Environmental Initiatives

The YBHD Group has established "creation of a resilient social environment and harmonious coexistence with the natural environment" as one of its management vision pillars. While striving to build resilient infrastructure to safeguard both people's lives and business activity from the impact of natural disasters such as earthquakes, mega-typhoons, torrential rains, etc., we also minimize the impact of our own business activities on the natural environment. In response to climate change, the YBHD Group aims to contribute to the transition to a low-carbon economy and has incorporated reduction of CO_2 emissions and efficient management of resources into its business activity goals.

Main initiatives

Working to reduce CO_2 emissions

For Scope 1 emissions, we have introduced hydrogen vehicles as company cars to reduce our environmental impact. For Scope 2, in addition to switching to an electric power plan that reduces CO_2 emissions, we are steadily installing solar power systems. In fiscal 2022, we installed solar power systems for self-consumption at our Technical Research Laboratory and the Mobara Plant of Yokogawa System Buildings, and have started utilizing the solar power they generate. We also switched the electric power used at four business sites and three plants in the Kanto region to a CO_2 emissions reduction plan.

Through these efforts, we were able to reduce CO_2 emissions (Scopes 1 and 2) from business activities in fiscal 2022 by 19% compared to the base year of fiscal 2020.

We will also work with relevant parties to reduce CO_2 emissions during the manufacturing process of steel and other raw materials (Scope 3).

A solar power system installed at the Yokogawa System Buildings' Mobara Plant

CO_2 emissions reduction target

Scope	Base year	Target year	Target
Scopes 1 & 2	FY2020	FY2024	20% reduction
		FY2030	50% reduction
		FY2050	Carbon neutrality

CO_2 emissions

(t-CO_2)

	FY2020	FY2021	FY2022
Scope 1	2,539	4,856	4,508
Scope 2	10,779	10,647	6,241
Scopes 1 & 2 total	13,318	15,503	10,749
Scope 3	332,518	361,007	431,556
Scopes 1-3 total	345,836	376,510	442,305

Quality and Environmental Strategy (Yokogawa Bridge Corp.)

Basic Principles

Yokogawa Bridge Corp. will contribute towards the realization of a sustainable society through the provision of high-quality infrastructure-related products and by reducing the environmental footprint of our business activities, in line with our corporate philosophy of "Contribution to society and the public, and sound management."

Basic Policies

1. We will meet customers' needs and comply with relevant laws and regulations in regard to products.
2. We will identify and comply with applicable laws, regulations, and agreements in regard to the environment.
3. We will help to safeguard the environment in our business activities by formulating measures with respect to the prevention of global warming, prevention of pollution that might affect neighboring residents or the natural environment, the three "Rs" (Reduce, Reuse, and Recycle), and appropriate disposal of waste, etc.
4. We will continuously work to improve our quality and environmental management systems in order to enhance our operations, the quality of our products and customer satisfaction, and to reduce our environmental footprint.

Materials flow (as of FY2022)

Business activities consume energy (including electric power) and resources, and generate both greenhouse gas emissions and waste. We have been working to clarify this environmental footprint in terms of inputs and outputs as a basis for implementing activities to reduce our environmental footprint.

Inputs	
Energy	
● Electric power	26.61 million kWh
● Gasoline	607 kL
● Diesel	500 kL
● Kerosene	132 kL
● Gas	711,000 m³
Water	68,000 m³
Main construction materials (steel)	143,000 t

Yokogawa Bridge Holdings Corp.

Bridge business
Engineering business
Precision equipment business
Real estate business

Outputs	
CO_2 emissions	10,749 t
Construction waste	6,979 t
Steel-related emissions	12,125 t
Steel reuse rate	100 %

Responding to demand for the development of disaster-resistant products

The YBHD Group is working to develop products and construction methods that will help reduce damage in disasters. (See pages 51–52 for information on R&D initiatives.)

Responding to demand for retrofitting services and maintenance associated with National Resilience Promotion

In our bridge business, we are involved in the maintenance business and bridge peripheral business, viewing national resilience enhancement measures and the western extension of Osaka Bay Road as future opportunities in addition to large-scale renewals and repairs of highway bridges. (See pages 37–40 for information on bridge business initiatives.)

Initiatives for biodiversity

The YBHD Group's activities have the potential to impact the natural environment in all kinds of locales and settings where there are diverse ecosystems. Under these circumstances, we make efforts to minimize the impact on biodiversity.

Case Study 1 New construction method considerate of biodiversity on the New Nobi Bridge (tentative name) P5-A2

The New Nobi Bridge (tentative name), crossing the Kiso River, a class A river, from Hashima City, Gifu Prefecture, to Ichinomiya City, Aichi Prefecture, is a road bridge located about 1 km downstream from the Tokaido Shinkansen. The freshwater fish Itasenpara bitterling, a species endemic to Japan and only found in the waters of three areas including the Nobi Plain, has been confirmed near the bridge site. Designated as a protected species in Japan, it is listed as Critically Endangered on the Regional Red List compiled by Japan's Ministry of the Environment. For this construction project, a superstructure launching bridge erection method was adopted that does not require temporary facilities to be installed in the waters, so that construction would not impact the Itasenpara bitterling habitat. Considering biodiversity and with a view to sustainable development, we devised the following construction methods that did not require entering the waters: 1) new development of equipment to rotate and remove the launching nose that needed to be removed from the middle of the river; and 2) devising a construction method to transport for installation 11-ton bearings (members that support the bridge on the piers) from land 75 meters away to the bridge piers in the river. Through the use of these new construction methods, and by applying the on-site coating in advance to prevent paint runoff in the river, continuous environmental surveys have confirmed that the Itasenpara bitterling habitat has been maintained without being affected by the long-term construction work.

Rotating the launching nose

Launching nose rotating equipment

Transporting the P6 bearing

Case Study 2 Initiatives considerate of rare fish species during construction of the New Oigawa Bridge (P9-A2)

The New Oigawa Bridge in Shimada City, Shizuoka Prefecture, is a road bridge crossing the Oi River, a class A river. Located in the lower reaches of the Oi River water system (about 16 km upstream from the river mouth), the waters here are home to endangered species such as Liobagrus reinii and the fourspine sculpin, as well as many other rare fish. However, due to constraints on construction conditions, it was unavoidable to carry out construction in the river for this project, raising concerns about the impact on the ecology of rare fish species from water pollution caused by the construction work.

Therefore, on days when construction was carried out in the river, we measured water turbidity three times a day, reported the measurements, visual conditions, and work details to the project owner, and thoroughly managed the pace of construction based on the measured turbidity, in an effort to prevent water pollution. Turbidity quantifies the cloudiness of river water caused by suspended sediment, etc., and is commonly used as an indicator for river water quality management.

In this way, by thoroughly informing not only Yokogawa employees but also each and every worker involved in the construction about the impact on rare fish species and their conservation in relation to bridge construction, and also by seeking advice from experts as well as the project owner, we made concerted efforts as stakeholders to minimize the impact on rare fish species.

Erecting bridge girders in the river