

# Managing Environmental Risks and Opportunities

## Hitachi's Approach

Such phenomena as abnormal weather conditions around the world associated with climate change, resource depletion, and loss of biodiversity are projected to grow more serious in the future. To respond to these critical developments in human history, society must transform itself by strengthening regulatory mechanisms that contribute to a low-carbon society, including the Paris Agreement. Businesses, too, must monitor and respond to these changes, accurately ascertaining the risks they face and the opportunities that arise for the utilization of management resources. In 2017, the Task Force on Climate-related Financial Disclosures (TCFD) published its recommendations, and investors are more actively seeking corporate disclosures of climate-related risks and opportunities.

Hitachi focuses on two particular environment-related risks and opportunities—climate change and water resources—and not only promotes initiatives to address them in a steadfast manner but also actively advances information disclosure.

## Environment-Related Risks and Opportunities

### Engaging with Climate-Related Risks and Opportunities

Hitachi sees climate change risks and opportunities as important management issues. One governance mechanism that we established to address such risks and opportunities is the Executive Sustainability Committee, chaired by the Hitachi president and CEO, with other top executives serving as committee members. The committee develops business strategies to minimize risks and maximize opportunities from climate change in line with relevant global regulations and policy trends.

In 2017, the Task Force on Climate-related Financial Disclosures (TCFD), established by the Financial Stability Board in response to a request from the G20 Meeting of Finance Ministers and Central Bank Governors, published its recommendations seeking corporate disclosures of information about climate-related risks and opportunities. In June 2018, Hitachi announced its endorsement of the TCFD and is preparing its information disclosures based on its recommendations. Hitachi has long disclosed its environmental risks and opportunities in the *Hitachi Sustainability Report*. However, in accordance with the categories outlined in the new global TCFD recommendations, Hitachi is reviewing its risks in two categories, namely, risks related to the transition to a low-carbon economy and those related to the physical impact of climate change. In terms of opportunities, we are positioning our contributions to the creation of a low-carbon society through enhanced energy-saving features of our products and services

as a major opportunity, and are discussing how we can further expand it.

### ► Risks in Transitioning to a Low-Carbon Economy Policy and Legal

Carbon taxes, energy consumption taxes, emissions trading systems, and other measures may be newly introduced or further strengthened, representing risks impacting directly on management costs in addition to those incurred in complying with the environmental regulations and policies of countries and regions around the world. The direct and increased burden on management costs will become a disincentive for investment in R&D toward reducing environmental burdens and for low-carbonization and weaken the cost competitiveness of companies. Regulations imposed on businesses with a relatively large environmental burden may present a large risk to business continuity.

To mitigate such risks, we have been reducing or minimizing cost burdens by enhancing production efficiency and introducing energy-saving measures. In fiscal 2017, our energy-saving investments totaled approximately 5.4 billion yen. Should our products fail to meet energy-efficiency standards and regulations, we will risk losing sales opportunities. In addition to strictly complying with existing standards and regulations, we will always endeavor to keep abreast of trends in laws and regulations and participate in the planning of new policies.

### Technology

To reduce CO<sub>2</sub> emissions caused by the use of our products and services by our customers, which make up a significant

share of emissions in the value chain, we need new technology to achieve further energy-saving in our products and services. We risk losing sales opportunities if investments to reduce environmental burden, such as in low-carbon technologies, do not lead to expected results, and we are not able to meet customer demands or market needs.

Therefore, by applying Environmentally Conscious Design Assessments in the design and development stages of Hitachi products and services, we assess various environmental aspects at each stage of the product life cycle and strive to minimize environmental impact. Hitachi is also endeavoring to develop technology that takes into consideration environmental issues faced by customers and market needs. In addition, by combining Hitachi's longstanding expertise in a wide range of social infrastructure technologies with operational technology (OT) and IT, we can provide optimal solutions that lead to the creation of new business opportunities.



Achieving a Low-Carbon Society



Developing Environmentally Conscious Products and Services

### Market and Reputation

A company's approach to climate change issues influences stakeholders' evaluations, and changes to market values, such as placing great importance on climate change countermeasures, affects customers' choices of products and services. This may pose a risk to business continuity.

Hitachi upholds long-term environmental targets of reducing CO<sub>2</sub> emissions throughout our value chain by 50% in fiscal 2030 and 80% in fiscal 2050 compared to fiscal 2010 levels. We aim to increase the likelihood of our products and services being selected by our customers through energy-saving investments

to renew facilities and equipment for higher efficiency; improvements in production efficiency through digitalization; the promotion of environmentally conscious design during the design and development stage; and the provision of products and services with high energy-saving performance.



Achieving a Low-Carbon Society

### ► Risks Related to the Physical Impacts of Climate Change Acute and Chronic

Climate-related physical risks include acute risks, such as increased severity of typhoons and floods, and chronic risks, including climate patterns that may cause the sea level to rise and chronic heat waves. Hitachi has a worldwide business presence and believes that disasters due to weather phenomena attributed to climate change, such as increasingly bigger typhoons and torrential rainfall, pose a risk to business continuity.

In order to minimize these risks, we take into consideration such factors as location and the possibility of damage from flooding when setting up a new plant or deciding on the deployment of equipment. We also use the *Hitachi Group Guidelines for Developing Business Continuity Plans* that outline measures to be taken in times of disaster to mitigate risks.



Achieving a Resource Efficient Society



Stable Provision of Products and Services

### ► Climate-Related Opportunities

#### Resource Efficiency

Hitachi is promoting the efficient use of resources by reducing waste, recycling, and undertaking other measures. Also, for the efficient and sustainable use of natural resources, we are promoting efforts to minimize the amount of natural resources we use through improvements in production processes and resource-conserving designs. We are also promoting the efficient use of water resources by using recycled water and rainwater.

As for our business operations, we are developing a range of water treatment technologies, including high-quality water generation, water purification, water supply, and sewage, to provide solutions globally for the expanded circulative use of water. For regions experiencing chronic water shortages, we are promoting the provision of seawater desalination systems.



Achieving a Resource Efficient Society



Enhancing Efficiency of Water Usage

#### Energy Source

Hitachi proactively uses renewable energy for our factories and offices. In our factories, we are able to efficiently use the electricity supplied from photovoltaic power generation facilities, despite fluctuations in the amount of power generated, by monitoring and controlling energy usage on production lines and by using storage batteries. Also, we are promoting the adoption of renewable energy credits and the expanded deployment of internal carbon pricing and the self-consumption solar power generation. In our offices, too, we are enhancing the efficiency of energy-using equipment, such as lighting and air conditioning, as well as visualizing energy usage and

optimizing the amount of energy used in the building as a whole through Building and Energy Management Systems (BEMS).<sup>\*1</sup> Through activities like these we are reducing our operating costs and striving for more efficient production.

In our business operations, we create new business opportunities, such as by actively providing renewable energy from wind power generation systems.

<sup>\*1</sup> BEMS aim to optimize the internal environment of a building and its energy efficiency.

 Achieving a Low-Carbon Society

 Climate Change Measures in Factories and Offices

### Products, Services, and Markets

Products and services featuring innovative, energy-saving technology that can contribute to the mitigation and adaptation of climate change are viewed as having the potential to increase market value and revenue. Many of our products use energy, so we must enhance the efficiency of our products and services and facilitate low carbonization in order to contribute to resolving the issue of climate change. Hitachi has established long-term environmental targets for reducing the CO<sub>2</sub> emissions throughout our value chain. To this end, we will continue to provide products and services that contribute to the creation of a low-carbon society through our Social Innovation Business. We are developing ultra-efficient products and low-carbon energy, as well as encouraging their use. We are also promoting the development of innovative devices and materials that contribute to reducing the environmental burden. In fiscal 2017, Hitachi's total investment in R&D was 332.9 billion yen, including sizable spending to reduce the environmental burden.

A company's approach to climate change issues influences

stakeholders' evaluations and affects customers' choice of products and services. Hitachi not only meets the required standards and regulations for the energy efficiency of its products, but also develops and provides energy-saving products and services that go beyond the prescribed standards, thereby increasing opportunities to be chosen by customers.

 Achieving a Low-Carbon Society

### Resilience

We have devised a plan for vital functions to be maintained through the use of renewable energy and storage batteries if a power outage occurs in any of Hitachi's main factories.

In our business operations, we are providing disaster-prevention solutions to help various countries and regions deal with the rise in natural disasters. Hitachi uses sophisticated IT developed over the years to analyze and evaluate data pertaining to people's daily lives, meteorological and other natural trends, and the operation of social infrastructure, in promoting the provision of solutions conducive to responding to climate change.

### Engaging with Water-Related Risks and Opportunities

Hitachi is responding to water-related risks and opportunities with our customers and society through our business operations by establishing a long-term environmental target of building a water- and resource-efficient society by 2050.

#### ▶ Regulatory Risks and Opportunities

We are subject to regulations stipulated by different countries and regions concerning water use, such as a tightening of quality standards for both water supply and drainage and a jump in prices. These regulations pose a risk for our business activities, but they can also be an opportunity for our water-related business.

Hitachi places the water-related business as a core undertaking, having established the Water Business Unit to provide machinery, electrical facilities, and services for water infrastructure. To date, we have installed approximately 700 water purification plants and 900 sewage treatment plants in Japan, as well as over 200 plants in some 40 countries and regions around the world. We have developed technologies for the water treatment facilities and services we offer to our customers, and we are now advancing water environment solutions to comprehensively resolve water-related challenges with data processing technologies that combine our operational technology (OT) and IT. We will help customers use water more efficiently to lessen the impact of water-related regulations, such as restrictions on water intake. We will also contribute to formulating appropriate rules and guidelines by proposing innovative water treatment control technologies.

At approximately 200 Hitachi business sites around the world, we are promoting appropriate water usage for each locale by investigating and analyzing water risks and usage

status in cooperation with national and regional governments as well as water supply and sewage companies to be prepared for any regulatory risks that may arise in the future.

#### ► Risks and Opportunities Presented by Physical Factors

Water-related risks and opportunities presented by physical factors include shortages, especially of freshwater, and flood damage. Just as there are countries and regions around the world that are endowed with rich water resources, there are also many places where people do not have enough water for their everyday lives and for agriculture. Hitachi believes that efforts to resolve these water-related challenges represent business opportunities. We have been expanding our water recycling and seawater desalination business in low rainfall areas facing serious water shortages and islands with no freshwater resources like rivers.

In the water recycling business, higher demand for water resulting from increased production is met through the reuse of wastewater to reduce underground water usage and optimize supply to and drainage from plants.

In our desalination business, a range of technologies are being developed to meet our customers' needs and help resolve their challenges. For example, our "E-Rex Water" RO (reverse osmosis) desalination system features a vastly improved freshwater recovery rate, and our "RemixWater" water production system is a unique and effective solution that combines desalination and sewage treatment. These systems are custom-made for various purposes and have been installed at more than 100 locations around the world, contributing to the solution of water shortage problems.

We are also focusing on physical water risks at our own plants. A water shortage is usually regarded as the main physical risk for ordinary plants. However, since Hitachi's business sites are concentrated in areas near rivers or with a rich source of underground water, we consider this physical risk to be minimal. Even so, we will conduct regular risk assessments in anticipation of future water shortage caused by such factors as economic development and population increases. We have taken appropriate and necessary measures to secure dedicated waterways in case there are water-access concerns. We also deem flood damage as a physical risk. At times of new plant constructions, therefore, we keep the potential damage in mind when choosing sites. When we judge countermeasures to be required, we install bulkhead partitions or place essential amenities on the second floor—including at existing plants. We check upstream water levels every month and set up flood task forces when levels reach a dangerous level, sharing such information with our suppliers. We also diversify risks by procuring components from multiple suppliers.

We will continue to promote necessary measures to minimize water-related physical risks.