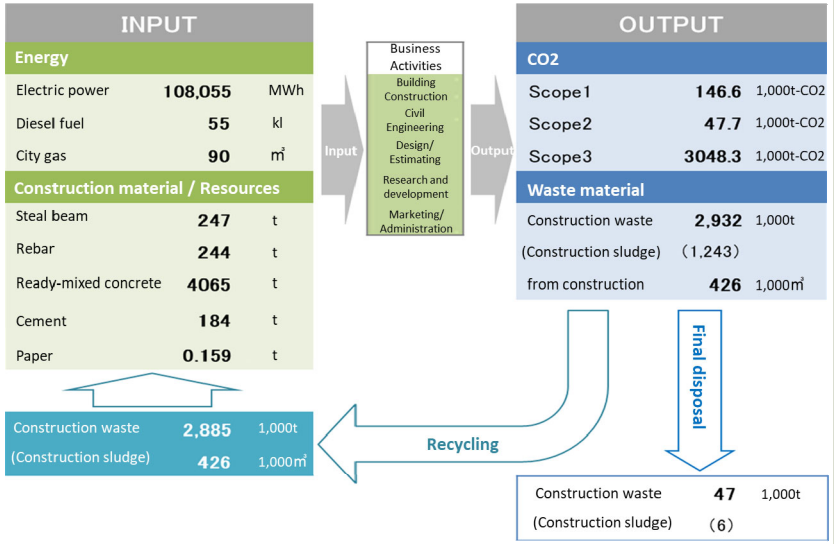
1 OBAYASHI CORPORATION

Companies' approach

① Background and purpose of accounting

- Since the Kyoto Protocol became effective in 2005, we have examined and publicized our emissions including part of our supply chain in order to determine the greenhouse gas emissions within our company and find what we need to do.
- We have been accounting every year in order to check on the effectiveness of our measures.
- Understanding emissions helps to know our progress and to establish important sectors, which lead to implementation of measures for establishment and achievement of medium- to long-term goals.



material flow(2021)

② Utilization of accounting results

- The accounting results are used to determine which measures to emphasize and as material to consider adoption of effective measures.
- With regard to external use, we are showing how much construction companies emit as the basis for describing our measures.
- We also use the accounting results when environmental considerations are a requirement for bids, and the like. We use the results to show the types of measures we take and the reasons for them.

③ Benefits of accounting

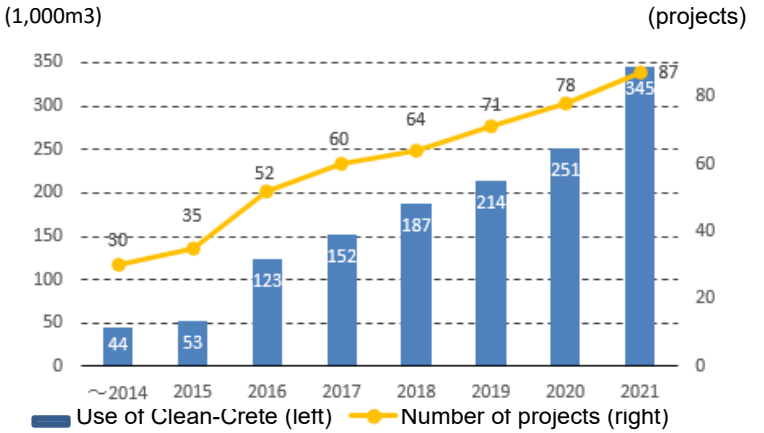
- In order to contribute to global climate change countermeasures, we can clarify what is important from the point of view of emissions and what we should do.

④ Internal system for accounting

- The headquarters Environmental Management Office collects overall data.
- With regard to energy at construction sites, energy during operation of buildings based on design, materials, waste, and labor related data, the data is collected by the various departments responsible for these areas.

2 OBAYASHI CORPORATION

	Companies' approach
⑤ **Efforts to reduce supply chain emissions**	• Construction material production: Adoption of low-carbon materials (such as a low-carbon concrete that reduces CO2 emissions during production by 80 percent by changing cement to industrial by-product), reduction of the use of materials by resource-saving design. • Construction: Energy-saving of tower cranes and construction elevators, and reduce the amount of excavation and construction waste. • Operation of customer buildings: Energy-saving design such as ZEB, energy-saving renovation, etc.
⑥ **Issues in supply chain emissions accounting**	• Consideration of the scope of accounting and accounting methods, taking into account the impact of Scope 3, which accounts for 90 percent. • Development of a system to enable data collection and understanding of the actual situation in a more efficient way. • Examination of the effects of factors other than CO2 emissions, such as resources, recycling and costs (Costs are especially important as management criteria) • Collection of detailed data, which lead to effective measures, going beyond understanding of total emissions of the company. • Different levels of response in data collection by cooperating companies. (such as difference in sectors)
⑦ **Other**	



(FY ended March 31)

3 OBAYASHI CORPORATION

Category	Accounting methods ※Accounting period : April 2021 – March 2022	
	Activity data	Emission factor
Category 1: Purchased goods and services	● Procurement of major materials (major construction materials)	● Emission factor by amount of purchased goods ※1
Category 2: Capital goods	● Value of the capital investment by type of equipment	● Emission factor per price of capital goods ※2
Category 3: Fuel and energy related activities not included in Scope 1 or 2	● Energy consumption of purchased fuel, electricity and heat	● Emission factor per amount of electricity and heat used※2 ● Diesel fuel, kerosene, city gas and the like ※1
Category 4: Transportation and delivery (upstream)	● Weight of construction materials transported (major construction materials)	● CO2 emission factor per ton-km※2
Category 5: Waste generated in operations	● Waste disposal amount associated with renewal construction	● Emission factor by type and processing method ※2
Category 6: Business travel	● Number of regularly hired employees	● Emission factor per employee ※2
Category 7: Employee commuting	● Number of regularly hired employees/workers and operating days per year	● Emission factor per employee and number of working days ※2 ● Emission factor per worker and number of working days ※2
Category 8: Leased assets (upstream)	● Energy consumption by company-owned cars and leased cars (gasoline for company car is calculated)	● Emission factor of gasoline ※2
Category 9: Transportation and delivery (downstream)	● Amount of transported waste associated with renewal construction and demolition work	● Emission factor by type and processing method ※2
Category 10: Processing of sold products	● Excluded from accounting	
Category 11: Use of sold products	● Construction area in-house designed and constructed properties by building type x Energy usage per area unit by building type x 35 years in service	● Emission factor per amount of energy consumed (emission facto per area) ※3

4 OBAYASHI CORPORATION

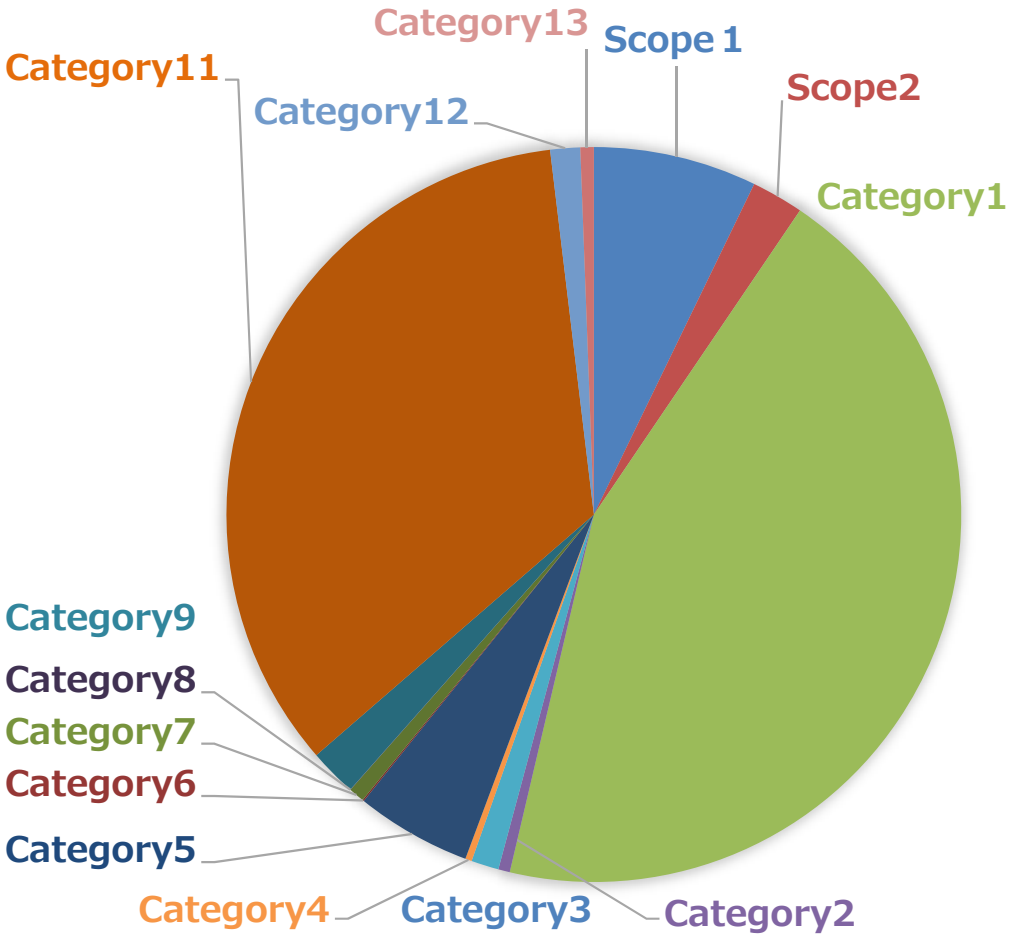
Category	Accounting methods ※Accounting period : April 2021 – March 2022	
	Activity data	Emission factor
Category 12: End-of-life treatment of sold products	● Waste disposal amount by demolition work	● Emission factor by type and processing method ※2
Category 13: Leased assets (downstream)	● Rental building area of development properties	● Emission factor per amount of energy consumed (emission facto per area) ※3
Category 14: Franchises	● Excluded from accounting	
Category 15: Investments	● Excluded from accounting	
Other	● Nothing specified for accounting	

	Source
※1	**LCI Database IDEAv2**
※2	**Emission Factor Database on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain（ver.3.2）**
※3	**An investigative report on the amount of energy consumed from buildings (43rd report)** **Emission factors for each electric power provider released by the Ministry of the Environment**

5 OBAYASHI CORPORATION

Supply chain emissions : Accounting results

EMISSIONS RATIO BY SCOPE AND CATEGORY



Scope1	Direct emissions	7.19%
Scope2	Indirect emissions	2.29%
Category1	Purchased goods and services	44.20%
Category2	Capital goods	0.51%
Category3	Fuel and energy related activities not included in Scope 1 or 2	1.21%
Category4	Transportation and delivery (upstream)	0.29%
Category5	Waste generated in operations	5.08%
Category6	Business travel	0.07%
Category7	Employee commuting	0.69%
Category8	Leased assets (upstream)	0.01%
Category9	Transportation and delivery (downstream)	2.09%
Category11	Use of sold products	34.47%
Category12	End-of-life treatment of sold products	1.31%
Category13	Leased assets (downstream)	0.59%