

Task Force on Climate-related
Financial DisclosuresTask Force on Nature-related
Financial Disclosures

Report 2024

TCFD/TNFD Report 2024 Task Force on Climate-related Financial Disclosures Task Force on Nature-related Financial Disclosures

> August 30, 2024 SEKISUI CHEMICAL Co., Ltd.

SEKISUI CHEMICAL Group's Responses to Climate Change and Natural Capital (2024)

 $\sim\!$ Disclosure of Information Based on TCFD/TNFD Recommendations \sim

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Editing Policy

• In the text of "TCFD/TNFD Report 2024", the previous medium term management plan refers to "Drive 2022" from FY2020 to FY2022, and the current medium-term management plan refers to "Drive 2.0" from FY2023 to FY2025.

Foreword

Resolving the crisis caused by climate change impacts and biodiversity loss is internationally recognized as essential for human wellbeing. SEKISUI CHEMICAL Group agrees with this recognition and recognizes that it is also an important issue for corporate sustainability.

Regarding the disclosure of information on climate change issues, the Group expressed its endorsement of the TCFD in January 2019 and began releasing information based on TCFD recommendations in July 2019. In terms of the release of information on biodiversity issues, the Group participated in the TNFD Forum in July 2023 and started releasing information based on the TNFD Guide in September of the same year. The Group also endorses the formal recommendations published in September 2023 and registered as a TNFD Adopter in January 2024, expressing our intention for future information disclosures.

The Group recognizes that the two issues of climate change and biodiversity are deeply related and influence each other (see Figure 1), but in view of the risks faced as a company and the impact on society, it has been determined that it is better to explain the issues from a different perspective or angle so that relevant stakeholders can understand them, and the report has been divided into parts for each issue.



Figure 1: Correlation Among Environmental Issues

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[Overview] In the SEKISUI CHEMICAL Group's long-term vision, "Vision 2030", environmental issues, such as climate change and biodiversity, are recognized as key issues, and initiatives are being implemented based on strategies to accelerate the solving of those issues through the Group's businesses.

Positioning of environmental issues

SEKISUI CHEMICAL Group recognizes that environmental issues exist while mutually affecting each other, and is working to solve environmental issues comprehensively. In the medium-term environmental plan (2020-2022), the Group defined the key environmental issues as climate change, water risk, and resource circulation. These key issues are positioned as integrated issues as they correlate with each other and also directly and indirectly influence biodiversity issues.

It is recognized that the efforts to address these environmental issues are not only important to business, but they are also important initiatives that will lead to the realization of an "earth with maintained biodiversity" as set out in the "SEKISUI Environment Sustainability Vision 2050", SEKISUI's long-term environmental vision. This position remains unchanged in the current medium-term environmental plan (2023-2025). The Group also uses methods such as LIME2 and impact-weighted accounting to visualise the impact of corporate activities on natural capital and their impact on management in order to understand and manage environmental issues thoroughly and quantitatively.

[Long-term Vision]

In 2019, the Group formulated a long-term vision, "Vision 2030", which sets the direction for the entire company (Figure 2). "Vision 2030" is a vision statement that expresses our strong will to innovate in order to "realize sustainable society, we support the basis of LIFE and will continue to create 'peace of mind for the future'". The Group will contribute more than ever to solving social issues by expanding its existing businesses* and taking on challenges in new areas, and by innovating, based on a strategy of innovation and creativity with ESG management at the core of the company's strategy. Through this cycle, the vision of doubling the Group's business (net sales of 2 trillion yen, operating profit margin of 10% or more) in 2030 is targeted.

*Current businesses:

Four Business Domains of Residential (Housing), Advanced Lifeline (Social Infrastructure), Innovative Mobility (Electronics / Mobility), and Life Science (Health / Medical).



Figure 2: SEKISUI CHEMICAL Group's Long-term Vision "Vision 2030"

[Performance Indicators]

In the long-term vision, two indicators have been established to measure economic values and social values. These indicators are based on the recognition that sustainable management is necessary to continuously expand the degree of contribution to solving issues and earnings. One of these is the "SEKISUI Sustainable Spread", which measures the ability to sustain operations based on the difference between a lower cost of capital and increased efficiency in terms of ROIC. The second is the "SEKISUI Environmental

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Sustainability Index"*, which expresses the value of corporate activities on natural capital and social capital as the degree of contribution to solving issues (impact on the earth and society). The goals of the "SEKISUI Sustainable Spread" are to continuously improve ROIC, which indicate the efficiency of business management over the medium-term, and to lay the groundwork for a management foundation that enhances the long-term sustainability of management. Regarding the "SEKISUI Environmental Sustainability Index", SEKISUI CHEMICAL Group believes that by continuing to aim for an index value of 100% or more and by doubling our business and continuing further growth will increase the social value of the Group. *SEKISUI Environmental Sustainability Index: Quantified amount of impact caused by the use of natural capital by corporate activities of SEKISUI CHEMICAL Group and the contribution to natural capital made by corporate activities. Calculated using the Japanese version of the LIME2 damage calculation impact assessment method. The impact and contribution to social capital is also included in the calculation as of FY2020.

[Medium-Term Management Plan and Important Issues to be Addressed]

SEKISUI CHEMICAL Group has been advancing "Drive 2022", a three-year medium-term management plan covering the period from FY2020 to FY2022, as the first step to achieve its long-term vision. The basic policy has been to "double the business by contributing to solving of social issues, by putting a drive on sustainable 'growth', 'reformation', and 'preparation'", with the aim of solidifying the management foundation through full-scale implementation of ESG management and accelerating the preparation for the next stage of growth.

The medium-term management plan "Drive 2.0" that spans the period from FY2023 to FY2025 further focuses on sustainable growth and enhanced preparation in order to demonstrate the feasibility of the Group's long-term vision. The environment is a key issue in this plan, alongside governance, digital transformation (DX), human capital, and innovation. With regard to environmental issues, the results of the scenario analysis in this TCFD/TNFD report showed that climate change will have a significant impact on management in the short to long term and on other environmental issues, including biodiversity, and both risks and opportunities are recognized for our business. In response, environmental issues have been set as one of the key issues to be addressed in order to achieve the long-term vision, with climate change mitigation and adaptation at the top of the list.

[Long-Term Targets for Environmental Issues]

A medium-term environmental plan, which recognizes the key issues in the environment and considers what needs to be done in the medium term, backcasting from the targets to be achieved by 2050, has been developed. The direction for 2050, with regards to issues including climate change, is outlined in Figure 3.

SEKISUI CHEMICAL Group's vision for the Earth in 2050 is an "Earth with Maintained Biodiversity" where the goals of all environmental issues, including climate change, resource circulation, and water risks, are accomplished at the same time. Recognizing that corporate activities rely on the natural and social capital of the planet, three activities contribute to the return of the natural and social capital; (1) expand and create markets for "products to enhance sustainability", (2) reduce environmental impacts, and (3) conserve the natural environment. These activities contribute to solving global issues such as climate change, resource circulation,

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water risks, and biodiversity (see Figure 3). Moreover, in order to accelerate the Group's contribution to returns on natural and social capital, initiatives will be promoted by not only the Group but also in collaboration with its stakeholders (see Figure 3). This can be explained as "stocks" of natural and social capital, and flows that affect the values of the stocks. Specific examples of initiatives could include the following: (1) Conserve natural capital ("stocks") such as the atmosphere, land, water, sea, and land, including both biodiversity and the material environment that supports ecosystems.
 (2) Sustainably utilize ("flow") ecosystem services, that is, utilize the benefits of natural capital.

The group is formulating strategies and promoting initiatives to conserve "stock" and utilize "flow" sustainably.



*Stakeholders: "Customers", "Shareholders", "Employees", "Business partners", "Local Communities and the Environment"

Figure 3: SEKISUI Environment Sustainability Vision 2050

In the medium-term environmental plan that started in FY2023, the focus is on improving the quality of our environmental efforts while simultaneously making changes to achieve solutions to all environmental issues. Reform is being promoted by improving the quality of our efforts by recognizing all environmental challenges, and selecting and implementing solutions with no trade-offs.

To this end, the environmental strategy is being developed with an awareness of the correlation between all environmental issues (see Figure 4).



Figure 4: Correlation of Environmental Issues of SEKISUI CHEMICAL Group



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1. Executive Summary

SEKISUI CHEMICAL Group, based on the recommendations by the TCFD, has been disclosing its responses to climate change issues since FY2019.

Based on last year's disclosure, the following points have been updated this year:

•The examples of risks and opportunities posed by climate change issues were supplemented with an analysis of the impact on other environmental issues.

In impact-weighted analysis, the value of human capital to tackle environmental issues, including climate change issues, reflects the value of the personnel that drive the efforts (see "4. Strategy").

Commitment to Actions In the SEKISUI CHEMICAL Group's long-term vision, "Vision 2030", environmental issues, such as climate change and biodiversity, are recognized as key issues, and initiatives are being implemented based on strategies to accelerate the solving of those issues through the Group's businesses.

Governance SEKISUI CHEMICAL Group's Board of Directors has made the following final decisions:

•Policies and strategies to mitigate the impact on environmental issues, including climate change, and to expand contributions to solving them.

•The organization's plan (transition plan) to achieve a sustainable society, including transition to a low-carbon economy.

•Understanding the impact of environmental issues, including climate change on management, and policies for addressing those issues.

Regarding major matters discussed and decided by the Board of Directors, the Sustainability Committee deliberates on policies and strategies in advance, based on company-wide situation regarding environmental issues such as climate change, discussed and summarized by the Environmental Subcommittee. In addition, based on the policies, strategies, and transition plans finalized by the Board of Directors, the Environmental Subcommittee discusses specific measures and goal setting, and manages progress.

Risk Management SEKISUI CHEMICAL Group has built an ERM* system to identify, share, and manage major company-wide risks within the Group, which, together with other risks that are assumed to have a significant impact on management, are evaluated in a unified manner. Among these, specific Group-wide and individual organizational risks and opportunities, including environmental issues such as climate change, are shared and deliberated by the Board of Directors, the Sustainability Committee, Group Risk Review Subcommittee, internal management meetings, and each Subcommittee (as described in Section 3-1).

The Board of Directors shares the view that environmental issues, such as climate change, are both serious risks and opportunities, and the company has positioned

them as requiring a medium- to long-term strategies taking into account policies, measures, and transition plans when formulating its management plan, and has developed a medium-term environmental plan (as described in Section 3-2). *ERM:

Enterprise Risk Management. This refers to a mechanism and process for Group wide, integrated risk management and risk management activities.

Strategies

Scenario analysis

SEKISUI CHEMICAL Group conducted scenario analyses to identify potential risks and opportunities that could arise from climate change, and it was confirmed that strategies to reduce risks or to convert risks into opportunities are in place for all scenarios assumed. The scenario analyses also reaffirmed the effectiveness of the strategies as a solution to the issues related to climate change.

Based on the 1.5°C scenario and the 4°C scenario, two axes were set: one axis is whether climate change mitigation progresses or not, and the other axis is the decentralization of social systems in rural areas or concentration in large cities. Furthermore, mutual impacts of other environmental issues with climate change issues were taken into account, and four climate change scenarios were assumed.

Recognizing that environmental issues such as resource circulation, water risk, and biodiversity are related to climate change issues, measures from a broader perspective were reaffirmed. Strategies to re-establish milestones and accelerate efforts to realize a decarbonized economy were reviewed in each scenario, while verifying the validity of these strategies.

Activities based on the three-year medium-term management plan started in 2023. The plan reflects a climate change strategy with transition in mind that will accelerate efforts to achieve a decarbonized economy. The Group will continue to drive corporate activities towards the steady achievement of milestones.

■Validity of the strategies

The following verification were conducted to confirm that the Group's strategies to address climate change issues were appropriate.

(1) Monitoring carbon efficiency (environmental performance)

(2) Correlation between carbon efficiency (environmental performance) and economic performance

(3) Calculation of stakeholder comprehensive income using impact-weighted accounting methods (taking into account impacts on resource circulation and biodiversity).

The amount of greenhouse gas emissions emitted by business activities and the amount of greenhouse gas reduction contributed by products that contribute to solving climate change issues are converted into economic value. As a result, it was confirmed that stakeholder comprehensive income, which takes into account the impact of climate change issues on net income, has more than doubled since fiscal 2016.

Going forward, initiatives using ESG investment framework in financial planning will be promoted so that environmental value can be expanded while achieving both economic and environmental performance.

Indicators and Targets Milestones are set by backcasting from the long-term goals of "SEKISUI Environment Sustainability Vision 2050", and efforts until FY2022 had been based on the medium-term environmental plan "Environment Sustainability Plan: Accelerate II" In the current medium-term environmental plan called "SEKISUI

based on the medium-term environmental plan "Environment Sustainability Plan: Accelerate II". In the current medium-term environmental plan called "SEKISUI Environment Sustainability Plan EXTEND" (2023-2025), the following indicators are set to manage progress on climate change:

(1) Net sales of products to enhance sustainability* (of which, net sales of products that contribute to resource circulation, non-fossil based products, and products using recycled materials)

(2) Greenhouse Gas Emissions (Scope 1, 2, and 3)

(3) Waste resource recycling rate

In FY2023, the target for net sales of products to enhance sustainability was not achieved with actual sales of 950.2 billion yen, compared to the target of 960 billion yen. Of those, sales of products that contribute to resource circulation expanded to 99 billion yen (1.8 times more than FY2020). Of this amount, net sales of products that contribute to resource conversion of raw materials amounted to 34.7 billion yen (12 times more than FY2019).

These results indicate that the targets were met under the resource circulation strategy and are accelerating decarbonization efforts.

Greenhouse gas emissions (Scope 1+2) from our business activities met the reduction target. Unfortunately, reductions were not possible in the supply chain.

*Products to Enhance Sustainability System:

Series of products that are certified and registered that contribute significantly to solving environmental and social issues, including climate change issues, based on in-house standards. Products are reviewed by a certification committee composed of in-house members and products that meet the criteria are registered. The committee receives advice and feedback from an external advisory board of external experts to ensure high standards and transparency.

Recent SEKISUI CHEMICA and Adaptation Initiatives	L Group Mitigation Task Fo	rce on Climate-related Financial Disclosures akeholder Related Infinitives (External Evaluations, etc.)
Mitigation	Adaptat	ion
SBT (Science-Based Targets) certification (first in chemical sector worldwide) At COP24, introduced corporate examples of 'our efforts to contribute to greenhouse gases reductions from products through our Global Value Chain' (Official Japanese side event	SCIENCE BASED TARGETS	Ministry of the Environment's "Climate Change Adaptation Guide for Private Sector" released (participated in the drafting committee)
sponsored by Ministry of Economy, Trade and Industry) Expressed support for TCFD [Housing] Received Ministry of Land, Infrastructure and Transport Grand Prize for the 28th Global Environment for development and popularization of "energy self-sufficient housing" RCP;	sure in line with TCFD guidelines and community development] Began Phase 1: a Leadtown", a sustainable town and community opment project (Disaster resistance improvement: Cross-Wave introduction)	[Housing] Received the Excellence Award at the Japan Resilience Awards 2020 for "development and dissemination of energy self-sufficient housing"
Frousing Received the 2019 Minister of the Environment Award for Global Warming Prevention Activity for "development and dissemination of energy self-sufficient housing"	2020	Award at the 29th Global Environment Awards for "Evacuation at Home" housing
Set and disclosed a target of zero GHG emissions by FY2050 Set goal of converting purchased electricity to 100%	d climate change as a management risk in Securities Report	Implemented water risk surveys at business sites to grasp current conditions
Image: Product of the second seco	tet product evaluation system, from "Environment-Contributi icts" to "Products to Enhance Sustainability" vn and community development] Sustainable town development be se 2 sales for "Higashimatsuyama Leadtown" eceived highest rank from DBJ Environmentally Rated Loan Progra perated by the Development Bank of Japan (DBJ)	ng angan
 Released resource recycling policies and strategies [Housing] Accelerated nation-wide expansion of "Be Heim" purchasing and resale brand [Housing] Energy-saving information Service received 2021 Energy Conservation Grand Prize, Energy Conservation Cranter Chairman's Award [Housing] SEKISUI Heim production plant transitions to use of fully renewable energy for electricity consumption 	Binny Control of the	R GREEN MODEL" lacity storage battery ed the 30th Global and, Infrastructure, t [*]
 [Adhesives] Released "SF Green Melt™" series of biomass-based adhesive Invested in "Japan Green Investment Corporation for Carbon Neutrality" established by Japan's Ministry of the Environment [Interlayer film] Changeover to 100% renewable energy originated electricity at interlayer film raw material resin production plant completed (the Netherlands, China, Thailand and United States) [Tape] "Selfa" heat-resistant tape receives best paper award at "IMPACT (a national academic conference)" Formed business partnership with Volocopter GmbH, which develops and manufactures advanced air mobility solutions [Tape] Released of heat-resistant automotive tape 1.5 'C target for GHG reduction approved by SBT Initiative 	[BR] Completed 1/10 scale demonstration plant [BR] Launched new brand "UNISON"" [BR] Started collaborative efforts[by 3 companies (Shiseido, Sumitomo Chemical, SEKISUI Chemical) [Town and community development] SEKISUI Heim Resilient and Sust Housing Town and Community Development received FY2022 Good I [Town and community development] Began large-scale dis vending machines with built-in disaster relief functionality subdivisions, contributing to "Smart and Resilience" Received silver award in environmentally sustainable of "ESG Finance Awards Japan" [Town and community development] Developed Atsu community superior in "Smart and Resilience"	 [High-efficient drainage systems] "Flat Roof High-efficient Drainage System" received FY2O22 Good Design Award Introduced solutions to social issues through our businesses at the Science Council of Japan Forum "How to secure resilience to overcome national disasters" COP27 Japan Pavilion Side Event Role of the private sector in realizing the GGA: How can SEKISUI CHEMICAL contribute to achieving a climate resilient
[PSC] Began verification and joint development related to perove solar cells (Tokyo Metropolitan Government, NTT Data, JERA) Participated in "Pre-emptive LCA Social Cooperation Research Division The University of Tokyo LCA Center for Future Strategy [Eittings] "Esion Eire-Resistant Plastic AD Coupler HG" registered as C	skite at PEP product	economy and society?
 [GC] Selected as NEDO Green Innovation (GI) Fund project "Commercialization of high value-added chemical products using CO₂ at [GC] Formed business partnership for commercialization and joint stud (Tokai Carbon Co. and Cosmo Energy Holdings Co.) [PSC] Exhibited film perovskite solar cells at the G7 Hiroshima Summit Japan Pavilion [GC] The carbon recycling project, which was started in 2021 in collab achieved CO₂ and hydrogen conversion targets ahead of schedule [Housing] Launched the renovation service that aims to achieve ZEH-I [Housing] Started selling houses made of wood that achieve an energy [PSC] Started demonstration, implementation or joint study of perovsk on the Osaka headquarters, the walls on warehouses owned by Senkor [Housing] SEKISUI and Renoveru (business partnership that aims to c started offering ZEH-level renovations of existing apartment buildings [Synthetic lumber] Established to built production plant in Europe for F 	a community superior in "Smart and Res a community superior in "Smart and Res by of CCUS Implemented "Drive 2.0" medium-te based on "Vision 2030" t 2023 and the COP 28 Implemented environmental medit backcasting from environmental Concluded on "lwaki Smart Town I Project" Selected as an A-list company and "Water Security" CDP cat (Housing] Launched enviror packages that exceed ZEH- (ZEH+ level/high insulation/ END for railway sleepers FU for railway sleepers	iai geve apacity, imm management plan iai geve apacity, igeres-ize PVC rain gutter "Super Core V-MAX" <u>um-term management plan,</u> long-term vision 2050 The large-capacity, iarge-size PVC rain gutter "Super Core V-MAX" Ing-term vision 2050 gutter "Super Core V-MAX" nt] Basic agreement Wodel District Promotion gutter "Super Core V-MAX" won the runner-up award at the PVC Award 2023 vin both the "Climate Change" egories Immentally-friendly housing Clisaster resilient features) Formed capital and business irreularise B.V., a developer of resource circulation Immentally formulation
 [Heat dissipating materials] Started mass production at a heat release [Housing] "SEKISUI Heim Resource Circulation Model" won the Fuji Sar Successfully converted purchased electricity to 100% renewable energing [PSC] Commencement of Joint Demonstration Test of Floating-type Pression [Housing] Achieved 96% ZEH ratio for new detached housing in FY203 [Sheet] Developed "paint transfer sheets" to contribute to the reduction [PSC] Began verification testing of film perovskite solar cells at the lar <resource circulation=""> Verified the usefulness of the Recycled Materia</resource> 	a traceability system for hkei Group Prize at the 32nd Global Environment Awards gy at 41 sites erovskite Solar Cells 23, setting new company record o f CO2 emissions in the vehicle painting process rgest port facility in Japan ials Marketplace System, which supports esting in collaboration with Hitachi	e environmental management policy ed our climate change mitigation and adaptation policy g] Implemented the "Eco-Friendly Lifestyle" campaign nd the movement of environmentally-friendly homes 1

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•The organization's plan (transition plan) to achieve a sustainable society, including transition to a low-carbon economy.

•Understanding the impact of environmental issues, including climate change on management, and policies for addressing those issues.

Regarding major matters discussed and decided by the Board of Directors, the Sustainability Committee deliberates on policies and strategies in advance, based on company-wide situation regarding environmental issues such as climate change, discussed and summarized by the Environmental Subcommittee. In addition, based on the policies, strategies, and transition plans finalized by the Board of Directors, the Environmental Subcommittee discusses specific measures and goal setting, and manages progress.

2-1. Oversight and Execution System for Climate Change and Other Environmental Issues

Under the supervision of the Board of Directors, the magnitude of risks are recognized, appropriate measures are considered, and decisions to implement external environmental issues that may pose management risks such as climate change are made.

The below figure shows the supervisory and executive structure that enables the Group to reduce its impact on environmental issues, such as climate change, and to expand its contribution to solving these issues.

Board of Directors:

Receives reports on Group-wide risks, policies, and strategies deliberated by the Sustainability Committee, and makes final decisions. Oversees execution of initiatives related to sustainability.

Sustainability Committee:

Examines the risks and opportunities of each materiality, including environmental issues such as climate change, and deliberates on policies, strategies, and key measures to improve the sustainability of society and the Group. (Twice/year)



Figure 5: Governance Structure on Climate Change Issues

Group Risk Review Subcommittee:

Headquarters officers participate in a side-by-side assessment of the risks and opportunities assessed by each subcommittee to identify serious risks and opportunities for the Group. (Once/year)

Environmental Subcommittee:

Executive officers and directors in charge of Divisional Companies and Headquarters participate in the discussions and manage the progress of strategies and targets set related to environmental issues, such as climate change. (Twice/year)

Environmental managers' meeting:

Set for each key issue, such as renewable energy and resource circulation, and held on a regular basis (once/month).

Managers from the environment departments at Divisional Companies and Headquarters participate to review progress in resolving issues and discuss solutions.

Main agenda up to FY2022		
Initiatives for managing supply chain and application for SBT certification	2017	August Management Meeting, September Environmental Subcommittee Meeting
Commitment to support the TCFD	2018	November Management Meeting
Policy to convert purchased electricity to 100% renewable energy by FY2030	2019	November Management Meeting
Medium-Term Management Plan including ESG investment framework	2020	May Board of Directors Meeting
Policies on GHG reductions and use of renewable energy	2021	February Management Meeting
Policies and strategies on resource circulation	2021	March Management Meeting
Strategies for raising GHG reduction targets by 2030	2022	June Management Meeting; July Board of Directors Meeting
Medium-term Management Plan	2022	July, October, January 2023 Management Meeting
Medium-term Management Plan (ESG management; including environmental issues such as climate change)	2022	September Management Meeting; December Sustainability Committee Meeting; January 2023 Board of Directors Meeting
Agenda for FY2023		
Annual business plan and monitoring progress of ESG management of Divisional Companies	2023	April Board of Directors Meeting
Disclose initiatives in the Annual Securities Report (Risks for businesses, etc.)	2023	June Board of Directors Meeting
Annual business plan and monitoring progress of ESG management of Divisional Companies	2023	September Management Meeting; October Board of Directors Meeting
Stable procurement of renewable energy in the medium- to long-term	2024	January Management Meeting
FY2024 Guidelines on Group ESG Management Plan, including climate change	2024	January Management Meeting
Annual business plan and monitoring progress of ESG management of Divisional Companies	2024	March Management Meeting
Agenda for FY2024		
Annual business plan and monitoring progress of ESG management of Divisional Companies	2024	April Board of Directors Meeting
Disclose initiatives in the Annual Securities Report (Risks for businesses, etc.)	2024	June Board of Directors Meeting
Formulate Environmental Management Policy	2024	June Board of Directors Meeting

Table 1:Agenda Related to Climate Change of the Board of Directors and Management Meetings

2-2. Monitoring and Incentives on Progress of Action Plans and Target Values for Climate Change and Other Environmental Issues

The progress of the implementation plan and target values, including the organization's plan (Transition Plan) for achieving a sustainable society, such as the transition to a low-carbon economy, is managed by the Environment Subcommittee. The subcommittee meets twice a vear with the participation of directors in charge in the Divisional Companies and Headquarters and the persons in charge of implementations. The target values and actual values summarized by the Environment Subcommittee are reported to the Sustainability Committee and the Board of Directors. In addition, various measures to achieve the targets are incorporated into the action plans of each Divisional Company, and a system is in place where the Board of Directors monitors progress every April and October.

The Group regards climate change as the most critical issue for the environment, which is an important issue in ESG management. In the current medium-term management plan (2023-2025), the greenhouse gas reduction rate and waste plastic material recycling rate have been adopted as company-wide KPIs, and are reflected in bonuses for directors, executive officers, and some managers, based on Divisional Company-specific performance evaluations, to promote initiatives to accelerate the achievement of carbon neutrality by 2050.

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[Overview] SEKISUI CHEMICAL Group has built an ERM* system to identify, share, and manage major company-wide risks within the Group, which, together with other risks that are assumed to have a significant impact on management, are evaluated in a unified manner. Among these, specific Group-wide and individual organizational risks and opportunities, including environmental issues such as climate change, are shared and deliberated by the Board of Directors, the Sustainability Committee, Group Risk Review Subcommittee, internal management meetings, and each Subcommittee (as described in Section 3-1). The Board of Directors shares the view that environmental issues, such as climate change, are both serious risks and opportunities, and the company has positioned them as requiring a medium- to long-term strategies taking into account policies, measures, and transition plans when formulating its management plan, and has developed a medium-term environmental plan (as described in Section 3-2).

*ERM:

Enterprise Risk Management. This refers to a mechanism and process for Group wide, integrated risk management and risk management activities.

3-1.Integrated Risk Management Including Climate Change and Other Environmental Issues

Our Group promotes a risk management system that centrally manages activities to prevent the occurrence of risks (risk management) and activities to respond to risks when they materialize (crisis management), and has established a system that can constantly adapt to changing risks and crisis events according to organizational conditions. (Figure 6) In the management of risks involving environmental issues, such as climate change, risk information is collected comprehensively by specialized area. Risks and opportunities related to environmental issues, such as climate change, are summarized and evaluated by the Environment Subcommittee and then reported to the Group Risk Review Subcommittee. Risks and opportunities identified as having a serious impact company-wide by this subcommittee are reported to the Sustainability Committee, which is chaired by the President, sub-chaired by the executive director in charge of the ESG Management Department who also serves as the head of the Corporate Business Strategy Department, and composed of executive

directors including the presidents of the three Divisional Companies. The committee deliberates on these issues together with company-wide response policies, key measures, and target achievement levels. Policies and main measures in response to the deliberations in the Committee are finalized by the Board of Directors. The identified Group-wide critical risks, opportunities, and their Group-wide countermeasures, as well as major initiatives. are reported to each subcommittee, including the Environment Subcommittee, in which the directors in charge in the Divisional Companies and Headquarters and the persons in charge of implementations participate, and are incorporated into action plans as Group-wide common measures and Divisional Company-specific measures. An ERM system is also being promoted that integrates Group-wide risk management activities with activities of individual organizations by reflecting them in organizational risk management activities by 170 organizations, including domestic and overseas affiliated organizations.

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Figure 6. SEKISUI CHEMICAL Group's Risk Management System

3-2. Assessment and Management of Risks and Opportunities Related to Climate Change and Other Environmental Issues

As for climate change and other environmental issues, considerations are given as to what can be done to recognize risks and opportunities, and to reduce the risks and transition them into opportunities. Recognizing that climate change is an important external environmental risk, policies and countermeasures were considered to devise the medium-term environmental plan as a medium- to long-term strategy and the Board of Directors approved the environmental plan as part of the management plan. Based on the indicators and targets set to promote this plan, the PDCA cycle will be used to promote action on climate change issues.

The following is a description of the current status and future of the assessment and management of business risks, including climate change, and the assessment and management of opportunities obtained through action on climate change issues. <Assessment and Management of Business Risks, Including Climate Change> In recent years, there has been a need to accelerate responses to mitigate and adapt to climate change issues and to strengthen risk assessments from a longer-term perspective. Accordingly, since FY2019, risk assessments have been conducted through scenario analysis. • FY2019-2020: Adopted 2°C and 4°C scenarios • FY2021 onwards: Adopted 1.5°C and 4°C

In FY2021, acceleration was necessary to realize a decarbonized economy. In order to re-strategize, for example, by reviewing the 2030 milestone, a 1.5°C scenario was assumed as a mitigation scenario, and a re-analysis was conducted.

As a result, the risks presented next in Chapter 4 were recognized, and the measures and business strategies needed to achieve a decarbonized economy were reaffirmed (Chapter 4. Table 3). The contents of the current medium-term management plan (2023-2025) and the medium-term environmental plan reflect these measures and business strategies.

<Assessment and Management of Opportunities Obtained from Addressing Climate Change Issues>

The Products to Enhance Sustainability Certification Committee* and the External Advisory Board* are used to examine the opportunities offered by tackling climate change issues. Discussions with internal committee members and external experts on what contributions can be made with the products and services of the Group, has provided insight into strategies that transform risks into opportunities. These business opportunities are listed next in Chapter 4 (Chapter 4, Table 3). These contents are shared with the relevant organizations through executive officers or persons in charge of the organization responsible for business planning and technological development at each Divisional Company as necessary, and are utilized in formulating business strategies. In FY2021, strategies regarding resource circulation were devised, which is one of the important initiatives for the decarbonization strategy, and a roadmap was released (Chapter 4, Figure 17). As shown in the roadmap, it is important to create products that contribute to resource circulation and expand the market. especially to accelerate efforts to convert plastic, which is the main raw material in the products, into non-petroleum-derived or recycled raw materials.

For this reason, the contribution of existing products to resource circulation issues were reconfirmed, and in-house criteria for "Products

to Enhance Sustainability" have been established so that future product designs can be further considered.

In addition to net sales of registered products, the company-wide KPI for the "Products to Enhance Sustainability" system is net sales of "premium quota" products, which are set to strategically grow products that are both profitable and contribute to solving social issues, and to promote the expansion of both aspects.

The system assesses whether opportunities are being obtained through progress management of products to enhance sustainability.

*Certification committee:

A committee to certify products that make a significant contribution to solving environmental and social issues, based on in-house standards. Certifying members are executive officers and other members in charge of key businesses or technologies.

*External Advisory Board:

A meeting chaired by the director in charge of the ESG Management Promotion Department, where six external experts and the above certification committee members exchange opinions regarding the registration of products to enhance sustainability.

[Overview]

Scenario analysis

SEKISUI CHEMICAL Group conducted scenario analyses to identify potential risks and opportunities that could arise from climate change, and it was confirmed that strategies to reduce risks or to convert risks into opportunities are in place for all scenarios assumed. The scenario analyses also reaffirmed the effectiveness of the strategies as a solution to the issues related to climate change.

Based on the 1.5°C scenario and the 4°C scenario, two axes were set: one axis is whether climate change mitigation progresses or not, and the other axis is the decentralization of social systems in rural areas or concentration in large cities. Furthermore, mutual impacts of other environmental issues with climate change issues were taken into account, and four climate change scenarios were assumed.

Recognizing that environmental issues such as resource circulation, water risk, and biodiversity are related to climate change issues, measures from a broader perspective were reaffirmed. Strategies to re-establish milestones and accelerate efforts to realize a decarbonized economy were reviewed in each scenario, while verifying the validity of these strategies.

Activities based on the three-year medium-term management plan started in 2023. The plan reflects a climate change strategy with transition in mind that will accelerate efforts to achieve a decarbonized economy. The Group will continue to drive corporate activities towards the steady achievement of milestones.

■Validity of the strategies

The following verification were conducted to confirm that the Group's strategies to address climate change issues were appropriate.

(1) Monitoring carbon efficiency (environmental performance)

(2) Correlation between carbon efficiency (environmental performance) and economic performance(3) Calculation of stakeholder comprehensive income using impact-weighted accounting methods (taking into account impacts on resource circulation and biodiversity)

The amount of greenhouse gas emissions emitted by business activities and the amount of greenhouse gas reduction contributed by products that contribute to solving climate change issues are converted into economic value. As a result, it was confirmed that stakeholder comprehensive income, which takes into account the impact of climate change issues on net income, has more than doubled since fiscal 2016.

Going forward, initiatives using ESG investment framework in financial planning will be promoted so that environmental value can be expanded while achieving both economic and environmental performance.

4-1. Recognition of Risks and Opportunities -

<Impact Analysis of Climate Change Risks> Various international organizations have formulated multiple climate change scenarios that are predicted to occur over the next 100 years. Climate change scenario setting was based on

the UN's IPCC* Fifth and Sixth Assessment Reports, with the view that they are suitable for identifying the risks that climate change poses to the Group and its operations, and for verifying strategies to prepare for long-term risks. *IPCC: Intergovernmental Panel on Climate Change

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		Societies that have made progress in mitigating climate change	Societies that have failed in mitigating climate change	
Reference	Transition scenarios	IEA NZE2050 IRENA	_	
scenarios	Physical climate scenarios	RCP1.9 SSP1	RCP8.5 SSP5	
Te	mperature rise	Less than 1.5℃	4℃ or higher	
Heat waves and torrential rains		Less extreme weather events	Frequent extreme weather events	
Socio-economic trends		Growth and equality with a focus on sustainability	Rapid and unlimited growth in economic output and energy consumpt	
Energy transformation		Reduction of GHG emissions by 70% from energy transformation by 2050	-	
Economic events		Increased carbon prices; Increased fuel prices	-	
Dicks	Regulatory risks	Large	Small	
NISKS	Physical risks	Small	Large	

Table 2: Climate Change Scenarios

Based on the climate change scenarios set. impacts of climate change risks were analyzed and strategies were considered to prepare for long-term risks for each business domain. Scenarios are analyzed based on the primary assessments conducted by exchanging opinions with relevant company departments, external experts, and in-house and external think tanks. In the analysis, transition and physical risks were identified based on the two climate change scenarios, considering the size of net sales, operating income, profit margins, and growth potential of the business domains (residential. advanced lifeline, innovative mobility, life science, and energy as the next frontier) that will strategically be grown toward 2030. Based on the 1.5°C scenario and the 4°C scenario, two axes were set; one axis is whether climate change mitigation progresses or not: and the other axis is decentralization of social systems in rural area or concentration in large cities. Four climate change scenarios were envisaged taking into account the mutual impact of other environmental issues with climate change issues.

Climate change and other environmental issues such as resource circulation, water risks, and biodiversity (aspects of nature) are interrelated and have causal relationships with each other. Also, it is believed that there needs to be consideration and solutions to each of these issues that do not involve trade-offs. Therefore, the response measures were reconfirmed as it was necessary to analyze how the identified risks relate to each environmental issue. Table 3 shows the results of the review on risk impact analysis and integration of possible risks in each business domain.

Negative impacts that have significant financial impacts to the Group are considered as risks. and positive impacts are seen as opportunities. In the 1.5°C scenario, social changes including the impact on other environmental issues are expected to become more significant than the 2°C scenario. Taking this into consideration, each scenario is reset and analyzed. The results reaffirm the effectiveness of solutions to the resource circulation challenge as a solution to the climate change crisis. It was also confirmed that solutions that also take into account the impact on biodiversity are more likely to convert risks into opportunities, and that it is essential to promote innovation, such as the development of new materials and technologies.

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Table 3: Results of Impact Analysis of Climate Change Risks

Gree	een: New revisions in line with updating to the 1.5 °C scenario Bold: Innovation-related items					Correlation analysis environmental issue			s of les	
Ту	pe	Climate change risks	Financial Impacts	Business risks	Business opportunities	Response / Actions by SEKISUI	Climate Change	Resource Circulation	Water Risks	Biodi versity
		Carbon tax increase	Large	<medium- long-term="" to=""> ·Increase in energy procurement costs ·Decrease in sales due to adding costs to product prices</medium->	<medium- long-term="" to=""> ·Acquire business opportunities by differentiating through early response ·Stabilization of energy costs by introducing renewable energy</medium->	•Develop plans to promote converting purchased power to renewable energy, using ESG investment framework •Improve effectiveness through public commitments such as SBT certification	Mitigation Mitigation	-	-	_
	ations	Regulations for energy savings/ low carbon	Large	<short-term> ·Increase in capital investment to strengthen energy conservation and renewable energy initiatives <medium- long-term="" to=""> ·Increase in introduction costs for renewable energy certificates, etc.</medium-></short-term>	<short term=""> ·Increased sales from energy conservation/storage/ creation businesses ·Increased sales from CO₂-regulation compliant products</short>	 Establish ESG investment framework (40 billion yen/3years) Develop new energy creation technologies (e.g., perovskite solar cells) Review green procurement standards as appropriate Standardize housing with ZEH specifications 	Mitigation Mitigation Mitigation Mitigation	_ _ All _	— — Business —	– – All
Policy regula	Policy regula	Policies	Large	<short-term> ·Increase in renewable energy procurement and waste treatment costs <medium- long-term="" to=""> ·Lose market share from loss of differentiation due to mandating of low-carbon products such as ZEH ·Reduction of business opportunities due to stricter laws and regulations related to resource recycling</medium-></short-term>	<short-term> ·Increased need for technologies to reduce CO₂ during waste incineration <medium- long-term=""> ·Increase in sales of new homes due to expansion of ZEH market due to from mandatory ZEH specs ·Expanding opportunities for horizontally recycled products such as in-house and industry-wide collection</medium-></short-term>	Develop technology for creating ethanol from garbage (e.g., BR) Use purchased power after FIT Expand products that enhance sustainability Consideration of expanding horizontal recycling of in-house plastic products (e.g., KYDEX buyback system, etc.) Development of services to improve the recycling value of housing products (e.g., Be-Heim)	Mitigation Mitigation Both Mitigation Mitigation	Disposal — AII Disposal Disposal	 Products 	Living organisms — AII — —
		Litigations	Medium	<medium- long-term="" to=""> ·Lawsuits against companies using fossil fuels</medium->	<medium- long-term=""> ·Increase in business opportunities due to consumer trust earned from commitments to society</medium->	•Disclose environmental vision and 2050 GHG emissions reduction targets •Improve scores in various external benchmarking systems	Mitigation Both	All All	– All	– All
Transition	Technologies	Replace- ment to low carbon products	Large	<short-term> ·Increase in re-certification costs due to change of low- carbon materials <medium-term> ·Changeover to lower carbon materials and processes</medium-term></short-term>	<short- medium-term="" to=""> ·Increase in business opportunities for products that enhance sustainability that contribute to low carbonization <long-term> ·Business expansion through prioritized procurement of resource recycling friendly designed products</long-term></short->	 Use of LCA in planning, development and marketing (CFP, environmental impact other than climate change) Use of "learn from nature" technologies and continuation of researcher subsidies Promotion of renewable energy in factories Reduction of factory waste and acceleration of resource recycling Product development using bio-derived materials Product development using recycled materials and increasing their use 	Mitigation Both Mitigation Mitigation Mitigation Mitigation	AII AII Manufac- turing Manufac- turing Raw materials Raw materials	Products — — — — —	AII AII — Plants —
		Development of decarboni- zation technology	Large	<medium- long-term=""> •Opportunity loss due to delay in introduction of decarbonization technologies</medium->	<medium- long-term=""> •Expand business opportunities by decarbonizing products •Creation of new businesses utilizing decarbonization technologies</medium->	•Development of CCU technologies in collaboration with different industries (e.g., collaboration with ArcelorMittal, S.A.)	Mitigation	Disposal	-	_
	Markets	Change in consumer behavior	Medium	<long-term> •Decrease in sale of new cars •Opportunity loss due to inability to recycle resources and use decarbonization incentives</long-term>	<medium-term> •Acquisition of incentives through resource recycling and visualization of decarbonized value <long-term> •Increase in profitability from shift to higher-performance products •Expansion of market for ICT-related products</long-term></medium-term>	•Efforts to improve resource recycling value through industry collaboration (e.g., CLOMA (for marine plastic issues)) •Development of highly heat resistant and durable, and other high performance products •Development of lightweight solar cells, heat dissipating products	Mitigation Mitigation Mitigation	Use Use Use	-	Living organisms — —
		Market uncertainty	Medium	<long-term> ·Investments to stabilize power supply for dispersed renewable energies</long-term>	<long-term> ·Increase in sales of products to support a more dispersed society</long-term>	 Sales of houses that realize energy self-sufficiency Development of resource recycling technologies (e.g., BR, mat'l waste recycle) 	Mitigation Mitigation	— Disposal	-	Living organisms —
	ion	Changes in consumer preferences	Medium	<short- medium-term="" to=""> ·Sales decline due to inability to keep up with sustainable lifestyle preferences <long-term> ·Decrease in sales due to increased preference for "sharing" over "owning"</long-term></short->	<pre><short- medium-term="" to=""> ·Improve corporate brand and expand sales with products that support sustainable living <long-term> ·Creation of new businesses to meet consumer preferences</long-term></short-></pre>	 Promotion of sustainable town development business(e.g., ABINC certification of Asaka Lead Town) Begin services using housing big data 	Both Both	All All	Products Products	AII AII
	Reputat	Industry criticism	Large	<medium- long-term="" to=""> ·Investor valuation decline for companies that do not decarbonize <long-term> ·Decline in evaluation of companies that do not understand the biodiversity impact of decarbonization solutions</long-term></medium->	<short- medium-term="" to=""> ·Secure stable financing by demonstrating compatibility with resource circulation <long-term> ·Consideration of nature-positive decarbonization solutions and high evaluation for product development</long-term></short->	-Use of renewable energy by purchasing electricity after FIT -Promotion of reform and use of in-house system for planning and R&D (product environmental impact assessment) -Promotion of efforts to reduce the impact of nature and information disclosure (e.g., use of Land Use Score Card®)	Mitigation Both Both			- Ali Ali
lysical	Acute	Frequent typhoons Heavy rains/ droughts	Large Large	<short-term> ·Increase in damage such as plant shutdowns and sales decrease ·Increase in costs to control flooding and overflows ·Decrease in sales due to supply chain disruption <medium- long-term="" to=""> ·Increase in insurance premiums</medium-></short-term>	<short-term> ·Increase in needs for resilient infrastructure ·Increase in sales of products in areas with a high level of water-related risks ·Increase in needs for equipment/facilities for disaster preparedness</short-term>	Understand water risks and implement countermeasures ·Development of highly durable infrastructure ·Accelerate infrastructure renewal in developed nations (e.g., SPR Method) ·Expand infrastructural business in developing nations ·Development of disaster response products (e.g., drinking water storage systems) ·In-house fusion mechanism for adaptive product development, task force projects	Adaptation Adaptation Adaptation Adaptation Adaptation Adaptation		Business Products Products Products Products Products	
Pr	Chronic	Changes in rainfall patterns Rise in sea level Rise in average temperatures	Medium Medium Medium	<pre><short-term> ·Increase in costs for restructuring supply chain <medium- long-term="" to=""> ·Increase in heat stroke/other illnesses related to warming ·Increase in air conditioning/cooling costs</medium-></short-term></pre>	<pre><short-term> ·Increase in sales of heat insulating/heat shielding products <medium- long-term="" to=""> ·Increase in needs for pharmaceutical products/ diagnostic drugs that contribute to treatments</medium-></short-term></pre>	•Explain procurement guides to raw material suppliers •Globally disperse production bases •Reinforcement of OEM structure in accordance with increase in illnesses	Adaptation Adaptation Adaptation	- - -	Business Business Business	

The "Financial Impacts" in the table were evaluated in three categories: large, medium, and small, in light of the magnitude of the impact on related financial indicators. The time frame for risks and opportunities to materialize is classified into three levels: short-term (less than 3 years), medium-term (3 to less than 6 years), and long-term (6 years or more). Additionally, changes in risk analysis and responses due to the use of the 1.5°C scenario are shown in green (Table 3).

4-2. Scenario Analysis (Risks and Opportunities) -

<Methodologies and Results of Scenario Analysis>

In the scenario analysis, several driving forces were extracted that were predicted to affect the future of each business domain (residential, advanced lifeline, innovative mobility, life science, and energy as the next frontier) and set up future scenarios with attention to driving forces that were assumed to have a large impact on the Group when future uncertainties were taken into account.

For example, in innovative mobility, a society in which vehicles with zero CO₂ emissions (ZEV: Zero Emission Vehicle) are the mainstream and another society dominated by conventional internal combustion vehicles as one of the driving forces, were considered. An axis was then set to study a scenario in which climate change has been mitigated, and another one in which climate change has advanced. In the area of advanced lifeline, it was assumed that the evolution of a recycling-oriented society can be a driving force, so one axis was set as whether the society will be a "recycling use" society or an "emission and disposal" society, and another axis as a scenario in which climate change has been mitigated and another in which climate change has advanced.

Then, scenario analysis results around driving forces that were determined to be highly common in the Group's business fields were integrated. The results are shown in Figure 7. The axis with high commonality is the driving force to determine whether social systems such as town design and energy will become "centralized" (urban concentration and centralized management) or "decentralized" (local production and local consumption). Additionally, as for climate change scenarios, a scenario with advanced mitigation of climate change and a scenario with advanced climate change as another scenario axis were set, and assumed four scenarios related to the future of the Group's businesses in the four guadrants.

1.5℃ scenario

Tightened carbon tax / exhaust gas regulations.

accelerated resource circulation, reduced water risk, mitigated impacts on aspects of nature

Scenarios involving various measures taken to control climate change



Scenarios involving preparation for higher temperatures and frequent disasters due to climate change

4℃ scenario

Frequent natural disasters, delayed resource circulation system, increased water risks, increased negative impact on nature

Figure 7: Four Scenario Societies

Societies based on each of the four scenarios have been illustrated and show in Figure 7. The next page is a summary of the results of the analysis of possible risks and opportunities for

the Group in these possible societies and the Group's strategy to adapt if the society depicted in each scenario is realized.

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Scenarios involving rural decentralization

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Scenario (A) Decarbonized smart society scenario (1.5°C & urban concentration scenario)



[Energy] Expand storage battery business

[IT] Material development to promote improvement of ICT(heat dissipating materials, materials for LED and OLED) [Resource Recycling] Development of services to improve the recycling value of housing products ("Be-Heim"), consideration of expansion of horizontal recycling system for plastic products

Scenario (B) Sustainable circular society scenario (1.5°C & decentralized communities scenario)



(S-LEC wedge-shaped HUD interlayers, KYDEX sheets, CFRTP)

[Resource recycling] Full scale implementation of BR technology, development of CCU technologies in collaboration with other companies

Establish technologies for CCU systems (BR)

Scenario (C)

Local production and local consumption society scenario (4°C & decentralized communities scenario)



(Renewal: SPR method, New construction: Collaboration with Vietnamese companies)

[Transportation infrastructure] Improve durability of transportation infrastructure ("Utsuku Sheet", "InfraGuard")

Reinforcement of OEM structure for pharmaceutical products

· Explore HEMS and TEMS technology for building smart grids

 \cdot Develop urban planning businesses (expand services) Reinforce sustainable raw material procurement system

Scenario (D) Mass consumption society scenario (4°C & urban concentration scenario)



	 Increased reduction of products for large-scale power generation → Increased sales of products related to stabilizing systems and improving efficiency of power generation 				
Risks	 Increased raw material and energy costs due to disaster-resilient supply chain, logistics, and energy security measures Increased factory relocation costs in locations vulnerable to natural disasters Increased human cost due to increase in diseases caused by global warming [Housing] Decreased demand for low-rise housing → Decreased sales of housing related products Increase in manufacturing costs and raw material costs caused by deterioration of ecosystem services due to disasters 				
Response by SEKISUI	At the managers level of operating companies/business sites, understand risks in each region and site, formulate BCPs, and consider risk reduction measures [Water infrastructure] Expand businesses that contribute to more resilient water infrastructure				

<Summary of Scenario Analysis>

The Group's housing and infrastructure-related products are all designed with resilience and are highly durable and resistant to disasters. In the 4°C scenarios (C) and (D) assumed in the scenario analysis described in Section 4-2, these products with high durability or provide reinforcement to aging infrastructure can contribute to the solution of issues and expand businesses. In the 1.5°C scenarios (A) and (B) where mitigation of climate change is pursued. demand for renewable energy will increase even more, regulations will be tightened, and changes in consumer preferences will become more apparent. In addition, it is expected that resource circulation efforts will be accelerated and economic values will become apparent. It is believed that solving issues and capture business opportunities can be contributed to through ever more ambitious efforts to curb GHG emissions, solar-equipped homes to boost the shift to renewable energy, new energy-creating technologies, and the development of materials to make vehicles and aircraft more energy-efficient.

In such societies, it was naturally thought that water risks and impacts on biodiversity (aspects of nature) would also be mitigated. In addition to climate change, there are uncertain factors in technological development in various industries. In both cases, preparation is confirmed and also ready to transform and risks into opportunities, whether in the development and enhancement of products for the risks assumed in the case of increased urban concentration, or in the technologies required in the case of increased population decentralization.

It is anticipated that lifestyles will change drastically and will change even more significantly from the effects of the COVID-19 pandemic. Therefore, the fact that the assessment of the impact of risks and opportunities in the scenarios considered in this process can be utilized was reconfirmed.

4-3. Validation of Climate Change Strategies

The following verification were conducted to confirm the validity of our strategy in response to climate change issues.

(1) Monitoring carbon efficiency (environmental performance)

(2) Correlation between carbon efficiency (environmental performance) and economic performance

(3) Stakeholders' comprehensive income using impact-weighed accounting methodology (factoring in the impact on resource circulation and biodiversity)

<(1) Monitoring Carbon Efficiency (Environmental Performance)>

In order to verify how efforts that address climate change are affecting management, two indicators of carbon efficiency management (environmental performance) have been monitored: "(i) Net sales per GHG emissions", and "(ii) Earnings (EBITDA) per GHG emissions".

Figure 8(a) shows the carbon efficiency in business activities, and Figure 8(b) shows the carbon efficiency across the supply chain. As in the previous medium-term management plan, for the current medium-term management plan (2023-2025), an increasing trend for both (i) and (ii) can be seen, even when looking at business activities and the supply chain as a whole. (ii) Earnings per unit of GHG emissions (EBITDA) from business activities confirms that the conversion to renewable energy is progressing at both domestic and overseas business sites and that this is having an ongoing positive impact on management.

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*Business activities: Scope 1+2

<(2) Correlation Between Carbon Efficiency (Environmental Performance) and Economic Performance>

The impact of initiatives on management to address issues related to climate change was further examined by confirming the correlation between "(i) net sales per unit of GHG emissions", an indicator of management's carbon efficiency (environmental performance), and "(ii) earnings per net sales (EBITDA)", an indicator of management's economic performance. The actual values of the two indicators in business activities from FY2016 to FY2023 are plotted in Figure 9, along with the target based on the FY2030 long-term vision. In FY2023, continuing on from the previous medium-term management plan (2020-2022), ESG management was used as a strategy to improve "net sales per unit of carbon" while maintaining stable earnings.

The results of this verification indicate that the strategies being pursued based on the long-term



Figure 8 (b): Carbon Efficiency Across the Supply Chain

[Reference] Calculation methods of the two indicators Net sales/GHG emissions

(net sales per carbon = 100 mil. yen/kilotons-CO₂) EBITDA/GHG emissions

(earnings per carbon = 100 mil. yen/kilotons-CO₂) [Reference] EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization

vision through to FY2030 are correct. Therefore, the current medium-term management plan (2023-2025) aims to continue to work toward our long-term vision, aiming for company growth that is both economically and environmentally sound.



Figure 9. Correlation between Carbon Efficiency (Environmental Performance) and Economic Efficiency of Business Activities

<(3) Stakeholder Comprehensive Income Using Impact-Weighted Accounting Methodology>

Climate change is affecting the entire earth. Initiatives to address climate change are thought to affect not only the Group's shareholders, but also multiple stakeholders such as customers, business partners, employees, and local communities. Therefore, in order to verify the validity of the strategies, it is necessary to consider the impacts on stakeholders from a bird's eye and comprehensive perspective, and the multi-stakeholder comprehensive income was calculated using impact-weighted accounting method.

Impact-weighted accounting refers to the concept of integrating accounting and impacts by converting the impacts of corporate activities on stakeholders as a whole into monetary values and adding or subtracting them from profits, thereby ascertaining the corporate value for stakeholders as a whole. In this validation, comprehensive earnings were calculated using the following calculation method. LIME2 concept was adopted when converting economic losses on environmental aspects into economic values.

For human investment in natural capital, stakeholder comprehensive income was calculated from value of employment created based on two approaches.

[Approach 1]

Value of employment created for employees tackling climate change issues [Approach 2] Value of employment created for personnel driving climate change efforts

[Calculation Method] Stakeholder Comprehensive Income = (Profit for the period + Value of employment created based on Approach 1 or Approach 2 + Economic values of contribution to the reduction of greenhouse gas emissions from products + Economic values of effects on environmental aspects other than climate change issues from products) - (Economic losses from greenhouse gas emissions from business activities including up and downstream in the global value chain + Economic losses from environmental aspects other than climate change issues from business activities including up and downstream in the global value chain)

Note: From FY2023, the recalculation includes all business activities related to the global value chain. Figure 10 (a) shows the ratio of stakeholder comprehensive income to net income calculated using impact-weighted accounting. For human investment in natural capital, stakeholder comprehensive income differs due to differences in the value of employment created based on the two approaches. 2.5 when Approach 1 is applied and 1.3 when Approach 2 is applied.

Regardless of the approach, it was confirmed that stakeholder comprehensive income continued to be generated above net income.



Figure 10 (a): Stakeholder Comprehensive Income Against Net Income Furthermore, Figure 10 (b) shows the positive and negative impacts at each stage of the product's life cycle. (Figure 10 (b) reflects the respective investments in broadly defined human capital 1 based on Approach 1 and narrowly defined human capital 2 based on Approach 2.) In addition to the values determined by the financial indicators, it was possible to recognize where the positive impact on multiple stakeholders is occurring and where the negative impact on the external environment is occurring, by performing the impact-weighted analysis separately for each process of the product's life cycle.

<Summary of Validation>

Based on the above analysis, it was reaffirmed that the initiatives and planned measures that are currently being implemented are expanding the positive impact, reducing the negative impact, and contributing to the enhancement of corporate value.

In order to solve issues related to climate change in the future, strategies will be developed and measures implemented for each process in the product's life cycle so that the positive impacts can be further expanded and the negative impacts can also be further reduced.



Figure 10 (b): Details of Positive and Negative Impacts on Corporate Value Over the Life Cycle of Products Using Impact-weighted Accounting Methods

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Figure 10 (c): Composition and Distribution of Stakeholder Comprehensive Income

[Reference] Approach to Human Investment in Impact-Weighted Accounting Using Human Resource Indicators of Ability to Contribute to Solving Social Issues

[Human Resource Indicators of Ability to Contribute to Solving Social Issues and How to Calculate Impact Using These Indicators] Under the current mid-term plan, the SEKISUI CHEMICAL Group encourages its employees to grow through experience in their current jobs. Furthermore, the Group provides training to foster the ability to recognize issues and take action to resolve them. As for training, in addition to the knowledge aspect, the aim is to change employee consciousness by having them proactively engage in activities with the resolution of social issues (that is, SDGs) in mind. Moreover, change is also being encouraged from the behavioral aspect through activities to improve our ability to contribute to solving social issues (that is, SDG contribution activities) (Figure 11).



Figure 11: Illustration of Training that Develops the Ability to Contribute to the Solving of Social Issues

To encourage the growth of employees, the SEKISUI CHEMICAL Group created human resource indicators in 2017 to serve as a guide for individual progress and to encourage self-improvement by ascertaining the current status of employees' knowledge and actions required to solve social issues, including environmental issues, and is using the indicators while reviewing them for each mid-term plan.

In the current medium-term plan, the Group believes that it is important to improve the level of knowledge and actions to develop the ability to contribute to solving social issues. Thus, eight items (four knowledge items and four behavioral items) required for personnel to contribute to solving social issues have been set as human resource indicators to check personnel's ability to contribute to solving social issues (Figure 12).



Figure 12: Knowledge and Action Required for Personnel to Contribute to Solving Social Issues

Once a year, a questionnaire called the "Survey on ability to contribute to solving social issues" is sent to our employees in Japan to measure their ability to contribute to solving social issues necessary to "realize sustainable society, we support the basis of LIFE and will continue to create 'peace of mind for the future'." (Vision 2030) and grasp each employee's knowledge and ability to take action.

The questionnaire is filled out with employees self-checking to determine the extent to which they have knowledge or are taking actions that will lead to the solving of issues. By regularly conducting this questionnaire, the extent to which our self-awareness of our contribution to solving social issues has improved is measured. It is believed that as self-awareness improves, each individual will be more aware of their contribution to solving social issues in their work. Employees are important assets to a company that generate benefits to society, including solving various environmental issues. It is believed that it is important in the short- and medium- to long-term to make investments in line with employee growth, so we have positioned cost of job creation as a human investment in natural capital in our impact-weighted accounting framework (Approach 1 of human investment). In particular, it is important for it to be driven by employees who have strong issue-solving skills in order to accelerate the solving of various employee issues.

The results of the questionnaire on the ability to contribute to solving social issues are classified into five levels from A to E, and it is believed that it is even more important to invest in personnel with the ability to contribute in the top two levels, A and B, and training is conducted to increase the number of such personnel (Approach 2 of human investment).

Personnel corresponding to the percentage of A and B are shown below (Table 4).

The impact of human investment in personnel that drive the solving of social issues is calculated as the cost to create employment for all employees times the percentage (%) of personnel that drive the solving of social issues.

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			-				(%)
	2017	2018	2019	2020	2021	2022	2023
Percentage of employees with Levels A and B in the survey on ability to contrib- ute to solving social issues	2.8	7.2	6.7	6.7	10.1	7.2	20.4

Table 4: Percentage of Personnel Driving Solutions to Social Issues

*2017-2019: Composed and implemented the assessment details as an environmental human resources check. 2020: Same status as FY2019 as it was not implemented.

2021-2022: Composed and implemented the assessment details as a survey on ability to contribute to solving social issues. 2023-2025: Updated and implemented the assessment details as a survey on ability to contribute to solving social issues.

2025 2025 optated and implemented the assessment details as a survey of ability to contribute to solving social

Employees will continue to be provided with training programs to improve the eight qualities necessary for personnel to contribute to the solving of social issues, and by using the Survey on Ability to Contribute to Solving Social Issues, the growth of each employee's knowledge and action capabilities will be checked while promoting training and activities to strengthen weak points and improve strong points, thereby increasing the benefits of solving social issues and accelerating the creation of profits.

[Correlation with Corporate Value]

It is believed that increasing the number of personnel who drive the solving of social issues in our Group will create a virtuous cycle as shown in the figure on the right, and contribute to the long-term improvement of corporate value. In STEP 1, "Improve employees' ability to contribute to solving social issues", the ratio of social issue resolution leaders proves that the number of leaders with deep insight into social issues and the ability to solve them has increased and that they are promoting sustainable business strategies.

In STEP 2, "Create products to enhance sustainability and acceleration of market expansion", net sales of products to enhance sustainability and income from premium quota products confirms the high added value, improved profitability, and market expansion resulting from the creation of products that make a significant contribution to solving natural and social environmental issues. In STEP 3, "Increase stakeholder comprehensive income in impact-weighted accounting", it can be verified that comprehensive income in impact-weighted accounting provides economic, environmental, and social value to all stakeholders and that comprehensive income (benefits) are expanding.

And in STEP 4 to 6, as return on invested capital (ROIC) increases and the shift to sustainable businesses and products progresses, society will admire the high profitability of the company and recognize that it is a sustainable company.

As a result, we will become a company that "grows by solving social issues" as envisioned in our long-term vision.



Figure 13: Virtuous Cycle in Improving Employees' Capability to Contribute to Solving Social Issues

4-4. Impacts of Risks and Opportunities Related to Climate Change on the Organization's Businesses, Strategies, and Financial Planning

<Impacts of Climate Change on Businesses and Strategies>

The risks posed by climate change can also be opportunities. SEKISUI CHEMICAL Groups formulates strategies and plans to address medium- to long-term climate change risks in order to reduce and convert these risks into opportunities for products and services, supply or value chains, R&D investments, and operations. In addition, efforts based on these strategies will lead to the improvement of corporate value and comprehensive earnings are explained in Section 4-3.

Examples are shown below for each item.

[Reference] Case study: Examples of Risk Reduction and Conversion to Opportunities in Climate Change [Resource Circulation Policy and Strategy]

Promoting resource circulation efforts will accelerate decarbonization efforts. In FY2020, SEKISUI CHEMICAL Group established a policy on resource circulation along with long-term targets, and formulated a resource circulation strategy with a roadmap. This is an important strategy to shifts products to lower their carbon footprint throughout their life cycle to contribute to mitigating climate change. The resource circulation strategy and roadmap are laid out below.



		2020-2022	By 2025	By 2030
Business strategy	Net sales of products to enhance sustainability that contribute to resource circulation (Base year:2020)	1.1 times	1.7 times	2 times or more
Raw material resource conversion	Net sales of products not derived from fossil fuels and using recycled materials	3 billion yen	40 billion yen	100 billion yen
Recycling waste products	Rates for recycling waste plastic into new materials	Analyze current conditions and set baselines	65% (Japan)	100%

Table 5: Roadmap for Achieving Long-term Resource Circulation Targets

[Examples of Products and Services]

<Case Study 1> Housing Adapted to Climate Change

Assumed Risk -

Over the last several years, the effects of climate change have affected not only regulatory risks but also physical risks. Housing that contribute to mitigation risks will bring economic benefits to customers and control global warming to society. On the other hand, demand will naturally decline for houses with low disaster resistance and services with insufficient consideration.

Converting to Opportunities —

Houses provided by the Group (SEKISUI Heim) are highly reliable disaster resistant product that contributes to the adaptation to climate change. Prefabricated houses that are mostly built in factories are less susceptible to disasters caused by climate change. The houses can be quickly built as temporary shelter in a natural disaster event caused by climate change, and therefore their production and construction methods are also adaptable to climate change. Highly reliable SEKISUI Heim not only reduces physical and psychological burdens during evacuation, but even after using the house as a shelter, it is possible to move it to another location and reuse it with performing necessary maintenance. These houses can also contribute to rebuilding lives and recycling resources.

SEKISUI Heim has high thermal insulation and airtightness. Furthermore, by installing air conditioning systems such as "Kaiteki Airy", it is possible to provide housing that enables comfortable living with little energy even when global warming is progressing due to the effects of climate change.

Such ventilation systems also have the effect of controlling infectious diseases by preventing the spread of viruses indoors.

The ZEH ratio of newly built detached houses in FY2023 was 96%. By installing storage batteries that can store electricity generated by solar panels in houses, that electricity can be used in the event of natural disasters that occur frequently due to climate change. The Group proposed the development and design of the following modifications based on the assumption that the storage batteries would be used to secure utilities in the event of a disaster for the following purposes: (1) Increasing storage battery capacity while at the same time decreasing the size of the battery.

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(2) To prevent the batteries from being damaged by flooding, storms, and such like, it is proposed that they be installed indoors or on the second floor.

As a result, the number of storage batteries installed is increasing every year. In addition, the "V to H" system, which connects solar houses with EVs, enables customers to travel to safe locations and transport goods even in the event of power outages due to disasters. Equipment and services will continue to be provided with this kind of reduced disaster adaptation to climate change in mind.

<Case Study 2> Disaster Resilient Urban Development

Assumed Risk -

In order to adapt to water disasters caused by the effects of climate change, it is necessary not only to improve the adaptability of housing, but also to make entire towns and communities resilient to disasters.

Converting to Opportunities -

In 2018. SEKISUI CHEMICAL launched the "Safe & Sound Project", a community development project to think about the meaning of resilient communities and how to solve issues. This took into consideration community development projects based on the fusion of the Group's technologies. The first town development project that served as the model is "Asaka Leadtown". which was developed in Asaka City. Saitama Prefecture, and was opened to the public and started selling housing lots in 2019. Examples of products provided by the Group. such as resin concrete pipes (RCP) and rainwater storage system "Cross-Wave", have been installed to temporarily store storm water during torrential rains and typhoons, and to control flooding of rivers and houses. In addition. as a means of reducing damages caused by water disasters in communities and supporting

reconstruction, installation of equipment, such as an emergency temporary toilet system in parks and schools that serve as evacuation sites in various regions, are proposed.

Furthermore, while promoting development of towns and communities that lead to improvement of the value of the towns while conducting their original town management, nine projects with a total project cost of about 50 billion yen have already been started over t he period from the previous mid-term business plan (2020 to 2022) to the current mid-term business plan (2023 to 2025). Of this amount, sales of 20 billion yen are planned for FY2025.

In March 2023, sales of land in "Atsugi-no-oka Lead Town" (in Atsugi City, Kanagawa Prefecture) began, and in April, sales of land in "Narita Lead Town" (in Narita City, Chiba Prefecture) began.

<Case Study 3> Promoting Resilient Infrastructure in Developed Countries Assumed Risk

As risks such as water disasters caused by climate change increase, there is a need to make water supply and sewer systems and other infrastructure more resilient. In particular, water risk is an issue that affect some regions more than others. In developed countries, many infrastructures are outdated and have been constructed over 50 years ago, and there is a need for construction methods that can renew infrastructure in a short construction period without placing a large burden on energy or resources.

Converting to Opportunities —

With the aim of expanding the use of trenchless technologies, such as the "SPR method", semi-automated construction methods and technologies that can accommodate a wide range of pipe shapes and sizes are being developed.

[Examples Related to the Supply Chain or Value Chain]

<Case Study 1> Raw Material Suppliers Assumed Risk

As regulations to mitigate the impacts of climate change are tightened, suppliers will also need to review their manufacturing processes and energy use. If responses to suppliers are delayed, their manufacturing costs may increase significantly, and there are concerns that the unit prices of those raw materials purchased will increase.

Converting to Opportunities -

Since FY2018, in order to stabilize the supply of raw materials and mitigate climate change on a global scale, the Group has set greenhouse gas emission reduction targets and encouraging raw material suppliers to promote activities to reduce emissions through the Group's Procurement Guidelines. These guidelines have been reviewed and are being enhanced to encourage suppliers to ensure continued sustainable procurement.

In addition, a purchasing system to procure raw materials from multiple suppliers has been adopted in order to prepare for risks that raw material manufacturing plants may shut operations due to disasters caused by climate change. Moreover, relocation of production sites are also being considered in areas where physical risks, such as natural disasters, are expected to be severe, to areas with less disaster risks.

By quickly implementing these measures, SEKISUI CHEMICAL Group is striving to become a company that is chosen to meet the needs of customers that seek low-carbon footprint throughout their products life cycles.

<Case Study 2> Improving Infrastructure in Emerging Countries

Assumed Risk —

Frequent water disasters due to the effects of climate change will cause greater damages in emerging countries, where infrastructure is vulnerable and are not keeping pace with urban growth. To build a product supply system that meets the needs of customers in emerging countries, the Group operates production plants directly or sources raw materials from other companies in the surrounding area.

Converting to Opportunities —

In order to strengthen the water infrastructure foundation in emerging countries, marketing of "Cross-Wave", a rainwater storage system developed by SEKISUI, was expanded to emerging countries such as China, India, and other countries in Southeast Asia. In FY2019, a cooperative framework with the local water resources bureau in Indonesia was established to promote the products. As a result, the products were selected for a large-scale residential development project and contributed to the green infrastructure business in Indonesia. Furthermore, in order to guickly build a resilient water supply and sewage infrastructure, the Group is accelerating the business of providing water infrastructure products such as "Eslon Pipes" (PVC pipes) and fittings in partnership with a Vietnamese company.
[Investment in Research and Development]

All development projects at SEKISUI CHEMICAL Group are selected according to long-term strategies that take into account environmental and social issues such as climate change and contribute to solving these issues. These projects are explored based on appropriate business plans.

<Case Study 1> Perovskite Solar Cell (PSC) Assumed Risk

As the demand for solar cells increases, conventional types of solar cells may face difficulties responding to issues such as depletion of scarce resources, demands to reduce energy use, and restrictions on installation locations that take into account ecosystems and building strength. Moreover, further supplies of renewable energy are likely to be required. Failure to meet this requirement could lead to a possible downsizing of the relevant business.

Converting to Opportunities -

Research and development of perovskite solar cells have begun by utilizing the Group's film extrusion technology. These solar cells are lightweight and highly efficient, offer greater freedom in installation location, and are able create more energy than conventional technologies.

<Case Study 2> Bio-Refinery (BR) Ethanol Technology Assumed Risk Conversion of raw materials to non-fossil based resources and recycling of waste into useful materials are being promoted from both the perspective of carbon circulation and resource circulation as mitigation of climate change. Failure to contribute to technological development and businesses that contribute to resource circulation across the supply chain can lead to missed opportunities to enter the market in the future.

Converting to Opportunities -

A 1/10th scale demonstration plant has been constructed in Kuji City, Iwate Prefecture, for the social implementation of BR ethanol technology, which produces ethanol from trash.

This technology has potential not only to contribute to resource circulation, but also for the effective use of carbon dioxide capture and utilization (CCU), which contributes to climate change mitigation.

SEKISUI is also collaborating with other companies to develop technologies for manufacturing plastics from the ethanol that is produced.

<Impacts of Climate Change on Financial Planning>

As described in Section 4-2, scenario analysis is used to analyze risks and opportunities, and business activities have been carried out in accordance with a medium-term management plan that reflects strategies for reducing risks and capturing opportunities. The "Products to Enhance Sustainability" system, an in-house initiative for creating and promoting products that contribute significantly to solving environmental issues, including climate change, is being advanced. By expanding net sales of these products to the FY2025 target of 1 trillion yen, they will further contribute to solving environmental issues, including risks into opportunities, these products will accelerate business growth, and contribute to reaching the long-term plan that aims to double the Group's business by 2030.

Strategies to reduce climate change related risks and turn risks into opportunities have proven to be appropriate, through conducting carbon efficiency analysis and value analysis using impact-weighted accounting. Also, the need of strategies that turn current environmental values into positive impacts was suggested in future financial planning.

[Overview]

Milestones are set by backcasting from the long-term goals of "SEKISUI Environment Sustainability Vision 2050", and efforts until FY2022 had been based on the medium-term environmental plan "Environment Sustainability Plan: Accelerate II". In the current medium-term environmental plan called "SEKISUI Environment Sustainability Plan EXTEND" (2023-2025), the following indicators are set to manage progress on climate change:

(1) Net sales of products to enhance sustainability* (of which, net sales of products that contribute to resource circulation, non-fossil based products, and products using recycled materials)

(2) Greenhouse Gas Emissions (Scope 1, 2, and 3)

(3) Waste resource recycling rate

In FY2023, the target for net sales of products to enhance sustainability was not achieved with actual sales of 950.2 billion yen, compared to the target of 960 billion yen. Of those, sales of products that contribute to resource circulation expanded to 99 billion yen (1.8 times more than FY2020). Of this amount, net sales of products that contribute to resource conversion of raw materials amounted to 34.7 billion yen (12 times more than FY2019). These results indicate that the targets were met under the resource circulation strategy and are accelerating decarbonization efforts.

Greenhouse gas emissions (Scope 1+2) from our business activities met the reduction target. Unfortunately, reductions were not possible in the supply chain.

*Products to Enhance Sustainability System:

Series of products that are certified and registered that contribute significantly to solving environmental and social issues, including climate change issues, based on in-house standards. Products are reviewed by a certification committee composed of in-house members and products that meet the criteria are registered. The committee receives advice and feedback from an external advisory board of external experts to ensure high standards and transparency.

5-1. Indicators for Assessing Risks and Opportunities Related to Climate Change

- Net sales of products to enhance sustainability (of which, net sales of products that contribute to resource circulation, non-fossil based products, and products using recycled materials)
- to resource circulation, non-rossil based products, and products using recycled mater
- \cdot Greenhouse gas emissions (Scope 1, 2, and 3)

To solve environmental and social issues, various indicators and goals are set in the SEKISUI CHEMICAL Group medium-term environmental plan "Environment Sustainability Plan: EXTEND" (FY2023-FY2025), which is formulated based on the Group-wide medium-term management plan. Additionally, for risks and opportunities identified through impact analysis (see Section 4-1), the progress of efforts is regularly monitored to reduce risks and capture opportunities using indicators. Two indicators were set to reduce the risks assumed in the 4°C scenario. These indicators are used to monitor progress of efforts to solve climate change issues.

One is for expanding products that contribute significantly to solving climate change issues through products and businesses. The net sales of products to enhance sustainability, an internal certification system for the Group's products, is used as this index. The other is for reducing greenhouse gas

emissions. An index to assess both greenhouse gas emissions from our business activities (Scope 1+2) and greenhouse gas emissions in the supply chain (Scope 3) as an indicator to reduce risks have been set. The degree of achievement of these indicators is reflected in environmental performance evaluation points, and is reflected in the bonuses and executive compensation of employees in managerial positions and above.

5-2. Net Sales of Products to Enhance Sustainability ______ [Targets for Creation and Market Expansion of Products to Enhance Sustainability]

Double business volume by solving social issues (including climate change issues) in 2030
Of which, net sales of products to enhance sustainability that contribute to resource circulation: more than double (2020 baseline)
Of which, net sales of non-fossil based and recycled material based products:
100 billion yen
960 billion yen in net sales for products to enhance sustainability in 2023
Of which, net sales of products to enhance sustainability that contribute to resource circulation:
1.6 times (2020 baseline)

Of which, net sales of non-fossil based and recycled material based products:

38 billion yen

Targets set for "Creation and Market Expansion of Products to Enhance Sustainability" are set as above, and the progress is monitored by checking the results, shown above. Among the products that enhance sustainability, initiatives are being expanded and monitored to increase the amount of contribution to the reduction of greenhouse gas emissions from products that contribute to climate change issues.

Furthermore, tackling the resource circulation challenge and achieving a circular economy, as outlined in the resource circulation strategy and roadmap in Section 4-4 is seen as leading to the realization of a decarbonized economy. It is also believed that initiatives and means to realize decarbonization and resource circulation are meaningless unless they reduce the negative impacts on nature, including biodiversity. Therefore, in addition to working to expand low-carbon products that contribute to resource circulation, products and their manufacturing processes impact on nature are also monitored so that impacts can be shifted to a more positive direction (calculated based on the LIME2 concept).

[Initiatives and Achievements Related to Products to Enhance Sustainability]

Net sales of products to enhance sustainability:
950.2 billion yen (targets of net sales ratio = 75.6% and volume = 960 billion yen not met)
Of which, net sales of products to enhance sustainability that contribute to resource circulation:
99 billion yen (achieved 1.8 times the baseline of 55.3 billion yen and the target by 1.6 times)
Of which, net sales of non-fossil based and recycled material based products:
34.7 billion yen (target of 38 billion yen not met)

In FY2023, there were 11 registrations of products to enhance sustainability, bringing the total number of registered products to 206 as of March 31, 2024. Net sales were 950.2 billion yen, achieving the target of 960 billion yen. The ratio to net sales rose 2.5 percentage points from 73.1% in FY2022.

Although the sales target was not met, the percentage of company-wide products has increased, suggesting that the product portfolio transformation is making progress.

In FY2023, examples of recycling systems for products used in vehicles, railroads, and medical equipment were registered. The Group will strive to expand its system of taking in customers' waste for horizontal recycling as a leading example for our group. Beginning in FY2023, the Group is also evaluating the impact on environmental issues other than those that the products applied for primarily to solve.

While the aforementioned products highly contribute to solving issues in terms of resource circulation, their recycling methods and production processes are checked to see whether they have an increased negative impact on water use and biodiversity, and if there is a concern about the impact, there is a need to consider improvements.

For climate change issues, reductions in CO₂ emissions through CFP calculations and other methods are checked, in addition to confirming that negative impacts are minimized through consideration of water and biodiversity in manufacturing.



[Reference 1]

Contributions to reducing greenhouse gas emissions in business operations and products by products to enhance sustainability: 6,880 kilotons-CO₂ (FY2023)

The following table shows the reductions in greenhouse gas emissions over the product life cycle when compared to conventional or other comparative products. Compared to the emission amount of 7,161 kilotons-CO₂/year in FY2022, a decline in contribution to the reduction of 281 kilotons-CO₂/year was observed in FY2023.

"S-LEC", an interlayer film for laminated glass used in vehicle windshields, improves car air-conditioning efficiency by providing heat insulation and sound insulation, and reduces greenhouse gas emissions during driving by contributing to weight reduction.

Table 6: Contributions to Reducing Greenhouse Gas Emissions* from Products (FY2023)

Business Domain	Remarks	CO2 reduction (ktCO2)
Housing	Solving energy issues from the perspectives of energy creation, energy saving, and energy storage by installing solar panels, HEMS, and storage batteries	1,163
Infrastru- cture	Trenchless methods, which renew old pipes, not only reduces resources and waste, but also minimizes traffic disturbances during construction, improving fuel efficiency by reducing time stuck in traffic.	535
Vehicles and Trans- portation	Laminated glass interlayer film used for vehicle windshields. High-performance film with heat and sound insulation contribute to fuel efficiency reduction by reducing the weight of vehicles and improving the efficiency of car air conditioners.	4.376
Electronic Materials	Intermediate materials that contribute to the performance of LEDs, which are energy-saving light sources.	608
Others	_	198
TOTAL		6,880

* Contributions to reducing greenhouse gas emissions from products: LCA Software MiLCA (Japan Environmental Management Association for Industry) and LCI Database IDEA (Japan Institute of Advanced Industrial Technology and Technology and Japan Environmental Management Association for Industry) are used to calculate the amount of greenhouse gas emissions reductions in the life cycle of products that account for 75% of the total sales of products to enhance sustainability. Foam materials, which are intermediate material rarely visible, are also developed in accordance with their properties, contributing to the reduction of CO₂ emissions during use. "THERMOBREAK", a heat insulation material for pipe ducts marketed in the ASEAN region, exerts an energy-saving effect due to its high thermal insulation. "Function Foam Tape" that has impact-absorbing properties, contributes to the performance of energy-saving LCDs (Table 6).

In the future, greenhouse gas emissions in manufacturing, including Scope 3, will be further reduced, while enhancing functions and adding new functions to products, and developing new products. In addition, markets that contribute to the reduction of greenhouse gas emissions will be driven, and the amount of contribution to reduction through our group's products will be increased (Fig 16).



Figure 16: Greenhouse Gas Emissions from Corporate Activities and Reduction Contributions from Products

5-3. Greenhouse Gas Emissions (Scope 1, 2, and 3)

[Targets for Reducing Greenhouse Gas Emissions]

Long-term targets: Scope 1+2 emissions to be net zero by 2050 Medium-term targets: Reduce greenhouse gas emissions in Scope 1+2 by 50% in 2030 compared to FY2019 and reduce greenhouse gas emissions in Scope 3 by 30% compared to FY2019.

The roadmap for reducing greenhouse gas emissions by 2050 for Scopes 1 and 2 is shown in Figure 17.

In 2018, SEKISUI CHEMICAL became the first in the chemical sector to obtain SBT certification and set a target of a GHG emissions reduction rate of 26% by 2030 compared to FY2013. The Group has also promoted energy consumption innovations, such as promoting the replacement of old equipment, and energy procurement innovations, such as the conversion of purchased electricity to renewable energy and the introduction of self-consumption solar power generation equipment.

As a result, the Group's overall share of purchased electricity from renewable sources

reached 49.5% in FY2023. This was just short of the newly set plan of 50%. However, the greenhouse gas emissions reduction rate reached 32.8% compared to FY2019. As climate change mitigation becomes an even more pressing social issue, the technically challenging tasks of reducing fuel-based GHG emissions by electrifying fuel-using facilities, converting to low-carbon fuels, and innovating production processes are ahead of schedule, and it has been decided to raise the GHG emissions reduction rate in 2030 to 50% compared to FY2019.

This target was re-certified by the SBT as a 1.5°C target in March 2023.



In terms of Scope 3 greenhouse gas emissions,

Figure 17: Roadmap for Greenhouse Gas Reduction

we know that in the case of our Group, a large amount of emissions are in the raw material procurement and product use stages. It is recognized that the reason for this large amount in raw material procurement is due to the characteristics of our business as a chemical manufacturer.

In raising the GHG emissions reduction target for FY2022, steps have been taken to reduce emissions in the procurement of raw materials. Specifically, this is an initiative to recirculate four plastic materials that generate the largest amount of emissions. Resin raw materials, which account for 50% of purchased product services (category 1), will be converted to non-fossil materials to expand the use of recycled materials. This will also lead to a reduction in

GHG emissions from the disposal of sold products (category 12). In addition, the recycling of waste plastics are being promoted and new efforts have been tackled since FY2023 to reduce the amount of waste (category 5) generated by operations. Emissions during the use phase of the product are due to the significant GHG emissions from energy used in the homes sold. In terms of the use of products sold (category 11), the energy-saving performance of Sekisui Heim and the expansion of sales of ZEH homes with large-capacity PV systems and storage batteries have made a significant contribution to reducing GHG emissions. Further reductions will be achieved by increasing sales of ZEH homes.

The following management indicators and targets for greenhouse gas reduction have been established with initiatives being implemented from FY2023.

	Targets (updated in March, 2023)	Means of achieving targets
Scope 1+2	Base year: 2019 Target year: 2030 (unchanged) Reduction rate: 50% (1.5°C target)	Adopt renewable energy for conventional purchased electricity, and also pursue in advance the shift to low-carbon fuels, electrification, and production innovation to reduce fuel-derived GHGs
Scope 3	Base year: 2019 Target year: 2030 (unchanged) Reduction rate: 30%	Add resource recycling measures (conversion to non-fossil raw materials, increased use of recycled materials, and recycling of waste) to promote reductions in categories 1, 5, and 12

For details on calculating GHG emissions in the supply chain, see the climate change performance data in the sustainability report.

[Efforts and Achievements Related to Reducing Greenhouse Gas Emissions]

Ratio of renewable energy of purchased electricity Greenhouse gas emissions (Scope 1+2) reduction results Reduction of greenhouse gas emissions in supply chain (Scope 3)

In order to reduce greenhouse gas emissions from the Group's business activities, the conversion of purchased electricity to renewable energy by installing solar power generation systems within its own business sites are actively promoted, and consuming the generated electricity within the business sites, or switching electricity purchased from power companies to renewable energy sources. In FY2023, five business sites installed solar power generation systems, and reaching the total number to 20 sites in Japan and abroad, bringing the total power generation capacity to 10,560 MW. Furthermore, regarding electricity to be purchased from power companies. 41 business sites in Japan and overseas have completed the conversion to 100% renewable energy. In FY2023. the ratio of renewable energy ratio of purchased electricity is 49.5%, including in-house solar power generation.

In addition, the current medium term environmental plan (2023-2025) has changed the details of the "Measures to Promote Environment-Contributing Investments" established in the previous medium term plan to contribute to climate change mitigation. : 49.5% (FY2023 target of 50% not met) : 32.8% reduction (vs. FY2019) (FY2023 target of 26% met) : 8.8% reduction (vs. FY2019)

This change promotes investments that are effective in reducing greenhouse gas emissions, such as purchasing renewable energy and converting facilities to reduce fuel-derived greenhouse gases, as well as installing equipment that creates energy from renewable sources. This is one of the internal carbon pricing systems. and it is a mechanism to provide financial support from Headquarters to the investing department at a conversion rate of 30,000 yen per 1t-CO₂ of GHG emissions reduced. As a result of this initiative, the amount of CO2 emissions reduced is increasing year by year as the equipment and facilities are completed, contributing continuously to the reduction of greenhouse gas emissions in manufacturing.

The switch to renewable energy is being facilitated by providing a certain amount of support for the cost of converting purchased electricity to renewable energy.

These support measures have greatly increased the ratio of renewable energy from 36.4% in FY2022 to 49.5% now. As a result, the greenhouse gas reduction rate for Scope 1+2 was 32.8%, far exceeding the FY2023 target of 26% reduction (vs. FY2019) (Figure 18).

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Figure 18: Greenhouse Gas Emissions in Scope 1+2

Regarding the reduction of greenhouse gas emissions in the supply chain (Scope 3), the results for FY2023 were as follows.

Table 8: Greenhouse Gas Emissions in the Supply Chain (Scope 3)

Category	Increase/decrease (vs. 2019)
Category 1 (purchased products and services)	0.5% decrease
Category 11 (use of sold products)	67.1% decrease
Category 12 (disposal of sold products)	9.5% increase
Scope 3 overall	8.8% decrease

Decreased by 8.8% overall for Scope 3 (compared to 2019).

For Category 1 (purchased products and services), which accounts for the majority of the total, there was a slight decrease of 0.5%

(compared to 2019). Activities centered on working with suppliers and converting raw materials to bio-derived materials and recycled materials will continue in the future, and initiatives and measures for further reduction are being considered.

Conversely, Category 11 (use of sold products) showed a significant reduction of 67.1% (compared to 2019). This is due to the fact that the ratio of ZEH-specification homes sold has increased to 96% (excluding Hokkaido).

Category 12 (disposal of sold products) has not been reduced since 2019. It is necessary to accelerate reductions by steadily implementing the resource circulation strategies announced in 2021.

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5-4. Material Recycling Rate of Waste

[Material Recycling Targets for Waste]

Long-term targets	: Realizing a circular economy by 2050
	100% material recycling rate of waste plastics by 2030
Medium-term targets	: 65% material recycling rate of waste plastics by 2025 in Japan
	(overseas: baseline +5%)

Increasing the material recycling rate of waste, one of the management indicators for solving resource circulation issues, will lead to a reduction in GHG emissions derived from the Group's waste treatment in Category 5 of Scope 3.

Additionally, the conversion of waste that would otherwise have to be disposed of in landfill or incinerated into a useful recycled resource will reduce negative impacts on biodiversity and resource depletion issues, have high environmental value, and generate benefits for society.

Based on this approach, the following rating scale has been established with the aim of improving the material recycling rate through high-quality solutions, and initiatives such as sorting and shredding and the introduction of technologies to achieve the material recycling rate of 65%, the target set in the current medium-term plan, are being promoted. [Initiatives and Results for Material Recycling of Waste Plastics]

Material recycling rate (Japan)	: 60.7% (FY2023 target of 61% not met)
Material recycling ratio (overseas)	: baseline acquisition (FY2023 target ascertaining baseline)

In FY2023, the result was 60.7% compared to the domestic target of 61%, but efforts are accelerating.

From FY2024 onward, efforts will be strengthened at overseas sites under a target of baseline+3%.

Introduction of quality assessment to improve the material recycling rate

[Recycling goal] •Minimize resource consumption •Minimize greenhouse gas emissions in the reuse process	[Rating Scale] •Circularity •Reduce CO2 emissions by using waste plastics
•Expand recycling of waste products	•Environmental contribution
through innovation	(e.g., processing of difficult-to-recycle materials)

(1) In terms of circularity, the Group assesses the desired circularity as there are various methods of material recycling (for example, horizontal recycling of plastics, cascade recycling, use as other functional materials, etc.).

(2) For the reduction of CO₂ emissions, the Group assessed the positive impact of material recycling on climate change and confirmed that it is a recycling method that has no negative impacts.
(3) In terms of environmental contribution, the social significance and the degree of environmental contribution of processing

difficult-to-recycle materials* is assessed. *Difficult-to-recycle materials: Materials that are currently difficult to process and can only be thermally recycled or disposed of in landfill.

The Group will promote activities conscious that increasing the number of high-quality material recycling initiatives in Japan and overseas and improving the material recycling rate will contribute to the reduction of Scope 3 and increase sustainability as a company.

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SEKISUI CHEMICAL Group has been releasing its initiatives on climate change issues in the TCFD Report since FY2019. Recognizing that climate change issues require long-term initiatives, the report have analyzed the risks to which companies are exposed and the risks companies pose to the external environment. Strategies are to be developed and initiatives pursued to mitigate both risks and convert them into opportunities.

As the accuracy of scientific predictions improves, the importance of raising goals related to climate change issues, accelerating the achievement of targets and the associated transition towards decarbonized management is becoming more important in order to achieve a decarbonized economy. In FY2022, the Group also considered innovations and measures to accelerate the pace of decarbonization, taking into account the results of various initiatives to curb greenhouse gas emissions and the evaluation of the scenario analysis disclosed in this report, thus revising the milestone from a target of 2°C to 1.5°C.

Since FY2012, SEKISUI CHEMICAL Group has recognized the impact of its corporate activities on nature and social capital in its long-term environmental vision. When different social issues, including environmental issues, are solved, "an earth with maintained biodiversity" can be realized. The progress of efforts have been confirmed and evaluated as the SEKISUI Environmental Sustainability Index. In this integrated assessment, a rate of return of 100% or more relative to natural and social capital is achieved and maintained.

In FY2020, a long-term goal for 2050, the "SEKISUI Environment Sustainability Vision 2050" was formulated, which included targets for resource circulation and water risks in addition to climate change, and launched initiatives to achieve that goal. With regards to resource circulation, a resource circulation policy was formulated in FY2020, and a roadmap based on it to promote innovation was drawn up. At the same time, measures are being developed to accelerate the conversion of raw materials to non-fossil based materials and recycling of disposed wastes back into materials. In other words, it was recognized that even the issue of resource circulation would affect the natural and social capital used, and vice versa. Based on this recognition, specific milestones are being set and undertake initiatives after examining risks and their impacts.

Additionally, the Group revised its Environmental Management Policy in July 2024 to reflect internal and external changes (new environmental issues, thinking in terms of global standards, Group long-term environmental vision, etc.) in our policy. In addition, during FY2024, the Group will formulate new environmental issues (climate change mitigation/adaptation, water resources, and biodiversity policies) in the Environmental Management Policy as a top-level policy, and together with the existing resource circulation policy, the Group's internal and external approach will be reiterated and clarified to accelerate initiatives involving the supply chain.

Environmental Management Policy

https://www.sekisui.co.jp/sustainability_report/basic_policies/#anc-P02

In the future, the risks and impacts of different environmental issues will be analyzed, strategies to accelerate risk reduction will be formulated, and information on the results of these efforts will be released. It is recognized that promoting such information disclosure not only demonstrates the sustainability of the Group, but is also an important issue in obtaining like-minded partners to solve issues, or to take a leading position in transforming the society.

SEKISUI CHEMICAL Group will continue to promote sustainable initiatives that are integrated with our business activities, with the aim of realizing a sustainable society and the sustainable growth of our group.



Task Force on Nature-related Financial Disclosures

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- 3 Management of Risks and Impacts
- 4 ····· Strategies
- 5 Indicators and Targets
- 6 ····· In Closing

1. Executive Summary

This TNFD report is disclosed and reported based on the official guide of recommendations published in September 2023 to illustrate SEKISUI CHEMICAL Group's responses to biodiversity issues as follows:

- 1. How the Group ascertains its impacts on biodiversity and the impacts that the Group receives from biodiversity, and what strategies it is pursuing to move both impacts in a positive direction.
- 2. How the Group seeks to reduce its negative impact on biodiversity and improve the sustainability of the Group and society.

The responses to the general requirements of the TNFD recommendations are as follows:

- 1. Approach to materiality:
 - In addition to the Group's single materiality, double materiality analysis is performed and described, including the impact on ecosystems (natural capital).
- 2. Scope of disclosure:

In addition to the Group's corporate activities, analysis is performed and described encompassing the entire upstream and downstream global supply chain.

3. Nature-related dependencies and impacts, and links between risks and opportunities: Analysis of nature-related impacts associated with production sites as a manufacturer, and reconfirmation of dependencies and impacts as an industry sector for business-related dependencies and impacts.

Using LEAP analysis, decoupling analysis, and scenario analysis, which are processes for systematically evaluating nature-related risks and opportunities based on scientific evidence, the links between dependencies and impacts, risks and opportunities are analyzed and described.

4. Regional location:

Analysis and description of the area in which corporate activities are envisaged to take place.

5. Integration with other environmental issues:

Adopt, analyze, and describe a comprehensive (holistic) approach, considering the correlation with environmental issues such as climate change, resource circulation, and water risks.

6. Stakeholder engagement:

Start dialogue with high impact stakeholders regarding nature-related risks and opportunities (e.g., start dialogue through due diligence with raw material suppliers that may pose a risk to the Group).

Regarding ascertaining company-wide dependencies and impacts, evaluation proceeded and the positioning of risk reduction measures and future directions were confirmed. Additionally, for issues with high risk, LEAP analysis was used to verify the effectiveness of the initiatives. To realize Nature Positive for biodiversity in the future, SEKISUI will continue to adopt an open innovation approach to dialogue with employees, business stakeholders, and other stakeholders, such as experts, to review strategies, propose and implement activities, and report annually in the TNFD report. Governance SEKISUI CHEMICAL Group recognises that natural capital issues, including biodiversity, are as important as climate change in terms of ESG management. With regard to external environmental issues that may pose a risk to management, the same systems and mechanisms are implemented as for handling other important issues (see TCFD Report, "2. Governance").

Management of Risks and Impacts SEKISUI CHEMICAL Group recognizes its impact and dependence on natural capital, including biodiversity, and analyzes the risks to the Group or society. The same system of risk management for other environmental issues is then used to prevent or reduce the identified risks (see TCFD Report "3. Risk Management").

Strategies

Risks associated with biodiversity

The following risks were assessed to ascertain the dependence and influence impact:

(i) Dependence of and impact on natural capital by business domain (assessed using the "ENCORE" tool)

(ii) Dependencies and impacts in product life cycle management

(iii) Verification of water risks at production sites

(iv) Verification of dependencies and impacts at production sites (using "Biodiversity Intactness Index (BII)")

(v) Medium- to long-term risk analysis (using scenario analysis)

Strategies developed from risk analysis results

•The results of the risk analysis summarize the Group's dependence and impact on the five impact drivers for natural capital issues as well as the efforts being undertaken to mitigate these risks. Furthermore, seven pillars that need to be launched have been identified to formulated a strategic grand design in order to achieve the Group's goal of "realizing an earth with maintained biodiversity (that realizing Nature Positive)" by 2050.

•By using LEAP analysis for our risks, the impact on natural capital was recognized, countermeasures were implemented, and their effectiveness confirmed. In the future, by conducting this analysis and implementing the PDCA cycle to consider solutions, negative impacts will be reduced and positive impacts toward Nature Positive will be increased.

Consideration of the Impact of Business Activities on Biodiversity With the aim of realizing an earth with maintained biodiversity (that is, Nature Positive), the extent to which SEKISUI's business activities, mainly production activities, have transitioned to management that decouples reduction of environmental impact was examined.

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Indicators and The SEKISUI CHEMICAL Group has set the following three indicators and is monitoring progress with the aim of realizing an "earth with maintained biodiversity" as set out in the long-term environmental vision for 2050:

1) Rate of return on natural and social capital

- 2) Rate of return on biodiversity
- 3) Rate of return on plant biomass

In the future, targets and management indicators will be set for use of resources and land, which are important impact drivers, in order to reduce negative impacts and expand positive impacts.

SEKISUI CHEMICAL Group Initiatives Related to Biodiversity TNFD Report 2024 Task Force on Nature-related Financial Disclosures

Greer Stakeholder Related Infinitives (External Evaluations, etc.)

Environmental	Positioning	General	Impact driver				
Plan	biodiversity	Cenerdi	Climate Change	Resource Use	Land/Freshwater/ Ocean Use	Invasive Alien Species	
1998 or before	Efforts from the perspec- tive of environmental preservation	Began SEKISUI Chemical Nature Study Course		Began zero emission activities (zero landfill) Built a product collection and recycling system in collaboration with the Japan PVC Pipe and Fittings Association		Ongoing Introduced a product environmental impact assessment system - Began environmental reviews from the prespective of compliance with environment taws - Strengthemed chemical substance management through responsible care activities - Introduced ENS	
Environmental Medium-Term Plan STEP-21 1999- 2002	and nature conservation	Began nature conservation activities at business sites and voluntary activities Ongoing Began "Innovation inspired by Nature Research Support Program"	Ongoing Added the LCA assessment to product environmental impact statements		Introduced biotopes to business sites	Ongoing Reduced emissions and movement of chemical substances with voluntary trajets Began implementation of Green Procurement Operation Guidelines (for newly traded chemical substances)	
Environmental Medium-Term Plan STEP-2005 2003- 2005		Medium-Term Environmental Vision Committed to be an Environmentally Creative Company (Environmentally Superior) Formulated the new Medium-Term Environmental Vision, "Environmental Top Runner Plan"					
Environmment Top Runner Plan Part 1 2006- 2008	Achieving growth while balancing	Added a section on biodiversity to the "Environmental Management Policy" Promote nature conservation activities at overseas business sites	 Introduction of measures to promote capital investment to reduce CO₂ emissions 				
Environment Top Runner Plan SHINKA! 2009-	environmental friendliness and economic efficiency	Formulated biodiversity guidelines Encourage nature conserva- tion activities in collaboration with local communities at all Japan and overseas sites Long-Term Environmental Vision Formulated SEKISUI Environment Subtrativity Vision 0000	Began "Energy-saving Investment" Incentive Program Part II		Began biodiversity assessment of business sites Ongoing Began biodiversity surveys using the JBB Land Use Score Card® at all production sites and institutes in Japan	• Wastewater	
2013		Sustainability vision 2030 Began developing "SEKISUI Chemical Forest" (7 blocks) Implemented "SEKISUI Environment Week: Promoted activities at all global business sites, encouraging all employees to participate (until 2019)			 Began regular water risk surveys at all production sites and institutes (Aqueduct) 	assessment using WET (2013)	Ongoing Activities to exterminate invasive plants at business sites
SEKISUI Environmental Sustainability Plan Take-Off 2014- 2016			 Established the environ. 		Ritto Plant began activities to conserve biodiversity at Lake Biwa (hereinafter, "Ritto Plant activities") Received the Executive Committee's Special Award and the "Environ- ment and Company" Special Award at the 3rd		Example: Shikoku SEKISUI began activities to exterminate invasive aquatic plants
SEKISUI Environmental Sustainability Plan Accelerate 2017- 2019	entre of the second sec	Long-Term Environmental Vision Formulated 'SEKISU Environment Sustainability Vision 2050'	Commitment framework (12 billion yen/3 years) Obtained "SBT Initiative" certification (a world-first in the chemical industry) Commitment to support the TCFD Ongoing Issued the TCFD report	SCIENCE BASED TARGETS ENVIRG MIRITONIS COMPARIE CAMERIA LATOR	Good Life Awards organized by the Ministry of the Environment Japan Nature Conserva- tion Grand Prize 2015 Received the Grand Prize in the "Corporation/Orga- nization Leader Category" Received the Minister of Agriculture, Forestry and Fisheries Award at the 6th Contest for Activities on Biodiversity		
SEKISUI Environmental Sustainability Plan Accelerate II 2020- 2022	Working to achieve the vision	Ongoing Began activities to contribute to the SDGs • Materialization of products by leveraging biomimicry • Radio wave reflection film learned from the billiance of morpho butterfly wings • Adhesive tape learned from mussel secretions	Ongoing) Joined RE 100	Formulated resource circulation policies and strategies	 Conducted the 2nd water risk study: Also identified water risks to the supply chain and operations "Asaka Lead Town" obtained ABINC-ADVANCE certification 		
Environmental Sustainability Plan - EXTEND 2023- 2024		LEAP Analysis Ongoing Issued the TNFD report Register as a TNFD Adopter Performed BII ENCORE assessment Revised the environmental management policy Formulated our biodiversity rediva	Updated SBT certification to the 1.5°C target Re-obtained SBT Initiative certification (1.5°C) Formulated our climate change mitigation and adaptation policy		SEKISUI Medical Iwate Plant was certified as an "Other effective area-based conservation measures (OECM)" by the Ministry of the Environment. Registred as OECM Market 4 Nate Objective Objective Formulated the water resources policy		

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2-1. Oversight and Enforcement System for Biodiversity Issues

[Overview] SEKISUI CHEMICAL Group recognises that natural capital issues, including biodiversity, are as important as climate change in terms of ESG management. With regard to external environmental issues that may pose a risk to management, the same systems and mechanisms are implemented as for handling other important issues (see TCFD Report, "2. Governance").

Biodiversity initiatives need to be implemented specific to each area. In the future, it will be necessary to accelerate the integration of internal and external technology platforms, and to develop a system that enables work to be performed with experts and local authorities to study and implement solutions.

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3-1. Analysis of Risks and Opportunities Related to Biodiversity

[Overview] SEKISUI CHEMICAL Group recognizes its impact and dependence on natural capital, including biodiversity, and analyzes the risks to the Group or society. The same system of risk management for other environmental issues is then used to prevent or reduce the identified risks (see TCFD Report "3. Risk Management").

<Assessing and Managing Management Risks that Include Biodiversity>

The Group carries out risk assessments using scenario analysis with climate change as one of the key axes. As social change towards climate change mitigation and adaptation will have a significant impact on biodiversity and other environmental issues, the impact on environmental issues other than climate change has been assessed and risks re-analyzed since FY2021 (see TCFD Report Table 3). <Assessing and Managing the Opportunities Obtained from Addressing Biodiversity Issues> As with climate change and other environmental issues, the opportunities offered by addressing biodiversity issues are also studied by the Products to Enhance Sustainability Certification Committee and the External Advisory Board. Discussions with intern al committee members and external experts on what contributions can be made with the products and services of the Group, has provided insight into strategies that transform risks into opportunities.

4. Strategies

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[Overview]

Risks associated with biodiversity

The following risks were assessed to ascertain the dependence and influence impact: (i) Dependence of and impact on natural capital by business domain (assessed using the "ENCORE" tool)

(ii) Dependencies and impacts in product life cycle management

(iii) Verification of water risks at production sites

(iv) Verification of dependencies and impacts at production sites (using "Biodiversity Intactness Index (BII)")

(v) Medium- to long-term risk analysis (using scenario analysis)

Strategies developed from risk analysis results

•The results of the risk analysis summarize the Group's dependence and impact on the five impact drivers for natural capital issues as well as the efforts being undertaken to mitigate these risks. Furthermore, seven pillars that need to be launched have been identified to formulated a strategic grand design in order to achieve the Group's goal of "realizing an earth with maintained biodiversity (i.e. realizing Nature Positive)" by 2050.

•By using LEAP analysis for our risks, the impact on natural capital was recognized, countermeasures were implemented, and their effectiveness confirmed. In the future, by conducting this analysis and implementing the PDCA cycle to consider solutions, negative impacts will be reduced and positive impacts toward Nature Positive will be increased.

Consideration of the Impact of Business Activities on Biodiversity With the aim of realizing an earth with maintained biodiversity (that is, Nature Positive), the extent to which SEKISUI's business activities, mainly production activities, have transitioned to management that decouples reduction of environmental impact was examined.

4-1. Risks associated with biodiversity —

<(i) Dependence of and Impact on Natural Capital by Business Domain>

The Group's businesses are positioned in the Residential, Advanced Lifeline, Innovative Mobility, and Life Sciences sectors, and, as the next frontier, the Energy sector. The ENCORE tool was used to assess the impact and dependence of each business on the natural environment during the product life cycle process, from raw material procurement to production, transportation, and construction. The global value chain of the businesses was also considered (Figure 1). An analysis of the impact of raw material procurement and use processes on natural capital and dependence on natural capital was also conducted. Assessment with ENCORE is an analysis by general industry segment, but the following trends for impact and dependence were found. [Company-wide]

In a business domain such as our Group's, the impact is greater than the dependence when looking at the impact and dependence on natural capital.

[Impact on natural capital]

•The impact of terrestrial ecosystem use in terms of resource use is significant in the business domain (residential and advanced lifeline) related to the construction industry which uses land.

•Materials development and manufacturing in the chemical industry are relevant to all business domains for both in-house and supply chain activities. The impact on the use of terrestrial ecosystems and the use of water resources used during manufacturing is particularly significant due to the affect on the land where the manufacturing sites are located. •The trend of greater impact related to greenhouse gas emissions, emissions to the atmosphere and water bodies, and waste is also distinctive. [Dependence on natural capital] The construction and chemical industries are also highly dependent on water resources for materials development and manufacturing.

Based on the above confirmed trends of impact and dependence on natural capital, the impact and dependence on impact drivers in our business activities was reconfirmed.



Figure 1: Dependence and Level of Impact on Natural Capital in the Value Chain

In addition, the dependence on and impact of natural capital in the Group's value chain based on industry segments has been mapped (Table 1). This map further reveals the following:

 The company's business activities impact natural capital over a wide range of areas due to the wide variety of its business domains.
 Of those, the impact of life sciences on natural capital is insignificant, while the impact of construction-related business on natural capital is significant.

2.Downstream in the value chain, many items are attributed to the product's field of use, but the business domain and the stage of use of the product by the customer are also diverse, so the impact on natural capital is as diverse as the company's own business activities as described in 1.

3.Impacts on natural capital upstream in the value chain tend to be greater than the impacts of our business activities.

4.The greater dependence on natural capital generally tends to be attributed to land use. Furthermore, these things will be kept in mind in future company activities and ways to advance returns to natural capital will be considered. For example, in a business that provides chemical solutions, reducing energy and other resource use in the manufacturing process leads to reduced dependence, and reducing emissions to the atmosphere and water leads to smaller impacts.

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Table 1: Impact and Dependence on General Natural Capital in the Industry SegmentsCorresponding to the Group's Business Domains (Assessed Using ENCORE)

<(ii) Dependencies and Impacts in Product Life Cycle Management>

There are opportunities and risks to be reduced by assessing and managing our business risks related to natural capital and tackling the issues. To apply these assessment results to product life cycle management, which is an important part of our business activities as a manufacturer, dependence of and impact on natural capital has been identified as shown below.

(1)Dependence: Natural capital (resources and energy) to be used for each product life cycle process is identified as INPUT.

(2)Impact: Identify OUTPUT (e.g., emissions to the external environment) to natural capital for each product life cycle process.

(3)Assess which biodiversity impact drivers they impact and depend on for each process.

The results are summarized in Figure 2. These results enabled the ascertainment of which processes and activities are effective in reducing our impact on and dependence of biodiversity, and turning management risks related to natural capital into opportunities.

For example, in the product life cycle management of our group's business activities, we have discovered that activities to reduce our dependence on wood resources, which are "plant-derived raw materials" in raw material procurement, lead to the reduction of risks and biodiversity impacts in the use of resources. Additionally, we discovered that reducing emissions (greenhouse gases, waste, wastewater, and air emissions) from manufacturing leads to the reduction of impact on biodiversity caused by climate change and pollution.

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Figure 2: Dependence and Impact of Group Business Activities on Impact Drivers

<(iii) Verification of Water Risks at Production Sites>

With regard to water resources, on which the Group's business activities depend and have an impact, a roadmap toward our goal of "achieving a society with abundant clean water" by 2050 has been created (Figure 3). In FY2020, a business impact assessment of water risks for all of the Group's domestic and overseas production sites (including institutes) was conducted.

This is the second time this assessment has been conducted, following a water risk survey conducted in 2013. Through this assessment, production sites with significant water risks and impacts on the water environment, and regional water risks have been identified, and have been working to address them.

In particular, to identify regional water risks, AqueductWater RiskAtlas 3.0 was used, which is a tool developed by the World Resources Institute (WRI), an international environmental non-governmental organization to assess water risks in various regions of the world. In addition, corrections were made based on information on water use obtained from production sites through individual questionnaires. As a result of these assessments, the number of sites with significant business impact risk and the number of sites with significant environmental impact risk from the drainage basin environment was ascertained (Table 2). Of these sites, five global locations where priority actions should be taken to reduce risk were selected. For these five sites, water risk reduction initiatives have been proposed and promoted in the current mid-term plan.

Conversely, for sites that are not high on the priority list but could be high risk in the mediumto long-term from the perspective of the drainage basin environment, targets will be set for each site based on water use, drainage, and drainage basin information, and initiatives to reduce risks in the future will be considered. In terms of water risks, environmental information about drainage basins and status of production sites will change over the medium- to long-term, partly due to the impact of climate change. Therefore, risk assessments on water resources will be reviewed in each medium-term plan in the future while promoting activities to enhance the sustainability of manufacturing. Table 2: Number of Sites with Significant Business and Environmental Impacts

Production sites with high risk of impacts: Risk assessment from 7 angles (Unit: Sites)

Danger of production cuts and shutdowns due to drought	2
Delay of planned production due to regulations	5
Sales pressure due to water charges	5
Sales pressure due to water charges resulting from change of water source from groundwater	0
Sales pressure due to water intake treatment costs	3
Sales pressure due to wastewater treatment and groundwater costs	4
Impact on employees and production due to site flooding	50

Production sites with high risk of environmental impacts: Risk assessment from 9 angles (Unit: Sites)

Balance between supply and demand of local water	26
Balance between supply and demand of local groundwater	4
Contribute to water recycling at wastewater treatment plants	17
Impact of consuming local water	5
Impact of drawing water from the region	22
Compliance with pumping rates that do not impact the surrounding environment	2
Ascertain groundwater burden and state	8
Comply with wastewater standards	2
Ascertain drainage quality	3



Figure 3: Roadmap to Solve Issues Related to Water Resources

<(iv) Verification of Dependencies and Impacts at Production Sites>

In the product life cycle management at manufacturers, land use of production sites is important in the production process. Thus, to ascertain the management risks related to natural capital, the impact that production sites have on natural capital was identified. The use of land at production sites and any emissions from the sites to the external environment may have a small impact on biodiversity, even if they are in compliance with laws and regulations. If the amount of this impact can be grasped, it can be reduced and guidelines on how much biodiversity needs to be conserved can be obtained, and healthy ecosystem services, such as purification and disaster deterrence functions, can be enjoyed through conservation activities. From this perspective, the Biodiversity Integrity Index* (BII) was adopted as a method to assess the impact of production sites on the natural environment.

*The Biodiversity Intactness Index (BII) is a method proposed by R. J. Scholes et al at the Council for Scientific and Industrial Research (CSIR) in 2005. Global data was published by Tim Newbold et al. at the University College London in 2016. It is calculated based on the extent to which the original biodiversity of an area has decreased in the present day, and enables an assessment of how much the biodiversity of an area has increased or decreased. It was proposed as a practical indicator to assess how much the original population of organisms in an area has declined from its original state due to various environmental factors. The BII data used as the source for this report is based on the division of the entire world into "equally spaced meshes of 0.008 latitude and longitude (about 0.6 to 1.1 km)" and the calculation of the BII values for each mesh. For all of the Group's global production sites, the BII of the site and the surrounding area, including the site, was assessed. The BII of the site was plotted on the horizontal axis, and the ratio of the BII of the site to the BII of the surrounding area was plotted on the vertical axis in a chart to examine the direction of future conservation activities (Figure 4). From Table 3, it can be confirmed how much of a gap there is between the environment related to biodiversity at our sites and the biodiversity of the surrounding area.

[Meaning of each index]

•Site Bll*:Indicates the current biodiversity status of the site.

- •BII of the mesh (lot) containing the site: It will be possible to monitor the current status of the area and the extent to which the ecosystem is changing due to production activities and land modification as a manufacturer.
- •BII around the area including the site: Average BII for an area of about 20 km square (20 x 20 mesh) around the production site.
- •Ratio of BII of the site to BII of the surrounding area (i.e., BII of the base/BII of the surrounding area): Indicates the gap between the abundance of the biodiversity of the site and the abundance of the surrounding biodiversity. If it exceeds one, it can be said that the BII at the site is more abundant than the surrounding BII. Conversely, if it is below one, the BII of the site is considered to be poorer than the surrounding BII.

*BII: Biodiversity Intactness Index





Table 3: Gaps Between the Site and its Surroundings

Zone	Gap between site and surrounding area	Comparison between sites	Direction of future activities based on assessment results
A	Rich in biodiversity compared to the surrounding area	Biodiversity richer than site average	Conserve the current environment so that a wealth of biodiversity is maintained. (e.g. Survey the site ecosystem and implement conservation accordingly)
В	Rich in biodiversity compared to the surrounding area	Biodiversity poorer than site average	Improve the environment of the surrounding area while conserving the site environment. (e.g. Implement conservation initiatives with the community)
с	Poor in biodiversity compared to the surrounding area	Biodiversity poorer than site average	Improve the environment in and around the site (e.g. Introduce to the local community activities to increase on-site tree planting through plant tours and roll-out in other regions)
D	Poor in biodiversity compared to the surrounding area	Biodiversity richer than site average	Improve the environment in the site (e.g. increase planting to create a variety of vegetation)

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For example, the Iwate Plant of Sekisui Medical Co. is located in Zone A. This site was recognized as a Nationally Certified Sustainably Managed Natural Site for the realization of the 30by30 target and is registered in the Other Effective Area-based Conservation Measures (OECM) international database (OECMs are areas contributing to biodiversity conservation outside of protected areas). It is still being actively managed for conservation.



Figure 5: Iwate Plant of Sekisui Medical Co.

Zones C and D, where the Bll of the site/Bll of the surrounding area is less than one and the environment is considered to be poor in biodiversity compared to the surrounding environment, contain many Japanese business sites.

However, in Japan, biodiversity conservation activities have been conducted since 2013 in accordance with the natural environment of each business site using the "JBIB Land Use Score Card®" and the results of these activities is believed to have a positive impact on the environment around the business sites in the future.

In the Asia and China area, where several business sites are located in Zone C, which is not only less biodiverse than the surrounding areas but also has a lower rating than the average of all sites, it is important to continue the activities based on the JBIB Land Use Score Card® that are being promoted in Japan and to promote more ambitious environmental conservation activities at the sites. <(v) Medium- to Long-term Risk Analysis> A scenario analysis based on climate and social change was conducted to analyze mid- to long-term risks.

By setting up an axis for climate change, which is now being scientifically predicted as external environmental change, it was considered how biodiversity would change due to climate change and what impact that would have on natural capital, and reflected this in our social scenarios.

A temperature rise of 4°C or more is likely to increase negative impacts on natural capital, including biodiversity.

On the other hand, if temperature increase is kept below 1.5°C, positive impacts on natural capital should increase.

1.5℃ scenario

Tightened carbon tax / exhaust gas regulations,

accelerated resource circulation, reduced water risk, mitigated impacts on aspects of nature

Scenarios involving various measures taken to control climate change



Scenarios involving preparation for higher temperatures and frequent disasters due to climate change

4℃ scenario

Frequent natural disasters, delayed resource circulation system, increased water risks, increased negative impacts on nature

Figure 6: Changes Related to Biodiversity Expected in Four Visualized Scenario of Societies

4-2. Strategies Developed from Analysis Results

Based on the above four analyses ((i) dependence of and impact on natural capital by business domain, (ii) dependencies and impacts in product life cycle management, (iii) verification of dependencies and impacts at production sites, and (iv) medium- to long-term risk analysis based on scenario analysis), impacts from the Group on five impact drivers has been aggregated and reanalyzed for natural capital issues (Figure 7). Climate change, use of resources (resource circulation), and water use are recognized as drivers (factors) that have a significant impact on corporate activities, and a roadmap to 2050 has been created for each issue to be addressed.

Impact Drivers	INPUT	OUTPUT	Impact Areas	Activities	
Climate Change	• Raw Material use (plastics)	Air emissions	Global warming due to GHG emissions	 Aiming for carbon neutrality, achieving milestones in greenhouse gas emissions from corporate activities, and contributing to the realization of 1.5 degrees or less 	
Resource Use	 Energy resources Water resources Metals/mineral resources Plant derived resources Animal derived resources 	urces ces urces	 Use of paper/wood in products Use of industrial water 	 Based on our resource recycling policy, promoting recycling of resources by converting waste into materials and developing technologies and products that contribute to resource recycling Encourage sustainable wood use by reaching out to suppliers 	
Land/ Freshwater/ Ocean Use	• Land use		Fragmentation of ecosystems at production sites	 Improving the quality of green spaces used in production activities Minimize water withdrawal in the process Reduction of marine plastics through resource recycling design of plastic products 	
Pollution		 Air emissions Emissions into water Waste disposal 	 Impact on watersheds of wastewater from production Illegal disposal after use of plastic products Release of chemicals in the production process into atmosphere 	Minimizing emissions into air and water of chemicals from manufacturing process	
Invasive Alien Species			 Invasion of alien species due to raw material procurement and product transportation 	 Eliminate alien species from green spaces used in production activities Considerations during procurement and transportation 	

Figure 7: List of Initiatives for Each Impact Driver



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With regard to pollution, not only is the amount of chemical substances released into the air and rivers directly controlled and reduced, but also environmental impact assessments using LIME2 are conducted to identify indirect effects on aspects of biodiversity and plant biomass. With regard to invasive alien species, since the start of initiatives at production sites in Japan based on the JBIB Land Use Score Card®, biological surveys have been conducted at several business sites every year with a team of experts, and an extermination manual was created based on the information obtained on invasive alien species. Extermination activities are being promoted using this manual in activities to preserve green areas within business sites.

These activities to reduce impact on and dependence of natural capital will help raise employee awareness of the correlation between environmental issues and encourage them to consider and implement measures that do not involve trade-offs. Through these activities, the Group aims to achieve Nature Positive.

Based on the above, the Group is committed to achieve a planet with conserved biodiversity by 2050 recognizing the impacts on and dependence of biodiversity and based on the below seven pillars from both corporate activities and support for social change (Figure 8). Seven initiatives to realize Nature Positive

- Realizing returns to natural capital by corporate activities
 - (i) Review of manufacturing processes
 - (ii) Review of nature positive product design
 - (iii) Expansion of contribution through products to enhance sustainability
- Supporting returns to natural capital by society
 - (iv) Strengthening efforts in raw material procurement
 - (v) Support for social change
- Activities to accelerate the two returns
 - (vi) Human Resources Development
 - (vii) Stakeholders collaboration

Of the seven initiatives, the TCFD Report (p29-31) introduces the "(vi) Human Resources Development" initiative to develop human resources with a superior ability to contribute to solving social issues, such as climate change, resource circulation, and other environmental issues.

In the pages herein, the "Innovation Inspired by Nature" research support program, which is one of the activities in "(v) Support for social change", and "activities to conserve green spaces at our business sites", which is one of the activities in "(vii) Stakeholders collaboration", will be introduced.



Figure 8: SEKISUI Biodiversity Grand Design

[Reference 1]

Example of "(v) Support for social change": "Innovation Inspired by Nature" Research Support Program

In 2002, the SEKISUI CHEMICAL Group began supporting innovative basic research that learns from nature and practical application research that solves social issues. Since then, we have handed out research grants (Figure 9) and conducted researcher exchange forums for more than 20 years. To learn the form and function of living organisms, creatures, minerals, and things found in nature, and to create harmless, useful materials. To introduce environmentally-friendly production processes that follow the mechanisms of living organisms and nature in which manufacturing is practiced. This is based on the principle that these efforts will lead to the formation of a sustainable society that will last for the next hundred or thousand years.

As of March 31, 2024, a cumulative total of 306 projects have been funded under this concept. Currently, up to 3 million yen and 5 million yen per manufacturing theme and basic research theme, respectively, are being invested for a total grant amount of 25 million yen per year. Targeted themes include energy, environment, new materials development, and life sciences, and many will lead to reducing the impact on biodiversity.

In sum, an analysis was conducted to determine the percentage of contribution that these research grant themes could make to reducing negative or increasing positive impacts among the five biodiversity impact drivers (Figure 10). As a result, 129 grant themes were determined to have the potential to contribute to reducing negative or increasing positive impacts on biodiversity. Furthermore, several themes were identified where a single grant theme contributed to multiple impacts.

The most common related impacts were climate change and resource use. Below are examples of themes associated with each impact. These results suggest that these grants are making a multifaceted contribution to the development of technologies and engineers to make a positive impact on biodiversity. As the importance of this concept continues to be developed, technologies and product examples such as those shown in Figure 11 have emerged.

These grants will continue to be provided and also continue to encourage society to make a positive impact on natural capital.

Climate Change: (Grantor Affiliation: The University of Tokyo) "Regulation of Photofunctions of Polyphyllin J Aggregates as Learned from the Light-Harvesting System of Photosynthesis" Land, freshwater, ocean use: (Grantor Affiliation: Nagoya University) "Creation of Groundwater Purification Systems as Learned from Soil-microbe **Respiration Systems**" Resource use: (Grantor Affiliation: The University of Tokyo) "Establishing Concrete Recycling Technology by Learning from the Formation Process of Sedimentary Rocks" Invasive alien species: (Grantor Affiliation: National Institute of Technology (KOSEN), Wakayama College) "Biomineralization Mechanisms for **Approaching Resilient Eelgrass Beds** Conservation" Pollution: (Grantor Affiliation: The University of Electro-Communications) "Development of Pest Control and Crop **Promotion Methods Using Vibration** Responsiveness of Organisms"

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Figure 10: Percentage of Targeted Impacts Among the Themes that Affect Biodiversity Impact (in the "Innovation Inspired by Nature" Research Support Program)



Figure 9: Awards Ceremony for the "Innovation Inspired by Nature" Research Support Program (October 2023)

[健康寿命の延長に貢献]



Figure 11: Examples of Product Development Innovation Inspired by Nature

[Reference 2]

Example of "(vi) Human resources development" and "(vii) Stakeholders collaboration": Conservation of forests registered in 30by30

The Group registered the lwate Plant of Sekisui Medical Co. as a forest that falls under the OECM's 30by30 initiative.

As part of the initiatives to use the "JBIB Land Use Score Card®", biological surveys to confirm that the property is worthy of this registry were conducted.

The benefits of conserving these forests were analyzed using the "Work Manual for Assessment and Calculation of Ecosystem Services Related to Company Biodiversity Conservation Activities (Trial Version)" published by the Ministry of the Environment in March 2019, and calculated as the economic impact. Using this calculation method, it was found that the forests within the lwate Plant generate benefits with an economic value equivalent to 120 million yen per year. In particular, this forest has been found to provide disaster control functions, such as flood prevention, sediment run-off prevention, drainage basin storage, and slope failure prevention; that is, outcomes that also contribute to climate change adaptation for the local population (Table 4). It was also confirmed that it produces outcomes that can be considered biodiversity and ecosystem services, such as biodiversity

Table 4: Benefits of Biodiversity Preservation Activities

Benefits		Stakeholders:	Outcomes		
			Initial outcomes	Long-term outcomes	
Disaster control	Flood prevention	Residents	Improve rainwater penetration capacity	Improve flood protection functionality	
	Sediment runoff prevention	Residents	Development of understory vegetation	Improve sediment runoff prevention functionality	
	Basin storage	Residents	Improve rainwater storage capacity	Improve water source recharge functionality	
	Slope collapse prevention	Residents	Soil movement control	Improve slope collapse prevention functionality	
Biodiversity conservation value		Unspecified majority	Improve habitats for diverse organisms	Conserve forest biodiversity	
Water purification		Residents	Microbial activation	Improve water purification functionality	
Carbon fixation		Unspecified majority	CO ₂ absorption	Mitigate climate change	
Air purification		Residents	NOX & SOX absorption	Air purification	



Figure 12: Economic Impacts of Biodiversity Conservation Activities

Invasive Alien Species Mitigation Manual (Example) conservation value, water purification, carbon fixation, and air quality purification. Figure 12 uses a tree map to show the magnitude of the economic impact of each benefit. As an activity to increase points in the JBIB Land Use Score Card[®], plant surveys of invasive alien and conservation species have been conducted since FY2013. In 2022, the Iwate Plant created a manual for the control of invasive alien species, such as the cutleaf coneflower, the

black-eyed Susan, and the black locust, which are selected by the Ministry of the Environment in the "Alien Species List that May Damage the Domestic Ecosystem" and are carrying out extermination activities (Figure 13). It can be seen that the conservation activities over the past 11 years have brought more than 1.3 billion yen in benefits to society. And the future conservation of these forests is expected to bring an additional 700 million yen in benefits to society by 2030, and more than 3 billion yen in benefits to society by 2050. Although forest conservation efforts require man-hours and costs, they are considered to be very important activities for production sites considering the benefits they bring to society. The forest conservation activities will continue to realize Nature Positive while taking into

consideration the benefits to society.

[Reference 3]

LEAP Analysis

Four examples will be used based on LEAP analysis to illustrate the relationship between the Group's business activities and biodiversity (natural capital) and measures to reduce risks and convert them into opportunities. (Figure 14)

Among the group's business activities that affect or depend on biodiversity, examples that are believed to have large impacts are highlighted. Additionally, in "A:ASSESS", the impact on both the ecosystem and the company were analyzed. The use of LEAP analysis has enabled the ecological impact and the impact on our business activities in some of our operations and initiatives to be recognized, and to implement measures and confirm the effectiveness of these measures. In the future, by conducting this analysis and implementing the PDCA cycle to consider solutions, negative impacts will be reduced and positive impacts toward Nature Positive will be increased.

*LEAP analysis: A process proposed by the Task Force on Nature-related Financial Disclosures (TNFD) to systematically assess nature-related risks and opportunities on a scientific basis.

The acronym LEAP stands for Locate, Evaluate, Assess, and Prepare.



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4-3. Consideration of the Impacts of Business Activities on Biodiversity

Various factors are considered to have impact on biodiversity in the Group's business activities. With the aim of realizing an earth with maintained biodiversity (that is, Nature Positive), the extent to which SEKISUI's business activities, mainly production activities, have transitioned to management that decouples reduction of environmental impact was examined (Figure 15).



Enhancing business sustainability through circulation

Figure 15: Impact Paths Based on Environmental Indicators of Business Activities Affecting Biodiversity* "SEKISUI Decoupling Nature Model"

*Impact path: Pathways through which corporate activities impact on the company's future finances.
For four of the five impact drivers that impact biodiversity, with the exception of invasive alien species, the decoupling of environmental impact indicators with respect to production was verified by comparing the increase or decrease to FY2019, the benchmark year for greenhouse gas emissions, in accordance with the re-setting of the 1.5°C target. The results are shown in Figure 16.

The decoupling of greenhouse gas emissions and waste emissions from business activities was confirmed for changes in production volume. Put simply, it reduces the negative impact on natural capital, independent of the amount of production. On the other hand, it was confirmed that production has not yet been decoupled in terms of the amount of raw materials used (plastics) and energy consumption. The need for decoupling of each of these items was reconfirmed and a shift to strategic management was found to be necessary to achieve the long-term goals of each environmental issue.

In the current mid-term plan (2023-2025), these analysis results have been taken into account and action items have been set.



Figure 16: Confirmation of Decoupling of Production Activities and Environmental Impacts Affecting Biodiversity

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[Overview]

SEKISUI CHEMICAL Group has set the following three indicators and is monitoring progress with the aim of realizing an "earth with maintained biodiversity" as set out in the long-term environmental vision for 2050:

1) Rate of return on natural and social capital

2) Rate of return on biodiversity

3) Rate of return on plant biomass

In the future, targets and management indicators will be set for use of resources and land, which are important impact drivers, in order to reduce negative impacts and expand positive impacts.

In its current medium-term plan (2023-2025), the Group will pursue the seven initiatives described in "4-2. Strategies Developed from Analysis Results." Particularly important management indicators and targets for representing the progress of these initiatives are listed below (Table 5).

The first step is to shift from initiatives that

have already been launched to activities that take biodiversity (natural capital) into consideration, and to consider ways to reduce negative impacts on natural capital. At the same time, the impact and dependence on natural capital will be reviewed and key aspects that need to be addressed will be identified.

KPI		Rate of return on natural and social capital from corporate activities	Rate of return to the important aspects of nature	Procurement policy penetration rate among suppliers	Scores for the quality of green space at business sites using the Land Use Score Card®	Monetary support for society's natural capital return activities		
Impact drivers to be evaluated		Four impact drivers other than invasive alien species	Four impact drivers other than invasive alien species	Resource Use	Land use	Five impact drivers		
Links with the seven initiatives		(i) (ii) (iii) (vi)	(i) (ii) (iii) (vi)	(iv) (vii)	(i)	(v)		
Target	2025	95% or more	Set baseline	100% penetration rate	+3 points (compared to 2022)	Expand (compared to 2022)		
	2030	100% or more	Reducing negatives	Sustainable procurement	—	_		
	2050	Maintain 100% or more	Turn to positive	_	—	—		

Table 5: Management Indicators and Targets for Biodiversity

*7 initiatives: (i) Review of manufacturing processes (ii) Review of nature-positive product design

(iii) Expansion of contribution through products to enhance sustainability

(iv) Strengthening efforts in raw material procurement (v) Support for social change

(vi) Human resources development (vii) Stakeholders Collaboration

5-1. Rate of Returns to Natural and Social Capital by Corporate Activities and Rate of Returns to Narrowly Defined Nature Aspects

Rate of returns to natural and social capital by corporate activities (= SEKISUI Environmental Sustainability Index): 106.0% Rate of returns to the impact regarding the aspect of Nature • Rate of returns to biodiversity: 30.5% • Rate of returns to plant biomass: 50.4%

In the environmental long-term vision "SEKISUI Environment Sustainability Vision 2050", our Group aims to realize "an earth with maintained biodiversity". For this reason, initiatives that utilize the net positive* concept regarding ecosystems are promoted (see Figure 8, p55). *Net positive:Refers to a situation in which the benefits of alternative biodiversity measures outweigh the loss of biodiversity.

As an integrated index for confirming the degree of progress toward the environmental long-term vision, the rate of return to natural and social capital is calculated as the "SEKISUI Environmental Sustainability Index".

In FY2023, the rate was 106.0%, maintaining the rate above 100%. However, this is 21.3 percentage points less than in FY2022. This is related to factors associated with the database changes discussed herein.

Until FY2022, the rate of return was calculated using MiLCA ver 2.1. From FY2023, the calculations will utilize MiLCA ver 3.1, which was updated in conjunction with the update to IDEA ver 3.1. This updated version improves the accuracy of data on impacts on biodiversity, including impacts from chemicals and land use. The updated database will help us to be even more aware of the impact of our efforts in the future.

Rate of return to natural & social capital FY2022: 127.3% (using MiLCA ver 2.1) FY2022: 100.1% (using MiLCA ver 3.1)

From FY2023, the latter will be used as a baseline to assess and confirm the growth in returns.

Calculation method

Using the LCA calculation system MiLCA, which utilizes the LIME2 concept, the negative and positive impacts of the Group's corporate activities on natural and social capital were calculated as a rate of return using the following formula: Rate of return to natural and social capital (%) = (Return to natural and social capital / use of natural and social capital) x 100

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SEKISUI Environment Sustainability Index (2023)

Figure 17: Rate of Returns to Natural and Social Capital by Corporate Activities

For "Returns to nature and social capital" in Figure 17. the impact on plant biomass (primary plant production) and biodiversity (number of extinct species of organisms) is ascertained and monitored as the impact (rate of return) on natural capital. The rates of return to plant

biomass and biodiversity are shown in Figure 18. Both have yet to reach rates of return of 100% or more, but corporate activities toward Nature Positive by addressing environmental issues such as climate change and resource circulation are steadily implemented.





The database has been updated to include larger impact factors for environmental impact assessments related to biodiversity and plant biomass aspects. Therefore, the change from FY2022 to FY2023 includes the impact of the changes to the database. However, it is clear that the rate of return for these two aspects has not yet reached more than 100%.

Activities to reduce negative impacts on land use will continue by improving the quality of green spaces at production sites and biodiversity considerations in town and

community development projects. They also have the benefit of reducing pollution and negative impacts on resources through products to enhance sustainability that support technological advances in IT equipment. Although these rates of return are positioned to show the impact on natural and social capital. including biodiversity, the assessment methodology does not allow for an assessment of the impact on invasive alien species, which is one of the impact drivers. It is also an average rating, rather than a rating for each area in

which the Group operates. It is recognized that the return on impact is not sufficient even for the net-positive approach, but that it is necessary to consider the return when segmented by area. Recognizing this, the Group will strive for a comprehensive understanding of risks, and will also consider methods and indicators to directly assess key impacts moving forward.

5-2. Other Relevant Indicators –

Of the key impact drivers currently identified, the penetration of the procurement policy for suppliers is considered to be important for the use of resources, and have set a penetration rate and are working to confirm it.

In manufacturing, land use is another impact driver that is directly influenced by production sites. Activities that serve as ecological bridges to avoid fragmenting the habitats of local flora and fauna are ongoing. The improvement of the state of the land is measured by the increase in points in the JBIB Land Use Score Card® used in this activity.

Furthermore, as shown in Figure 8, SEKISUI Biodiversity Grand Design, in Chapter 4-2, the Group considers it important not only to work towards returns to natural capital through its corporate activities, but also to support returns to natural capital by society.

The "Innovation Inspired by Nature" research support program, which has been ongoing

since 2002, is an example of supporting activities for social change.

The program provides grants to researchers for the development of biomimicry technology, believing that learning from the wisdom of nature will lead to the realization of a nature-positive society. By providing this grant to researchers outside the company, a cumulative total of 306 (as of the end of March 2024) technological developments have been supported.

The setting of indicators and other measures to stimulate such activities will be considered in the future.

In addition, water risk assessments have already been performed in the areas where SEKISUI conducts business activities. In the future, water risks will also be assessed and examined according to their importance, including how they impact on the biodiversity of drainage basins.

KPI		Procurement policy penetration rate among suppliers	Scores for the quality of green space at business sites using the Land Use Score Card®	Monetary support for society's natural capital return activities
Impact drivers to be evaluated		Resource Use	Land use	5 Impact drivers
Links with the seven initiatives		(iv) (vii)	(i)	(V)
Target	2025	100% penetration rate	+3 points (compared to 2022)	Expand (compared to 2022)
	2030	Sustainable procurement	_	_
	2050	_	_	_

Table 6: Management Indicators and Targets for Biodiversity (Excerpt)

6. In Closing

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SEKISUI CHEMICAL Group's aim to realize Nature Positive is the same as that set out in our long-term environmental vision, which is to "realize an earth with maintained biodiversity"; in other words, to maintain a return on natural and social capital of at least 100%. Therefore, the Group endorses the approach of the TNFD Forum and joined the Forum in July 2023, and registered as a TNFD Adopter in January 2024 to express its willingness to disclose information in accordance with the TNFD recommendations.

Recognition of dependence and impact on natural capital was advanced by proceeding with the following five analyses:

- (i) Dependence of and impact on natural capital by business domain (assessed using the "ENCORE" tool)
- (ii) Dependencies and impacts in product life cycle management
- (iii) Verification of water risks at production sites
- (iv) Verification of dependencies and impacts at production sites (using "Biodiversity Intactness Index (BII)")
- (v) Medium- to long-term risk analysis (using scenario analysis)

The challenge for the future is to integrate the information from these analyses, be conscious of correlations, and promote integrated risk management for natural capital that is not traded off against other environmental issues.

In LEAP analysis, it is believe that the results of water risks, BII, and other assessments can be comprehensively used to obtain ideas for more effective management. These analyses will identify regions and issues to be addressed, determine priority areas in the value chain, and promote more practical activities to solve issues related to natural capital.

SEKISUI CHEMICAL Group is expanding its products and businesses that contribute to solving social issues. However, on the other hand, SEKISUI has not yet necessarily had a positive impact on global environmental issues or on the regions in which the Group operates. The assessment of recognized risks, particularly climate change issues, will begin in FY2019 and will be published from FY2020 via the TCFD report and updated annually. The recognition of risks, particularly biodiversity issues, has been confirmed through a review of current dependencies and impacts and the positioning of existing initiatives since FY2022 and reported via the TNFD report.

Furthermore, in FY2023, progress was made in recognizing the risks that companies pose to the external environment and the risks that the external environment poses to companies through various new assessments and analyses from the perspective of biodiversity by clarifying dependencies and impacts. Keeping in mind the double materiality in environmental issues, such as climate change and biodiversity, it is believed that formulating and promoting measures and strategies to mitigate risks and convert them into opportunities can improve corporate sustainability and solve social issues such as environmental challenges.

In the current medium-term management plan (2023-2025), solutions to multiple environmental issues will be considered and implemented that do not result in trade-offs.

This attitude will lead to the simultaneous realization of the goals set out for all environmental issues; that is "achieving carbon neutrality" for climate change issues, and "realization of an earth with maintained biodiversity" for biodiversity issues.

The Group will continue to promote initiatives to achieve our long-term goals.