TNFD Report

May 2024

TAKENAKA

CONTENTS

Takenaka Group's Environmental Initiatives

Under our Management Philosophy, "Contribute to society by passing on the best works to future generations," Takenaka Corporation aspires to realize a sustainable society through architecture and urban creation that meets the needs of the times and society.

In 1971, we began our environmental initiatives adopting the slogan "Green in Design" with this mark on our design drawing papers.

This was followed by the establishment of our Global Environmental Charter in 1992 and Environmental Policy in 2009, which promotes environmental initiatives in building design, construction, and our own offices.

In 2010, we introduced our Environmental Message, "Bringing people and nature into harmony," and we established our Environmental Concept, "Enhance human sensitivity and creativity, make the best use of nature, and realize our goal of transitioning from net-zero energy buildings to carbon neutral cities."

“Living in harmony with nature" is positioned as the top 2050 Vision in the global goals of the Kunming-Montreal Global Biodiversity Framework and in Japan's National Biodiversity Strategy and Action Plan 2023-2030. Then we established Biodiversity Conservation and Restoration (Nature Positive) as a short-term target (2030 mission to achieve this.

Conserving rich biodiversity and realizing a society in harmony with nature that can enjoy its blessings for the future is a very important social issue for realizing a sustainable society and making our business sustainable.

In 2021, Takenaka Corporation published its Green Infrastructure Concept Book. By developing green infrastructure solutions that capitalize on our extensive knowledge and problem-solving capabilities related to the biodiversity conservation and restoration, we will realize a society in harmony with nature in order to lead to a sustainable society, which is proclaimed in our group's vision.

☞ Sustainability (living in harmony with nature)

■ Initiatives for Envionment

1971

1992

Global Environmental Charter
Contribute to the sustainable development of society by deploying environmentally friendly building technologies and creating spaces that are in harmony with the environment

1998

ISO14001 Certification obtained

2009

Environmental Policy
Action guidelines for creating spaces in harmony with the environment and contributing to the sustainable development of society

2010

First edition of the Environmental Concept Book
Environmental Message for 2050 Concept established to "connect people with nature"

2020

SDGs BOOKLET
Initiatives to Achieve SDGs

2021

Environmental Concept Book 2021 edition

2023

Takenaka Group Environmental Strategy 2050 formulated

☞ Library

■ Initiatives for living in harmony with nature

2010

City Where Butterflies Fly Project started

2012

Biodiversity Action Guidelines established
Takenaka Biodiversity Promotion Program

Combines the Biodiversity Action Guidelines and measures to promote efforts to realize our environmental message "Connecting People with Nature“

2018

Launch of biodiversity projects
Seiwadai forestation activities started

2019

SHI-RA-BE Forest construction completed and operation started

2021

Green Infrastructure Concept Book

2023

Certified as Nationally Certified Sustainably Managed Natural Sites
SHI-RA-BE forest
Seiwadai Forest

2024

General Requirements

In this report, we have conducted studies in accordance with TNFD's (Taskforce on Nature-related Financial Disclosures) Final Recommendations version 1.0.

☞ TNFD Final Recommendations v 1.0

1 Our approach to major objectives (materiality)

Based on international guidelines and trends in the corporate environment, the Takenaka Group has identified major objectives (materiality) to resolve social issues and realize a sustainable society. We have conducted and defined impact assessments and financial assessments as double materiality, and we have set indicators and targets for major objectives (materiality) related to the environment, such as substantial decarbonization, resource circulation, and living in harmony with nature.

☞ Key issues (materiality)

2 Scope of disclosure

In this report, we describe our initiatives for wood procurement by analyzing construction projects (new construction and demolition) while taking into consideration the project scale and impact on nature as well as the importance to our company, the recent social regulatory system, and other factors.

3 Location of issues related to nature

In conducting this analysis, we recognize that nature-related issues greatly depend on local characteristics, so we are working to analyze and understand issues for the direct operations (construction business) of our business locations based on local characteristics.

4 Integration with sustainability-related disclosure

This report is an effort to disclose information in accordance with TNFD. Going forward, we will establish an integrated management and promotion system not only for TNFD disclosures, but also for TCFD disclosures and other sustainability-related topics that should be disclosed by our group, and we will consider integrating this information by taking into account the ease of understanding for stakeholders, including report users.

5 Participation of indigenous peoples and stakeholders in the identification and assessment of organizational problems related to nature

In order to realize our CSR vision, the Takenaka Group defines stakeholders as “the global environment,” “local communities,” “customers,” and “colleagues we work with," including employees and partner companies, and we incorporate these into opportunities for dialog with management. As a forum for dialog with local communities, we are further promoting initiatives to live in harmony with nature while incorporating the voices of various local stakeholders.

☞ CSR vision
☞ Multistakeholder policies
☞ Stakeholder dialog

1. Governance

1.1 Governance in promoting sustainability

■Basic concept

The Takenaka Group's CSR Vision is "We, the Takenaka Group, will enhance dialog with stakeholders, turn those dreams into reality through urban creation, and connect a sustainable society to the future." and its Group Message is "Dreams into Reality for a Sustainable Future."

This is based on our belief that in order to realize a sustainable society, we must meet the expectations of stakeholders, including the global environment, local communities, customers, employees, and partner companies, and that the urban areas where these people gather and interact must be prosperous, safe, and friendly, both now and in the future.

To this end, we will further deepen dialog with stakeholders and turn their dreams into reality through urban creation with new value that combines the Takenaka Group's business strengths in architecture, civil engineering, real estate and development, facility management, and renovation, thereby demonstrating our intention to work toward the realization of a sustainable society.

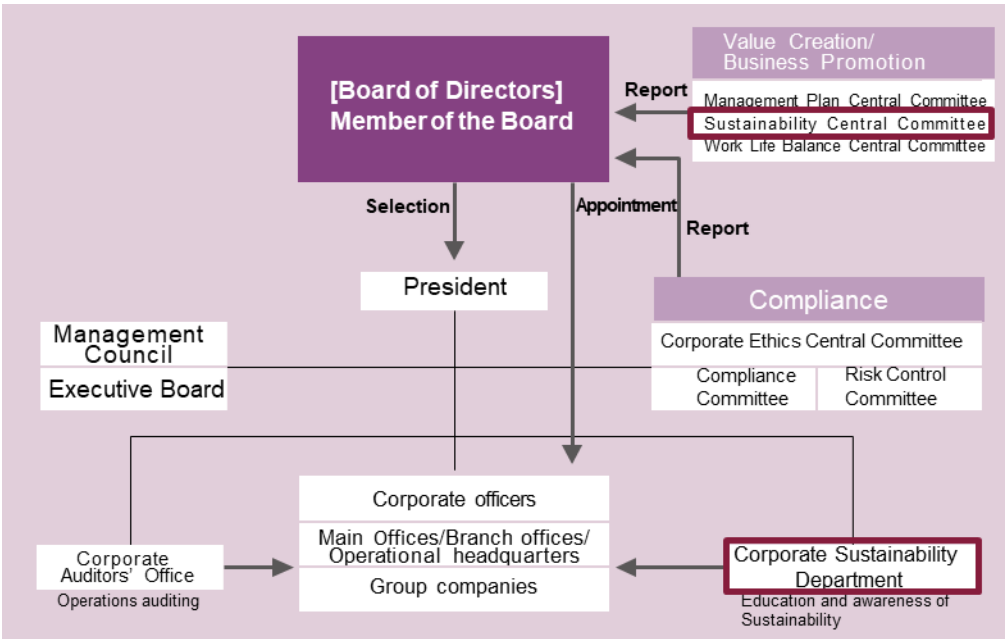
■Sustainability promotion system

Takenaka Corporation renamed the CSR Promotion Central Committee to the Sustainability Central Committee in April 2024. With the participation of group companies, this committee identifies issues subject to social demands, and then deliberates and formulates response policies and plans across the entire company. In this manner, it is beginning to take action toward resolving social issues and improving corporate value.

In March 2024, the CSR Promotion Department was reorganized into the Sustainability Promotion Department, taking the lead in this area. Collaborating and cooperating with each department and group company across the spectrum of E (Environment) S (Society) G (Governance), this department promotes sustainability activities and disclosure of that information.

Sustainability-related matters are discussed by each committee, and important items are deliberated on by the Sustainability Central Committee and the Board of Directors. Then resolutions are implemented following prescribed procedures.

Sustainability promotion system



1.2 Engagement with stakeholders

The Takenaka Group will contribute to the transformation to a better society through dialog and joint action with our stakeholders, which include customers.

☞ Multistakeholder policies
☞ Stakeholder dialog

2. Strategy

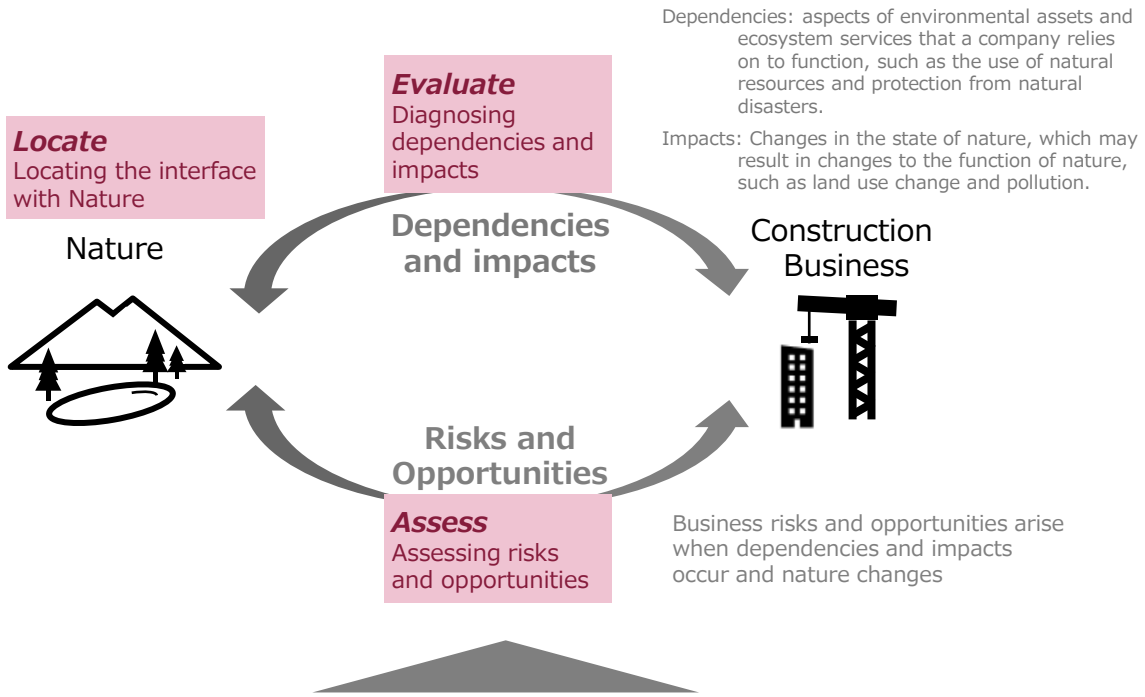
2.1 Examination process for dependencies, impacts, risks and opportunities

In this report, we examine dependencies, impacts, risks, and opportunities related to nature in line with the LEAP approach, which is advocated by TNFD.

The LEAP approach identifies the interface between a company's business and nature. It locates priority areas (Locate), analyzes dependencies and impacts at each site (Evaluate), assesses risks and opportunities as impacts on the business arising from dependencies and impacts (Assess), and then develops, implements, and discloses measures to address those risks and opportunities (Prepare).

In the initial stage of this report, we narrowed down the scope of our efforts through scoping, and then proceeded with examination in line with the LEAP approach. In the future, while disclosing the examination status in stages, we will continue to improve the scope of our initiatives and the accuracy of the L, E, and A phase analyses, as well as address the risks and opportunities in the P phase.

■Image of dependencies, impacts, risks, and opportunities



Analysis of local characteristics of operation site and identification of sensitive operation sites

Identification and assessment of vital dependencies and impacts

Identifying and assessing vital risks and opportunities

Disclosure and response to risks and opportunities

Examination process in accordance with the LEAP approach

Scoping
Setting the scope of the report

- Construction work (new construction and demolition) and wood procurement are set as the scope of initiatives based on understanding an overview of dependencies and impacts using the nature-related risk assessment tool "ENCORE," and the importance of these activities in our business.

Locate
Locating the interface with nature

- Location analysis of sites for construction work (new construction and demolition) as of the survey reference date.

Evaluate
Evaluating dependencies and impacts

- Identification of items with a certain degree of dependence or impact on construction work (new construction and demolition).
- Examining items that are likely to lead to risks, such as those with a large degree of dependence or impact and limited countermeasures, based on the effectiveness of countermeasures.

Assess
Assessing risks and opportunities

- Deriving what could have a financial impact on the company by making a long list of risks and opportunities impacting our own business, which arise from dependencies and impacts.
- Examining future markets and policy trends in the construction business and wood procurement based on literature and reports, and then utilizing these for risk assessment.

Prepare
Responding and reporting

- Disclosure of information.
- (Plan for future initiatives: Reflection on measures to address risks and opportunities, management systems, etc.)

Scoping (setting the scope of initiatives)

In determining the scope of our initiatives, we first used the nature-related risk assessment tool ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) to check an overview of dependencies and impacts on nature in relation to our construction business and value chain.

There are indications that direct operations (construction projects) could have a significant impact across a wide range, including terrestrial ecosystem use, water use, pollution and noise. In our direct operations (construction projects), scope covers construction work (new construction & demolition). This was set considering the comparison between construction and civil engineering works, as well as new construction & demolition and renovation projects, in terms of expected dependencies and impacts.

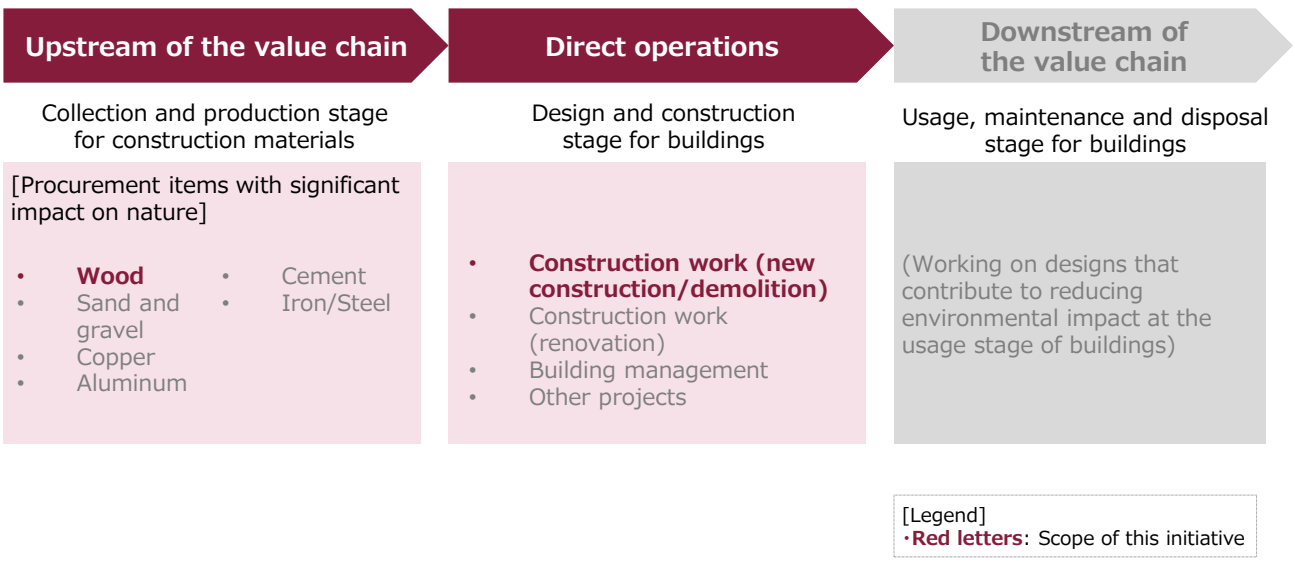
Regarding the upstream value chain, moreover, referencing the High Impact Commodity List, which has been proposed in the target setting framework (SBTs for Nature) based on nature-related science SBTN (Science Based Targets Network), we recognize that many procurement items, such as sand, cement, and steel, are considered to have a high impact on nature.

At the same time, taking into consideration the recent tightening of international regulations, we have decided to examine dependencies, impacts, risks, and opportunities for wood among our procurement items. In the future, we will consider expanding target items.

The downstream value chain is not subject to this analysis because it varies greatly depending on the type of building to be constructed, but we will continue to work on designs that contribute to reducing the environmental impact of buildings during their use.

☞ Sustainability (Living in harmony with nature)
☞ Solutions (environmental considerations)

■Scope of the initiatives



■ Dependencies and impacts on nature in construction projects

Source: ENCORE

VH:Very High
H:High
M:Medium

			Dependencies							
			Provisioning services		Regulating services					
			Surface water supply	Groundwater supply	Climate regulation	Water circulation	Soil quality maintenance	Flood mitigation	Erosion control	Other regulating services
	Direct Operations	Infrastructure Construction							M	
Upstream of the Value Chain	Resource extraction	Metal mining	H	H	H	H			M	
		Forestry (large-scale)	VH	VH	VH	H	H	VH	VH	H
	Raw material production	Iron extraction	H	H	M	M			M	
		Iron production	M	M		M				
		Steel production	M	M		M				
		Production of wood products	VH	H		M		M		
		Manufacturing of construction materials	VH	VH						

			Impacts								
			Land use change			Pollution					Resource use
			Land ecosystem use	Freshwater ecosystem use	Marine ecosystem use	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Distur-bances	Water use
	Direct Operations	Infrastructure Construction	VH	H	VH	H	M	H	M	H	H
Upstream of the value chain	Resource extraction	Metal mining	VH	H		H	H	H	H	H	VH
		Forestry (large-scale)	VH				H				
	Raw material production	Iron extraction	VH			H				H	VH
		Iron production				H			H	H	VH
		Steel production							H		H
		Production of wood products					H	H			H
		Manufacturing of construction materials	VH	H					H	H	H

*With regard to the value chain, items related to iron and wood are mainly described, and with regard to dependency relationships, major dependencies are extracted.

2.2 Examination results for dependencies, impacts, risks, and opportunities

Locate (Locating the interface with nature)

Investigation criteria

In starting examination and analysis, we discussed what kind of data would be desirable for screening and the availability of usable data while taking into account the fact that nature-related issues vary from one locality to another, and that construction projects are diverse in nature with each construction site being a fixed-term activity in a variety of urban or rural, and domestic or global locations.

As a result, we analyzed evaluation criteria and methods referring to the criteria and tools recommended in TNFD as well as from the perspective of three common criteria, including globally: biodiversity importance, ecosystem integrity, and water physical risk. An additional criterion in Japan, the importance of springwater, was also added.

In regard to springwater conservation in Japan, there has been a growing interest in springs and the fact that they are the foundation for precious local natural environments. Consequently, in some construction projects, there are concerns about the impact on surrounding groundwater due to pile foundation and earth retaining construction, and groundwater pumping. Therefore, in order to examine nature-related risks in Japan in more detail, we have now incorporated these into our standards. Specifically, we decided to screen for items of high "importance to ecosystem services" among local stakeholders based on whether they fall into the category of municipalities with spring conservation ordinances.

■ **Investigation criteria**

TNFD Criteria for sensitive locations		Details of evaluation criteria	
		Japan	Globally
1	Biodiversity importance	Key areas for biodiversity conservation (Key Biodiversity Area: KBA)[1]	
		Protected areas (designated by natural park law and Wildlife protection law)	–
2	Ecosystem integrity	Biodiversity intactness index [2]	
3	Water physical risk	Baseline water stress in Aqueduct 4.0 [3]	
4	Importance of ecosystem services (Importance of springwater conservation)	Existence of springwater conservation ordinance	–

1 Conservation International Japan KBA Map of Japan was used to evaluate sites in Japan, and IBAT (Integrated Biodiversity Assessment Tool) was used to evaluate global sites.
2 Newbold et al.(2016) “Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment”
3 Aqueduct Water Risk Atlas: Global Water Risk Assessment Tool

Survey results

As a result of these surveys, about 3 percent of the building construction sites in Japan were located in areas with high biodiversity importance and ecosystem integrity, and a certain number of sites were in areas with high importance for springwater conservation. In addition, about 42 percent of global sites were in areas with high water physical risk.

In civil engineering projects, about 41 percent of the sites were located in some kind of sensitive area due to the characteristics of the projects, and the breakdown was higher than that of building construction work in terms of the biodiversity importance, ecosystem integrity, and springwater conservation.

Accordingly, it is possible to avoid or reduce negative impacts on the environment as well as contribute to its recovery by pursuing possible initiatives for construction contractors in both building construction and civil engineering work.

At the same time, even for construction projects that are identified as being located in sensitive areas based on these survey results, the details of the construction work, the construction methods, and the current situation in the area may vary.

As a result, our future efforts will involve regularly checking construction sites, and for construction in sensitive areas, we will identify the dependencies and impacts based on the actual conditions in the area and the content of the construction work, and create a system to consider measures to avoid, reduce, and recover from the impacts that are possible as part of the construction project.

We will also expand and review these criteria to screen for sensitive areas that are likely to create nature-related dependencies, impacts, risks, and opportunities for our company.

■Survey results (Building construction and demolition)

	Number of survey sites	Applicable number of sites (Site ratio)	Breakdown by evaluation criteria			
			Biodiversity importance	Ecosystem integrity	Water physical risk	Importance of springwater conservation
Japan	153 sites	31 sites (20.3%)	5 sites (3.3%)	4 sites (2.6%)	0 sites (0%)	27 sites (17.6%)
Globally	26 sites	15 sites (57.7%)	1 sites (3.8%)	3 sites (11.5%)	11 sites (42.3%)	–

Note: The number of sites covered by the survey was selected from the sites in operation at Takenaka Corporation between November 2023 and March 2024.
One property may meet multiple criteria.

■Survey results (Civil engineering)

	Number of survey sites	Applicable number of sites (Site ratio)	Breakdown by evaluation criteria			
			Biodiversity importance	Ecosystem integrity	Water physical risk	Importance of springwater conservation
Japan	69 sites	28 sites (40.6%)	11 sites (15.9%)	7 sites (10.1%)	0 sites (0%)	20 sites (29.0%)

Note: The number of sites subject to the survey was selected from sites in operation at Takenaka Corporation between November 2023 and March 2024.
One property may meet more than one criterion.

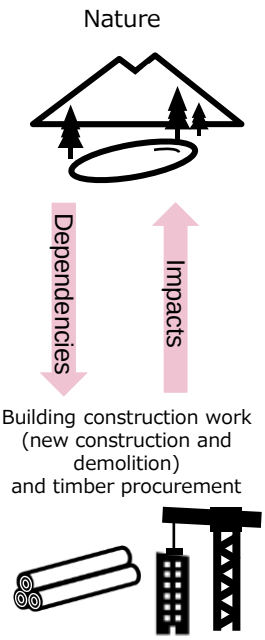
Evaluate (Evaluating dependencies and impacts)

In the Evaluate phase, we first identified the dependencies and impacts that would arise in relation to building construction work (new construction and demolition) and wood procurement.
Using the results of the ENCORE evaluation as a starting point, we identified dependencies and impacts related to building construction work (new construction and demolition) above a certain level that may occur in practice.

This process is organized from a companywide, bird's-eye viewpoint without assuming any specific locality for building construction work (new construction and demolition) while also utilizing monitoring in the existing environmental management system (ISO 14001).

■ Companywide dependencies and impacts (excerpt)

Dependencies
Supply services
Water supply in construction areas and timber production areas
Supply of timber as a construction material
Coordination services
Flood and storm protection/erosion control functions in construction areas and timber production areas
Microclimate regulation functions in timber production areas
Water flow maintenance functions in timber production areas
Soil quality maintenance functions in timber production areas
Pollination functions in timber production areas
Pest and disease control functions in timber production areas
Bioremediation functions in timber production areas



Impacts
Change in use of land, freshwater areas, and oceans
Change in use of biological habitats caused by construction
Deforestation by illegal logging and the lack of reforestation in wood-producing areas
Pollution and other adverse effects
Use of organic solvents, VOCs, and other special hazardous substances
Generation of waste heat from equipment
Water pollution (generation of turbid water and special wastewater)
Air pollution (emission of exhaust gas and generation of dust)
Waste (landfill and illegal dumping of waste, nonrecycling of waste plastics)
Light pollution, noise and vibrations
Resource use
Usage of wood
Intake of surface water Pumping of groundwater (depends on method)
Reuse of demolished materials and recycling of waste materials
Invasive alien species
Introduction of vegetation Use of procured materials at risk of invasion by nonnative species

Note:Energy use and greenhouse gas emissions are excluded

Next, we arrange the status and effectiveness of measures currently being taken to address these dependencies and impacts. Items with a high degree of dependency and impact and limited countermeasures are considered to be particularly susceptible to risk, and these will be considered for risk examination in the next Assess phase. In this process, we select several construction sites from those found to be in sensitive areas during the Locate phase, and we supplemented our consideration of real-world risks by conducting interviews.

In regard to the assessment of the degree of impact, it is essential for each construction site to quantitatively assess the impact of pollution and resource use (water use) and to take measures (e.g., monitoring the quality of wastewater and the intake of groundwater) to ensure impact reduction. In regard to the impact on ecosystems and the effects of nonnative species, meanwhile, each site is independently considering these issues at the design and construction stages through dialog with local stakeholders based on the conditions of each location and the characteristics of the construction. For example, transport of materials and equipment may be rerouted due to the proximity to wild bird habitats, and green spaces may be designed within the site in order to form a green network that makes use of the proximity of the surrounding green spaces.

In the future, we will consider structuring the process for recognizing dependencies and impacts, and examining countermeasures at construction sites as necessary, including the impact on ecosystems and alien species.

Assess (assesing risks and opportunities)

In the Assess phase (assessment of risks and opportunities), we make a long list of risks and opportunities based on the impact to our business, arising from dependencies and impacts. From this, we then extract major risks and opportunities from a perspective of whether they are likely to occur and whether they could have a financial impact on our company.
In order to examine the possibility of future risks occurring, and with goal of understanding future markets and policy trends related to construction projects and wood procurement, we also referred to integrated nature and climate scenario “FPS + Nature” for investors in the Climate Change Scenario Development Program "Inevitable Policy Response (IPR),” Nature-based Solutions (NbS), and policy trends and literature related to timber resources and biodiversity.
In preparing these long lists of risks and opportunities, and deriving the major ones, we set up a cross-sectional working group within the Takenaka Group with members from related divisions including group companies (total of 22 divisions, 40 members), and we have held approximately 70 rounds of discussions. These processes create a forum for discussion of how our company should respond to future risks and opportunities based on a solid understanding of the relationship between nature and the construction business.

☞ IPR FPS+Nature

■ Risks

Category	Dependencies /impacts	Overview of risks	Possible countermeasures
Transition risk (Reputational)	Impact (Land use change)	Insufficient consideration for biodiversity during construction at the time of development may result in reduced habitat of rare animals and plants (including birds of prey), which could lead to loss of corporate value and loss of business opportunities.	• Prior understanding of potential impacts on land use change, pollution, invasive alien species, resource use, etc. during construction, and considering and implementing measures tailored to each location based on local characteristics.
Transition risks (Reputational)	Impact (Light pollution, noise and vibration)	In construction work near protected areas, light pollution, noise, and vibrations may hinder the reproduction of rare species such as birds of prey, and this could potentially cause damage to corporate value and loss of business opportunities.	
Transition risk (Reputational, policy)	Impact (Invasive alien species)	Potential damage to corporate value and loss of business opportunities may occur due to the proliferation of alien species in relation to the introduction of vegetation and other human-induced movement of organisms, as well as increased costs related to measures to prevent invasion and proliferation of alien species.	
Physical risk (Acute and chronic) /Transition risk	Impact (Resource use)	In a global area of water-scarcity, if water supply and demand become tight and it becomes difficult to draw water, construction operations may be hindered, potentially leading to increased construction costs.	
Physical risk (Acute and chronic) /Transition risk	Impact (Resource use)	In construction work that may affect groundwater in springwater conservation areas, a lack of consideration for springwater conservation may potentially cause a decrease or depletion of springwater, leading to potential damage to corporate value and loss of business opportunities.	
Physical risk (Chronic)	Impact (Resource use) Dependence (Regulating and maintenance services)	Forest underuse and low reforestation rates in Japan may lead to degradation of ecosystem services in forests and a decline in wood supply capacity, and this could potentially lead to a decrease in wood supply and a rise in wood prices.	• Establishing a stable wood procurement system in cooperation with timber-producing areas and promoting Japanese wood procurement. • Building sustainable and competitive value chains by fostering relationships with suppliers. • Reviewing the value chain to reduce the cost of verifying legality in order to avoid the use of illegally sourced wood.
Transition Risk (Reputational)	Impact (Resource use)	Deforestation, degradation of rare animal and plant habitats, and human rights violations in timber-producing areas could all lead to potential loss of corporate value and loss of business opportunities.	
Transition risks (Markets and policy)	Impact (Resource use)	Emerging policy changes for deforestation prevention, and market changes have led to increased demands for certified wood materials, and this could potentially result in difficulties in procuring certified materials and increased management costs, such as verification of legality.	

■Opportunities

Category	Dependencies /impacts	Overview of opportunities	Possible countermeasures
Opportunities	Impact (Land use change)	Opportunities may increase for project orders due to increased demand for green infrastructure technologies in urban areas.	• Promoting new technology development related to green infrastructure. • Strengthening the ability to support certification acquisition and proposal activities to building owners.
Opportunities	Dependency (Ecosystem services) Impact (Resource use)	Opportunities may increase to receive orders for medium- to high-rise wooden buildings and wood-based projects, mainly urban wooden buildings, due to the expansion of the market for wooden buildings.	• Strengthening proposals for medium- to high-rise wooden buildings and wood-based projects, mainly urban wooden buildings.
Opportunities	Dependency (Ecosystem services) Impact (Resource use)	Opportunities may increase to receive orders for projects that extend the lifespan of buildings and utilize resource-efficient technologies.	• Promoting development of related technologies.
Opportunities	Impact (Land use change)	Opportunities may increase to receive orders for projects related to the regeneration and creation of green spaces in harmony with the surrounding environment and the strengthening of ecological networks in areas where construction projects are implemented.	• Promoting development of technologies for quantitative assessment and monitoring of biodiversity and related new technologies. • Strengthening the ability to support the acquisition of biodiversity-related certification and to make proposals to building owners.
Opportunities	Impact (Land use change)	The number of orders may increase for projects supporting the acquisition of biodiversity-related certification by establishing quantitative assessment and monitoring technologies to achieve nature positive.	

These risks and opportunities need to be further refined in terms of their magnitude (financial impact) and likelihood of occurrence. We will further refine them in light of trends in the international sustainability disclosure standards.

In addition, based on these risks and opportunities, we will formulate priority areas for future efforts toward nature positive and establish a promotion system, including setting metrics and targets.

2.3 Building management initiatives

In this report, while we have begun to analyze building construction work (new construction and demolition), building management also accounts for an important proportion of the Takenaka Group's business.

In regard to building management, therefore, we selected 365 sites where we were conducting "planting management" from among the locations under building management as of May 2024, and we conducted an analysis of local characteristics regarding Locate (locating the interface with nature) using standards equivalent to the domestic standards for building construction (new construction and demolition). The results are as follows. In addition to areas of high biodiversity importance and ecosystem integrity, about 22 percent of the sites were found to fall under the category of important for springwater conservation.

The relationship (dependencies and impacts) with nature in building management is expected to be important, particularly in terms of equipment exhaust, wastewater management, building site management, and planting management.

Accordingly, in the future, we anticipate identifying important dependencies and impacts for each facility that operates in these sensitive areas, and then analyzing risks and opportunities.

■Survey results (Building management)

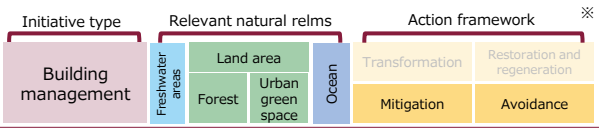
	Number of sites surveyed	Applicable number of sites (Percentage of sites)	Breakdown by assessment criteria			
			Biodiversity importance	Ecosystem integrity	Water physical risk	Importance of springwater conservation
Japan	365 Sites	111 Sites (30.4%)	28 Sites (7.7%)	6 Sites (1.6%)	0 Sites (0%)	81 Sites (22.2%)

Note:The number of locations subject to the survey is based on the selection of locations where planting management is carried out among the locations where Asahi Facilities had managed buildings as of May 2024. One property may meet multiple criteria.

Meanwhile, we have already begun to exchange opinions on what kinds of dependencies, impacts, risks and opportunities exist for business locations operating in these sensitive areas.

The following are examples of initiatives that take measures to address potential impacts on nature and risks in our building management business.

Example of building management in sensitive areas (Asahi Facilities Inc.)



In our building management business, we implement the following and other activities with customer consent from a viewpoint of nature positive within the scope of contracted services.

- Prohibition of the use of herbicides in removal of weeds
- Water quality management of externally discharged water
- Selection of fuels considering the impact of combustion gases on the surrounding ecosystem

As customer interest in nature positive practices will increase in the future, we will strengthen the contribution for nature positive in building management where the impact on the ecosystem is a concern.

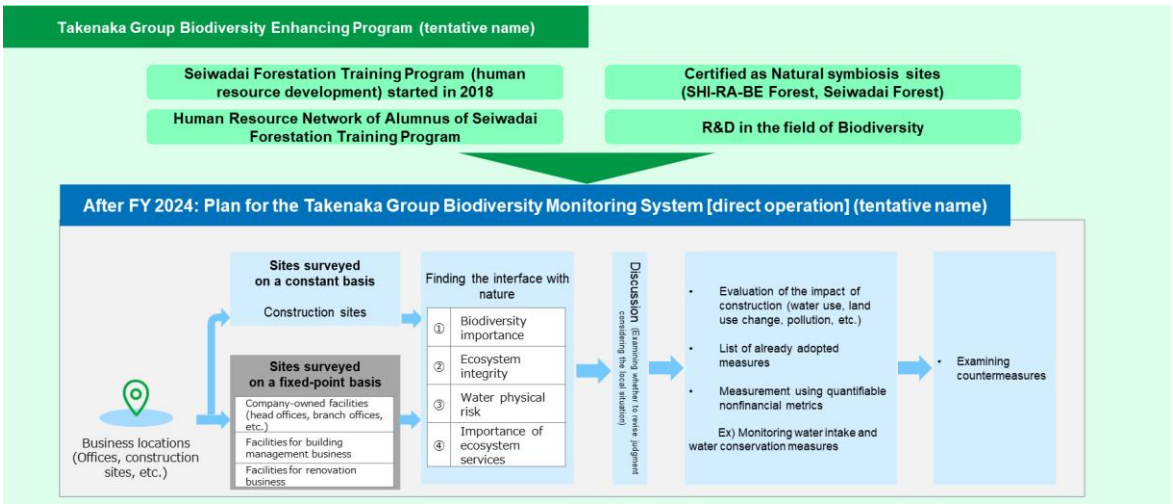
Planting management without herbicides

※See page 16 for an explanation of the classification of cases (initiative type, relevant natural areas, and action frameworks).

3. Risk and Impact Management

In December 2023, the Takenaka Group formulated its Group Environmental Strategy with an awareness of the ideal vision for 2050 toward a decarbonized society, a resource circulation society, and a society in harmony with nature. With regard to harmony with nature, we are working to standardize biodiversity-friendly practices.

We aim to establish and operate the Takenaka Group Biodiversity Promotion Program (tentative name) as an initiative in which employees become aware of biodiversity, recognize and share the relationship between our business and biodiversity, and apply this understanding to their work by conserving ecosystems and biodiversity, and utilizing related technologies. We plan to manage the identification of high-priority projects as the Takenaka Group Biodiversity Monitoring System (tentative name), which includes our own standards.



4. Metrics and Targets

The Takenaka Group views the social issues of decarbonization, resource circulation, and living in harmony with nature as deeply and closely connected, so we are aiming to address them in an integrated manner.
At present, in addition to disclosing CO_2 emissions (by Scope 1, 2, and 3 categories), we have set targets and are managing progress for CO_2 reduction rate, number of biodiversity improvement projects, and industrial waste recycling rate for new construction as shown below.
In a series of analyses and interviews for the recent TNFD disclosure, we have begun interviews on the status of understanding and management of metrics, such as pollutant concentration, water consumption, groundwater pumping, groundwater level, amount of waste generated and treated by type, the amount of high-risk natural resources used, which are expressed in scoping, and the percentage of certified wood and other materials.
Further discussion is needed regarding the companywide aggregation of these figures and the setting and management of targets. We will work to build a system that enables us to obtain companywide data on important nonfinancial metrics, and we will deepen discussions on the setting of targets for realizing nature positive as a construction business.

☞ ESG data

■Target setting and progress

Indicators (KPI)	Target values (target year)	Actual value (2023)
CO_2 reduction rate	2030 ▲46.2% (Scopes 1+2) ▲27.5% (Scope 3) 2050 Carbon neutral (as of 2019)	+39.2% (Scopes 1+2) ▲35.9% (Scope 3) *Preliminary figures
Number of biodiversity improvement projects	12 Projects (2025)	12 Projects
Industrial waste recycling rate for new construction (by volume)	100% (2050)	94.9%

5. Specific Initiatives

5.1 Addressing the area of managing risks and opportunities

Examples of activities taken by the Takenaka Group in the area of risk and opportunity management are presented. For each one, a summary and reference photographs and diagrams are provided, along with the types of initiatives taken, the relevant nature areas, and the types of measures taken to address impacts on nature based on the AR^{3}T framework.

Legend for examples of initiatives

Example title

Initiative type	Relevant natural relms				Action framework	
	Freshwater areas	Land area		Ocean	Transformation	Restoration and regeneration
XXX		Forest	Urban green space		Mitigation	Avoidance

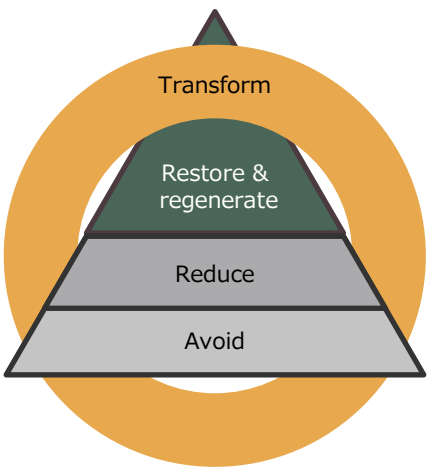
Example description

Reference photographs and diagrams

Regarding the types of measures to address impacts on nature, the framework of action for nature-positive practices by companies proposed by the Science Based Targets Network (SBTN) is arranged with reference to the AR^{3}T Framework.

AR^{3}T Framework

The framework of action includes avoiding and reducing impacts on nature, restoring and regenerating nature, and transforming systems at multiple levels.

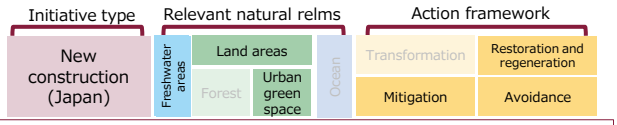


	(Examples)
Transform	• System transformation includes supporting the supply chain and collaborating with society.
Restore and regenerate	• Restoring green spaces and regenerating ecological networks.
Reduce	• Selecting construction methods with minimal environmental impact.
Avoid	• Avoiding procurement from areas with the highest nature-related risks.

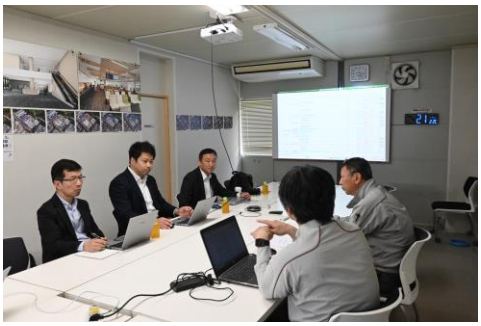
☞ SBTN　AR^{3}T Framework

Examples of measures taken in construction projects

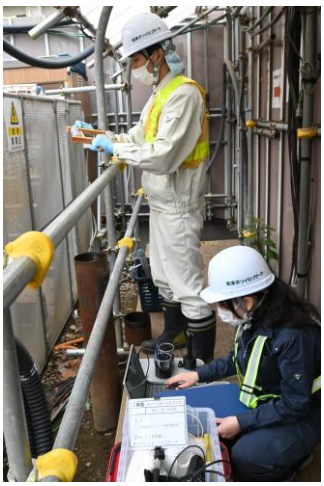
Avoidance of impact on springwater due to changes in foundation structure / Initiatives to conserve biodiversity in cooperation with adjacent parks.



We visited a construction site in a TNFD sensitive location and interviewed the people there about how they perceive and address their impact on nature. Through interviews, we were able to confirm the following specific examples of measures taken at the site.
The area around the site covered by the interviews is located where springwater is abundant, and groundwater monitoring is required when there is a concern about the impact of construction on groundwater. Initially, deep soil improvement was planned for the foundation structure, and groundwater monitoring during the construction period was required. However, due to consideration of the impact on groundwater flow, ground improvement work was cancelled, and the design was changed to support the building on shallow ground, thereby avoiding any impact. As a result of the changes to the foundation structure, the obligation to monitor groundwater levels and water quality was removed. However, in this project, observation wells were installed on the site, and voluntary monitoring was being done to confirm that there was no impact.
The site also contained soil with high permeability for the Kanto Loam Formation, so consideration was given to preventing disturbance by managing the excavation underside during the construction period. As a result, high rainwater penetration close to that of natural areas could be expected even after the construction was completed, thereby leading to the maintenance of natural regulatory services.
The landscape plan aimed to conserve and create biodiversity through planting ideas that took the local ecosystem into consideration and by creating greenery continuity with the park adjacent to the site. We held workshops to build birdhouses with local children, and we promoted initiatives to foster awareness of nature positive through engagement with local residents.

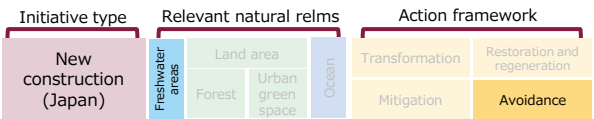


Exchanging opinions with construction site managers



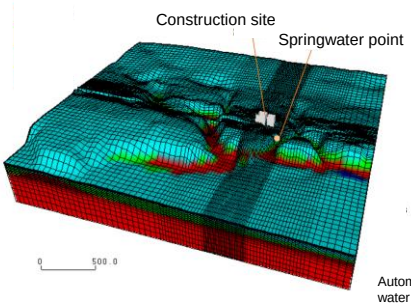
Groundwater level and water quality monitoring

Initiatives to assess impact on groundwater in springwater conservation areas

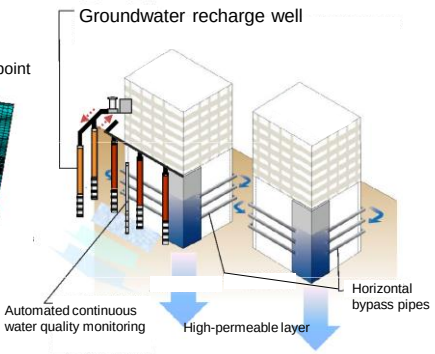


As part of a redevelopment project for the area around a station, we carried out a 3D analysis of the current state of groundwater to determine the impact of construction work on the groundwater, and we optimized the construction plan.

Measures to protect the groundwater environment were also implemented using artificial high-permeability layers and horizontal water pipes, recharge methods, and monitoring technology.



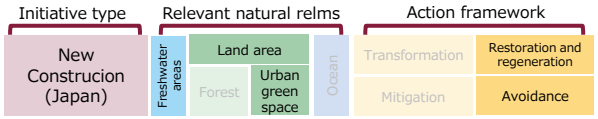
Three-dimensional analysis model



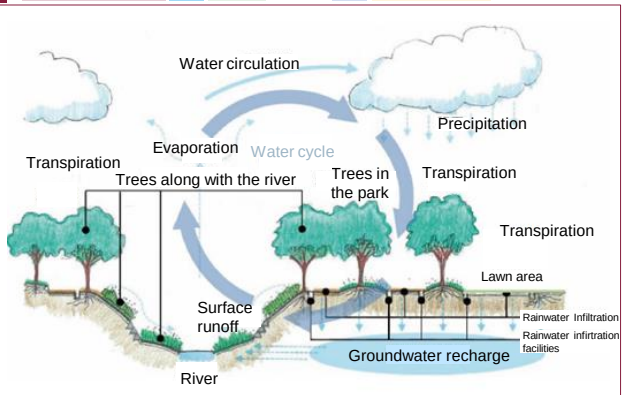
Outline of groundwater environmental protection measures

Examples of measures taken in construction projects

Formation of a green network and consideration of biodiversity in planting plans

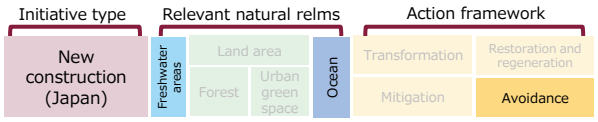


This is an example of a park and planting plan in which Takenaka participated in a design JV. It was a construction project of an athletics stadium in a park located at the junction of a green road and a river near the construction site, which was the axis of a wide-area green space. The aim was to form a green network by enhancing the effects of the two axes of the green space and the river.
Aiming to create a park that coexists with nature, this project called for the introduction of green infrastructure pavement to restore the local water cycle and the introduction of Chinese cork oak to revitalize the existing forest. By working on a planting plan under the supervision of experts who were very knowledgeable about the local ecosystem, the aim was to promote the formation of a habitat to attract insects, and to create a new site that would become a hub of the local ecological network.



Conceptual diagram of healthy water circulation

Establishing delivery vehicle routes that give consideration to the impact on waterfowl migration in a wild bird park



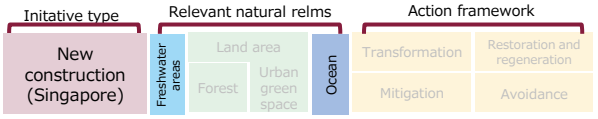
This is an example of consideration taken during the preparatory construction phase of a construction project located in a bird sanctuary. The wild bird park near the construction site is a habitat for waterbirds. It is a place that is crowded with wild birds throughout the year, such as shorebirds and plovers in spring and autumn, and ducks in winter, and there is a birding hut.

In discussions with the management, there was concern about the impact of construction vehicles passing near the park on the migration of waterbirds, so the transport route was reviewed to avoid this impact.

Waterfowl flying into a wild bird park
(Left: Curlew; Right: Hydrangea)

(from local government website)

Purification of sludge water generated during construction



The Ministry of Sustainability and the Environment of Singapore (MSE) regards the creation of a "sustainable environment" as an important element for the sustainable development of Singapore, so it is focusing on environmental measures such as air pollution, climate change and energy efficiency, water quality maintenance, and waste disposal.

Among these measures, in order to prevent water pollution at the source, the Public Utilities Board of Singapore (PUB) requires construction sites to have reservoirs and purifiers to collect all rainwater from construction sites based on an "Integrated Water Management Plan." It also requires the prevention of direct outflow of sludge into the sewerage system, and construction effluent to be under constant monitoring using CCTV. The measures on the right were also taken at the Takenaka Singapore Office.

Examples of wooden buildings and wood utilization

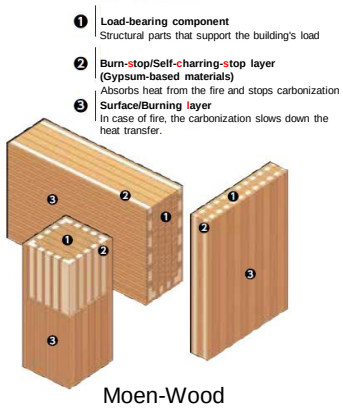
Various technologies to realize urban medium- to high-rise wooden buildings / Understanding issues related to the supply of structural wood

Initiative type: Procurement of raw materials / Technological development

Relevant natural relms: Freshwater areas; Land area: Forest, Urban green space; Ocean

Action framework: Transformation; Restoration and regeneration; Mitigation; Avoidance

Promoting wooden buildings and using Japanese wood not only contributes to decarbonization by reducing CO_2 emissions during construction and fixing carbon in buildings, but this also contributes to nature positive by improving biodiversity through promoting the circular use of forests and maintaining them in a healthy state. It also contributes to enhancing ecosystem services such as water source cultivation, flood prevention, and sediment disaster prevention.



Moen-Wood

KiPLUS WALL

As new ways to utilize forest resources, we are continuing to develop various technologies to promote the use of wood for interior and exterior finishing, such as Moen-Wood fire-resistant wood technology, which enables medium- to high-rise wooden buildings, the "KiPLUS" series of value-added technologies that enable wooden members to be used in steel (S) and reinforced concrete (RC) buildings by standing upright, and the "T-FoRest" series of new earthquake-resistant reinforcement technologies that use wood.

In promoting proposals for urban wooden construction and wood-based projects, we visited suppliers of laminated wood with large sections for structural use in medium- and high-rise wooden buildings. We shared trends in the supply of certified wood, which is expected to increase in demand in the future, and issues for contributing to the realization of sustainable forestry in Japan. We plan to continue discussions in cooperation with suppliers.

Exchange of opinions on lumber for structural use

Initiative to use certified wood formwork through group collaboration (Tokyo Asahi Build Corporation)

Initiative type: Procurement of raw materials

Relevant natural relms: Freshwater areas; Land area: Forest, Urban green space; Ocean

Action framework: Transformation; Restoration and regeneration; Mitigation; Avoidance

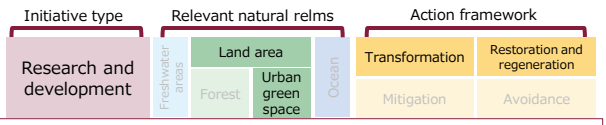
With regard to wood used for formwork in concrete construction, we expect to see an increase in demand from customers for the use of certified wood formwork to prevent deforestation and protect human rights. Together with our group company, Tokyo Asahi Build Corporation, we are exchanging views with suppliers of certified and legal wood, and sharing issues related to the supply of certified wood formwork.

Going forward, we will further strengthen the cooperation within the Takenaka Group to handle concrete construction using certified wood formwork, for which demand is expected to increase.

Exchanging opinions on certified wood formwork

Examples of green infrastructure technology R&D and human resource development

Research and development initiatives for green infrastructure technologies

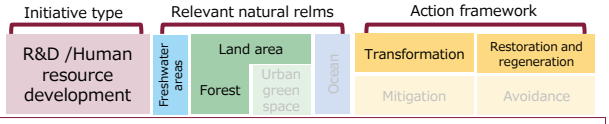


SHI-RA-BE Forest, which was established in October 2019 on the premises of the Takenaka Research and Development Institute (Inzai City, Chiba Prefecture), is a research and development field for green infrastructure and biodiversity conservation that aims to provide multipurpose solutions to local and social issues.

In 2023, SHI-RA-BE Forest was certified as a “Nationally Certified Sustainably Managed Natural Sites" by the Ministry of the Environment in recognition of its efforts to strengthen ecosystem services, including consideration for a sound water cycle, and the use of various green infrastructure-related technologies in areas such as design, construction, evaluation, and monitoring. The technologies verified and developed in this field are applied to various outdoor spaces that aim to harmonize with local ecosystems and coexist with people and nature. SHI-RA-BE Forest is working to resolve social issues with the aim of realizing a society in harmony with nature and creating sustainable communities.

Demonstration field for green infrastructure and biodiversity conservation
SHI-RA-BE Forest

Implementation and verification of biodiversity conservation / Initiatives for human resource development



Seiwadai Forest, which is located at our training facility, lies in a hilly area in the central part of Kawanishi City, Hyogo Prefecture, and it serves as a field for the practice and verification of biodiversity conservation that began with the conservation and restoration of the facility's green space of approximately eight hectares. In this field, we are working to realize a sustainable society through the four activities of Seiwadai Forestation, which creates a model for the development of biodiversity-friendly communities: (1) Maintenance and conservation activities led by Takenaka Group employees, (2) Hands-on training while bolstering activities, (3) Research and development, and environmental technology development, (4) Cooperation and collaboration with stakeholders. Regarding the hands-on training, more than 200 Takenaka Group employees have completed the training, which is the driving force behind the group's activities to realize nature positive. In 2024, the site was certified as a Nationally Certified Sustainably Managed Natural Sites by the Ministry of the Environment, following the SHI-RA-BE Forest in 2023. This certification was highly evaluated for the fact that the *satoyama* environment, rich in nature and inhabited by a variety of species including rare species, is maintained and managed under a clear policy, and that it is used for employee training and community collaboration.

Photo of Seiwadai Forest

Future vision for Seiwadai Forest

Examples of measures taken in development and civil engineering projects

Toyocho green+

Initiative type: Investment and development
Relevant natural relms: Freshwater areas; Land area; Forest; Urban Green Space; Ocean
Action framework: Transformation; Restoration and regeneration; Mitigation; Avoidance

Toyocho Intes, which was built by Takenaka Corporation in 1969 as a technical research laboratory and used as an office for the Takenaka Group after the relocation of the laboratory, was renovated into a complex facility called Toyocho green+. On the occasion of its 50th anniversary, under the business concept of "Open Intes to Town," we newly built facilities that local residents could casually visit, such as a cafe in a grove of trees, a plaza that could be used as an event space, a kitchen car space, and a mobility port. An office with a members-only work lounge was installed in the existing building, and the building, which is more than 50 years old, was updated both in terms of hardware and software to make it a sustainable facility full of greenery where everyone can relax and interact with nature while maintaining full earthquake resistance.

On the north side of the site, there is a pocket park that anyone can use and a community garden. Serving as a place for people to get close to nature and cultivate a community, it also functions as a rain garden, contributing to the improvement of disaster prevention in the area.


Cafe in a grove of trees


Pocket park/community garden

Slope protection and securing a path for small animals (Takenaka Civil Engineering & Construction Co., Ltd.)

Initiative type: Civil engineering
Relevant natural relms: Freshwater areas; Land area; Forest; Urban green space; Ocean
Action framework: Transformation; Restoration and regeneration; Mitigation; Avoidance

In this project, surplus soil generated during road construction was treated at a disposal site for such soil established within the project site under a forest land development permit of approximately 14 hectares.

As for the structure of the embankment drainage channel, consideration was given to reducing the impact on the habitat environment of small native animals by adopting a structure that allowed small animals to crawl up even if they fell into the channel. In addition, native species of Chinese bush clover and mugwort were used as seeds for the vegetation slope.


Slope protection work using native species


Securing movement routes for small animals

Installation of a detention pond as a part of local ecosystem in an industrial park development site (Takenaka Civil Engineering & Construction Co., Ltd.)

Initiative type: Civil engineering
Relevant natural relms: Freshwater areas; Land area; Forest; Urban green space; Ocean
Action framework: Transformation; Restoration and regeneration; Mitigation; Avoidance

This was a land readjustment project of about 25 hectares. Because the land had remained unused, a new industrial base was developed to contribute to regional revitalization.

The ponds planned for the development site were converted into detention ponds coexisting with the local ecosystem, creating a place for recreation, and allowing wild birds to fly in.


Detention Pond (upon construction completion)

Detention Pond (approximately 10 years later)

5.2 Participating in external initiatives

The Takenaka Group strives to communicate with a wide range of stakeholders through endorsement of various initiatives and activities at industry associations.

■Main participating organizations and initiatives

Initiatives, etc.	Year of participation, etc.	Activities
TCFD (Taskforce on Climate-related Financial Disclosure)	January 2021	In support of the TCFD recommendations, we have joined the TCFD Consortium.
CDP	July 2020	We are responding to CDP climate change.
Climate Change Initiative (Japan Climate Initiative; JCI)	February 2020	We support the Declaration on Japan's Participation in the Global Frontline for Decarbonization and promote initiatives.
Japan Climate Leaders Partnership (Japan Climate Leaders' Partnership: JCLP)	June 2021	We joined JCLP as a supporting member, a corporate group that aims to realize a sustainable decarbonized society.
SBT Initiative	March 2024	We acquired SBT certification for the 2030 long-term CO_2 reduction target.
GX League	April 2023	We participated in the GX League.
TNFD (Taskforce on Nature-related Financial Disclosure)	March 2023	We joined the TNFD Forum in support of its recommendations.
Keidanren Biodiversity Declaration Initiative	February 2020	We endorse the purpose of the Keidanren Declaration on Biodiversity and Action Guidelines and disclose our policy initiatives.
General Incorporated Association Companies and the Biodiversity Initiative (Japan Business Initiative for Biodiversity, JBIB)	April 2008	It is actively working together with member companies to conserve biodiversity, and to jointly develop evaluation tools for sustainable land use.
Council for the Promotion of Eco-Friendly Businesses (Association for Business Innovation in harmony with Nature and Community, ABINC)	July 2015	It jointly works to realize the Aichi Biodiversity Targets (adopted at COP 10) by reversing the vector of corporate activities, creating a system in which people and living things can coexist, and scientifically and technically verifying and commercializing the system.
National Council for the Promotion of Forestation	November 2022	It was established with the aim of creating forests that contribute to the realization of SDGs and carbon neutrality, and we are active as a member.
Accredited as a "company working together to protect Japan's forests" (Council for the Promotion of the Campaign to Protect Japan's Forests by Using Domestic Wood)	April 2018	It promotes the use of Japanese wood and engages in activities aimed at creating a sustainable virtuous cycle between forest resources and local economies.
Registered wood-related business operator based on the Act on Promotion of Distribution and Use of Legally Harvested Wood (the Clean Wood Act)	October 2018	It strives to ensure traceability of wood and procure Japanese and legal wood, and reports the status of legal wood procurement every year.
Japan Business Federation Charter on Corporate Behavior	(Established in September 1991)	We dispatch committee members to participate in the administration of the charter.
Japan Federation of Construction Contractors Corporate Code of Conduct Voluntary Environmental Action Plan for the Construction Industry	April 2011 (Established by integration of 3 organizations)	We dispatch committee members to participate in the operation of the program.