

Emerging Risks

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We have identified issues that are important for both LIXIL and society and to be addressed in order to achieve sustainable growth and increase corporate value over the medium to long term as material issues. Material issues include both risk and opportunity, some of which will have even greater impact in the future. This section introduces risks that are new, emerging or growing significance and have an impact on medium- to long-term strategies and business models, such as business strategies, Impact Strategy, material issues, and Environmental Vision 2050, and their impacts and mitigation measures.

(1) Risks related to plumber shortage ("Plumber shortage risk")

Description

In recent years, there has been growing concern about the shortage of skilled workers in various industries, with the shortage of plumbers being particularly prominent on a global scale. There is a significant mismatch between the increasing demand for plumbing services and the supply of skilled professionals. For example, in the US, 55% of builders reporting plumber shortages*1. The US Bureau of Labor Statistics estimates there will be 48,600 plumber, pipefitter and steamfitter vacancies in the country each year between now and 2031*2. Similar stories are emerging around the world. Although the reasons vary by regions, the shrinking number of plumbers is a result of combination of factors such as an aging workforce, too much focus on 4 year degree colleges or university education and insufficient vocational training infrastructure. With a focus on meeting global sanitation and hygiene goals, and developing water sustainable societies, the demand for trades and particularly plumbers are on the rise. If the shortage continues, it will have lasting impact on the overall economies including housing and construction and the environment. As plumbers are indispensable in delivering LIXIL products to customers with high quality, LIXIL recognizes the shortage of plumbing skilled labor as an important emerging risk which is expected to significantly impact on our core business if it continues.

*1: Home Builders Institute([link](#))

*2: US Bureau of Labor Statistics([link](#))

[WEB] [Plugging the Plumber Shortage](#)

Impact

The plumber shortage would cause the increase in construction and installation periods, with consequent impact such as rising labor costs, possible increased product accidents due to improper installation, and decreased demand of plumbing products. These impacts can result in customer dissatisfaction and a decrease



in sales for LIXIL. This risk is unique to our business but is also industry wide. Given the general societal shortage of skilled workers and the influence of various external factors, it is necessary to proactively secure and develop the skilled workers involved in our business over the short, medium to long term.

Measures

Considering the future impact, LIXIL has implemented activities in several regions to train both skilled and unskilled workers who would be involved in our business. Across Europe, GROHE has launched the GROHE Installer Vocational Training and Education (GIVE) program. It includes collaborations with over 40 plumbing institutions offering training to provide fully functioning training racks, learning materials, and experienced trainers. In addition, LIXIL's TradeUp initiative is helping support vocational training in states across the US. The initiative works with academic institutions, customers and sales representatives to encourage people to raise awareness about the shortage and to pursue a career in the plumbing profession. Both programs focus on skills development in partnership with academic institutions. In Japan, we have established specialized schools for training workers, such as LIXIL Building material Technical College (LBTC) and INAX Institute of the Tiling Arts (IITA). Furthermore, we are also taking actions in the area of product development. For example, we have established the "QuickFix" brand for DIY products, especially in Europe, where customers want products that they can install themselves without hiring plumbers. This is growing at a very fast pace and we believe it will become one of the major product pillars in the future. Focusing both on addressing the skilled labor shortage and products that can be installed more easily will help LIXIL address this emerging global risk.

(2) Water risk

Description

Our business consists primarily of LWT (LIXIL Water Technology), which manufactures sanitary ware and faucet fittings, and LHT (LIXIL Housing Technology), which manufactures aluminum sash-related products. A large amount of fresh water is used in production to maintain product quality and to prevent defects especially for sanitaryware slurry and surface finishing of faucet fittings and aluminum sashes. Thus, it is essential to secure high-quality fresh water for regular operation. However, some important production sites are in areas with severe water scarcity, such as Mexico. From a long-term perspective of more than five years, regulations are expected to be stricter in various parts of the world in the future not just in the aforementioned country but in areas where water scarcity is not serious at present, considering the current global water shortage situation. LIXIL recognizes these as risks from water scarcity ("water risk") and as an important emerging risk which is expected to significantly impact on our core business if they materialize.

Examples of the impact of water risk on LIXIL

	Sales ratio*	Main process requiring water	Plant location	Overview
LWT	60%	Sanitary ware: Slurry (raw material) Faucet fittings: Surface finishing	Mexico	Water shortage is serious, water consumption is limited, and wastewater regulations are strengthened.
LHT	40%	Aluminum Sash: Surface finishing	Thailand	The government implemented measures against drought High flood risk

* FYE2023

Impact

At sites with high water risks*, impacts are driven by regulations on water drainage and intake onto drivers such as expansion of facilities, increases in operating costs, suspension of operations, and increases in water and sewage charges. In the procurement of aluminum, for example, water shortages and electricity shortages in countries and areas that rely on hydropower for the electric power for aluminum casting may cause an increase in raw material procurement costs. LIXIL expects this water risk will have a significant impact on business and thus is working to quantify the future financial impacts.

* Evaluation is subject to change and is performed partly with reference to Water Risk Filter

(<https://waterriskfilter.panda.org/>).

Measures

Based on the results of this impact analysis, LIXIL has made every effort to reduce water consumption at each of its production sites. LIXIL is also actively investing in a water recycling system (e.g., Tlaxcala plant in Mexico) to maintain water quality and in facilities to improve water efficiency (e.g., use of compressed air in Albergaria plant in Portugal). In addition, to reduce water risk, measures are taken from three perspectives: water scarcity, water quality, and regulation. Specifically, (1) conducting water risk surveys at all production sites and promoting more efficient water use at high-priority plants; (2) introducing a water circulation system that uses reverse osmosis membranes; and (3) continuously engaging with regulatory authorities and water quality management organizations and monitoring trends through hearings with relevant stakeholders in preparation for the emergence of medium- to long-term risks.

Reduction of water consumption	FYE2023	FYE2019
Amount of intake water	14.080M m ³	16.676M m ³
Amount of wastewater	13.120M m ³	13.910M m ³

(M: Million)



Water scarcity affects not only manufacturing but also the end users who use the product. In regions facing water shortages and water stress, where water cannot be used stably, we develop and sell products such as water conservation and water purification through technological innovation, thereby promoting water conservation and sustainable water use throughout the product life cycle and addressing water risks.

[WEB] [Conserving Water: The New Normal](#)

[WEB] [Sustainable Water Use](#)

(3) Risks related to climate change ("Climate change risk")

Description

Since about 30% of global energy consumption coming from buildings, global concerns on energy emissions, as one of the drivers of climate change, are rising. LIXIL Housing Technology (LHT) business, which sells building components, accounts for about 40% of LIXIL's total sales. The core business of LHT is Sash Door Division's sales of windows and window sashes, which are products related to openings through which energy escapes from buildings. From the mid to long term perspectives, it is assumed that there will be introduction and strengthening of regulations to more strictly control energy usage in buildings, soaring raw material prices, and increasing consumer demand for improved product performance. These are considered as risks brought about by climate change ("climate change risk"), and LIXIL recognizes them as one of the important emerging risks that affect the sustainability of its business.

Impact

LIXIL has been conducting scenario analysis using the Task Force on Climate-related Financial Disclosures (TCFD) framework in order to understand the future financial impact of aforementioned climate change risk. In 2020, LIXIL conducted an analysis on the Sash Door Business which is expected to be the most affected by the climate change risk among LHT businesses, then expanded the scope to include LWT and other LHT businesses in 2021, and sharpened our mid-term targets in June 2022. Considered in TCFD scenario analysis are the impact of the transition risk due to changes in policies, regulations and markets such as introduction of a carbon tax on energy costs and procurement costs, as well as the impact of physical risks such as damage to manufacturing facilities caused by typhoons, floods, and other extreme weather events..

Measures

In the scenario analysis, we assess the financial impact through evaluation of risks and opportunities, analyze trends in laws and regulations in each country, carbon taxes, emissions trading markets, future forecasts of energy costs, and estimate the financial impact of capital investment and environmental



measures. Based on the results of the impact assessment through scenario analysis, LIXIL is planning and implementing various measures (mitigation measures) to reduce climate change risk over the medium to long term and is making efforts to utilize them in decision-making for environmental management. In our Environmental Vision we aim to achieve net-zero carbon emissions by 2050 through operations and our housing and lifestyle solutions. Examples of initiatives are installation of solar photovoltaic power generation systems at business sites, increasing procurement of renewable energy when financially feasible, switching to low-carbon raw materials and components such as aluminum scraps in the market, increasing the sales ratio of existing products (high-performance windows, etc.), examination of an internal carbon pricing system.

For details, please refer to the ESG briefing materials and the TCFD disclosure materials.

[WEB] [ESG Briefing](#)

[WEB] [Disclosure of Environmental Issues, Including Climate Change](#)