10 ³ m ³	74	76	108	120	73

*Note: Data are from TAISEI Group companies is excluding TAISEI COPORATION (domestic).

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

*2 The recovery quantities of fluorocarbons and halons have been tabulated, and disclosed (the recovery quantity of halons have been included until FY2018).

The recovery quantities of fluorocarbons and halons that have been emitted by the Group Companies have been tabulated, and disclosed (the recovery quantity of halons have been included until FY2018) in accordance with the Fluorocarbons Recovery and Destruction Act. Leak quantities were tabulated in accordance with the Act for Rationalized Use and Proper Management of Fluorocarbons. Negligible leak quantities are not disclosed.

TAISEI Group Material Flow

| Supply Chain CO₂ Emissions (Scope3)

Category	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Supply Chain CO ₂ Emissions (Scope3) Total	10 ³ t-CO ₂	—	—	753	668	641
1. Purchased goods and services	10 ³ t-CO ₂	—	—	246	216	200
2. Capital goods	10 ³ t-CO ₂	—	—	19	12	16
3. Fuel-and energy-related activities not included in Scope 1 or Scope2	10 ³ t-CO ₂	—	—	17	12	15
4. Upstream transportation and distribution	10 ³ t-CO ₂	—	—	9	5	2
5. Waste generated in operations	10 ³ t-CO ₂	—	—	13	18	10
6. Business travel	10 ³ t-CO ₂	—	—	1	1	1
7. Employee commuting	10 ³ t-CO ₂	—	—	1	1	1
8. Upstream leased assets	10 ³ t-CO ₂	—	—	0	0	0
9. Downstream transportation and distribution	10 ³ t-CO ₂	—	—	5	5	3
10. Processing of sold products	10 ³ t-CO ₂	—	—	—	—	—
11. Use of sold products	10 ³ t-CO ₂	—	—	405	361	369
12. End of life treatment of sold products	10 ³ t-CO ₂	—	—	9	7	5
13. Downstream leased assets	10 ³ t-CO ₂	—	—	28	28	18
14. Franchises	10 ³ t-CO ₂	—	—	—	—	—
15. Investments	10 ³ t-CO ₂	—	—	—	—	—

*From FY2021 emissions, values based on the GHG Protocol, etc. are disclosed.

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

Projected CO₂ emissions and reduction rate in the building operation phase

| Calculation according to 1990 standard

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Projected CO ₂ emissions	10 ³ t-CO ₂ /year	15	42	19	13	23 <input checked="" type="checkbox"/>
Calculated values according to 1990 standard	10 ³ t-CO ₂ /year	25	72	34	26	44 <input checked="" type="checkbox"/>
Discrepancy between projected CO ₂ and 1990 standard (rate)	%	39.5	41.4	44.6	49.8	46.6 <input checked="" type="checkbox"/>
Emissions by floor space	kg-CO ₂ /year·m ²	23	32	17	11	25 <input checked="" type="checkbox"/>

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

| Calculation according to 2022 standard

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Projected CO ₂ emissions	10 ³ t-CO ₂ /year	—	—	—	—	35 <input checked="" type="checkbox"/>
Calculated values according to 2022 standard	10 ³ t-CO ₂ /year	—	—	—	—	49 <input checked="" type="checkbox"/>
Discrepancy between projected CO ₂ and 2022 standard (ratio)	%	—	—	—	—	28.7 <input checked="" type="checkbox"/>
Emissions by floor space	kg-CO ₂ /year·m ²	—	—	—	—	37 <input checked="" type="checkbox"/>

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

*From FY2023, calculated values according to 1990 standard and 2022 standard are disclosed, respectively.

*Key difference between the calculation according to 2022 standard and 1990 standard:

- Changed that calculation of the standard primary energy from using the results of the Company to using nationwide statistics of the standard primary energy consumption in the Act on the Rational Use of Energy.

Total Construction By-products(Waste / valuable resources)

| Total Construction By-products

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Total construction by-products	10 ³ t	2,411	1,787	1,976	2,012	2,434 <input checked="" type="checkbox"/>
Excluding sludge and specially controlled industrial wastes		1,268	1,066	1,119	1,314	1,293
Final disposal quantity		128	71	62	73	96
Excluding sludge and specially controlled industrial wastes		74	51	38	42	62
Quantity recycled		2,283	1,715	1,914	1,939	2,338
Excluding sludge and specially controlled industrial wastes		1,194	1,016	1,082	1,272	1,231

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

| Emissions (10³t) and Recycle Rate by type (FY2023)

Third-party assured values are indicated with the mark

	Civil engineering	Building construction			Total	Recycling rate (%)
		New Construction	Demolition	Subtotal		
Concrete remnants	223	216	392	609	832	100
Asphalt- concrete remnants	45	48	7	55	100	100
Construction site sludge	772	258	27	285	1,056	—
Mixed waste	41	27	5	32	73	78.1
Wood scrap	13	8	4	11	24	94.8
Metal scrap	2	15	19	34	36	99.2
Waste plastics	1	5	1	6	7	66.7
Miscellaneous	174	95	36	131	305	75.3
Total	1,272	671	491	1,162	2,434	—

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

| Recycling Rate

Third-party assured values are indicated with the mark

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Concrete remnants	%	100	100	100	100	100 <input checked="" type="checkbox"/>
Asphalt- concrete remnants		99.5	100	100	100	100 <input checked="" type="checkbox"/>
Wood scrap		95.0	95.0	95.0	94.9	94.8 <input checked="" type="checkbox"/>

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

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

Management of Hazardous Wastes

| Hazardous Waste Quantity

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Specially Controlled Industrial Wastes	10 ³ t	10	3	3	3	5
Waste asbestos, etc.		2	1	3	3	4
Industrial wastes containing asbestos		14	5	15	17	24
Mercury-using products		0	0	0	0	0

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

| PCB Wastes

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
Quantity of PCB wastes generated and discarded	kg	0	0	31	27	0

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

Volatile Organic Compounds (VOC discharge quantity)

	Unit	FY2019	FY2020	FY2021	FY2022	FY2023
VOC emissions*	—	N/A	N/A	N/A	N/A	N/A

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

*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).

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	<p>Scope 1: CO₂ emissions from burning of fossil fuels (including transport of surplus soil and construction by-products from worksites)</p> <p>Scope 2: Indirect CO₂ emissions from the use of power, steam or hot and cold water</p> <p>Scope 3: CO₂ emissions from other companies involved in business activities</p>

Taisei Corporation

INPUT		Calculation method / criteria
Fossil fuel use	10 ³ kL	<p>Aggregation criteria</p> <p>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 338 sampled worksites and the consumption per unit of construction sales (basic unit) for the period was calculated. The worksites(excluded sampled 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, diesel alternative fuel(GTL,B5,etc.) 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 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.

Environmental data / indicator calculation method / criteria

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 emissions coefficients in the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy and Act on Promotion of Global Warming Countermeasures.</p> <p>GTL : Calculated using the 2.36 kg-CO₂ /L computed by Shell Global Solutions.</p> <p>Power: Calculated using 0.437 t-CO₂/kWh, the post-adjustment emissions factor of the figures (FY2022 CO₂ emissions results(confirmed value)) announced by the Electric Power Council for a Low Carbon Society(ELCS). For offices, calculated using the post-adjustment emission factor for the FY 2022 results for each electric power company.</p> <p>Construction stage: CO₂ emission per construction sales Calculated by dividing the CO₂ emission of Taisei sites (Civil Engineering and Building Construction) by the construction sales of Taisei.</p> <p>*Calculation of CO₂ emission of the Civil Engineering and Building Construction (worksites): Annual consumption of fossil fuels, electricity, and GTL was aggregated 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 emissions coefficient 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-products	10 ³ t	Construction by-product from independent construction work, joint venture construction in which Taisei is the representative, and construction by-product 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 Scope3	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 factors 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)), IDEAv3.3, and the emission factors of the figures that announced by Japan Cement Association LCI and Japan Society of Civil Engineers.</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: calculated by emissions by floor area of projected CO₂ emissions at the operational stage) and the service life (Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) assessment manual).</p>

Projected CO ₂ emissions at the building operation stage		Calculation method / criteria
Projected CO ₂ emissions	10 ³ t-CO ₂ /year	<ul style="list-style-type: none"> •Of the buildings constructed by Taisei Corporation, emissions for the 1.2 million m² from 53 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. •Of above, the projects with acquired certification of the Building-Housing Energy-efficiency Labeling System(BELS) were calculated using the value at the acquisition. •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>※Standard primary energy based on 1990 standard was calculated using the results of the Company. ※Standard primary energy based on 2022 standard was calculated using nationwide statistics of the standard primary energy consumption in the Act on the Rational Use of Energy.</p>
Calculated value based on 1990 and 2022 standard	10 ³ t-CO ₂ /year	
Ratio of projected CO ₂ emissions to calculated value based on 1990 and 2022 standard	%	
Emissions by floor area	kg-CO ₂ /year·m ²	

Emissions and recycle rate for construction By-products by type		Calculation method / criteria
Construction by product	10 ³ t	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).
Recycle rate	%	

Environmental data / Indicator Calculation Method / criteria

Group Companies

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, 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.</p> <p>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(Gas to Liquids), 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.</p>
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	<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, 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.</p> <p>CO₂ 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-CO₂/L computed by Shell Global Solutions. Power: Calculated using 0.437 t-CO₂/kWh, the post-adjustment emissions factor of the figures (FY2022 CO₂ emissions results(confirmed value)) announced by the Electric Power Council for a Low Carbon Society(ELCS). For offices, calculated using the post-adjustment emission factor for the FY 2022 results for each electric power company.</p>
Construction by-products	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 Scope3	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 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)).</p>



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 practitioner's assurance report

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

Scope

We have been engaged by Taisei Corporation. (hereafter the "Company") to perform a 'limited assurance engagement,' as defined by International Standards on Assurance Engagements, hereafter referred to as the engagement, to report on the Company's environment data and indices (the "Subject Matter") contained in 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. as included in "Sustainability / Environment(E) / Environmental Data" on the Company's website (the "WEB Information") for the period from April 1, 2023 to March 31, 2024. The scope of our assurance procedures was limited to the indicators marked with the symbol "🌱" in the WEB Information.

Criteria applied by the Company

In preparing the Subject Matter, the Company applied the Criteria, that it determined with consideration of laws and regulations applicable to the Company as presented on the Company's WEB Information.

The Company's responsibilities

The Company's management is responsible for selecting the Criteria, and for presenting the Subject Matter in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error. Greenhouse gas (GHG) emissions are estimated using emissions factors, and the scientific knowledge on which such emission factors are based has not been established. GHG quantification is subject to inherent uncertainty.

EY's responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with the *International Standard for 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 terms of reference for this

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engagement as agreed with the Company on February 26, 2024 and amendment agreement as agreed with the Company on July 19, 2024. Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Subject Matter in order for it to be in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Our independence and quality management

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants and have the required competencies and experience to conduct this assurance engagement.

EY also applies International Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services engagements*, which requires that we design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Description of procedures performed

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Subject Matter and related information, and applying analytical and other appropriate procedures.

Our procedures included:

- Making enquiries regarding the Company's own criteria that it determined with consideration of laws and regulations applicable to the Company, and evaluating the appropriateness thereof;
- Inspecting relevant documents with regard to the design of the Company's internal controls related to the Subject Matter, and enquiring of personnel responsible thereof at the headquarter and sites visited (Taisei Corporation Construction Site of Tokyo

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Branch, TAISEI ROTEC CORPORATION Work Office of Tohoku Branch and TAISEI ROTEC CORPORATION Plant of Higashi-Kanto Branch);

- * Performing analytical procedures concerning the Subject Matter at the headquarter and sites visited (Taisei Corporation Construction Site of Tokyo Branch, TAISEI ROTEC CORPORATION Work Office of Tohoku Branch and TAISEI ROTEC CORPORATION Plant of Higashi-Kanto Branch); and
- * Testing, on a sample basis, underlying source information, matching indicators with the evidence and conducting relevant re-calculations at the headquarter and sites visited (Taisei Corporation Construction Site of Tokyo Branch, TAISEI ROTEC CORPORATION Work Office of Tohoku Branch and TAISEI ROTEC CORPORATION Plant of Higashi-Kanto Branch).

We also performed such other procedures as we considered necessary in the circumstances.

Conclusion

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to the Subject Matter for the period from April 1, 2023 to March 31, 2024 in order for it to be in accordance with the Criteria.

Kenji Sawami
Kiyotaka Kinugawa
Shuhei Okuma
Engagement Partners
July 31, 2024
Ernst & Young ShinNihon LLC
Tokyo, Japan