
Disclosure Report in Response to TNFD and TCFD Recommendations

June 2024

LIXIL

Introduction: LIXIL's Impact and its Environmental Strategy

At LIXIL, we are scaling our positive impact for the environment and society, and our business serves as the foundation of our sustainable growth and value creation. Driven by LIXIL's Purpose to *make better homes a reality for everyone everywhere*, our commitment to impact extends beyond our ESG obligations.

LIXIL's Impact strategy includes Water Conservation and Environmental Sustainability as one of its strategic pillars, and six material issues:

- **Climate Change Mitigation and Adaptation**
- **Water Sustainability**
- **Circular Economy**
- **Environmental Impact of Product Lifecycle**
- **Environmental Management**
- **Conservation of Biodiversity**

The LIXIL Environmental Vision 2050 formulated in FYE2020 declared a commitment to “Zero Carbon and Circular Living” We have set and established Climate Change Mitigation and Adaptation, Water Sustainability, and Circular Economy in the above material issues as the three focus areas for realizing the vision. As a springboard for promoting these focus areas, we have been working to reduce our environmental burden across the product lifecycle and to strengthen our company-wide environmental management. LIXIL is also advancing initiatives to conserve biodiversity, which also serves as a common foundation for the three focus areas.

By 2050, we aim to achieve net-zero carbon emissions and preserve water and natural resources in our operations, housing and lifestyle solutions for future generations.

The infographic consists of three vertically stacked items, each with a colored circular icon, a bold title, and a descriptive subtitle, followed by a horizontal bar of the same color. 1. A green circle icon is followed by the title 'CLIMATE CHANGE MITIGATION AND ADAPTATION' and the subtitle 'Achieve Net-Zero GHG Emissions through Our Business Operations, Products and Services'. 2. A blue circle icon is followed by the title 'WATER SUSTAINABILITY' and the subtitle 'Enhance the Environmental Value of Water Resources by Saving, Circulating and Purifying Water'. 3. A yellow circle icon is followed by the title 'CIRCULAR ECONOMY' and the subtitle 'Help Transition to a Circular Economy and Preserve Natural Resources for Future Generations'.

For more information: [Water Conservation & Environmental Sustainability](#)

As a maker of water and building technologies, LIXIL is not only committed to reducing its CO₂ emissions, but contributing to society through its efforts to tackle environmental challenges.

In FYE2023, we revised our environmental strategy as part of our responsibility to reduce our environmental burden, and in delivering greater impact for the planet and the way people live. In our updated strategy, we set new qualitative and quantitative mid-term targets divided into three phases: Our Operations, Our Value Chain, and Expanding Our Impact. LIXIL's approach goes beyond fulfilling its corporate responsibilities, but outlines a comprehensive approach to create and maximize its social and environmental impact, encompassing both the present and future.

For more information: [Targets and Initiatives](#)

* “2030” and “2050” in this document refers to our fiscal year, starting in 2030 or 2050.

Disclosure of Environmental Issues, Including Climate Change, Natural Capital and Biodiversity (In Response to the TCFD and TNFD Recommendations)

In March 2019, we announced our endorsement of the Task Force on Climate-related Financial Disclosures (TCFD). In January 2024, we registered as a TNFD Early Adopter, expressing our intent to adopt the Task Force on Nature-related Financial Disclosures (TNFD) recommended framework in our disclosures starting FYE2024. Based on the TNFD recommendations, LIXIL has identified and assessed the risks and opportunities posed by climate change, loss of natural capital and biodiversity. The assessment has been reported to LIXIL's Board of Executive Officers and the Board of Directors for their approval and oversight to further reflect the findings in our environmental strategy.

1. Governance

a. Board's Oversight TCFD TNFD

At LIXIL, we are transforming our business operations to secure corporate growth and sustainable value creation, to enhance our impact on society and the environment. This transformation for impact requires that we build an effective governance structure that is crucial for identifying risks and opportunities, tracking against our targets and metrics, and monitoring our progress.

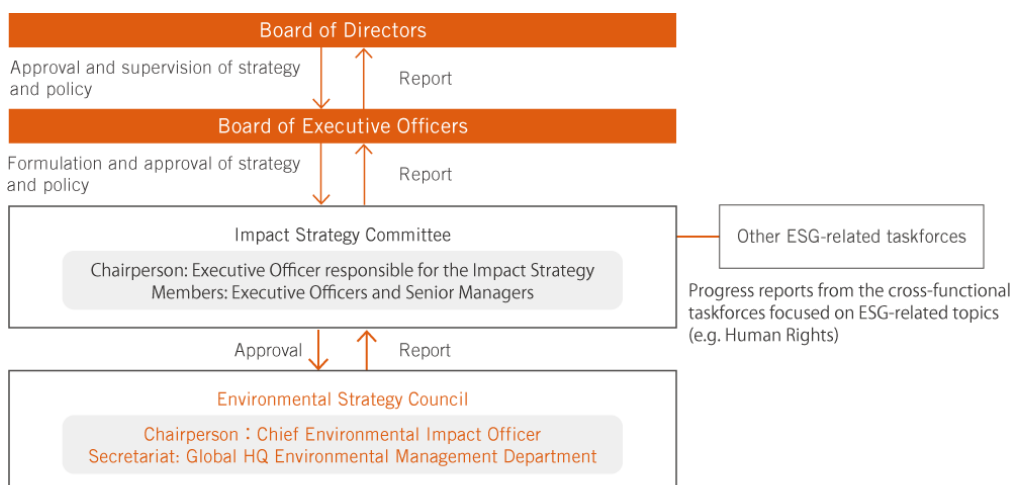
LIXIL's has built a governance framework for sustainability related matters with the Board of Directors oversight. Matters related to the environmental strategy, including targets, action plans and progress are discussed and approved by the Board of Executive Officers and are reported to the Board of Directors every quarter for discussion and oversight. Additionally, matters related to climate change, loss of natural capital and biodiversity, among other environmental topics are reported to and discussed at the Governance Committee entirely composed of outside directors for corporate governance monitoring and oversight.

LIXIL has also established the Environmental Strategy Council (ESC) chaired by the Chief Environmental Impact Officer, who is appointed by the Board of Executive Officers. Composed of members appointed by executive officers, the ESC meets six times a year in principle, to formulate rules and policies related to environmental governance, to deliberate on measures to address climate change, natural capital and biodiversity loss, among other environmental topics; including their risks and opportunities, and to manage and monitor progress toward achieving LIXIL's environmental targets at an enterprise level. The results of ESC discussions are resolved through the Impact Strategy Committee and reported to the Board of Executive Officers quarterly. The Board of Executive Officers discusses and approves targets and action plans on environmental and other material issues. They then report to the Board of Directors twice a year for discussion and oversight.

In FYE2024, the ESC discussed and decided on formulating a transition plan to achieve CO₂ emissions reductions by 2030, and to apply to the Science Based Targets initiative (SBTi) for LIXIL's 2050 net zero emissions target*¹ verification, and to commence analysis of biodiversity based on the TNFD framework and recommended LEAP approach.

*¹ 90% reduction in Scope 1, 2, and 3 greenhouse gas emissions by 2050, with up to 10% residual emissions reduced to zero through carbon removal

Environmental Management Structure



As of April 2024

Meeting period	Main ESC agenda
FYE2022	<ul style="list-style-type: none"> • Reorganize the ESC into a body that includes executive officers for the purpose of strengthening environmental governance and building and implementing environmental strategies • Raise our targets for reducing CO₂ emissions in the run up to 2030 • Report on implementation and progress against TCFD recommendations
FYE2023	<ul style="list-style-type: none"> • Formulate an environmental strategy designed to enhance potential social and environmental impact • Determine water and circular economy targets for 2030 • Addition of Conservation of Biodiversity as a material issue
FYE2024	<ul style="list-style-type: none"> • Formulate a transition plan to achieve CO₂ emissions reduction targets by 2030 • Application for SBTi approval of LIXIL's 2050 net-zero target for CO₂ emissions • Commencing LEAP approach in line with the TNFD framework

b. Roles and Responsibilities of Directors and Executive Officers TCFD TNFD

Currently, the Board of Executive Officers appoints a chairperson to each organizational body as follows.

Organizational body	Chairperson
Environmental Strategy Council	Senior Vice President, Chief Environmental Impact Officer
Impact Strategy Committee	Director, Representative Executive Officer, Human Resources, Communications, External Affairs, and Impact Strategy, and Chief People Officer

Each chairperson is responsible for implementing the decisions made in their organizational body and in managing progress. Executive officers in charge of individual businesses implement and monitor business-specific plans. The Chief Executive Officer is ultimately responsible for management decisions related to environmental issues, including risks and opportunities associated with climate change and loss of natural capital and biodiversity, through discussions and resolutions of the Board of Executive Officers and their oversight by the Board of Directors.

For more information: [Environmental Management System](#)  [Corporate Governance Structure](#) 

c. Human Rights and Stakeholder Engagement TNFD

LIXIL recognizes that environmental issues, including the loss of natural capital and biodiversity, are deeply connected to human rights and local communities. For example, improper management of the environment at raw material procurement sites may lead to the degradation of ecosystem services that surrounding communities depend on, which in turn puts pressure on the livelihoods of its people. Recognizing this link between human rights and environmental issues including natural capital and biodiversity loss, the LIXIL Human Rights Principles asserts our commitment to build our business activities on the fundamental respect for human rights.

The LIXIL Human Rights Principles were founded in line with international standards, including the International Bill of Human Rights, the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, and the United Nations (UN) Guiding Principles on Business and Human Rights. Guided by these principles, we work to uphold the human rights of all our stakeholders: our customers, business partners including suppliers, the people in the communities surrounding our factories and offices, and our employees.

For more information: [Human Rights](#)  [LIXIL Human Rights Principles](#) 

In addition to the established LIXIL Human Rights Principles, LIXIL has identified key human rights issues with that could have serious effects as its Human Rights focus areas for mitigating potential human rights risks. By continually addressing such

issues, LIXIL is working to strengthen its human rights due diligence process.

Our governance structure for human rights is led by the executive office in charge of legal, compliance and corporate auditing to strengthen and ensure strict adherence to our human rights due diligence process. The Human Rights Due Diligence Task Force discusses the implementation of human right due diligence and exercises transparency in our reporting. As with environmental issues, the outcome of these discussions is reported to the Board of Executive Officers through the Impact Strategy Committee, and the Board of Directors oversees their progress.

We also spare no effort to engage our stakeholders in dialogue on human rights issues connected to our business activities, including our employees and customers, suppliers and other business partners, shareholders and investors, and people living in the local communities where we operate. We make sure to respect local cultures and customs for the people living in the local communities where we operate by fulfilling our responsibilities to employment and production. As a corporate citizen, we seek to coexist in harmony and contribute to local communities.

For more information: [Stakeholder Engagement](#) 

We also require our suppliers and other business partners to comply with applicable laws, and to act in respect for human rights and for ethical conduct in accordance with our Supplier Code of Conduct. Along with upholding employees' human rights, the Code of Conduct prohibits activities that could lead to the destructing of the basic foundations of life through environmental pollution or unlawful eviction of land rights and requires that their activities do not adversely affect the local communities where we operate.

For more information: [Supplier Code of Conduct](#) 

2. Strategy

2.1 Analysis of Climate- and Other Environment-related Risks and Opportunities TCFD

a. Identifying Risks and Opportunities TCFD

LIXIL has conducted scenario analyses for over the short-, mid- and long-term to identify the risks and opportunities posed by climate change that could significantly effect its business as outlined below. Risks and opportunities were categorized into transition risks (e.g., policy and legal, and market) and physical risks (e.g., extreme weather events) that could affect our value chain and society.

Classification	Period	Background
Long-term	10-30 years	Term ending in 2050 goal to achieve LIXIL Environmental Vision 2050
Mid-term	3-10 years	Term ending in 2030, a target year of the Science Based Targets initiative and the SDGs. A mid-term milestone for achieving the LIXIL Environmental Vision 2050
Short-term	0-3 years	Term ending in 2025, when environmental initiatives will be promoted in alignment with business plans

Our scenario analysis is based on the following two scenarios, selected from several scenarios published by the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC).

Scenario Name	Scenario Overview	Source
1.5°C scenario ^{*1}	<p>Scenario with significant policy transition effects that aligns with the Paris Agreement’s goal of limiting temperature rise to 1.5°C above pre-industrial levels</p> <p>Environmental regulations will be tightened and the introduction of carbon taxes and other taxes will cause energy and raw material prices to rise. On the one hand, Energy regulations and expanded subsidy programs will increase the share of Net-Zero Energy Houses (ZEH) among new houses in Japan and will also stimulate remodeling to improve existing housing performance. The impact of this will be an increased demand for products and services that provide high thermal insulation and energy efficiency and generation.</p>	<p>RCP2.6</p> <p>IEA SDS</p> <p>IEA NZE</p> <p>RCP4.5</p> <p>NDCs</p>
4°C scenario	<p>Scenario where environmental regulations are not tightened and physical effects are large</p> <p>Environmental regulations will not be tightened, energy efficiency-related subsidies will not be expanded, and the percentage of ZEH will not significantly increase. Physical risks such as damage to manufacturing facilities caused by typhoons, floods, and other extreme weather events will increase. Moreover, demand for products and services related to disaster preparation, response, and recovery will increase.</p>	<p>RCP8.5</p>

^{*1} Parameters based on the 2°C scenario were used when parameters based on the 1.5°C scenario were not available.

b. Impacts of Risks and Opportunities Identified in the Scenario Analysis TCFD

The following table outlines the risks and opportunities with significant effect on our business, identified in the scenarios described above. In 2022, we quantified the financial impact of these risks and opportunities to our business in 2030 to the greatest extent possible. In FYE2023, we expanded our strategy to include our initiatives in water and resources associated with climate change.

Risks and opportunities relating to climate change and other environment issues		Risk and opportunity category	Impacted stage of value chain	Time horizon	Estimated financial impact		
					1.5°C scenario	4°C scenario	
RISKS	1	Increased operating costs due to introduction of carbon taxes	Policy and Legal, Technology	Direct operations	Mid to long	10 billion yen* ¹	No additional tax burden
	2	Increased raw material and component procurement costs due to market changes	Policy and Legal, Technology, Market	Direct operations, Upstream	Mid to long	Financial impact not calculated due to lack of parameters necessary for quantification	
	3	Loss of revenue opportunities due to damage to the company's plants caused by typhoons, floods, etc.	Physical (acute)	Direct operations	Short to long	1.5 billion yen* ²	
	4	Loss of revenue opportunities due to the suspension of operations at the company's plants caused by drought, etc.	Physical (chronic)	Direct operations	Short to long	Financial impact not calculated due to lack of parameters necessary for quantification	
OPPORTUNITIES	5	Increased demand for energy saving products and services for new ZEH construction and energy-efficiency remodeling	Products and Services, Market, Energy Source	Downstream	Mid to long	20 billion yen* ³	Maintain current trends
	6	Increased demand for using low-carbon, eco-conscious materials or resources	Products and Services, Markets, Resource Efficiency	Downstream	Mid to long	Financial impact not calculated due to lack of parameters necessary for quantification	
	7	Increased demand for products related to disaster preparation response, and recovery	Products and Services, Markets, Resilience	Downstream	Short to long	Financial impact not calculated due to lack of parameters necessary for quantification	
	8	Increased demand for products that help conserve water or improve water quality	Products and Services, Markets, Resource Efficiency	Downstream	Mid to long	Financial impact not calculated due to lack of parameters necessary for quantification	

*¹ Financial impact calculation is based on the assumption that a carbon tax (using IEA's estimates of carbon prices considered necessary to achieve the 1.5°C target) is imposed on Scope 1 and Scope 2 carbon emissions.





*² Average loss is calculated based on the following steps: (1) identified production sites with flood risks (based solely on production site location; risk mitigation measures set forth in our business continuity plans (BCP) are not incorporated), using the World Resources Institute's (WRI) Aqueduct Floods tool and hazard maps provided by Japanese municipalities; and (2) multiplied two factors: the number of days of stalled operations for sites in each inundation height zone indicated in Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Manual for Economic Evaluation of Flood Control Investment; and the daily production volume of each site.

*³ Profit is calculated based on the share, price, and profit margin of key products. This calculation assumes an increased ZEH percentage of new and existing housing in 2030 to achieve the Japanese government's 66% reduction target for the residential sector by 2030.

c. Strategic Response to Risks and Opportunities TCFD





By integrating our responses to risks and opportunities identified by the scenario analysis into our environmental strategy, we are working to mitigate risks, achieve sustainable growth, and enhance our resilience as an enterprise.

More specifically, we have set out to improve the profitability of our Japanese business, which is one of our strategic initiatives in the LIXIL Playbook that illustrates our mid-term business direction, and in helping to decarbonize housing through performance enhancements. To do this, we are reorganizing our production systems to reduce fixed costs and switch to platform-based products, adjusting sales prices to increase productivity and profitability of our Japanese business, and this includes the timely launch of new products. Our window line-up revamp is one example. We are responding to external changes flexibly, we are continually working on structural reforms and transforming into a more agile organization, achieving sustainable growth through the expansion of our renovation business. As a result of these initiatives, we completed developing the product platform for our housing technology business in FYE2022 and finished revamping all of our window-series products. In FYE2023, we updated the LIXIL Playbook to include the embedding of the environmental strategy into our business as a key strategic initiative. By continuing to incorporate our environmental strategies into our business, we aim to improve our corporate value while expanding our impact on society and the environment.

Key risks and opportunities	Strategic response
<p>1 Increased operating costs due to introduction of carbon taxes</p>	<p>To reduce CO₂ emissions from our business sites (especially manufacturing sites), we are working to improve production efficiency, defect rates, combustion efficiency and upgrading our equipment that meet Japan's Top Runner energy efficiency standards. We are also installing solar photovoltaic systems and increasing procurement of renewable energy when financially feasible, and we are a member of RE100, a global initiative of companies committed to sourcing 100% renewable electricity for their operations.</p> <p>We have switched all plants and distribution centers for faucet fittings (10 locations in total) at LIXIL International, which oversees all our water-related business outside of Japan, to 100% renewable energy. Six plants in Japan have switched to renewable electricity through on-site Power Purchase Agreements (PPAs). Outside of Japan, nine plants have switched through on-site PPAs and four plants through off-site PPAs. Going forward, we will continue to actively consider introducing renewable energy through PPAs and other models that offer high additionality. Furthermore, over 70% of our offices in Japan, including sales bases and showrooms, have already completed the switch to renewable energy.</p> <p>As part of our contribution to achieving a carbon-neutral society, we have been working on innovations that incorporate new technologies, such as the conversion to hydrogen fuel and the exploration of CCU technology to separate, capture, and effectively utilize CO₂ emissions. We are also continuing to study their practical applications from 2030 onward. As part of our efforts to this end, we are consistently verifying manufacturing technologies with a view to switching to hydrogen fuel. We conducted hydrogen combustion experiments to verify the high-temperature furnaces used for aluminum-melting and firing sanitary ware and tiles, and we ascertained that hydrogen can be used in the same way as conventional natural gas without any issues. In addition, we conducted a successful demonstration experiment for mass-produced equipment in LIXIL aluminum sash production plants for the aluminum aging treatment process, which originally raised concerns over its effect on product quality. This was conducted with the view toward engineering the conversion to hydrogen fuel for processes of lower temperatures. As we move forward, we are exploring the application of hydrogen fuel as an alternative fuel source to decarbonize our production, and looking into equipment specifications and investments required for conversion.</p> <p>We are also verifying an internal carbon pricing system to promote more strategic energy-saving investment over the mid- to long- term.</p> <p>For more information: Climate Change Mitigation and Adaptation > Our Operations  LIXIL Starts Verification of Manufacturing Technology with a View to Switching to Hydrogen Fuel and Pursuing Innovation to Help Achieve Net-zero CO₂ Emissions in its Business Activities (Japanese only)  Introduced LIXIL's first PPA-based solar power generation equipment in Japan at two plants (Japanese only)  Supporting the Climate Change Initiative Message Calling for an Accelerated Introduction of Renewable Energy and an Earlier Adoption of Effective Carbon Pricing (Japanese only) </p>

Key risks and opportunities	Strategic response
<p>2</p> <p>Increased raw material and component procurement costs due to market changes</p>	<p>To reduce CO₂ emissions from procurement of raw materials and components, we are shifting towards using low-carbon raw materials, recycled materials, promoting product reuse and reusable product designs and extending product life. Collaboration with all our suppliers is particularly critical in reducing our CO₂ emissions during procurement. In FYE2023, we started engaging with suppliers that play a significant role in reducing our procurement-related CO₂ emissions. We conducted a survey of suppliers in Japan and overseas who account for the top 80% of our procurement-related CO₂ emissions. The survey aimed to assess the status of CO₂ emissions — in their data collection, and their reduction target settings.</p> <p>In FYE2024, we held briefings on LIXIL's procurement activities and emissions accounting for approximately 400 major suppliers in Japan. We also held additional briefings to provide and demonstrate the use of Scope 1, 2, and 3 calculation tools for suppliers who expressed their intent to start.</p> <p>Moving forward, we will continue engaging with individual suppliers, and continue to provide support to reduce CO₂ emissions reductions while ensuring the quality, quantity, and consistency of our supplier emissions data. We also plan to collaborate with our overseas suppliers.</p> <p>Furthermore, we will work on effective reductions of CO₂ emissions across our entire value chain through the use of low-carbon raw materials and components, which also includes the use of recycled materials. At our sash plants in Japan, we collect aluminum scraps from our sources for recycling instead of procuring new ingots; helping to reduce energy in processes such as refining. At LIXIL International's water faucet plants, we installed in-house furnaces to carry out alloy smelting for recycling brass that is used in our products.</p> <p>For plastics, we are promoting the effective use of recycling resins. We are building mechanisms to help recycle scraps in production sites, and introducing sorting equipment which will ultimately enable us to recycle resin windows into materials for new windows.</p> <p>For more information: Circular Economy > Our Operations  Supply Chain Management > Conducting and Following Up on Responsible Procurement Survey </p>
<p>3</p> <p>Loss of revenue opportunities due to damage to the company's plants caused by typhoons, floods, etc.</p>	<p>Anticipating major natural disasters as a risk to our business, we are carrying out business continuity planning (BCP) activities to minimize disaster risks at each factory based on estimated damages in all areas where our headquarters, offices, and factories are located. For example, our TOSTEM THAI plant experienced heavy damage from flooding in 2011. As part of the BCP process for improving disaster preparedness, we installed floodwalls, water pumps, and other equipment on the plant's perimeter to protect production facilities and shorten the recovery time. Similarly, we are making systematic facility investments and upgrades at other factories.</p> <p>As measures related to product supply, we are optimizing supplier selection, ensuring optimal inventory levels, and developing backup production systems among other efforts. We are also enrolled in insurance programs that cover damages for fixed assets owned, used, or managed by LIXIL and its consolidated subsidiaries in Japan in the event of an unexpected and sudden disaster caused by fire, wind, or water.</p>
<p>4</p> <p>Loss of revenue opportunities due to the suspension of operations at the company's plants caused by drought, etc.</p>	<p>In order to better understand local conditions and introduce appropriate measures to address the problem of increasingly scarce global water resources, LIXIL conducts annual surveys to identify water risks at all 83 plants that use water in their manufacturing processes. Our risk assessment process involves first creating a geographical risk profile using the international WWF Water Risk Filter assessment tool. We then conduct surveys of sites that are identified as high-risk. Using the results from all these, we comprehensively assess our water risks.</p> <p>In addition, we have been participating in the Corporate Engagement Program run by the Science Based Targets Network (SBTN) since FYE2023 and have been contributing to the establishment of guidelines related to water risk assessment at SBTN. In FYE2024, we assessed water quality risks in addition to water shortage risks in preparation for our TNFD disclosure.</p> <p>As demonstrated above, we regularly update our analysis to strengthen measures in reducing water risks, implementing plans and remedies for each site.</p> <p>For more information: Water Sustainability > Our Operations </p>

Key risks and opportunities	Strategic response
<p>5</p> <p>Increased demand for energy-saving products and services for new ZEH construction and energy-efficiency remodeling</p>	<p>The energy consumed from the building products sector accounts for about 30% of final energy consumption worldwide. In Japan, heating, cooling, and hot water account for about 60% of the energy consumed by the average home. Housing performance in Japan lags behind that of other regions such as Europe, with around 90% of existing homes in Japan failing to meet current national energy-efficiency standards. High-insulation windows have an important role to play as a driving force for climate action.</p> <p>LIXIL provides products and services that help cut carbon emissions through high insulation, water saving or energy generation performance. As such, we believe that we have a great responsibility to reduce carbon emissions in homes and buildings. High-performance renovation of existing homes is particularly important due to the shrinking market size for new housing starts in Japan. LIXIL helps stimulate home renovation through high-performance construction methods for reinsulating entire homes; easy-to-install, highly-insulating windows and doors; and energy- and water-saving faucets, water-saving showers, toilets, and other products. In FYE2022, we revamped our full window lineup in our effort to reach 100% product ratio of high-performance windows for new detached homes by FYE2026.</p> <p>For more information: Climate Change Mitigation and Adaptation > Expanding Our Impact  High Efficiency Housing for a Decarbonized World  LIXIL TEPCO Smart Partners, For Smart ZEH Building (Japanese only)  Money Saving Tips: Recommending Hot Water Saving Techniques to Conserve Electricity, Gas, and Water Because Heating Water is the Second Most Common Usage of Household Energy (Japanese only)  Developed and Conducted Demonstration Experiments on a Solar Power Generation Roll Screen System that Promotes Decarbonization in Existing Buildings and Enhances Business Continuity Planning (BCP) (Japanese only) </p>
<p>6</p> <p>Increased demand for products that use low carbon, eco-conscious materials or resources</p>	<p>In order to respond to rising prices for raw materials and components that generate large amounts of CO₂ emissions during procurement and in production, stronger regulations on petroleum-derived plastics; changing consumer preferences arising from the emergence of circular economy, and other changes in the market, we are using recycled materials and renewable materials as much as possible and designing products with a longer lifespan and recyclability into account.</p> <p>LIXIL's GROHE brand has steadily increased products with Cradle to Cradle certification over the years and released EPDs (Environment Product Declarations) for 18 product groups that cover 777 products. In Japan, we set a mid-term target to use 100% recycled aluminum in aluminum profiles for our housing technology business by FYE2031. If we achieve this target, it will account for approximately one third of LIXIL's stipulated mid-term target for a 30% of Scope 3 CO₂ emissions reduction. (vs. FYE2019). In December 2022, we launched the <i>PremiAL</i> series products of low-carbon aluminum profiles, made of recycled aluminum for use in building materials. With our low-carbon aluminum profile using recycled aluminum, the EcoLeaf certified <i>PremiAL R70</i>, we can replace products that use new ingots with 70% recycled aluminum. This change can contribute to CO₂ emissions reductions by 55%. In addition, we have been developing the technology to utilize entirely recycled aluminum. We achieved a breakthrough with mass producing <i>PremiAL R100</i> that was launched in September 2023, made from 100% recycled aluminum and contributes CO₂ emissions reductions by 75%. The <i>PremiAL</i> series products are increasingly being used to help support CO₂ emissions reduction plans and targets for LIXIL and its customers.</p> <p><i>Revia</i> is a recyclable material that can be made from a combination of a variety of waste plastics and wood. Waste plastics include composite types that have previously been deemed difficult to recycle and consequently have been incinerated or disposed of in landfills. By effectively using such waste plastics and wood waste it contributes to CO₂ emissions reduction by 82%. In January 2023, we launched <i>revia</i> pave as our first <i>revia</i> product. The <i>revia</i> pave paving material has a wide range of applications from sidewalks to squares, parks, and building exteriors. We will strive to reduce the amount of CO₂ emitted during thermal recovery, incineration and pollution by landfill by creating an ecosystem that spans procurement, production, sales, installation and collection to establish a sustainable business model that encourages the recycling of waste plastics.</p> <p>We are developing and marketing products and services that provide new options and broaden consumer choices for sustainable living, such as resin window frames that have roughly three times the recycled content as conventional products, artificial wood decks that uses recycled plastic and recycled wood dust, and kitchen faucets that can be upgraded after purchase by simply replacing the spout with one that has a built-in water filter.</p> <p>For more information: Circular Economy  Plastics Action Statement  Developed a New Recyclable Material Called "revia" Made From a Combination of Waste Plastic and Wood  Set a 100% Aluminum Recycling Rate Target for FYE2031 to Help Create a Carbon-Neutral, Circular Society. Newly Developed our PremiAL Series of Low-carbon Aluminum Profiles that Help Greatly Reduce Scope 3 Emissions (Japanese only)  LIXIL Introduces PremiAL R100, Japan's First 100% Recycled Aluminum Building Material for Pre-order (Japanese only)  The Taisei Group's Next-generation Research Center is First to Adopt Recycled Aluminum Building Material in Japan (Japanese only)  PremiAL R70, Made From Recycled Aluminum, First Used at Seven-Eleven Store in Japan (Japanese only)  LIXIL Revenue and Profit Decrease in FYE2024 Due to Sluggish Demand in International Markets </p>

Key risks and opportunities	Strategic response
<p>7</p> <p>Increased demand for products related to disaster preparation, response, and recovery</p>	<p>LIXIL is developing and marketing products that contribute to climate adaptation in addressing the increasing frequency of natural disasters such as typhoons and torrential rains and higher rates of heatstroke from rising temperatures. Such products include storm shutters that are easy to add-on to protect windows from high winds and flying debris during typhoons, Style Shade sun blinds that block strong sunlight on window exteriors, and the Resilience Toilet, a public toilet that can be switched to one liter per flush instead of five helping to save water during supply disruptions.</p> <p>We are also promoting initiatives such as Think Heat, in which together with stakeholders, we explore the importance of indoor temperature, which can cause heatstroke or heat shock, and the efficient use of heaters and air conditioners; and a disaster mitigation project to build homes that protect families from disasters.</p> <p>For more information: Climate Change Mitigation and Adaptation > Expanding Our Impact  Stakeholder Engagement > Think Heat  Disaster Mitigation Project: Build Homes That Protect Families (Japanese only) </p>
<p>8</p> <p>Increased demand for products that help conserve water or improve water quality</p>	<p>Through water efficient products and solutions, LIXIL enables consumers to use water more efficiently and responsibly, reducing daily consumption. LIXIL's water saving toilet and faucet products, and smart water controllers aim to reduce a total of 2 billion cubic meters of water per year by FYE2025, globally.</p> <p>Better homes also need clean and safe water — for showering, washing hands, or drinking. LIXIL is helping to enable safer water for consumers and communities to tackle contamination by providing product solutions and promoting behavior change.</p> <p>LIXIL is also committed to advocating for more effective and responsible water policies: working with partners and developing culturally and geographically relevant solutions, joining the conversation on water issues such as scarcity, efficiency, safety and reuse.</p> <p>For more information: Water Sustainability > Expanding Our Impact </p>

Transition Plan

Setting 2030 as a milestone, LIXIL is working on various measures to reduce CO₂ emissions across three phases: Our Operations, Our Value Chain, and Expanding Our Impact. We undertake measures to cut Scope 1 and Scope 2 emissions in our operations, such as saving energy, converting to low-carbon fuels, and transitioning to and procuring renewable energy with additionality, as well as staging demonstration tests on converting to hydrogen fuel at our production sites. In our value chain, we focus on the use of our products and procurement, which account for the majority of our emissions. Along with reducing the energy use of our products, we are also strengthening our efforts on cutting emissions in procurement and logistics through supplier engagement and in building circular ecosystems and business models.

In Japan, we have also set a target of reaching a 100% product ratio for energy- and water-saving faucets and toilets, as well as high-performance windows for new detached houses. We are expanding our impact on mitigating climate change as well as helping in the transition to a low-carbon society through products that improve energy efficiency in daily living.

Through its initiatives in tackling climate change, LIXIL not only fulfills its corporate social responsibility but also reduces risk and captures business opportunities, creates new value through initiatives to maximize impact for sustainable growth.

In April 2024, LIXIL announced our transition plan toward a low-carbon society.

Transition Plan toward a Low-carbon Society (Refer to page 17 for mid-term targets for the phases below)

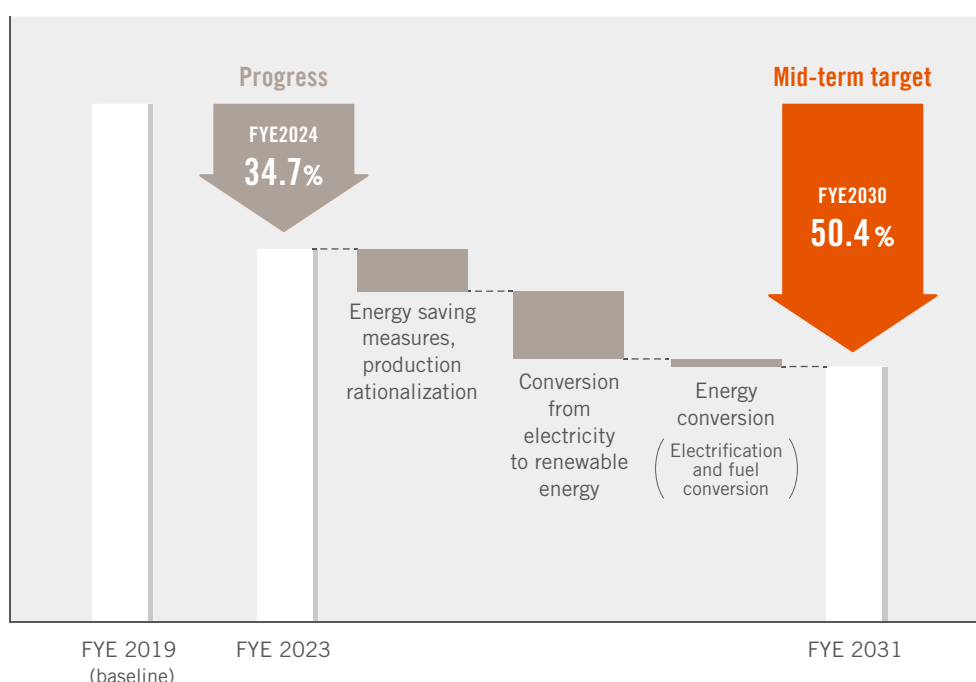
		FYE2019 (BM)	FYE2023	FYE2031
OUR OPERATIONS	Common	Energy saving measures	Energy saving measures, production rationalization	
	Scope 1	Energy conversion	Electrification (low-temperature range: air conditioning, boilers, etc.), conversion to low-carbon fuels (petroleum-based fuel to natural gas)	
		Innovative technology	Investigating and verifying decarbonization technologies that needs to be introduced going forward (fuel conversion to hydrogen, electrification, CCU, etc.)	
	Scope 2	Renewable energy	Converting electricity to renewable energy (introducing solar power generation equipment, trading renewable energy value)	
Securing a stable supply of renewable energy power with consideration for "additionality" and "business viability" through Power Purchase Agreements (PPAs)				
OUR VALUE CHAIN	Common	Design	Promoting circular design (reducing weight, extending life, using a single material, making disassembly and separation easier, etc.)	
	Procurement	Low-carbon raw materials	Improving the usage rate of recycled materials/renewable materials	<ul style="list-style-type: none"> • Improve the usage ratio of recycled aluminum • Reduce single-use plastic packaging
		Collaboration	Supplier engagement	
			Collaboration with suppliers to reduce	
	Transportation	Efficiency/conversion	Improving conversion loading efficiency, modal shift	
	Office waste	Reduction/circulation	Reducing and recycling waste generated	Development of recycling activities
	Product use	Energy saving measures	Improving the energy-saving performance of products	
Product disposal	Efficient use	Creation of business models that increase customer touch points (repairs, upgrades, services)		
	Circulation	Considering building a circulation system in collaboration with stakeholders		
EXPANDING OUR IMPACT	Product use	Insulation	Increase ratio of high-performance windows sold	
		Energy- and water- saving	Increase ratio of energy- and water- saving faucets and toilets sold	
		ZEH conversion	Expand sales of ZEH products	
	Product disposal	Circulation	Utilize waste plastics that are difficult to recycle in products (recyclable material <i>revia</i> , etc.)	

As part of our corporate responsibility and in minimizing transition risks, we created our specific, quantitative reduction plan to manage Scope 1 and Scope 2 emissions. In our latest results, we were able to cut emissions by 34.7% in FYE2024 against our mid-term target of a 50.4% cut by FYE2031*¹, successfully exceeding our initial incremental linear reduction roadmap ahead of schedule. Going forward, we will systematically reduce emissions to achieve our targets by continuing our efforts in streamlining production processes and cut energy consumption; and expanding economically rational renewable energy procurement with additionality.

Beyond achieving our mid-term targets, we are also aiming to reach net-zero CO₂ emissions by 2050, by working on innovations such as hydrogen fuel conversion and CCU technology to separate, capture and effectively utilize carbon. We have initiated surveys and studies with the aim of putting them to practical use after 2030. LIXIL is systematically carrying out the measures and actions outlined in the plan, while it prepares to seamlessly carry out further reduction initiatives after achieving mid-term targets until 2050.

*¹ with FYE2019 as baseline

Scope 1, 2 CO₂ Emissions



2.2 Analysis of Nature-related dependencies and impacts TNFD

In line with the LEAP approach recommended by the TNFD, LIXIL identified its dependencies and impacts on nature, its priority locations of direct operations and upstream value chain for raw materials such as aluminum and wood to assess its nature-related risks and opportunities.

The following items are based on TNFD's recommended disclosures on Strategy A, B, C, and D and on Risk and Impact Management A.

STRATEGY

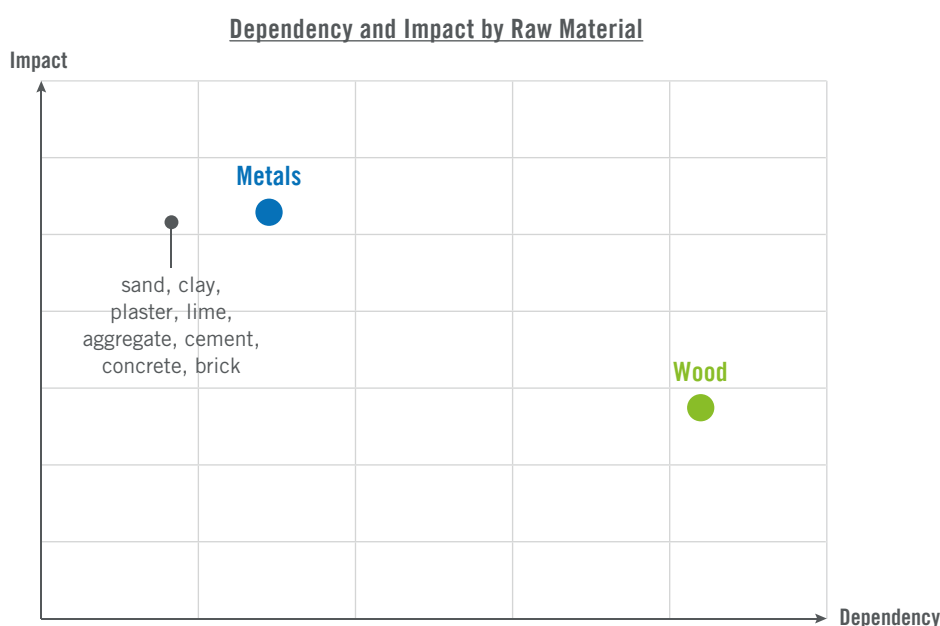
- A. Identify short- to mid-term dependencies, impacts, risks and opportunities
- B. Effect of nature-related risks and opportunities on the organization
- C. Resilience of the organization's strategy
- D. Prioritize sensitive locations

RISK AND IMPACT MANAGEMENT

- A(i) Assessment process (direct operations)
- A(ii) Assessment process (upstream value chain)

2.2.1 Determining the Scope of Analysis (Locate Phase)

To narrow down the scope of the analysis, we identified our value chains and the raw materials we use for each business segment. Across our water and housing technology businesses, and for processes across our value chain, we looked into raw materials that fall under the Science Based Targets Network High Impact Commodity List, and used the ENCORE tool to identify and assess degrees of dependency and impact on nature. As a result of our analysis we found high dependencies and impacts from upstream value chain and direct operations; and metals with the highest impact, and wood with the highest dependency on nature. Based on our findings, we narrowed down our scope of analysis to upstream value chain and direct operations, and for aluminum, the metal procured in the largest quantities, along with wood as raw materials.



2.2.2 Locating the Interface with Nature (Locate Phase)

LIXIL conducted an assessment of sensitive locations for all 83 locations of direct operations as well as for upstream locations of activities for aluminum and wood, to identify where LIXIL's business activities interface with nature. This was carried out using databases that follow the five assessment criteria set by TNFD.

Additionally, LIXIL has long recognized water as an important resource in its business activities, setting more stringent assessment criteria for water risks in direct operations. Consequently, we assessed water shortage and water quality risks, and identified seven additional locations at risk of water shortage.

For areas assessed as sensitive locations, we identified their biomes and used their information in the dependency and impact assessments in the Evaluate phase. Based on the results of the later Evaluate and Assess phases of the analysis, we found that there are critical dependencies and impacts on nature, and nature-related risks and opportunities in the sensitive locations we identified during the Locate phase. We also confirmed that all these locations meet the assessment criteria given below and fall under priority locations for TNFD's Strategy D disclosure.

Five assessment criteria for sensitive locations:

1. Areas important for biodiversity
2. Areas of high biodiversity integrity
3. Areas of rapid decline in ecosystem integrity
4. Areas of high physical water risks
5. Areas of importance for ecosystem services, including benefits to indigenous peoples, local communities, and stakeholders

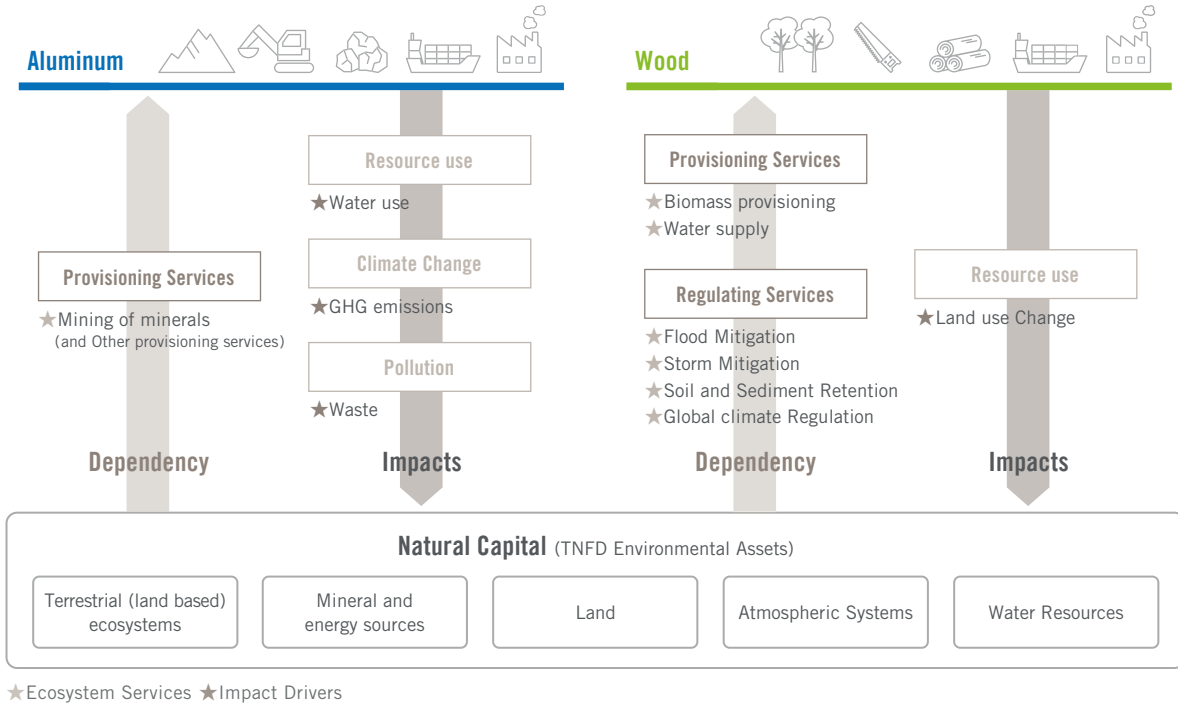
Databases used: For identifying sensitive locations: IBAT (Key Biodiversity Areas, IUCN Red List of Threatened Species, STAR Threat Abatement and Restoration Scores), WWF Water Risk Filter, Biodiversity Intactness Index, and Critical Natural Asset Layers

For identifying biomes: IUCN Global Ecosystem Typology

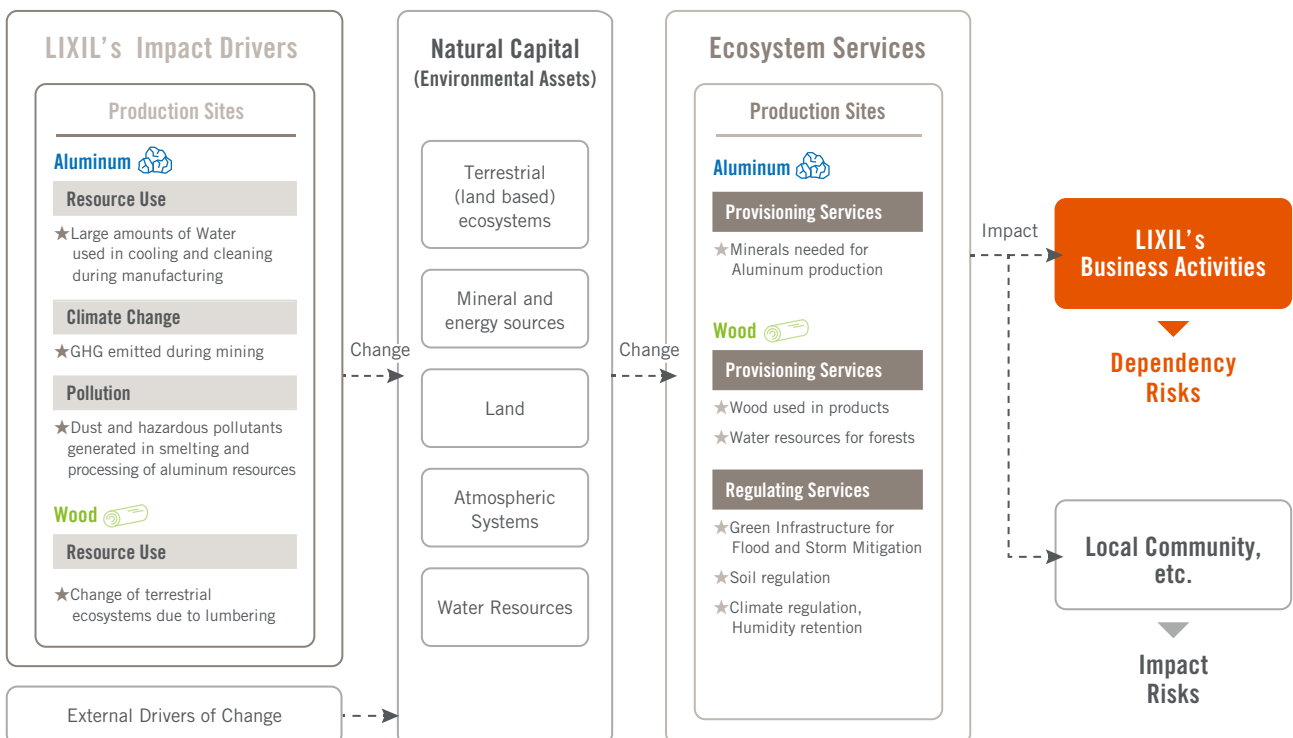
2.2.3 Identifying Dependencies and Impacts (Evaluate Phase)

Nature-related risks and opportunities arise from the dependencies and impacts on nature of our business activities. To identify our dependencies and impacts, we used ENCORE and added a literature review to carry out a qualitative assessment. Our assessment revealed that aluminum has a large impact on nature during the mining and processing of raw materials, while wood is heavily dependent on the natural capital of forests where the raw materials are logged. We summarized the relationship between dependencies and impacts on natural capital and LIXIL's business activities on the flowchart below.

Relationship between Dependencies and Impacts on Natural Capital and LIXIL's Business



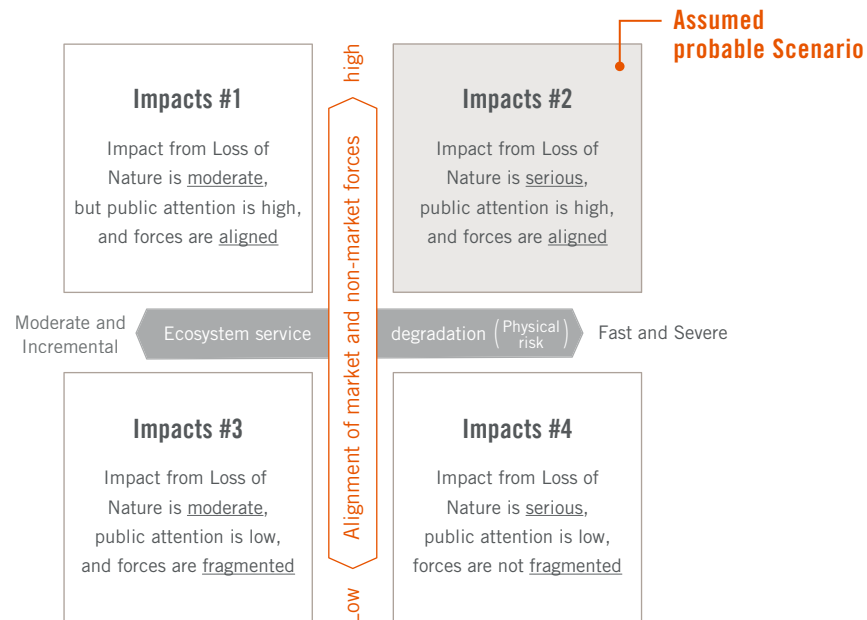
Flowchart of Dependencies and Impacts



2.2.4 Identification of Key Risks and Opportunities (Assess Phase)

To identify nature-related risks over the mid- to long-term from the summarized relationships between dependencies and impacts on nature and LIXIL’s business activities, we used the flowchart we created in the Evaluate phase showing dependencies and impacts of each environmental asset as well as a risk database called RepRisk, and created a long list of risks. To establish the scenario, we set the time horizon to 2030 and assumed the case for TNFD’s Scenario #2 shown below. This scenario is then reflected in each value chain, considering the type and location of our businesses. We identified key risks to prioritize from among the exhaustive list of risks we collected. We studied the identified risks from the perspective of risk avoidance, and identified key opportunities after a broad search and review of the types of opportunity in the TNFD and information from other sources.

Assumed Scenario



Key Risks and Opportunities

Key risk/opportunity		Description	Dependency	Adverse impact	Response measures		
PHYSICAL RISKS	Acute	Direct operations	Worsening damage to production infrastructure due to extreme weather events caused by climate change	<ul style="list-style-type: none"> Global climate regulation Mitigation of damage from typhoons and floods Soil and sediment retention 	<ul style="list-style-type: none"> Greenhouse gas emissions 	➔ Strategic response 3 on p. 08 2.1.c	
	Chronic			<ul style="list-style-type: none"> Reduced water resources for cooling and cleaning due to restrictions on water withdrawal caused by droughts 	<ul style="list-style-type: none"> Water supply 	<ul style="list-style-type: none"> Greenhouse gas emissions 	➔ Strategic response 4 on p. 08 2.1.c
	Chronic			<ul style="list-style-type: none"> Reduced water resources for cooling and cleaning due to excessive water withdrawal and water pollution from surrounding industrial activities and others 	<ul style="list-style-type: none"> Water supply 	<ul style="list-style-type: none"> Water use Water pollutants 	➔ Strategic response 4 on p. 08 2.1.c
TRANSITION RISKS	Policy and legal	Non-compliance with new or stricter environmental legislation at LIXIL factories	N/A	<ul style="list-style-type: none"> Soil pollutants Greenhouse gas emissions Water pollutants Air pollution Changes in terrestrial ecosystem use 	Details given below		
OPPORTUNITIES	Resource efficiency, products and services	Direct operations	Stable procurement and better resource efficiency through increasing usage rate of recycled materials and water reuse rate	<ul style="list-style-type: none"> Mineral resources for mining (Other provisioning services) Biomass supply Water supply 	<ul style="list-style-type: none"> Use of resources Water use Changes in terrestrial ecosystem use 	➔ Strategic response 4 & 6 on p. 08-09 2.1.c	
	Reputation		Growing appreciation of sustainable resources due to changes in consumer preferences	N/A	<ul style="list-style-type: none"> Use of resources Changes in terrestrial ecosystem use 	➔ Strategic response 6 on p. 09 2.1.c	

Response measures to transition risks

LIXIL established the LIXIL Environmental Sustainability Principles that apply to all employees and all company officers, including directors and executive officers, in order to ensure the steady continuation of our business activities even as environmental regulations become stricter. The principles include our commitment to “continually improve environmental management systems and performance” and “adhere to rigorous compliance.”

To reflect and enact these principles in our business activities, we set up an internal environmental auditing system that includes all production bases, non-production bases in Japan, and consolidated subsidiaries. At production sites, we regularly assess the effectiveness of our environmental management systems and legal compliance through internal audits in accordance with ISO 14001 standards. These audits include improving the efficiency of our energy and water consumption, reducing waste, recycling, and properly managing our hazardous waste and air pollutants, using environmental management systems under ISO 14001.

We also conduct internal audits at non-production bases and consolidated subsidiaries in Japan based on our own ISO-compliant environmental management system and are gradually widening the coverage of our audits. For matters identified through internal auditing, we take steps to improve the situation and follow up on their progress to facilitate effective operations of our management systems. Furthermore, LIXIL has introduced a system where the environmental management department at headquarters conducts internal audits of environmental managers at business units since FYE2018.

3. Risk and Impact Management TCFD TNFD

a. Processes for Identifying and Assessing Climate-, Natural Capital-, and Biodiversity-related Risks and Opportunities

LIXIL identifies significant climate-, natural capital-, and biodiversity-related risks and opportunities, and assesses their impact on its business by conducting analyses based on both the TCFD and TNFD recommendations under the direction of the Environmental Strategy Council. All the identified transition risks and physical risks are also linked to our business risks (strategic risks and operational risks) and checked against our company-wide risk assessment criteria (degree of impact on business planning and possibility of occurrence). LIXIL’s management determines the priority of risks to be addressed, based on the size of the group businesses, changes of external factors, and inter-relationships between risks.

b. Processes for Managing Climate-, Natural Capital-, and Biodiversity-related Risks and Opportunities

LIXIL avoids risks through the establishment of a system of continuous improvement, starting from evaluating the relative importance of each risk and in planning, implementing and monitoring measures to address such risks at every level of the organization. For climate-, natural capital-, and biodiversity-related transition risks and opportunities in particular, we have been developing processes to integrate such risks and opportunities into our environmental strategy, setting environmental targets and action plans, implementing and promoting measures to improve environmental performance and manage risks, while at the same time monitoring, overseeing and reviewing its progress.

c. Integrating Processes into Overall Risk Management

We are integrating these processes into overall risk management of the entire group by linking climate-, natural capital-, and biodiversity-related transition risks and physical risks to the strategic risk business related strategic and operational risks. We regularly monitor the strategic and operational risks and implement risk mitigation measures at every level of our business. Moreover, members of the Audit Committee monitor the effectiveness of the measures to address high-priority risks through their participation in meetings with the Board of Directors and other committees.

For more information: [Management Strategy & Structure > Business Risks](#)  [Corporate Governance > Risk Management](#) 

4. Metrics and Targets TCFD TNFD

a. Targets Used to Assess Climate-, Natural Capital, and Biodiversity-related Risks and Opportunities

The LIXIL Environmental Vision “Zero Carbon and Circular Living” declares our commitment to achieve net-zero carbon emissions from our operations, products and services by 2050.

In FYE2022, made an upward revision for our 2030 emissions reduction targets that we set in our Environmental Vision from the SBTi’s level of 2°C to 1.5°C. By FYE 2031, we set new targets to reducing 50.4% Scope 1 & 2 CO₂ emissions and 30% Scope 3 emissions. At the same time, while not part of our SBT boundaries, we expanded our lineup of environmentally conscious products that help reduce energy and water use in homes and buildings, and added targets to expanding our product ratio of energy- and water-saving faucets and toilets, and high-performance windows for new detached houses to 100% in Japan, to serve as metrics in assessing climate-related opportunities and in achieving sustainable growth.

In FYE2023, we renewed our SBTi certification for our 2030 medium-term CO₂ reduction targets*¹, aligning them with the SBTi’s new ambition level of 1.5°C. We also set some mid-term water- and resource-related targets for 2030.

In FYE2024, LIXIL became the first Japanese building products company to receive SBTi approval for its long-term target of achieving net-zero CO₂ emissions by 2050. Following the SBTi’s Corporate Net-Zero Standard, we will work to cut Scope 1 & 2, and Scope 3 greenhouse gas emissions by 90% reduction in Scope 1, 2, and 3 greenhouse gas emissions by 2050, with up to 10% residual emissions reduced to zero through carbon removal.

*¹ with FYE2019 as baseline. SBTi-approved near-term commitment



Medium-term Targets

	Indicators	Targets
Risks	Scope 1 & 2 CO ₂ emissions	Reduce by 50% by FYE2031 (vs. FYE2019)
	Scope 3 CO ₂ emissions	Reduce by 30% by FYE2031 (vs. FYE2019)
	Water use efficiency	Improve by 20% by FYE2031 (vs. FYE2019)
	Waste recycling rates	Improve by 90% by FYE2026
Opportunities	Ratio of number of high-performance windows sold for new detached houses (Japan)	100% by FYE2026
	Ratio of number of energy and water-saving faucets and water-saving toilets sold (Japan)	100% by FYE2031
	Total water savings from water-saving products	2 billion m ³ per year by FYE2025
	Ratio of used recycled aluminum	100% by FYE2031

For more information: [Impact Strategy](#) 

b. Metrics Used to Assess Climate-, Nature-, and Biodiversity-related Dependencies and Impacts TCFD TNFD

TNFD Disclosure Metrics (Dependency/Impact) - Direct Operations

Metric No.	Impact drivers	Indicators	Disclosure
—	Climate change	GHG emissions	CO ₂ emissions* ¹
C2.1	Pollution/ pollution removal	Wastewater discharged	Discharge* ¹
C2.2	Pollution/ pollution removal	Waste generation and disposal	Waste emissions by method of waste disposal* ¹
C2.3	Pollution/ pollution removal	Plastic pollution	Plastic waste generated (in Japan)(Japanese only) 
C2.4	Pollution/ pollution removal	Non-GHG air pollutants	Nox, SOx, soot and dust emissions* ¹
C3.0	Resource use/ replenishment	Water withdrawal and consumption from areas of water scarcity	Water withdrawal in water-scarce areas 
A3.0	Resource use/ replenishment	Total water consumption and withdrawal	Consumption and water withdrawal* ¹
A3.2	Resource use/ replenishment	Water reduced, reused or recycled	Improvement in water use efficiency rate and recycled water volume* ¹

TNFD Disclosure Metrics (Dependency/Impact) - Upstream Value Chain

Metric No.	Impact drivers	Indicators	Disclosure* ¹
C3.1	Resource use/ replenishment	Quantity of high-risk natural commodities sourced from land/ocean/freshwater	Procured weights of wood and aluminum

TNFD Disclosure Metrics (Response) - Upstream Value Chain

Metric No.	Category	Metric	Disclosure* ¹
A23.1	Changes to nature (dependency and impact): Mitigation hierarchy steps	Rate of reuse and recycling of i) waste or ii) product/material outflows (%)	Waste recycling ratios
A23.4	Changes to nature (dependency and impact): Mitigation hierarchy steps	Circular material use rate (%)	Ratio of recycled aluminum use

*¹ Disclosed in the ESG Databook

c. Performance on Metrics Used to Assess Climate-, Nature-, and Biodiversity-related Risks and Opportunities TCFD TNFD

For Scope 1, 2, and 3 CO₂ emissions, we obtain third-party assurance for our performance in key categories, including emissions, water usage and waste emissions for disclosure.

Additional TNFD disclosure metrics will be applied to strengthen and enhance management of our risks and opportunities.