Environmental 5

5. Environment

5.1 Policy and Approach

The ID&E Group positions environmental challenges as a core component of our sustainability management, aiming to achieve both contribution to sustainable social development and the creation of corporate value for our Group.
Our environmental considerations are grounded in the Group Code of Conduct, Sustainability Foundational Policy, and the Environmental Activity Policy within our Sustainability Management Framework. We have further developed the following action guidelines under our Environmental Activity Policy to promote environmentally conscious business activities.

- ▶ Environmental Activity Policy
- ▶ Action Guidelines for Environmental Management
- ▶ Action Guidelines for Climate Change / Realising a Decarbonised Society
- ▶ Action Guidelines for the Conservation of the Natural Environment and Biodiversity
- ▶ Action Guidelines for Realising a Circular Society
- ▶ Action Guidelines for the Conservation of Water Resources
- ▶ Action Guidelines for Chemical Substance Management Activities

Refer to the policy and action guidelines above for details.

5.2 Governance and Structure

We position environmental response as central to sustainability management. Following our integration into the Tokio Marine Group in February 2025, we are strengthening environmental initiatives through enhanced collaboration and cooperation across the entire Group.
Moving forward, the newly established Environmental Specialised Committee under the ID&E Sustainability Promotion Council will lead efforts to further enhance initiatives responses to natural capital, biodiversity, and climate change adaptation.

▶ Refer to group organisational structure to promote sustainability management for details

5.3 ID&E Group Business and Environmental Relationships

Our business activities are deeply interlinked with the environment and natural capital, both relying on and influencing them. These dependencies and impacts represent both risks and opportunities for our Group. Under our management philosophy of "Act with integrity and contribute to society through technology and engineering," we have positioned "Cultivating a beautiful and habitable planet: addressing climate change and ecosystem recovery through smart solutions" as one of our key material topics.
The ID&E Group extends diverse service in every group company both domestically and internationally and our business domains are able to be divided by three —Consulting, Urban & Spatial Development, and Energy—Each business possesses distinct characteristics and maintains specific environmental relationships:

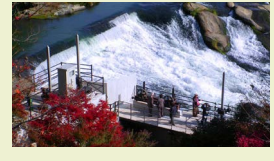
Consulting Business

Delivers sustainable infrastructure advisory services through comprehensive surveys, design, and construction supervision. While exhibiting limited direct natural capital dependencies, plays a pivotal role in environmental impact avoidance and mitigation strategies tailored to regional ecosystem characteristics.

Urban & Spatial Development Business

Engages in natural disaster resilience and climate adaptation initiatives through infrastructure development and urban planning. Demonstrates dependencies on critical ecosystem services including flood regulation and soil stabilisation, requiring integrated environmental stewardship throughout design and construction phases.

Energy Business



Contributes to the expansion of renewable energy through initiatives such as hydropower generation, solar and wind energy development, and energy storage solutions.
The business exhibits substantial dependencies on natural capital, including water resources and flood regulation, and interfaces significantly with biodiversity—necessitating comprehensive environmental impact assessments and continuous monitoring.

※ The above relationships are organised from the "Locate," "Evaluate," and "Assess" perspectives based on the TNFD LEAP approach outlined in TNFD Report 2025.

5.4 Risks, Impacts, and Opportunities

As described in "5.3 ID&E Group Business and Environmental Relationships," our Group's operations both depend on and impact the environment. These relationships are not one-directional; for example, our business activities rely on ecosystem services such as water supply and flood regulation, while also influencing biodiversity and land use. While we recognise that such environmental relationships present both risks—such as resource scarcity or climate-related disruptions—it could also provide opportunities, through sustainable solutions that enhance social value. Based on this understanding, we promote initiatives that balance environmental risks and opportunities, aiming to strengthen resilience and contribute to sustainability.

Initiatives FY 2025/06

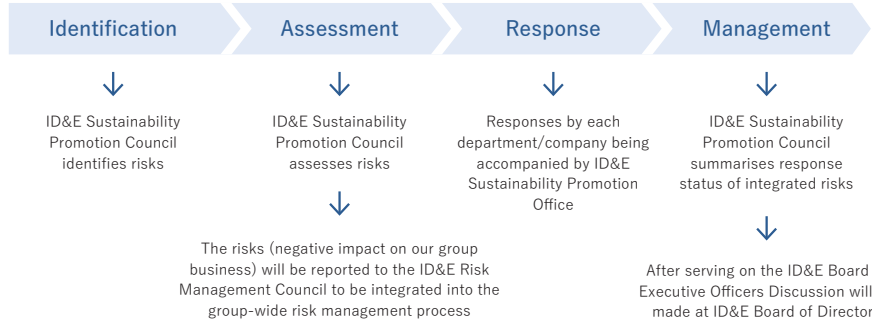
The ID&E Group undertook its inaugural comprehensive assessment of natural capital and biodiversity dependencies, impacts, risks, and opportunities in accordance with TNFD (Task Force on Nature-related Financial Disclosures) recommendations. This systematic evaluation represents a foundational step in establishing robust environmental risk management protocols across our operations.

The assessment findings will inform the Sustainability Promotion Council's strategic approach to identifying, evaluating, and managing environmental risks encompassing natural capital, biodiversity and climate change considerations. This integrated methodology ensures comprehensive environmental stewardship aligned with international best practice frameworks.

The complete analysis based on TNFD recommendations has been consolidated within TNFD Report 2025, with the Japanese edition published in July 2025 and the English edition published in September 2025.

▶ For further details, refer to the TNFD Report 2025

Risk management process encompassing climate change, natural capital, and biodiversity across environmental domains



Moving forward, natural capital and biodiversity risks will be integrated alongside climate change within our established risk management frameworks. These risks will be monitored through both the Group Risk List and Main Domestic Companies Risk Management List, following the introduction of a dedicated Sustainability category to our risk assessment protocols in FY 2024/ 06.

5.5 Metrics and Targets

Our Group has established indicators and targets related to natural capital, biodiversity, and climate change. Based on these indicators and targets, each Group company develops action plans and pursues goal achievement through progress management.

▶ Refer to Sustainability Goals, Sustainability Commitments/Targets for further details

Initiatives FY 2025/ 06

TNFD Report 2025 presents the indicators and targets for natural capital, biodiversity, and climate change shown in the table below.

Results and Targets for the Group's Indicators

Indicators	Results (FY2024) FY2024/06	2030 Group Targets	Remarks and Main Initiatives
Greenhouse gas emissions (market-based) (Scope 1, 2)	3,422 (t-CO_2)*	3,189 (t-CO_2)	Emissions from five main companies 42% reduction compared to FY2023/06, with an average annual reduction rate of 6%. *Figures updated from the figures published in the Sustainability Report 2024 due to calculation errors.
Greenhouse gas emissions (Scope 3)	102,897 (t-CO_2)	51,187 (t-CO_2)	Emissions from five main companies 25% reduction compared to FY2023/06, with an average annual reduction rate of 3.6%.
ID&E Carbon neutral (cumulative)	2,432 (t-CO_2)*	The entire group's emissions of greenhouse gases (equivalent to Scope 1+2) are reduced to practically zero through CO_2 absorption/sequestration, emission reductions, etc., including the purchase of credits.	Sustainability Management Framework, Sustainability Targets. *Total from Scope 2 reduction equivalents and other CO_2 absorption, fixation and reduction measures.
Contribution to the reduction of greenhouse gas emissions through the project	Direct contribution: 24,102 (t-CO_2)* Indirect contribution: to be confirmed	Direct contribution: 36,000 (t-CO_2) Indirect contribution: 1,000,000(t-CO_2)	Contribution to carbon positive. *Reduction contribution from the Group's hydropower projects.
Water consumption of all sources Total water consumption	54,182 (m^3)	Quantitative targets under consideration	Figures for FY2024 are the sum of consumption at Nippon Koei Building, Kojimachi Mid Square, and BDP.
Waste emissions Total	937 (t)	Quantitative targets under consideration	Figures for FY2024 are totals for Nippon Koei Building and BDP offices.
Sales related to the promotion of renewable energy	¥27.6 billion*	¥430 billion	Promotion of renewable energy* (e.g. expansion of RE100 power supply business, development of storage battery business in Japan and Asia, promotion of regional microgrids, renewal and enhancement of power grids, etc.) *Relevant sales of NKES **Estimated based on the average annual electricity production of each power station in operation in Japan.
RE100 Electricity supply projects Electricity sales	17 (GWh)**	100 GWh per year	
Area contributing to ecosystem maintenance and restoration (cumulative)	Direct contribution: 0.026 (ha)* Indirect contribution: 536,588 (ha)**	Direct contribution: 5 (ha) Indirect contribution: 100,000 (ha)	*Contribution area estimated based on the implementation or funding of related projects within the Group. **Total area of various types of assistance provided through the Group's operations since 1999 for which records are available.
Status of response to identified impacts.	n/a	Response to identified risks/opportunities	Contribution to nature positive (e.g. projects for ecosystem maintenance and restoration)

We committed to the Science Based Targets initiative (SBTi) in September 2024 and received certification in May 2025. We will establish SBTi-based reduction targets and advance their achievement.

5.6 Environmental Management and Quality Control

5.6.1 Policy and Approach

The ID&E Group actively engages in environmental management as part of our commitment to cultivating a beautiful and habitable planet. Up to now as well, we have undertaken numerous domestic and international projects that contribute to the improvement and creation of both natural capital and social infrastructure. At the same time, as a collective of professionals, we take pride in delivering high-quality, safe, and reliable technical services and products—earning customer trust and satisfaction while upholding our standards for quality assurance.
Within our Sustainability Management Framework, we are upholding the Action Guidelines for Environmental Management and Quality Control Policy.

▶ Action Guidelines for Environmental Management
▶ Quality Control Policy

5.6.2 Management

The Group maintains Quality and Environmental Management Systems across multiple subsidiaries, operating in full compliance with ISO 9001 and ISO 14001 standards. This integrated approach ensures comprehensive quality assurance whilst embedding active environmental stewardship throughout our business operations.
Our systematic response to quality as well as environmental risks and opportunities enables enhanced operational performance and elevated customer satisfaction, simultaneously fulfilling our broader social

responsibilities. The Quality and Environmental Management Systems incorporates continuous environmental impact reduction through strategic business—SDG alignment and comprehensive outcome monitoring, ensuring measurable progress towards sustainability objectives.

5.6.3 Initiatives and Achievements

(1) Environmental Capacity Building

The Group provides environmental education opportunities for all officers and employees, with various programmes implemented across Group companies to enhance employee environmental awareness.

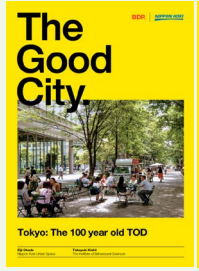
- New Employees Programme：
  To deepen understanding of sustainability management promoted by the ID&E Group, an explanation of basic sustainability knowledge and the "Sustainability Management Framework" has been provided.
- ID&E Global Academy：
  To encourage employees to make sustainable choices, basic information on sustainability and initiatives within the ID&E Group will be provided through e-learning.

(2) Environmental and Social Stewardship

We pursue environmental impact reduction through sustainable service and product delivery, striving to create a prosperous and resilient society. Our Group's operations carry significant public interest, with service and product provision generating extensive impacts across stakeholder communities.
With this responsibility in mind, we integrate environmental stewardship into our quality management processes whilst actively proposing technology-driven environmental impact reduction measures throughout our service delivery.

The Good City

The project "The Good City" led by BDP aligns with our Group's mission of "Making the World a Better Place" based on the principle that "cities are good for us and should remain so," targeting sustainable urban development that positively impacts economic growth, quality of life, wellbeing, arts and culture, and the environment.



Tokyo, Japan

Delhi, India

The Good City encompasses initiatives such as energy-efficient building design, promotion of renewable energy utilisation, and public transport development. These efforts are expected to reduce urban energy consumption and suppress greenhouse gas emissions. We organise urban planning and architecture events and conferences, sharing development strategies and sustainable urban design practices for each city. In July 2024, we held The Good City Launch Event, conducting vibrant discussions with various industry experts to transform cities worldwide into better places for everyone.

As part of The Good City, we have launched The City Observatory to gain a deeper understanding of urban challenges, utilising global expertise and researching best practices for envisioning Good Cities, implementing programmes in 10 cities worldwide. We have published — on Tokyo, Japan and Delhi, India.

Through this project, we aim to highlight sustainable urban models around the world, not only through BDP but through collaborations across Group companies, contributing to urban development and expansion that achieves both environ- mental conservation and social benefits.

Vietnam's First Metro Line Opens

Line 1 of the Ho Chi Minh City Metro Rail

To address severe traffic congestion and environmental challenges caused by rapid population growth, Ho Chi Minh City constructed Metro Rail Line 1 as part of its vision for sustainable urban development. From 2008, Nippon Koei provided comprehensive consulting services including basic and detailed design, tender support, contract and construction management, and pre-opening advisory. The railway line officially commenced operations in December 2024.

The project has been recognised for its integration of environmental and social considerations alongside infrastructure development, earning selection in TIME magazine's "World's Greatest Places 2025."

Now in operation, the metro line is contributing to smoother traffic flow and is expected to further reduce commute times, traffic accidents, and greenhouse gas emissions by encouraging public transport use. Promoting public transportation reduces car use and, as a result, helps improve air quality.

The ID&E Group views railway infrastructure as a strategic business domain for decarbonisation and resilient urban development and we remain committed to supporting similar projects worldwide.

(3) Integrated Environmental Solutions

We recognise that comprehensive approaches prove more effective than individual responses to interconnected environmental challenges encompassing climate change, biodiversity, and waste management etc. The ID&E Group delivers diverse solutions advancing integrated environmental strategies across these multifaceted sustainability domains.

Nippon Koei Central Research Institute Initiatives

Nippon Koei Central Research Institute

Established in 1992, Nippon Koei Central Research Institute serves as the core research and development hub for the Group's civil engineering, environmental, and social science domains. It conducts diverse research activities aimed at realising a sustainable society, addressing global challenges such as climate change adaptation, ecosystem services, and circular economy development through scientific insight and technological innovation.

The Institute operates, as private consulting company in Japan, one of the largest private-sector research facilities in Japan, including hydraulic experiment facilities, geotechnical testing laboratories, and environmental analysis centres. Research outcomes are applied to infrastructure development, urban planning, and ecological restoration projects both domestically and internationally, contributing to the delivery of environmentally integrated and sustainable solutions.

Going forward, the Institute will continue to collaborate with business divisions and play a vital role in advancing the ID&E Group's sustainability agenda—realising our corporate mission of "Making the World a Better Place."

For further details on our research themes, please visit the Central Research Institute website.

(4) Quality Enhancement Initiatives

ID&E Group

Main Japanese group companies promote participation in external quality training programmes and internal professional development sessions. Through ID&E Global Academy, executive engineers lead comprehensive foundational and advanced curricula across business domains, driving Group-wide quality excellence initiatives. We conduct systematic customer satisfaction assessments actively incorporating stakeholder feedback into our continuous improvement processes.

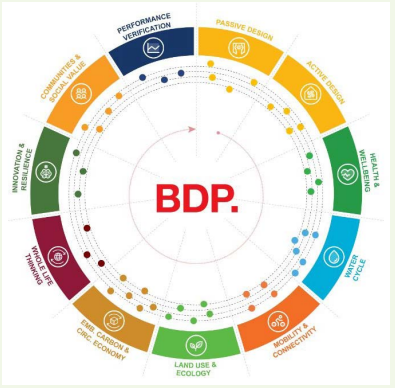
Others

BDP Supplier & Subcontractor Consultant Survey

BDP conduct comprehensive supplier and subcontractor consultant assessments addressing environmental and social impact considerations. These evaluations require new suppliers and subcontractor consultants to demonstrate alignment with questions. This process enables strategic collaboration with partners who maintain transparent quality, sustainability, and corporate social responsibility policies, ensuring comprehensive supply chain accountability.

BDP Sustainability Champions and Climate and Social Action Design Framework (CAD-F) Implementation Results

BDP's "Sustainability Champion Network" assigns designated Sustainability Champions to serve as sustainable design promoters in each studio, leading project teams to conduct sustainability assessments. Assessments utilise the Climate and Social Action Design Framework (CAD-F) sustainability evaluation tool.



In FY2025/06, CAD-F was pilot-tested across various projects, collecting feedback for improvements towards the next development phase. CAD-F enables sustainability goal setting, initial design phase direction reviews, and performance data collection and analysis for each project based on 10 key themes BDP emphasises within the SDGs. This promotes client reporting and challenge sharing between similar projects, establishing a framework for sustainability penetration throughout the design process.

Projects reviewed in FY2025/06: 33

Sustainability Champions also play crucial roles in introducing new tools for designers, particularly contributing to "Autodesk Forma" implementation supporting environmental analysis in early design processes.

These initiatives represent important steps towards achieving BDP's goal of achieving net-zero carbon across the entire lifecycle of all projects.

CAD-F Key Themes Table		
1	Land Use and Ecosystems	Promoting biodiversity and responsible land use practices
2	Health and Wellbeing	Achieving design that positively impacts residents' physical and mental health
3	Community and Social Value	Enhancing social value and strengthening community engagement
4	Embodied Carbon and Circular Principles	Minimising embodied carbon and promoting circular economy principles
5	Whole-Life Carbon Approach	Considering impacts, costs, and carbon emissions across the entire project lifecycle
6	Water Cycles	Implementing sustainable water management practices
7	Passive and Active Design	Optimising strategies that combine design leveraging natural forces (passive) with design utilising machinery and equipment (active) to enhance building operational energy efficiency
8	Innovation and Resilience	Encouraging innovative solutions and strengthening climate change resilience
9	Performance Verification and Aftercare	Ensuring performance target setting and maintenance from design process through post-occupancy
10	Mobility and Connectivity	Promoting sustainable transportation and connectivity solutions

5.7 Climate Change Response / Realising a Decarbonised Society

5.7.1 Policy and Approach

Climate action and decarbonisation represent strategic priority areas where ID&E Group delivers substantial impact through our core engineering and infrastructure expertise developed since in-ception. We have established a comprehensive "Action Guidelines for Climate Change / Realising a Decarbonised Society" to guide our climate response.
We maintain rigorous accountability standards aligned with international climate frameworks, fostering multi-stakeholder collaboration to promote comprehensive and advanced initiatives toward the realisation of decarbonised society.

▶ Refer to Action Guidelines for Climate Change / Realising a Decarbonised Society for further details

5.7.2 TCFD Recommendations Initiatives

For ID&E Group, climate change response presents both risks and numerous opportunities. Based on Task Force on Climate-related Financial Disclosures (TCFD) recommendations, we continue efforts to clearly communicate climate change impacts on our Group's corporate activities to stakeholders.
We conducted our first TCFD-based disclosure in September 2023, and updated disclosure content in April 2024.

FY 2025/06 Initiatives

- Science Based Targets initiative (SBTi) commitment (September 2024) and certification (May2025)
- TCFD recommendation-based information disclosure

Our Group discloses information across four categories based on TCFD recommendations: Governance, Risk Management, Strategy, and Metrics and Targets.

▶ For details of information on "Governance," "Risk Management," and "Strategy" (as of April 2024)*, see our website
▶ For details of our risk management process, see p.44

Details of information on Metrics and Targets

The Group monitors greenhouse gas emissions from business activities and evaluates their management implications through comprehensive Scope 1, Scope 2, and Scope 3 CO_2 emissions quantification across five main group companies, implemented since FY 2023/ 06 in alignment with our scenario analysis methodology. Until FY 2024/ 06, GHG emissions accounting was limited to five principal subsidiaries. From FY 2025/ 06, we have expanded the reporting boundary to include all consolidated subsidiaries. To better reflect actual emissions, we are reviewing and enhancing our data collection and calculation methodologies. Our reduction strategy includes proactive transition to hybrid and electric vehicles (HV/EV), and increased procurement of electricity derived from renewable energy sources. Furthermore, from FY 2025, we will begin Carbon Footprint (CFP) assessments for products manufactured in the Energy segment, marking a significant step forward in reducing emissions across our supply chain.

5.7 Climate Change Response / Realising a Decarbonised Society

ID&E Holdings Main Group Companies Greenhouse Gas Emissions

Category	FY2023/06 Emissions (t-CO_2)	FY2024/06 Emissions (t-CO_2)	FY2025/06 Emissions (t-CO_2)*2	
	Main Group Companies	Main Group Companies	Main Group Companies	26 Group Companies
Scope1	1,025.12	994.97	913.35	1,804.16
Scope2 Market based	4,357.00	2,235.83	2,250.51	4,226.25
Scope1, 2 Total Market based	5,382.12	3,230.81	3,163.86	6,630.40
Scope3*1	68,249.04	102,813.13	101,616.58	–

*1 Emissions from waste included in Scope 3 Category 5 do not fully reflect all sites of Nippon Koei and Nippon Koei Urban Space.
*2 Main Group Companies: Nippon Koei, Nippon Koei Urban Space, BDP, Nippon Koei Energy Solutions, Nippon Koei Business Partners. Group Companies: 26 companies in total, including Main Group companies (refer to "Method of Calculation and Scope in Data Collection for Key Sustainability Indicators")

Notes: The GHG emissions figures above are aggregated based on the calculation methods and boundaries defined by the ID&E Group, and may not necessarily align with those previously used by the Tokio Marine Group.

SBT (Science-based Targets) Reduction Targets

In our TCFD recommendation-based disclosure in April 2024, our Group's five main consolidated subsidiaries established Scope 1 and Scope 2 emission reduction targets at SBTi aligned by FY 2030.
We declared SBTi commitment in September 2024 and obtained SBTi certification in May 2025. Moving forward, we will advance Scope 1, Scope 2, and Scope 3 emission reductions according to SBTi-certified reduction targets.

SBTi Certification Standard-Based 2030 Reduction Targets (Group-wide)

Category	Baseline Year (FY2023/06) Emissions (t-CO_2)	FY2024/06 Emissions (t-CO_2)	FY2025/06 Emissions (t-CO_2)	FY2030 Target Emissions (t-CO_2)	Reduction Rate (Annual Average Reduction Rate) (%)
Scope1	1,461.83	1,156.70	1,804.16*1	847.86	42% (6%)
Scope2 (Market-based)	6,282.31	2,599.24	4,226.25*1	3,643.74	42% (6%)
Scope1, 2 Total (Market-based)	7,744.14	3,755.94	6,030.40*1	4,491.60	42% (6%)
Scope3*2	96,120.95	119,524.26	119,534.32	72,090.71	25% (3.6%)

Notes:
For emissions from Group companies other than the five Main Group companies, the previous method estimated emissions using the sales ratio of the five Main Group companies for the relevant fiscal year. However, starting from June 2025, the aggregation method has been changed to use actual Scope 1 and Scope 2 emissions data.
The above GHG emissions figures are aggregated based on the calculation methods and boundaries defined by the ID&E Group, and may not necessarily align with those previously used by the Tokio Marine Group.
*1 Actual measurements from 26 Group companies
*2 Scope 3 emissions are estimated by taking the actual measurements from the five Main Group companies and applying the sales ratio of these five companies to the entire Group for the relevant fiscal year to calculate the Group-wide estimated emissions.

SBTi Certified Reduction Targets for 2030 (Main Group companies)

Category	Baseline Year (FY 2023/06) Emissions ($t\text{-}CO_2$)	FY 2024/06 Emissions ($t\text{-}CO_2$)	FY 2025/06 Emissions ($t\text{-}CO_2$)	FY 2030 Target Emissions ($t\text{-}CO_2$)	Reduction Rate (Annual Average Reduction Rate)(%)
Scope1	1,025.12	994.97	913.35	594.57	42% (6%)
Scope2 (Market-based)	4,357.00	2,235.83	2,250.51	2,527.06	42% (6%)
Scope1, 2 Total (Market-based)	5,382.12	3,230.81	3,163.86	3,121.63	42% (6%)
Scope3	68,249.04	102,813.13	101,616.58	51,186.78	25% (3.6%)

*The GHG emissions figures above are aggregated based on the calculation methods and boundaries defined by the ID&E Group, and may not necessarily align with those previously used by the Tokio Marine Group.

SBTi Certified Reduction Targets and Transition Plan

By FY 2030, a 42.0% reduction in Scope 1 and Scope 2 compared to baseline year FY 2023 is required, with an annual average reduction rate of 6.0%. A 25.0% reduction in Scope 3 is required, with an annual average reduction rate of 3.6%. For Scope 1: Assumes vehicle hybridisation, electrification, and other applicable reduction measures. For Scope 2: Achievement anticipated through ID&E RE 100 expansion initiatives.

Carbon Neutral Targets

In addition to SBTi certification-based reduction targets, the ID&E Group established the following Carbon Neutrality Contribution as one of our Sustainability Targets in the Sustainability Management Framework published in July 2024. Moving forward, we plan to strengthen various absorption, sequestration, and reduction measures towards our Group's carbon neutrality goals.

Our 2030 and 2040 Targets

- 2030: Achieve net-zero Group-wide greenhouse gas (Scope 1+ 2 equivalent) emissions through CO_2 absorption, sequestration, emission reductions including credit purchases
- 2045: Achieve net-zero Group-wide supply chain greenhouse gas (Scope 1+ 2+ 3 equivalent) emissions through CO_2 absorption, sequestration, emission reductions including credit purchases

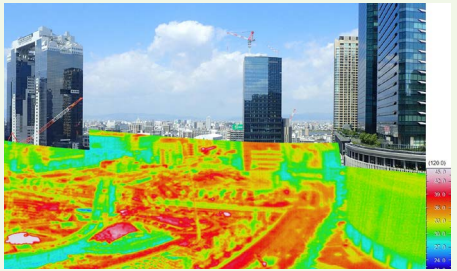
We will work towards further expanding information disclosure based on the four information disclosure items (governance, strategy, risk management, metrics and targets) required by TCFD recommendations, ISSB Standards, and SSBJ Sustainability Disclosure Standards.

5.7.3 Initiatives and Achievements

Our Group actively advances both mitigation strategies targeting greenhouse gas absorption, sequestration, and emissions reduction, and adaptation measures addressing anticipated climate change impacts. Across urban development, transport, forest conservation, renewable energy, and disaster risk reduction sectors, we integrate established technical expertise with innovative technologies to deliver comprehensive solutions addressing both mitigation and adaptation requirements.

(1) Mitigation Initiatives

Quantitative Verification and Visualisation of Green Infrastructure Functions



Areas including parks in Osaka Umekita 2nd District

Green infrastructure, as defined by Japan's Ministry of Land, Infrastructure, Transport and Tourism, refers to initiatives that promote sustainable and attractive development of national land, cities, and regions by leveraging the ecological functions of nature in both physical infrastructure and land use planning. While green infrastructure offers benefits such as disaster risk reduction and enhanced resilience, its implementation serve to contribute the sustainability of a whole society. Nevertheless, this initiative is in middle of development and to accelerate its adoption, it is essential to evaluate its diverse benefits accurately and foster collaboration among public, private, and academic sectors, along with financial support mechanisms.

Nippon Koei has conducted a project to quantitatively assess and visually demonstrate the environmental benefits of green infrastructure, aiming to promote its broader application in society. In the Umeda 2nd District of Osaka, under a preliminary study commissioned by the Urban Renaissance Agency, we began by identifying suitable evaluation methods tailored to the site's characteristics and environmental context. We collected data on local climate conditions, wind patterns, and green space visibility, and used this to model and quantify expected benefits such as heat reduction and improved thermal comfort. These results were then visualized to clearly communicate the effects of green infrastructure.

The ID&E Group promotes green infrastructure initiatives not only through Nippon Koei but also across its other subsidiaries. Through our three core business segments—Consulting, Urban & Spatial Development, and Energy—we remain committed to contributing to the realisation of a more sustainable society.

Participation in Grid Storage Battery Project in Nakatsugawa City, Gifu Prefecture

Nakatsugawa Power Station completion concept image

Advancing decarbonisation through renewable energy utilisation—including solar and wind power with variable output and quality—requires expanded grid storage battery deployment to charge surplus daytime electricity and discharge during nighttime electricity shortages.

Nippon Koei Energy Solutions has operated battery storage projects across Europe, where energy markets lead global development, since 2017. In March 2025, the company announced entry into the grid storage battery project in Nakatsugawa City, Gifu Prefecture. This project represents Nippon Koei Energy Solutions' inaugural Japanese domestic venture. We will advance this initiative leveraging battery project development, EPC (Engineering, Procurement, Construction), and aggregation expertise cultivated across Europe, alongside energy management system capabilities for optimal battery control.

Nakatsugawa Power Station is a large-scale grid storage battery facility. Whilst general household circuit breakers typically handle 4kW electricity, Nakatsugawa Power Station possesses 20,000kW output capacity.

Furthermore, with specifications enabling four-hour continuous charge/discharge operations, it can supply electricity to 5,000 households for up to four hours. Nakatsugawa Power Station is anticipated to contribute significantly to Chubu area grid stabilisation.

ID&E Group will deepen engagement in battery-related projects both domestically and internationally, further addressing energy-related social challenges through enhanced service provision.

5.7 Climate Change Response / Realising a Decarbonised Society

Carbon Credit Survey and Application Support

The Carbon Credit System represents a mechanism enabling greenhouse gas (GHG) reductions achieved through decarbonisation technology deployment to be credited and traded between countries and enterprises. Despite the fact that increasing numbers of companies that establish and publicise ambitious GHG reduction targets, emissions reduction through internal efforts alone can prove challenging.

Meanwhile, Enhanced decarbonisation regulations are anticipated globally, surpassing current requirements. Accordingly, corporate demand for carbon credits is expected to increase substantially. Nippon Koei conducts carbon credit feasibility studies, comprehensive credit application support, and MRV (Monitoring, Reporting and Verification) services domestically and internationally in response to anticipated demand growth. Regardless of country or technology sector, we have recently begun to provide extensive consulting services to enterprises participating in voluntary credits and bilateral credit mechanisms (carbon credit frameworks implemented through bilateral agreements to achieve international commitments under the Kyoto Protocol and Paris Agreement). We also conduct various research and development and demonstration studies relating to decarbonisation and carbon credits, including biochar initiatives (Refer to section 5.8.3).

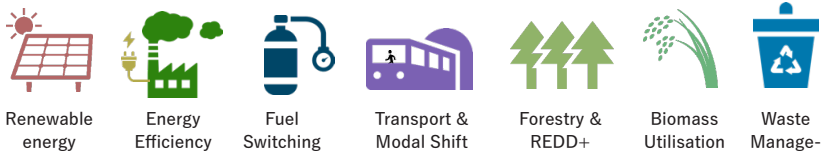
Our Group pursues continued GHG emissions reduction whilst expanding service provision opportunities across decarbonisation and carbon credit domains.

*Carbon credits are generated when differences arise between emission quantities or absorption/removal volumes resulting from greenhouse gas reduction, absorption, and removal measure implementation, and quantities that would have been emitted or not absorbed/removed without such measures (baseline).

Carbon Credit Survey and Application Support

Carbon Credit Consulting Services Flow

Technical Domains for Carbon Credit Application



Nippon Koei's consulting services

Akita Coastal Treatment Centre Energy Supply Base Project —Local Production and Consumption of Renewable Energy at Surrounding Public Facilities

Completion concept image

The Akita Coastal Treatment Center Energy Supply Base Project, awarded by Akita Prefecture in 2024 with Nippon Koei Energy Solutions as lead contractor, is advancing successfully. This initiative targets public facility cost and CO_2 emissions reduction by installing new renewable energy generation facilities, battery storage systems, and microgrids* at Akita Prefecture's sewage treatment plant. Construction commenced in 2024, with approximately two years of infrastructure development planned for FY2025-2026, followed by 20-year operations from 2027 to 2047.

Akita Coastal Treatment Centre is located in Akita City's Mukainohama district, which exhibits the highest electricity consumption among Akita Prefecture's public facilities. This project supplies renewable energy electricity from anaerobic gas (biogas) generation, wind, and solar power to 10 public facilities in Mukainohama district whilst optimising supply-demand balance through battery storage, hydrogen production utilisation equipment, and Energy Management Systems (EMS). This achieves over 70% of annual area electricity demand (approximately 22,000MWh) through locally produced and consumed renewable energy, with the remaining 30% sourced from external renewable energy procurement, realising zero CO_2 emissions from electricity consumption. Additionally, during grid outages from disasters, area generation facilities and EMS enable continued electricity supply to public facilities surrounding the coastal treatment centre, contributing not only to regional decarbonisation but also to enhanced resilience.

*Microgrid: A system enabling efficient renewable energy utilisation during normal operations and energy self-sufficiency within areas independent from grid systems during emergencies. It provides benefits during both normal and emergency conditions by preventing outages and enabling local production and consumption of renewable energy within the area.

Reducing GHG Emissions while Providing Safety and Comfort through Shuttle Bus Services

Manila, Philippines—Philkoei International, Inc. (PKII), headquartered in the eastern part of the nation's capital, operates in a metropolis heavily impacted by traffic congestion and environmental pollution brought about by rapid urban growth.

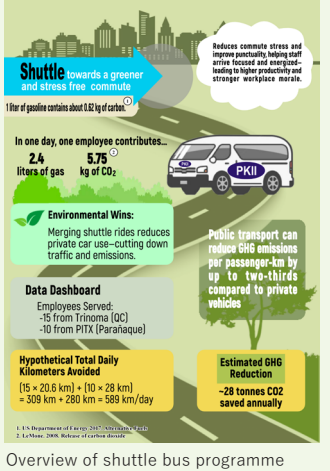
PKII launched its commuter shuttle service in 2020, at the height of the COVID-19 pandemic. The program was initially designed to safeguard employee health and wellness by minimizing exposure to the virus in crowded public transportation.

Even post-pandemic situation, the shuttle service remains in full operation, with designated pickup points in both the northern and southern regions of Metro Manila. This dual-route system ensures accessibility for most employees, encouraging a culture of shared transportation and environmental responsibility. PKII significantly reduces the number of individual vehicles on the road as well as carbon emissions.

Beyond this positive environmental impact, PKII continues to assess and expand the program's coverage, viewing it not just as an incentive for employees, but as a strategic investment in corporate sustainability and social responsibility. PKII's model demonstrates how businesses can trailblaze in building more resilient cities—shuttle towards greener and stress-free commute.

Our Group will continue examining and expanding initiatives contributing to health management, wellbeing, and decarbonisation outcomes through such approaches.

Shuttle bus operated by PKII



Overview of shuttle bus programme

5.7 Climate Change Response / Realising a Decarbonised Society

Myanmar Mon State Off-Grid Renewable Energy, Energy Efficiency Solutions, and Entrepreneurship Skills Development Support

Myanmar's electrification rate remains approximately 50% nationally even in the 2020s, with only 30% of rural villages connected to grid systems. Myanmar's National Electrification Plan (NEP) targets electricity supply to all Myanmar households by 2030.

This project represents a technical support initiative commissioned by UNDP to MYANMAR KOEI INTERNATIONAL LTD., aimed at improving electricity access and livelihood enhancement in Myanmar's rural communities.

We provided the following support targeting households experiencing poverty in Mon State's non-electrified areas:

① Introduction of 245 off-grid renewable energy solutions (Solar Home Systems: SHS)

② Deployment of 245 high-efficiency cooking stoves

③ Comprehensive training and skills development covering entrepreneurship, financial management strengthening, SHS, and efficient stove operation

This project is positioned within UNDP's framework as follows:

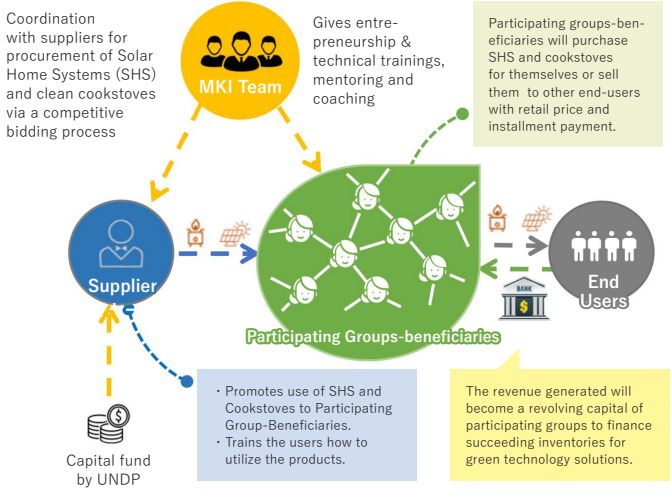
- Supporting achievement of Myanmar's Community-First Programme's Community Recovery and Resilience Enhancement Project (ENCORE), strengthening resilience of Myanmar's most vulnerable rural communities
- Connecting enterprises with community development and service provision

MYANMAR KOEI INTERNATIONAL LTD. contributed beyond equipment procurement support through comprehensive training and capacity development, enhancing social wellbeing and providing green business opportunities within target communities. Additionally, renewable energy-focused off-grid solutions and high-efficiency stove deployment expansion contribute to CO_2 emissions reduction.

This project provides direct support to regional communities and residents, realising our Group's corporate mission of "Making the World a Better Place" at the village level. We will continue supporting environmental and social sustainability improvements across both urban and rural areas.

Explanation of SHS (Solar Home System)

High-Efficiency Cooking Stove



(2) Adaptation Initiatives

Demonstration Experiment on Quantitative Resilience Assessment of Combined Infrastructure at Kimitsu Social Innovation Platform (K-SIP)

In November 2024, a Demonstration Experiment on Quantitative Resilience Assessment of Combined Infrastructure jointly proposed by Nippon Koei and Tokyo Metropolitan Sewerage Service Corporation was selected for Chiba Prefecture Kimitsu City's Kimitsu Social Innovation Platform (K-SIP). K-SIP is a platform matching enterprises addressing social challenges with Kimitsu City, supporting proof-of-concept experiments and social implementation of services.

With climate change intensifying the frequency and severity of disasters, and the risk of large-scale earthquakes, there is an urgent need for resilient infrastructure that can maintain functionality and recover quickly after damage. This includes robust disaster prevention and mitigation strategies.

The demonstration project in Kimitsu expands previously developed resilience assessment technologies for individual infrastructure systems to a multi-infrastructure framework. It incorporates interdependencies between infrastructure networks and evaluates urban functionality as a whole.

The project aims to demonstrate the feasibility of Evidence-Based Policy Making (EBPM), enabling rational and data-driven decision-making for infrastructure planning using operational-scale network models.

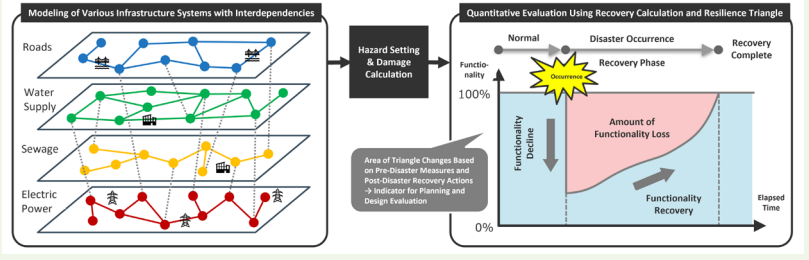


Image of Artificial DNA Tracer

Towards Carbon Neutrality through Inflow Water Identification — The Challenge of Artificial DNA Tracer Technology

In July 2024, the DNA tracer jointly researched and developed by Nippon Koei and Yamaguchi University was selected for the SBIR Construction Technology Research and Development Grant System. This programme supports technology development addressing national and regional challenges, with FY 2024 themes focusing on construction sector productivity enhancement and carbon neutrality realisation.

Image of Urban Functionality Assessment

Recent infrastructure facility aging and increased heavy rainfall from climate change have caused water of an unknown source (inflow water) to enter sewage systems, creating excessive electricity consumption and increased operational management costs at treatment plants. Since inflow water investigation requires substantial effort and costs with challenging source identification, Nippon Koei and Yamaguchi University developed a technology utilising artificially created DNA as tracers (tracking substances). This DNA tracer is engineered by adapting naturally occurring materials, allowing it to be released at specific locations and tracked to understand the movement of water and substances. This enables inflow water and leakage source identification, facilitating effective countermeasure implementation. This technology is expected to have broad future applications—not only for identifying the origin of unknown water inflows, but also for tracing the sources of facility leaks and construction-related water leakage. Inflow water source identification and countermeasures can suppress excessive electricity consumption at treatment plants, contributing to carbon neutrality as an anticipated breakthrough technology.

Vietnam Long Xuyen Bypass Road Opens

In June 2024, Long Xuyen Bypass Road operations commenced in An Giang Province, Vietnam. This project, supported through ODA assistance from the Australian Department of Foreign Affairs and Trade, Korea Eximbank, and the Asian Development Bank, involved Nippon Koei and Nippon Koei Vietnam International Co., Ltd. collaborating with local enterprises on detailed design, construction contractor tender support, and construction management. The 15.3km new road incorporates two major bridges, 16 smaller bridges, and three major intersections, developed as critical infrastructure contributing to Mekong Delta region traffic congestion alleviation and economic development.

Long Xuyen Bypass Road

Opening Ceremony

This project's distinctive characteristic lies in design and construction addressing both climate change mitigation and adaptation considerations. Particularly noteworthy is Nature-based Solutions (NbS) implementation. NbS represents approaches utilising natural forces to resolve social challenges—achieving climate change response, disaster risk reduction, and biodiversity conservation simultaneously through natural environment conservation, restoration, and utilisation including forests, wetlands, and vegetation.

Long Xuyen Bypass Road employed methods focusing on vegetation on embankment slopes, achieving rainwater infiltration and soil stabilisation whilst promoting harmony with surrounding ecosystems.

Additionally, route elevation setting and drainage design considering sea level rise risks create structures capable of withstanding future climate change impacts. Furthermore, recycled construction material utilisation contributed to resource circulation and greenhouse gas emission suppression. These initiatives represent sustainable development practices enhancing regional resilience whilst coexisting with nature, transcending mere infrastructure development.

NbS addresses not only climate change impact mitigation but also contributes to natural environment/ biodiversity and circular society construction. Our Group plans to expand NbS-based service development beyond this project.

5.8 Natural Capital and Biodiversity Conservation

5.8.1 Policy and Approach

The ID&E Group has delivered diverse projects and services contributing to natural capital conservation and management across domestic and international markets, including environmental protection, forest conservation, ecosystem preservation, and environmental assessments. With Cultivating a Beautiful and Habitable Planet as one of our material topics, we have established Action Guidelines for the Conservation of the Natural Environment and Biodiversity within our Sustainability Management Framework to demonstrate our commitment in these areas. Based on these Action Guidelines, our Group continues to enhance both internal responses and related service delivery.

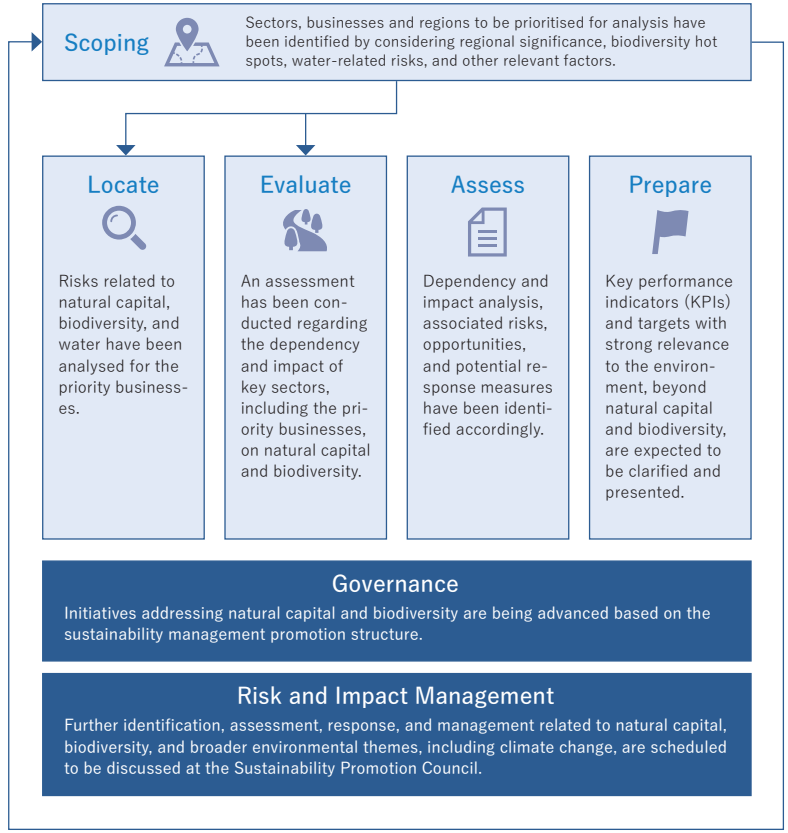
▶ Reference: See Action Guidelines for the Conservation of the Natural Environment and Biodiversity for further details

5.8.2 Response to TNFD (Taskforce on Nature-related Financial Disclosures) Recommendations

FY 2025/ 06 Initiatives

Following publication of the final TNFD recommendations report in September 2023, we have been preparing disclosures aligned with TNFD recommendations. In March 2024, we joined the TNFD Forum and conducted scoping across five main Group companies. In FY 2025/ 06, based on scoping outcomes, we performed analysis and evaluation according to TNFD recommendations for priority companies and business units. We disclosed these results as a TNFD report in July 2025 and achieved TNFD Adopter registration in October 2025. Moving forward, we plan to implement the necessary measures considering potential future obligations to disclose nature-related financial information under ISSB standards and SSBJ sustainability disclosure standards.

Refer to TNFD Report for comprehensive details.



5.8.3 Initiatives and Achievements

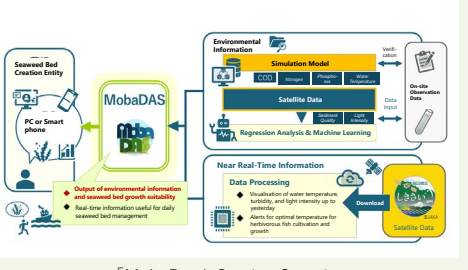
The ID&E Group endeavours to minimise adverse impacts on the natural environment and biodiversity across domestic and international operations, working to preserve diverse natural benefits for future generations. We actively participate in business operations and research contributing to nature conservation, advancing natural environment protection. Furthermore, we advance activities utilising technology to restore healthy natural environments and ecosystems, proposing social infrastructure development that coexists with nature. We contribute to building sustainable and resilient environmental and social systems.

Our TNFD report also presents our Group's initiatives related to natural environment and biodiversity.

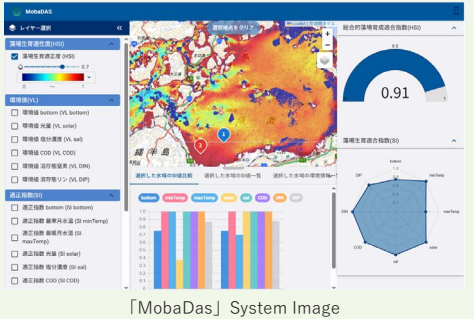
Natural Capital and Biodiversity Conservation Initiatives

Blue Carbon Ecosystem Contribution: MobaDAS (Seaweed Beds)

Seaweed beds function as feeding grounds for organisms consuming seagrass and seaweed, whilst serving as spawning and nursery areas for fish and shellfish. Recently, they have gained recognition as marine carbon sequestration ecosystems that actively remove carbon dioxide (CO_2) from the atmosphere (commonly referred to as blue carbon ecosystem in Japan). In recent years, a phenomenon called isoyake (sea dessert), where seaweed drastically decreases, has progressed nationally, becoming a critical issue. Responding to challenges including biodiversity conservation and decarbonisation advancement, demand for seaweed bed restoration and creation is increasing. Nippon Koei has developed MobaDAS as a system analysing seaweed bed growth potential. MobaDAS integrates existing scientific knowledge, satellite imagery analysis with diverse wavelengths and characteristics, and underwater environment prediction through hydrodynamic water quality modelling, amongst other multifaceted technical areas related to aquatic environments, to comprehensively evaluate seaweed bed growth suitability by location. Moving forward, MobaDAS will advance research by expanding evaluable seaweed bed types and target water areas, targeting service launch by 2026 through demonstration experiments.



「MobaDas」Service Overview



「MobaDas」System Image

In January 2025, MobaDAS achieved first place (Theme 1: Carbon Credit Infrastructure Development—Green and Blue Carbon, etc.) in the satellite data utilisation development contest NEDO Challenge, Satellite Data for Green Earth hosted by the New Energy and Industrial Technology Development Organisation (NEDO). The recognition valued active satellite data utilisation for seaweed bed growth potential assessment, including accuracy improvements through simulation modelling and service provision using near real-time information.

Our Group targets expanding practical application through research and development contributing to biodiversity conservation and decarbonisation advancement across blue carbon ecosystems and beyond.

5.8 Natural Capital and Biodiversity Conservation

Biochar Production Demonstration Initiatives

Biochar refers to carbonised material (carbon derived from biological resources) obtained through incomplete combustion of organic waste (biomass) such as rice husks under oxygen-free (low-oxygen) conditions. Recently, biochar's soil improvement abilities and carbon sequestration capability have gained recognition, attracting global attention.

As crucial CDR (Carbon Dioxide Removal) for achieving carbon neutrality, biochar is expected to deliver various benefits beyond carbon credits, including effective organic waste utilisation, regenerative agriculture and carbon storage through agriculture promotion, forest fire prevention, and local resident and community benefits.

Since 2014, Nippon Koei has developed biochar expertise through commissioned work from the Ministry of Economy, Trade and Industry, Ministry of the Environment, and private enterprises, including biochar production and application feasibility studies and carbonisation furnace efficiency and energy-saving assessments.

Currently, as part of Nippon Koei's research and development, we conduct the following biochar-related demonstration studies:

Biochar Production Experimentation in Riau Province, Indonesia

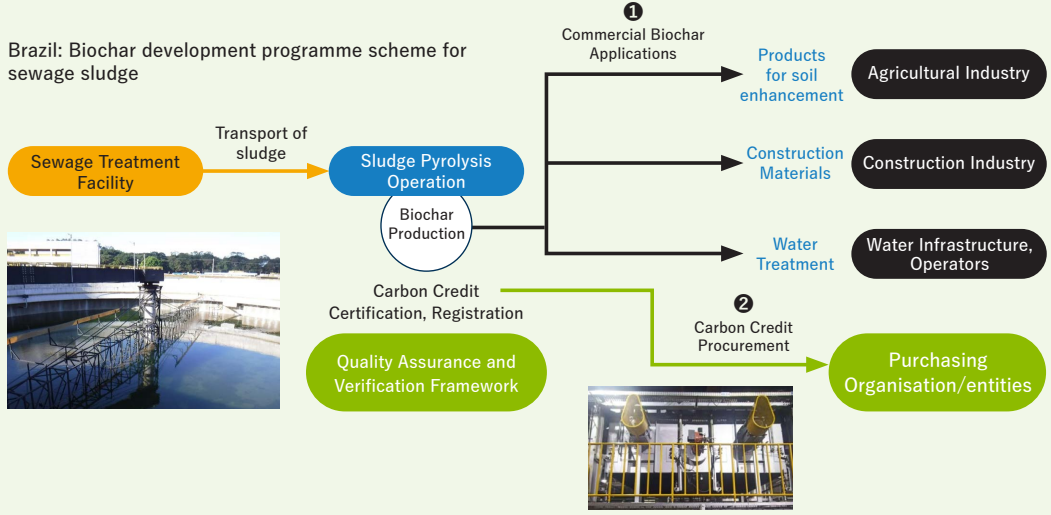
▶ Project Overview: In 2024, we signed a cooperation memorandum with Indonesia's National Riau University and, with local NGO and resident group cooperation, operated biochar production demonstrations through controlled carbonisation processes using internationally certified simple methods for palm industry waste (empty fruit bunches, rachis, old tree trunks). We produced 9 tonnes of biochar in 2024.

Brazil: Sewage Sludge Biochar Development Programme

▶ Project Overview: In Brazil, where sewage sludge treatment has become a social challenge, we conduct sludge-derived biochar production and application demonstrations to verify biochar credit business feasibility. We examined utilisation possibilities including biochar agricultural application and confirm circular economy contribution effectiveness and carbon credit creation through sewage sludge carbonisation.

Both projects continue as pilot initiatives. ID&E group view biochar activities as opportunities contributing to 1) environmental and social value creation and 2) high-value CDR credit creation and acquisition. Furthermore, through biochar production and credit issuance, we target business expansion across other countries and regions beyond Indonesia and Brazil, including Japan.

Brazil: Biochar development programme scheme for sewage sludge



5.8 Natural Capital and Biodiversity Conservation

Restoring Lost Waterside Areas: Habitat Creation Using Agricultural Land

Nippon Koei's Okinawa Branch has developed habitat restoration technology utilising sedimentation ponds*1 and fallow rice fields that function as a soil erosion management*2 measure, targeting rare aquatic insect conservation in the Amami-Okinawa region. This initiative, re-evaluating and redesigning these ponds and fields as biodiversity-contributing environments, creates multi-faceted value as venues for resident-cooperative management activities and environmental education where children learn whilst interacting with nature.

Observation Session at Sedimentation Ponds and Fallow Rice Fields Following Pilot Implementation

In the Amami-Okinawa region, aquatic insects are rapidly declining due to rice paddy and pond reductions, pesticide usage, and droughts. Approximately 80% of endangered species in the Okinawa Prefecture Red Data Book are aquatic insects.

Managing sedimentation ponds as biotopes*3 increased aquatic insect species from 48 preconstruction to 52 approximately six months post-construction. Rare species including Platambus fimbriatus and Allopachria sharpi were confirmed, clarifying habitat functionality. On Yonaguni Island, we created waterside environments utilising fallow rice fields and proposed maintenance management using subsidies provided by the Japanese government (MAFF).

Technologies contributing to endangered fauna conservation, exemplified by this initiative, are essential for nature-coexistent social infrastructure development. Our Group continues advancing such technology and service provision.

*1 Sedimentation ponds: Constructed wetland systems that intercept agricultural runoff, enabling natural settlement processes to remove suspended sediments and protect downstream aquatic ecosystems
*2 Soil erosion management: In Okinawa and the Southwest Islands, heavy rainfall causes red soil runoff that threatens marine biodiversity and coral reef ecosystems, necessitating integrated soil conservation strategies.
*3 Biotope: Compound word combining biology (bio) and space (top), referring to managed spaces de- signed to support specific biological communities and enhance local biodiversity.

TNFD Support and Intra-Group Collaboration

Within our Group, we conduct TNFD recommendation-based surveys, analyses, evaluations, and TNFD report preparation centred on Nippon Koei.

By sharing and collaborating on TNFD-related initiatives and expertise across our Group, we are able to offer TNFD-related services to our clients. Natural capital and biodiversity responses and initiatives closely relate to realising a decarbonised society, circular economy transition, and disaster-resilient society building, contributing to better world creation. Our Group plans to further strengthen intra-Group collaboration.

Urban Forests for the Future: Sustainable Challenges at Tokyo Metropolitan Meiji Park

Tokyo Metropolitan Meiji Park represents Tokyo's inaugural Park-Private Finance Initiative (Park-PFI)* project, led by Nippon Koei Urban Space. The park features Hokori-no-Mori (Pride Forest), a green space resembling satoyama-style natural environments (traditional Japanese sustainable landscape management creating biodiversity-rich habitat mosaics), creating new urban organism habitats and forming green networks contributing to biodiversity enhancement.

Vegetation survey in Hokori-no-Mori

The approximately 7,500㎡ Hokori-no-Mori contains roughly 500 deciduous trees and 200 evergreen trees. To protect indigenous ecosystems, the selection of trees was carefully considered to emphasise native varieties. For example, incorporating deciduous trees enables fallen leaves to return to soil, creating mechanisms fostering rich soil environments serving as microorganism and small animal habitats. Through management plans conscious of forest cycles, we pursued a natural regeneration process that allow balanced forest development over time.

Workshop at Hokori-no-Mori

Tokyo Metropolitan Meiji Park achieved triple recognition in 2024 via the Good Design Award, 18th Kids Design Award, and 40th Urban Parks Competition, receiving high evaluation for natural symbiosis, regional collaboration, and sustainability. Such initiatives contribute to green infrastructure development and urban natural capital and biodiversity conservation and enhancement. Our Group plans to expand related technology and service provision.

Official Website: Tokyo Metropolitan Meiji Park - MEIJI PARK PROJECT

*Park-PFI: Development methodology utilising business revenue from publicly solicited park facilities to develop public areas including plazas and conduct park tree selection and management

5.9 Building a Circular Society

5.9.1 Policy and Approach

The ID&E Group is delivering technologies and services centred on waste management. To build a circular society, it is essential to ensure accountability in both business contributions and Group implementation. Considering these aspects, our Group has established Action Guidelines for Realising a Circular Society within our Sustainability Management Framework. Based on these Action Guidelines, we will further specify and advance our Group's circular society approach.

▶ Action Guidelines for Realising a Circular Society

5.9.2 Initiatives and Achievements

Our Group delivers waste management technology services domestically and internationally, promoting waste reduction and resource reuse. We pursue zero emissions targeting environmental impact reduction and energy efficiency enhancement, contributing to sustainable circular society realisation through waste recycling and energy recovery.

5.9 Building a Circular Society

Supporting Sustainable Urban Development Through Waste Management: Challenges in the Dominican Republic and Mozambique

With rapid global urbanisation, waste management represents a critical challenge for achieving a sustainable society. Nippon Koei has participated in Japan International Cooperation Agency (JICA) technical cooperation projects, supporting waste management system construction and operational capacity strengthening in the Dominican Republic and Mozambique*.

In the Dominican Republic, waste collection and treatment systems were underdeveloped, with numerous final disposal sites facing environmental and sanitary challenges. We collaborated with the Ministry of Environment and Natural Resources, supporting institutional development, municipal operational capacity strengthening, and disposal site improvement planning. We particularly contributed to presenting feasible models considering local government financial and technical constraints and building resident-participatory municipal management systems.

In Mozambique's Maputo Metropolitan Area, increasing waste generation confronted challenges including low collection rates and inappropriate disposal. We collaborated with Maputo City and the surrounding municipalities, supporting the optimisation of collection routes, vehicle operation improvements, and strengthening disposal site management. Furthermore, through school and community environmental education and separation awareness activities, we contributed to resident awareness improvement, cooperation system building, sanitary environment improvement, and sustainable management system establishment.

Environmental Education

Final Disposal Site

Our Group's value lies in comprehensively supporting our clients from institutional design through field operations, human resource development, and resident collaboration, establishing locally rooted sustainable waste management mechanisms. These achievements enhance expertise and reliability whilst providing foundational value for future business including institutional strengthening services and site-specific environmental technology implementation.

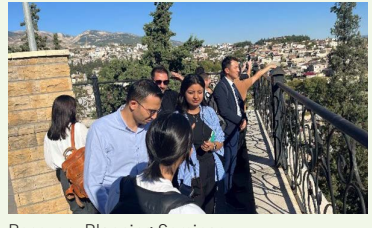
*Dominican Republic National Comprehensive Waste Management System and Capacity Strengthening Project Phase 2 Project Period: 2020-2023
*Mozambique Maputo Metropolitan Integrated Waste Management Capacity Building Project (Japanese only) Project Period: 2019-2023

5.9 Building a Circular Society

Recovery Planning and Disaster Waste Management Seminars in Southeast Turkey Earthquake Affected Areas

Nippon Koei, commissioned by JICA, conducted a Recovery Planning Seminar and a Disaster Waste Management Seminar in southeast Turkey earthquake affected areas as part of the Türkiye Local Government Disaster Risk Management and Waste Management Capacity Building Project.

The Recovery Planning Seminar was held on 3 October 2024 in Kahramanmaraş, with approximately 130 local government officials participating in person and over 250 online. This seminar aimed to disseminate and discuss Kahramanmaraş city centre recovery plans, sharing specific urban reconstruction initiatives and recovery planning information based on Build Back Better principles. Participants expressed hopes for implementing recovery planning for disaster resilience improvement throughout Turkey.



Recovery Planning Seminar

The Disaster Waste Management Seminar was held on 17 October 2024 in Gaziantep, with over 150 participants. This seminar shared knowledge and conducted consultations based on the Türkiye Disaster Waste Management Guidelines that Nippon Koei supported to develop in developing. The finalisation of the Guidelines was based on seminar discussions and disaster waste management plan creation, and implementation at provincial and municipal levels are to be expected.

Disaster Waste Management Seminar

Our Group aims to deploy and utilise knowledge gained from this work across other countries and regions from disaster recovery and disaster waste management perspectives, as well as disaster prevention resilience and circular economy promotion.

5.10 Water Resource Conservation

5.10.1 Policy and Approach

Our Group has been engaged in global water resource development since its foundation, and water resource conservation and efficient utilisation is a high-priority sustainability challenge. We have established Action Guidelines for the Conservation of Water Resources within our Sustainability Management Framework.
Based on these Action Guidelines, we earnestly pursue water resource conservation, contributing to our Group's material topic of Cultivating a Beautiful and Habitable Planet.

▶ Action Guidelines for the Conservation of Water Resources

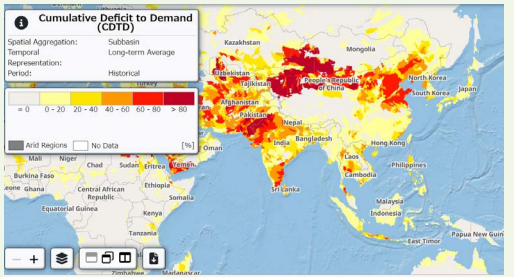
5.10.2 Initiatives and Achievements

Our Group delivers solutions for water resource conservation, usage reduction, sustainable water resource utilisation, and wastewater management and water pollution prevention by applying various technologies across both our own operational sites and infrastructure projects developed for clients. We comply with wastewater management and water pollution prevention laws and regulations, implementing appropriate wastewater treatment and leakage countermeasures.

(1) Water Resource Conservation and Usage Reduction Efforts

Water Security Compass—Opening the Future of Water Resource Conservation: Collaboration with University of Tokyo and Suntory

Nippon Koei jointly developed the online platform Water Security Compass with the University of Tokyo Graduate School of Engineering and Suntory Holdings Co., Ltd. The platform enables multi-indicator understanding of water shortage risks based on global water supply and demand over time. As of July 2025, the Global version assessing global water resource risks is published as a beta version preceding official release. The Japan version, focused on nationwide coverage and assessing water resource risks at approximately 2km mesh high resolution, is published as an alphaversion. Official Global version release is targeted for early 2026.



Screen Image of Water Security Compass

The main features and applications of Water Security Compass include:
① Visualising water resource shortage status relative to water demand required by humans and river-dwelling organisms
② Providing regional water demand composition and water resource volume information, enabling understanding of the risk structure
③ Identifying regions where water shortages may actually occur, enabling countermeasure to be developed

We have also jointly developed the water resource risk assessment indicator SS-DTA with government agencies, universities, and companies. SS-DTA is a risk assessment indicator that compares water resource availability during drought years with regional water demand patterns. It incorporates the impact of water resource infrastructure—such as reservoirs, pipelines, and treatment facilities—on supply capacity and assess the severity of water resource risk based on regional demand composition.

Water Security Compass aims to improve accuracy of screening priority regions for water risk countermeasures undertaken by global companies and organisations, leading to enhanced global water resource conservation activity promotion. Our Group also utilised Water Security Compass to determine water risks at target facilities and regions in TNFD recommendation-based surveys, analyses, and evaluations of our own Group.

Moving forward, our Group targets contributing to broader global-scale utilisation and international water-related rule formation discussions beginning internationally, based on Water Security Compass and SS-DTA.

▶ Water Security Compass

*An indicator that represents the total amount of water naturally present and available for use in a region, such as river water and groundwater.

(2) Wastewater Management and Water Pollution Prevention Initiatives

Aguas Claras Wastewater Treatment Plant Project

Since 2012, Nippon Koei Latin America-Caribbean Co., Ltd. (NKLAC) has participated in the Aguas Claras Wastewater Treatment Plant Project implemented by Colombia's public enterprise Empresas Públicas de Medellín (EPM) in Bello City, Antioquia Department, handling everything from pre-construction verification through design and post-construction completion supervision. This project targets significant wastewater treatment capacity improvement in the Medellín metropolitan area, developing South America's largest secondary treatment facility capable of processing domestic wastewater for 2.2 million people.

Aguas Claras Wastewater Treatment Plant

This facility possesses capacity to reduce BOD(biochemical oxygen demand) and SS (suspended solids) flowing into the Medellín River by 80%, significantly contributing to regional water quality improvement and aquatic environment conservation. Furthermore, the facility incorporates environmental impact reduction considerations, including utilising facility-generated biogas to self-supply approximately 90% of required energy. Biosolids (sludge) thermal drying systems enable appropriate waste treatment and resource valorisation. These technical innovations are recognised as best practice examples of sustainable wastewater treatment.

The facility also incorporates the Aguas Claras Integrated Living Unit (UVA) developed as an environmental education and recreation space, deepening connections between local residents and the aquatic environment. Facility frontage features a plaza with fountains and community centre, transforming wastewater treatment plants that residents typically avoid into community gathering spaces.

Aguas Claras Wastewater Treatment Plant represents an advanced urban water infrastructure model comprising the trinity of treatment capacity, environmental consideration, and regional collaboration. NKLAC's design and supervision support delivered comprehensive value beyond facility construction, including energy self-sufficiency, biosolids resource recovery, and community-based environmental education facilities.

Utilising such experience around integrated water treatment facility construction, the ID&E Group will deploy solutions realising sustainable water resource management, resource circulation, and regional coexistence.

Contributing to Water Supply and Sanitation Infrastructure Quality Enhancement in Indian Urban Areas

Nippon Koei India Pvt. Ltd. (NKI) is engaged in the "Contract Management & Supervision Consultancy CMSC-II, Jodhpur" project, part of the Rajasthan Urban Infrastructure Development Project (RUIDP) in northwestern India, a 60 months project commenced from June 2020 and scheduled for completion in June 2025. Under this initiative, NKI is responsible for contract management and construction supervision, supporting the redevelopment and expansion of water supply and sanitation infrastructure across 29 cities in the state. The project aims to improve urban living conditions and promote the sustainable use of water resources.

Part of sewage treatment plant related facilities

India faces serious challenges related to water pollution and resource scarcity, driven by rapid urbanisation and population growth. It is estimated that approximately 70% of the country's drinking water is contaminated, and the lack of adequate wastewater treatment facilities has led to untreated domestic and industrial effluents being discharged into rivers and groundwater sources.

In response, NKI is contributing to the improvement of water distribution networks, the implementation of 24/7 water supply systems, and the installation of household water connections. In parallel, the company is supporting the rehabilitation and expansion of sewerage and sanitation systems to ensure proper wastewater treatment and prevent water pollution.

NKI's construction supervision efforts are helping to enhance the quality of urban water and sanitation services, while also fostering collaboration with local authorities and communities to achieve sustainable water resource management and improved living environments. Notably, the introduction of continuous water supply and household-level connections represents a critical step toward building trust in urban service delivery.

Leveraging this experience and expertise, our group will continue to expand its value proposition by delivering sustainable water infrastructure solutions tailored to the specific needs of cities facing challenges such as water contamination and service disparities.

Comprehensive Sanitation Plan for Panama City and Panama Bay

Panama City Wastewater Treatment Plant

NIPPON KOEI LATIN AMERICA-CARIBBEAN participated Panama Bay sanitation project from 2008 to 2025 and designed wastewater treatment plant modules for Panama City within the Panama City and Panama Bay Purification Project and participated in drainage capacity expansion.

This project contributes to sanitary environment improvement for citizens of Panama by ensuring efficient wastewater management and reducing health risks through water quality enhancement. Furthermore, this project has led to improvement of the sanitary conditions of Panama Bay and contributes to coastal biodiversity.

The wastewater treatment process incorporates advanced biological treatment technologies, including high-efficiency removal of nitrogen and phosphorus. It also utilizes biogas generated during treatment for power generation, reducing the carbon footprint and promoting resource recovery.

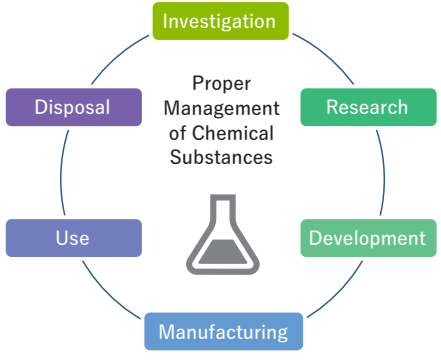
A distinctive feature of this project is the establishment of an interactive environmental education centre. This facility provides opportunities for students and local communities to learn about climate change adaptation, resource conservation, and renewable energy promotion. These efforts aim to foster continuous environmental awareness and introduce new approaches for sustainable development.

Our Group continues incorporating considerations and assessments that contribute to natural capital and biodiversity conservation across activities for infrastructure and social systems development.

5.11 Chemical Substance Management

5.11.1 Policy and Approach

Our Group, operating manufacturing divisions and research facilities, bears responsibility for pollution prevention from chemical substances. To ensure chemical substances are safely procured, researched, developed, used, and disposed of without causing human health hazards or adverse effects on the environment, we have established Action Guidelines for Chemical Substance Management Activities within our Sustainability Management Framework. Based on these Action Guidelines, we pursue pollution prevention, contributing to our Group's material topic of Cultivating a Beautiful and Habitable Planet.



▶ Action Guidelines for Chemical Substance Management Activities

5.11.2 Initiatives and Achievements

Our Group's business offices, factories, and research facilities handling chemical substances comply with occupational health and safety laws and other relevant chemical substance handling regulations whilst implementing thorough management at each handling stage and earnestly fulfilling accountability.

5.11 Chemical Substance Management

(1) Appropriate Management

Sri Lanka: Safe and Appropriate Pesticide and Fertiliser Use Promotion Project

Nippon Koei has implemented the JICA technical cooperation project Safe and Appropriate Use of Pesticides and Fertilizers in Sri Lanka since 2023. In Sri Lanka, improving agricultural worker occupational health and safety and reducing adverse effects on natural environment and public health represent urgent challenges. Particularly, producer and consumer health hazards and export crop issues arising from excessive pesticide and chemical fertiliser use necessitate technical and institutional responses.

Fertilisation Trial for Cabbage Cultivation

In 2024, we conducted third-country training in collaboration with Thailand's Kasetsart University, where Sri Lankan government officials and agricultural extension officers learned integrated pest management (IPM) and soil diagnosis-based fertilisation management techniques in Thailand. In 2025, we conducted training in Japan, visiting the Ministry of Agriculture, Forestry and Fisheries, prefectural agricultural and forestry offices, agricultural cooperatives, and farms to learn safe agricultural methods. This project is expected to strengthen relevant institution and organisation capacity through comprehensive action plan formulation and implementation for promoting safe and appropriate pesticide and chemical fertiliser use in Sri Lankan rural areas, alongside technical and extension package development and training implementation.

Our ID&E Group endeavours to provide and expand technologies and services related to appropriate chemical substance management and various capacity strengthening contributing to rural and regional development.

(2) Procurement, Manufacturing, Use, and Disposal

Chemical Substance Response in Manufacturing Processes

Nippon Koei Energy Solutions' manufacturing divisions implement risk assessments based on the Industrial Safety and Health Act and take appropriate measures based on results to prevent occupational accidents caused by chemical substances.

To promote environmental conservation activities, we monitor quantities of target chemical substances discharged into the environment from business facilities and quantities moved outside facilities as waste, based on the pollutant Release and Transfer Register system.

(3) Investigation, Research, and Development

Chemical Substance Handling at Nippon Koei Central Research Institute

Nippon Koei Central Research Institute, responsible for research and development in civil engineering, environmental, and social science fields, emphasises safe and appropriate chemical substance handling whilst pursuing solution creation utilising scientific knowledge and technical capabilities. To ensure environmental conservation and employee health whilst developing new innovations, we comply with international standards in chemical substance management and enhance knowledge through regular education and training. We adhere to appropriate waste disposal whilst pursuing chemical substance usage reduction and efficiency improvements in research processes. To realise a sustainable future, we target environmental impact reduction through technological innovation, ensuring all research activities proceed with environmental consideration.

Our Group will advance appropriate chemical substance management within our own Group alongside providing external technologies and services related to chemical substance management.