

Integrated Report 2022



A special world's-first, from ISK

One & Only

Blue hue that you won't find in the natural world.

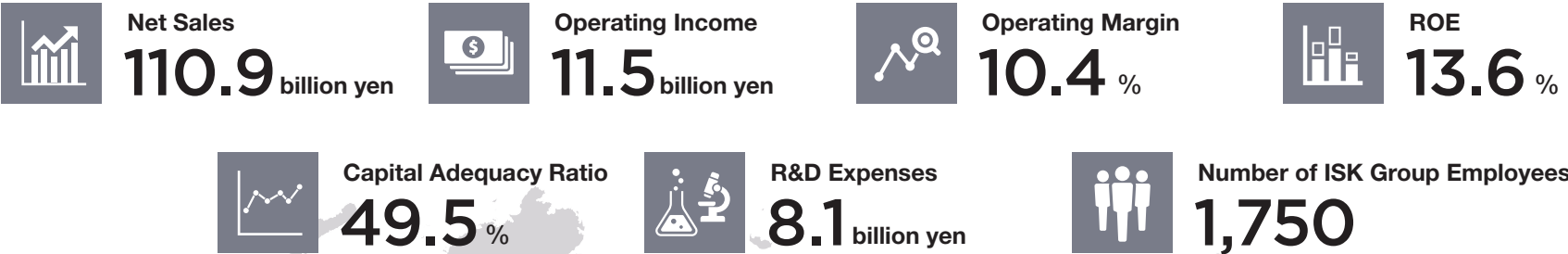
Blue Gene™, which was developed by ISK, is the world's first phalaenopsis to produce natural blue flowers.

Using proprietary biotechnology, we added a gene for blue color from the Asiatic dayflower to phalaenopsis, which doesn't have genes for producing blue pigment, to realize an elegant and refined blue hue.

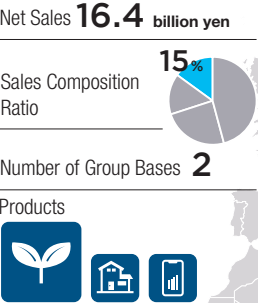
The project took 17 years from the start of development. After carrying out numerous tests and surveys to verify that the plant would not impact biodiversity, we received approval for it in Japan. In June 2022, sales of the long-awaited flower began. The result is a one and only product unique in the world and available only from ISK.



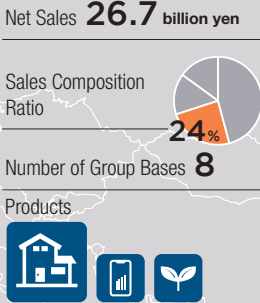
Key Figures Fiscal year ended March 31, 2022



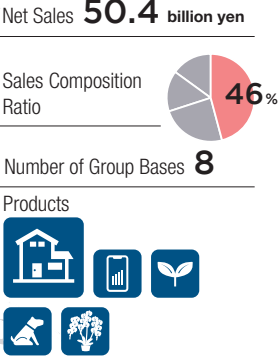
Europe



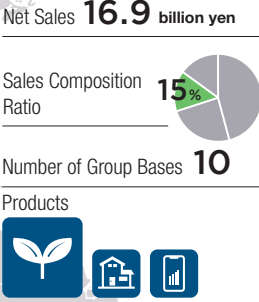
Asia



Japan



Americas



Others



- Major countries and regions in each category (excluding number of group bases)
Europe Germany, Netherlands, France, UK, Belgium, Italy, Eastern Europe, Middle East
Asia China, Taiwan, South Korea, Thailand, Indonesia, Singapore, India
Americas US, Canada, Brazil, Argentina, Mexico
Others Australia, New Zealand, Africa
- Pictograms representing major products
(The product with the highest sales in each region is shown in a larger size.)
 Titanium dioxide
 Functional materials
 Agrochemicals
 Animal health products
 Blue phalaenopsis

Inorganic Chemicals Business

“One & Only” products
for daily life, comfort,
and the environment

Paints, plastics, inks, cosmetics, chemical fibers... Titanium dioxide, which is used as an excellent white pigment in numerous products, is a main product of our inorganic chemicals business. Among the titanium dioxide manufacturers in Japan, we're the only company that owns the low-environmental-impact method for producing the material (the chloride process). In recent years, several highly functional, high-value-added products have emerged as new growth sectors, including electronic component materials, electro-conductive materials, and heat shield materials.

TIPAQUE™ titanium dioxide × Housing



We've been rolling out a series of high-value-added titanium dioxide products with previously unavailable features, for example products having high weatherability, under the TIPAQUE™ brand in the domestic and international markets through meticulous customer service and technological capabilities accumulated over many years. Those products are part of our strategy to realize sustainable growth by supplying “valuable richness and colors.” This strategy is beneficial from the perspective of the SDGs—for example by working to conserve resources—in a way that differs from the conventional approach of quantitatively expanding sales of commodity products.

Electronic component materials (functional materials) × Smartphones



We're rolling out products with a variety of functions based on our proprietary inorganic synthesis technologies and particle control technologies. Among them, our high-purity titanium dioxide product is contributing to developments in information and communication technology by accommodating demand for more compact, higher-performance electronic components. We'll continue to pursue functions that help improve life in a broad array of fields, including electro-conductive materials that prevent static buildup, ultrafine-particle titanium dioxide for use in sunscreens, and photocatalysts for manifesting antibacterial and anti-virus properties in air purifiers.

Organic Chemicals Business

“One & Only” products
for food, health, and life

In our organic chemicals business, we manufacture and distribute agrochemicals such as herbicides, fungicides, and insecticides. As the industry pioneer that first introduced chemical pesticide technology, we're currently one of the leading exporters by value in Japan. We've made solid progress in gaining a foothold in the European and U.S. markets. Our future focus will be on expansion to the new fields such as active pharmaceutical ingredients and animal health products by taking advantage of our organic synthesis technologies.

Cyazofamid (agrochemical product) × Potatoes



Potato late blight is a major disease that caused a famine in Ireland during the 1840s. Even today, this disease is so difficult to control that it can lead to a complete loss of affected crops when they fail to control. Cyazofamid is highly effective against this disease even when used at low concentrations. The product is widely used in regions where late blight is problematic since it offers particularly good benefit to harvested potatoes by preventing them from rotting.

BRENDA™ (animal health product) × Pet dogs



Taking advantage of fuzapladib sodium hydrate, an active ingredient created using technology for producing new agrochemicals, we developed the anti-pancreatitis drug BRENDA™, the world's first product of its kind for dogs. In September 2018, we received approval from the Japanese Ministry of Agriculture, Forestry and Fisheries to manufacture and sell the drug indicated for use in improving the management of clinical signs symptoms associated with acute onset of pancreatitis in dogs. We'll continue to provide superb products that meet the needs of pet owners and animal healthcare professionals.

Vision 2030 Summary

For Transforming Lives Through the Power of Chemistry

The ISK Group formulated Vision 2030, its long-term vision, in 2020 on the 100th anniversary of its founding. In addition to helping realize a sustainable society in line with our corporate purpose of “To continue contributing to better living environments through chemical technologies,” we will work to improve corporate value through our business activities.

Preconditions: Megatrends and Stakeholders

Vision 2030 presupposes numerous worldwide changes that will likely arise by 2030, including climate change and food problems. How will these changes affect our stakeholders such as customers, shareholders, and investors? How can we contribute to our stakeholders in the face of these changes? After much debate in-house, we have summarized the initiatives that must be taken in our various businesses.

Value Provided by ISK and Our Initiatives

Inorganic chemicals business

Create new value based on the technologies developed for titanium dioxide products, to support the environment and digital society, and contribute to realizing a sustainable society.

Titanium dioxide	Providing a variety of colors and hues
Functional materials	Creating a range of comfort
Environmental products	Achieving both innovation and environmental protection

- > Diversifying the optical characteristics of titanium dioxide to realize new value creation
- > Contributing to the resolution of social issues such as the adoption of information and communications technologies and the electrification of automobiles through functional materials
- > Reducing environmental impacts while streamlining production through a revolution in production structures

New businesses, others

- > Building a new business portfolio
- > Strengthening development of environmentally friendly products by investing resources (people and money) with an awareness of environmental, social, and corporate governance (ESG) considerations in areas other than titanium or agrochemicals
- > Establishing structures to pursue carbon neutrality by 2050

Management Targets (2030)

- Net sales of greater than 200 billion yen
- ROE 10% or more
- Operating margin of 15% or more
- Continued stable return for shareholders

Contributing to realization of a sustainable society together with improving our corporate value through such business activities.

Originality. Acceleration. Global Reach.
Transforming Lives Through the Power of Chemistry.

Megatrends

Climate change
Resource shortages and food problems
Urbanization
Rapid development of IT
Growth and aging of the global population

Stakeholders

Shareholders and investors
Local communities
Customers and business partners
Employees

Organic chemicals business

Supply unique products that directly enhance customer value across the world, and support people’s nutrition, health and life to contribute to realizing a sustainable society.

Agrochemicals	Improving agricultural production stability and quality
Animal health products	Protecting the lives and health of pets
Pharmaceuticals	Contributing to medical care

- > Pursuing development and commercialization in a way that’s aware of the value chain
- > Accelerating the creation of value and restoring our growth trajectory by improving and evolving in-house technologies
- > Manufacturing flagship products at the lowest cost in the world and supplying them in a stable manner to customers

Purpose

To continue contributing to better living environments through chemical technologies.

Corporate Philosophy

Basic Philosophy

- Contribute to social development, protection of life and environmental preservation
- Respect shareholders, customers, suppliers, local communities and employees
- Abide by laws and regulations; maintain transparency in business activities

Code of Conduct

- At Ishihara Group, we will strictly observe laws, regulations, social norms and Company rules, while steadfastly adhering to high ethical standards, so as to gain social trust in our business.
- In manufacturing activities, we will place the utmost priority on global environmental protection, as well as on worker safety, and will work to prevent any workplace accident or disaster.
- On the basis of respect for human rights, we will promote mutual understanding and cooperation among employees, in order to create an open and friendly workplace.
- To maintain transparency in our business activities, we will promote communication with local communities and society, and will disclose corporate information in a timely and appropriate manner.

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Value Creation Strategies

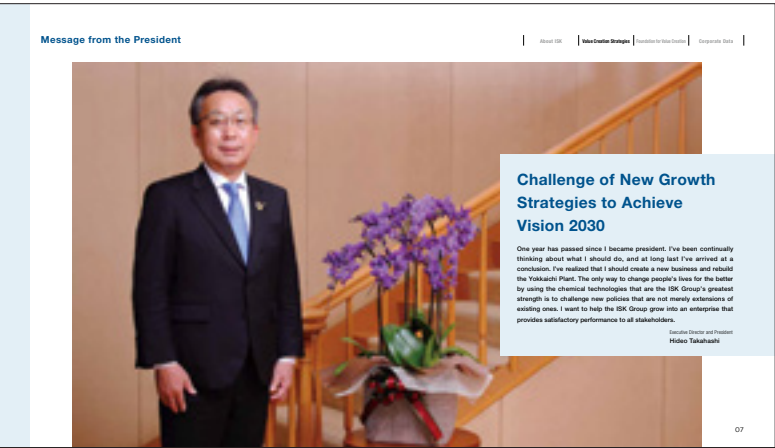
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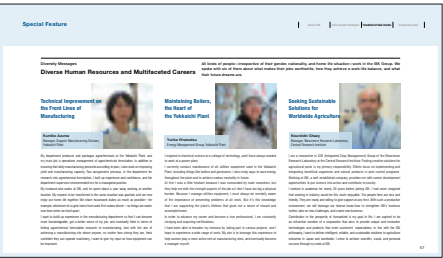
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Message from the President
Challenge of New Growth Strategies to Achieve Vision 2030

One year has passed since I became president. I've been continually thinking about what I should do, and at long last I've arrived at a conclusion. I've realized that I should create a new business and rebuild the Yokkaichi Plant. The only way to change people's lives for the better by using the chemical technologies that are the ISK Group's greatest strength is to challenge new policies that are not merely extensions of existing ones. I want to help the ISK Group grow into an enterprise that provides satisfactory performance to all stakeholders.



Diversity Messages
Diverse Human Resources and Multifaceted Careers

All kinds of people—irrespective of their gender, nationality, and home life situation—work in the ISK Group. We spoke with six of them about what makes their jobs worthwhile, how they achieve a work-life balance, and what their future dreams are.



Challenge of New Growth Strategies to Achieve Vision 2030

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Executive Director and President
Hideo Takahashi

Growth Policies and Purpose

A Better Living Environment by Pursuing “One & Only” Approach

Our two flagship products are titanium dioxide and agrochemicals. Both are essential for our lives. Although both markets are in quite tough competition, we can compete sufficiently if we can supply standout products that make say “that’s ISK.” The key to future growth will be how well we can pursue our “One & Only” approach to realize products that differ from those of competitors.

The ISK Group’s inorganic chemical product when I came to ISK 40 years ago was general-purpose white pigment only. At the time, we often discussed whether that would be enough to allow us to survive competition with major manufacturers in the world. We already knew that titanium dioxide had a variety of functions. After several years since I started working, I engaged in the development of functional materials. We succeeded in developing some products such as electro-conductive materials, which we have been producing and selling to date. One path forward leads ISK to survive in the future is to develop new products that don’t exist anywhere else. I have been keeping that faith, and still never change.

However, it’s not enough to just develop products just new to the market. We also need to develop materials and products that provide solution to challenges and realize “better living environment.” If there are no such materials and products, we should newly develop them. After spending 40 years here at ISK, I have a renewed appreciation of the fact that this is where ISK Group’s strengths lie. That thinking is built into the ISK Group’s purpose of “To continue contributing to better living environments through chemical technologies.”

Every six months, I visit our Group companies across Japan to speak directly to employees about our company’s performance and the Group situation. In some regions, this is a cozy gathering of a dozen or so people. I’ve also spoken about my thoughts with regard to our corporate purpose and our long-term vision, Vision 2030, at those events. Employees have asked a variety of questions. For example, one employee asked me, “Would it be working out as you expect?” I however believe that such question means his/her interest to the matter. I look forward to setting multiple opportunities in the future to try to get everyone on the same page throughout the Group.

Priorities

Striving to Launch New Business and Rebuild the Yokkaichi Plant

One of the targets set forth in Vision 2030, the long-term vision we formulated on the 100th anniversary of the Group’s founding, is to achieve net sales more than 200 billion yen. Since becoming president, I’ve spent the last year asking myself what we should do to achieve that target. As a result, I reached the conclusion that we need to create one more core business besides our existing ones. It once again reminded me that my duty and responsibility are to get new business up and pave the way for growing, even if it yet reaches growth period while I am president.

To that end, I set up the Business Creation Committee, which reports directly to the president, this June. I’m serving as the chairperson, and I sought to fill its membership with Headquarters Directors as well as promising young and mid-level employees. We’ll spend the first year identifying a general direction of the type and genre of new business we’ll pursue.

It’s been my experience that when people responsible for operating an existing business think about a new business, they’re prone to think about it as an extension of their current strengths. We’ve already thought about such ideas in the past, and presumably so have our competitors. What we do need is an idea that embodies a dramatic leap forward, something different than what we’ve done in the past. If we fail to make such a leap, that business consequently would not yield net sales in excess of 10 billion yen. We’ll need to enlist outside cooperation, particularly start-ups, but the likelihood of success will be low if we blindly check with them. In light of this fact, I decided we at first should determine the direction of our efforts. We do not narrow things down too much, and it might be possible that the new business involves a field other than chemicals. The committee’s deliberations have the ambiance of a serious attitude for development and exploration of unprecedented activity and business. We hope that we take advantage of the people’s knowledge and experience, who have made success in the new business and who have failed.

Once we’ve determined our general direction, we would like to look for the candidates as our partners, for example through startup events. The young and mid-level members of the committee will lead such effort to find potential partners, but I’m planning to attend it, too.

Our goal is to enable us to make the initial moves during the period covered by Vision 2030 Stage II, the next medium-term business plan (fiscal 2024 to 2026). We will set up a new organizational entity, either a department or headquarters, and add new R&D personnel to accelerate the effort. I anticipate that operations will assume the shape of a business during Vision 2030 Stage III (fiscal 2027 to 2029).

Furthermore, there’s another priority I’d like to accomplish as president. That’s the rebuilding of our flagship Yokkaichi Plant. Due to my background in our inorganic chemicals business, I’m well acquainted with the Yokkaichi Plant. Some of its buildings are more than 80 years old, and some production equipment and facilities are outdated. The maintenance and management cost for the facility requires billions of yen each year. In addition to it, as there are still issues with earthquake resistance, it’s apparent that some of the equipment and facilities won’t last another 100 years. The plant itself needs to be renovated and updated.



If you assume that saving up annual repair fees for 10 years, it will yield dozens of billions of yen. In that case, we can find it worthwhile if we rebuild even whole Plant from square one since the repair costs would decrease afterwards. However, there would be no point in rebuilding a plant that's exactly the same as the current one. We need to build a plant that can accommodate sustainable production systems. To meet the demand for decarbonization that is sweeping the world, it is difficult for us to keep using 100% coal fuel to power our boilers. Now is the time to make our resolute decision.

What to do about energy is a difficult question, but as an initial goal, we'll strive for 30% reduction in CO₂ emissions by 2030, for example by switching to different fuel for coal-fired boilers. The way I see it, the future candidate would be ammonia fuel. Ammonia is a clean fuel that produces no CO₂ when burned, but the Haber-Bosch process, which is currently the primary manufacturing method, requires a high-temperature and high-pressure environment so that it is unavoidable to consume enormous amounts of energy. However, research into synthesizing ammonia under normal pressure has been making progress in recent years, so if that research bears fruit, ammonia could become a workable source for alternative energy.

We would probably continue to use coal in some form or another until around 2030, but we plan to conduct research into CO₂ fixation since the ISK Group has materials whose properties are close to zeolite, which can fix and store CO₂. In any case, we'll lay out a direction within this year, and then move forward with measures geared to realize carbon neutrality by 2050.

These two goals embody the key elements of Vision 2030 for my term as president.

In addition, I've been thinking along various lines with regard to the organic chemicals business. In the agrochemical industry, it's common for active ingredients to be produced under contract, for formulations to be prepared at companies' own plants, and for formulations to be outsourced. We ISK also follow the same approach, but it leads to a degradation in manufacturing technologies. What we can do should be implemented by ourselves as much as possible.

Therefore, I'm planning to build our bench testing equipment and/or a pilot plant in Japan so that we can improve our manufacturing technologies. Our concept is that we utilize the technologies accumulated there for our consideration upon contract production and our own plant operation.

The plant we built at our manufacturing contractor in India is part of this approach. The project was delayed due to the COVID-19 pandemic, but test operations finally began this May. We produce organic intermediates for our flagship fungicide Fluazinam based on our unique manufacturing technologies. We're working to lower costs by several hundred million yen by transitioning away from existing suppliers. This would be a head start for us on realizing the lowest cost of our flagship agrochemical ingredients in the world, which is one of Vision 2030's priority goals.

Although a number of our existing flagship agrochemicals are selling well, there are no major products in the pipeline positioned to become the major products for the next generation in our portfolio. We expect to see the next candidates after two to three years, but due to the time-consuming nature of development, it will take seven to eight years to launch them in the market. As some patents for flagship products will expire during those developments as well as others expired already, we have no way but compete with generic products. For this reason, it is important for us to keep manufacturing costs as low as possible. Developing our proprietary manufacturing technologies is one way to help achieve that goal, and we'll also work to reduce manufacturing costs by improving technologies.

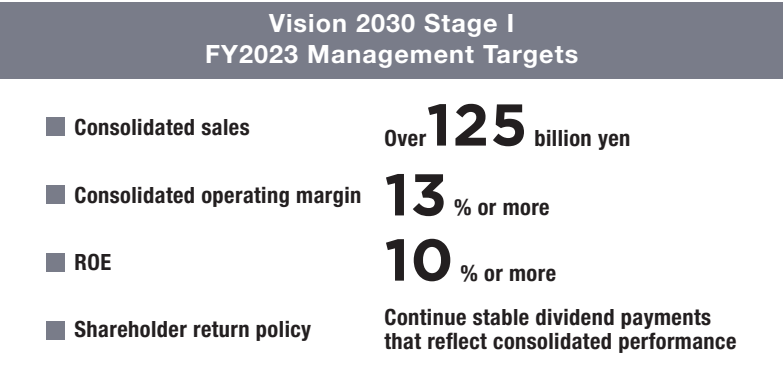
I believe that agrochemicals and animal health products are growth driver for the Group in the near term. Those segments have much larger potential compared to the inorganic chemicals business, where even hit products seldom reach 10 billion yen in sales. I envision fostering the new business that will drive the next stage of our growth while the organic chemicals business is performing well.

Medium-Term Business Plan

Bright Future Prospects amid Concerns over Rising Raw Material and Fuel Costs

Changing topics, I'd like to talk about Vision 2030 Stage I, our current medium-term business plan (fiscal 2021 to 2023). Results for the first year were almost too good, thanks to the strong performance in the inorganic chemicals business due to the favorable business situation. However, if you drill down into those results, you'll see that we haven't made so much progress in the shift from commodity titanium dioxide to highly functional and high-value-added products. This remains an issue.

The second year results presumably wouldn't be quite as robust, but I believe we'll be able to sufficiently achieve our targets. I also expect operating profit in line with the plan for the third year, assuming that demand for upcoming flagship agrochemical products will rise and that we'll be able to lower manufacturing costs.



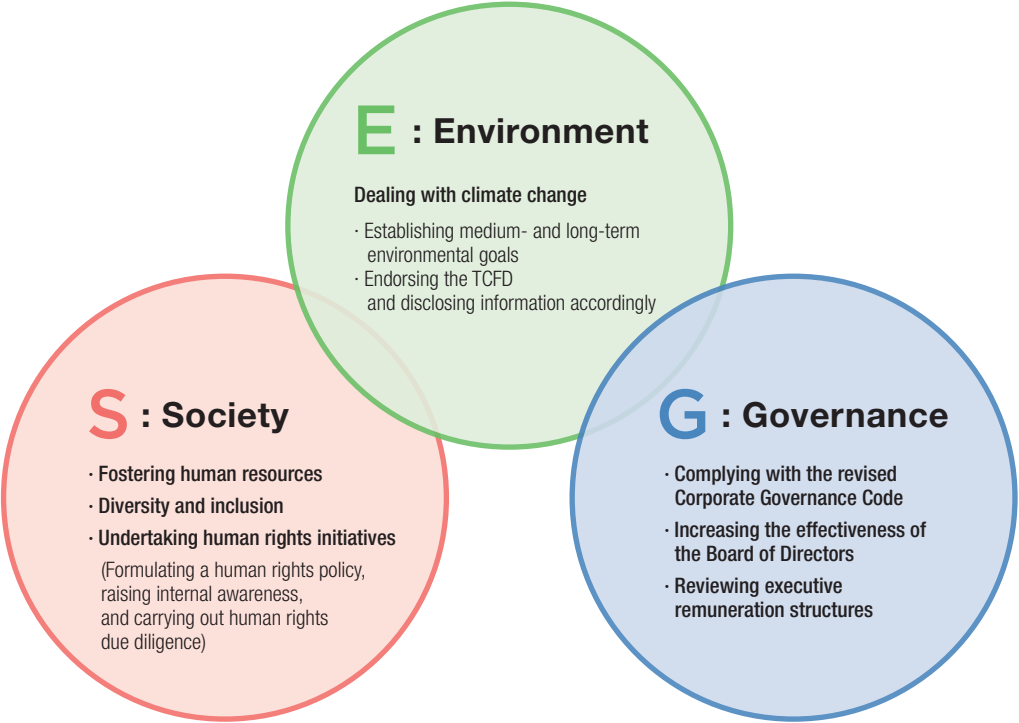
The rising cost of raw materials and fuel in the inorganic chemicals business is a cause for concern. For example, coal normally costs around \$70 to \$80 per metric ton, and we have budgeted \$120 to \$130 in light of the recent market conditions. Nevertheless, the price has now risen to \$300 to \$400. As a result, our profitability depends on how well we can pass on those additional costs to sales prices. Recently, a newspaper article reported that suppliers were imposing surcharges for inorganic materials in the same manner of fuel surcharges in air ticket prices. We may have to consider such measures ourselves.

For agrochemicals, with regard to the next-year prices, we have annual negotiation in major market, which would be set by this fall. We need to negotiate carefully since we're also competing with generic products.

Turning to ESG initiatives, we've identified Materiality and established KPIs. I consider such initiatives are essential elements in order for companies to survive from now on, and I would like to implement them in a steady manner. In this era, it is impossible for companies to continue their business unless perceived as sustainable. Right now the Sustainability Promotion Committee, which reports directly to the president, is leading these measures, but I believe it would be appropriate to set up a division or headquarters at some point. This is not because ESG has been booming, but because it allows us to ensure further measures and make them ongoing activities.

With regard to environmental measures, we disclosed climate change-related risks and opportunities in line with final report:

• Identification of Non-financial Goals Related to Materiality



Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), and we published a road map for realizing carbon neutrality. We are also studying industrial waste, but that process remains still ongoing. We plan to study new initiatives, for example to recover valuable elements from waste.

Regarding social measures, we formulated the “ISK Group Policy on Human Rights.” This policy calls on the Group to undertake human rights initiatives globally in line with international norms related to human rights. Merely formulating a policy doesn't prevail throughout the organization, so I also plan to undertake human rights due diligence and other related measures. This September, we offered training and communicated the significance of this issue, particularly to Board members.

As for governance measures, feedback from outside Board members submitted as part of our evaluation of the effectiveness of the Board of Directors identified the need for more discussions of business strategy from a medium- and long-term perspective. Upon reflection, I also feel that discussions might have focused too much on matters that have demanded immediate decisions. Those matters should properly be discussed by Officers. Directors, who have a supervisory role, need to adopt a different perspective. To address this issue, in our Executive Management Committee from this year, we allocate time specifically to discuss medium- and long-term discussions.

Message for Stakeholders

Valuing Relationships and Becoming a Company That Provides Satisfactory Performance to All Stakeholders

Since April 2022, our shares have been listed on the Tokyo Stock Exchange's Prime Market. As the listing standards and requirements have been changed from the time of the former First Section, I suppose that our duties have become much clearer. We'll make steady progress in carrying out those tasks.

What the ISK Group needs to do is summed up succinctly by Vision 2030: “Transforming lives through the power of chemicals.” We make contributions to help improve people's lives through our technologies. That is the entirety of what we should do going forward.

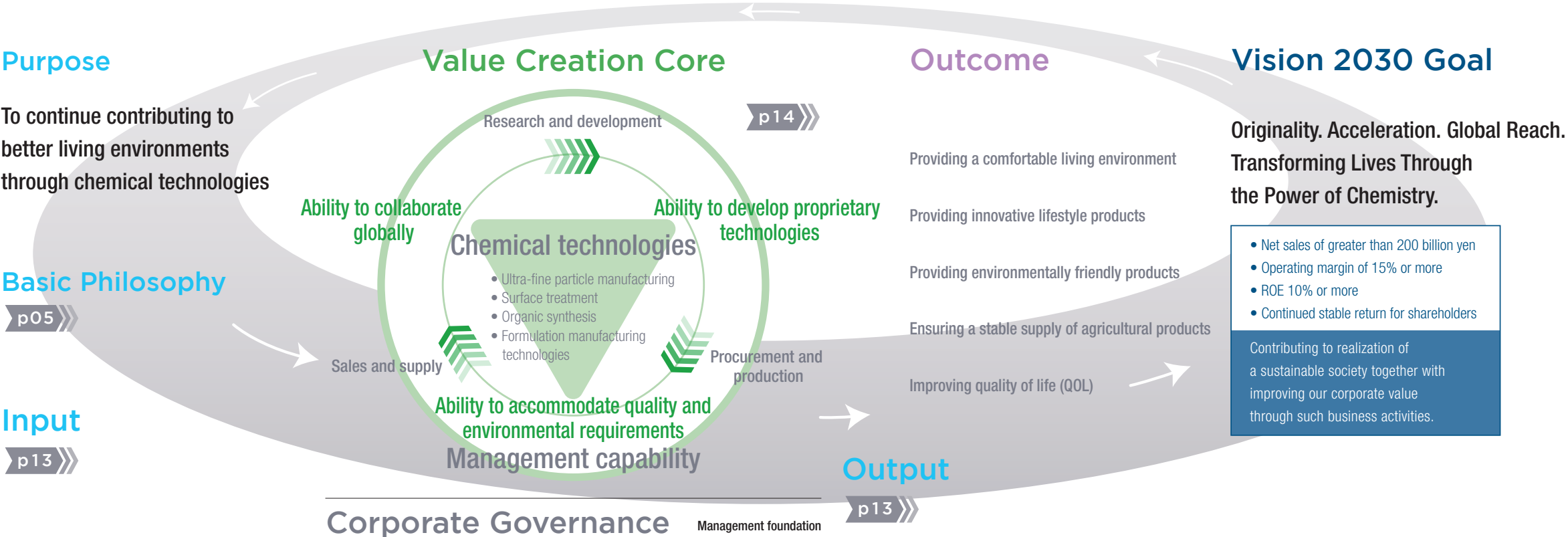
I studied applied chemistry at university and dreamed of working in R&D for a chemical manufacturer. However, it was difficult to find employment in the aftermath of the oil crisis, and I eventually was offered a position at a chemical trading company. As I was trying to decide whether to accept the offer, my parents told me that a company called Ishihara Sangyo Kaisha was looking for R&D staff, and that led to me joining the company. At the time, I didn't even know what kind of company ISK was...

Since then, 40 years have passed. I've experienced a variety of successes and helped transform people's lives for the better in some small way. In that sense, I feel I might be linked ISK by fate. I would like to value such relationships and new encounters. I look forward to helping the ISK Group, with which I've been fortunate to be associated, continue to operate in a way that all stakeholders are satisfied.

My dream I have now is to help ensure that ISK grows into such an enterprise.

Creating value through our purpose to achieve Vision 2030

The ISK Group will be continuing to expand its business by taking its corporate purpose as a starting point and leveraging its core competence of chemical technologies; its three principal strengths, in the form of its ability to develop proprietary technologies, accommodate quality and environmental requirements, and collaborate globally; and its management capability, which underpin those strengths. In this way, we're striving to achieve Vision 2030, which seeks to balance economic value with sustainability value.



An era characterized by VUCA (volatility, uncertainty, complexity, ambiguity) in which the future is unpredictable

Megatrends

Climate change Urbanization Resource shortages and food problems Growth and aging of the global population Rapid development of IT

Our three principal strengths and management capability to tap the true value of chemical technologies

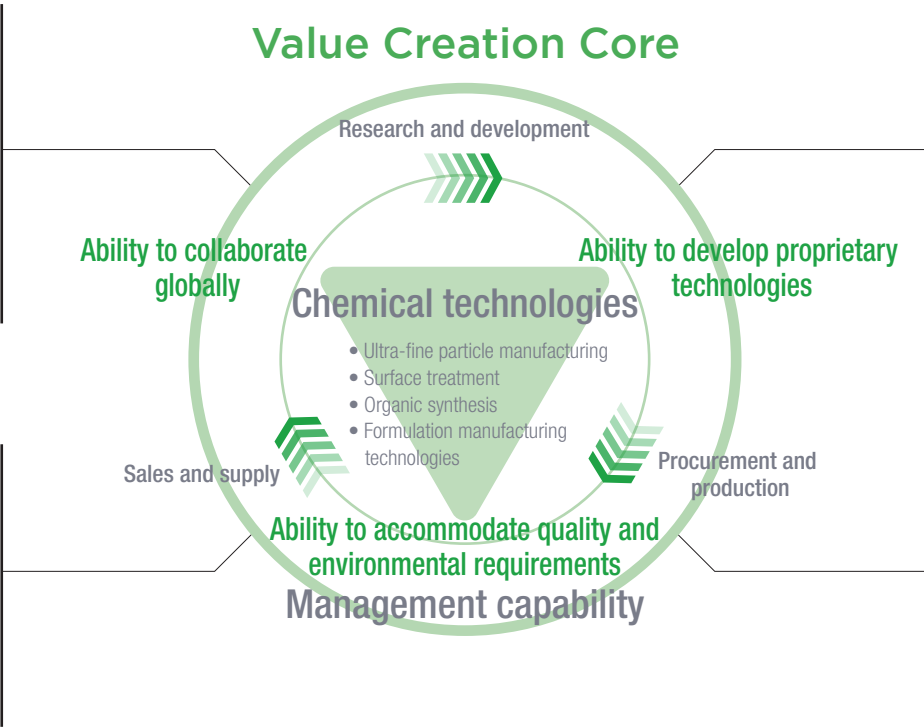
We tap the true value of chemical technologies, which is the source of our competitiveness, through our three principal strengths—the ability to develop proprietary technologies, accommodate quality and environmental requirements, and collaborate globally—which are supported by our management capability. This is the mechanism by which the ISK Group creates value. Going forward, we will be continuing to create new value and deliver a better living environment for people worldwide.

Ability to collaborate globally

Our global network, which has been built since our founding to deliver our products to customers worldwide, is one of our strengths. Our logistics network, through which we are developing the agrochemical market in places like Brazil and India, and our development and registration capabilities in Europe, where environmental and safety regulations are growing more stringent, have earned praise worldwide. Under our Vision 2030 long-term vision, we will work to achieve further business growth by establishing a robust global value chain and bringing our animal health products to markets worldwide.

Management capability

At the base of our strengths lies transparency in business activities abiding by laws and regulations, which is a part of our corporate philosophy. Recently, we've also incorporated the perspectives of ESG and the SDGs to implement and strengthen initiatives for sustainable management. We will continue to embrace the challenge of both realizing a sustainable society and increasing our corporate value so that we can address environmental and social challenges through our business activities.



Ability to develop proprietary technologies

One of our strengths is the ability to provide new value as a leading player in niche markets worldwide based on our ability to develop proprietary technologies, which we've accumulated since our founding. In addition to developing new products and improving production technologies in both the inorganic and organic chemicals fields, we're exploring new businesses in state-of-the-art domains such as the environment, energy, biotechnology, and IT. We treat the increasingly rapid changes in the business environment that we've seen in recent years as an opportunity, and we're accelerating the manner in which we embrace the challenges of technological innovation by deepening our core technologies and pursuing innovation.

Ability to accommodate quality and environmental requirements

We're working to create products that combine high quality with environmental consciousness as part of a commitment to a sustainable society. This is also one of ISK's strengths. At our flagship Yokkaichi Plant, we've put in place Japan's only chloride process for manufacturing titanium dioxide, which is characterized by low environmental impact. We also thoroughly manage chemical substances to reduce emissions and transfers in order to minimize the impact on the environment and ecosystems. In response to climate change, we're working to reduce greenhouse gas emissions in our business activities.

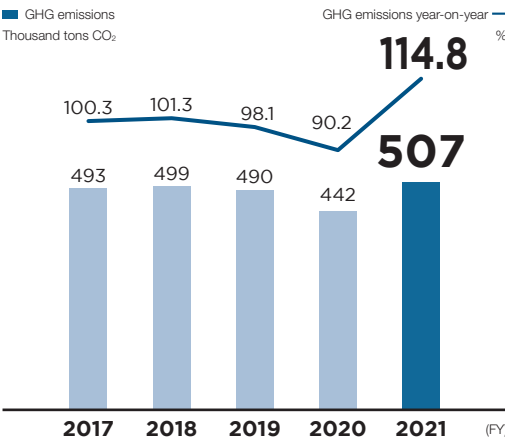
Promote Value Creation through Continuous Input

ISK Group’s definitions of the inputs and outputs of the six capitals of value creation are given below. We will realize Vision 2030 through ongoing enhancement of inputs.

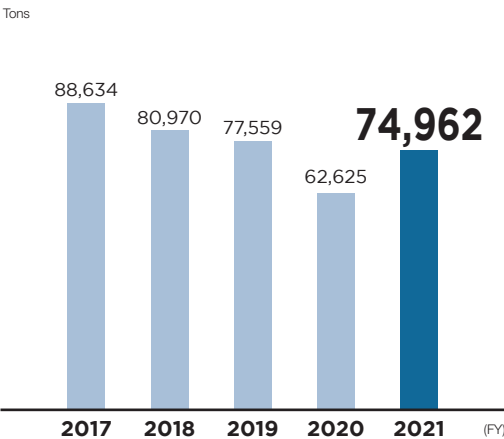
Financial Capital	Input	Reason for Input	Role in Value Creation	Output
	• Total assets (FY2021 consolidated) 185.7 billion yen • Interest-bearing debt (end of FY2021) 50.4 billion yen • Shareholders' equity (FY2021 consolidated) 91.9 billion yen	Total assets from which revenue is generated, as well as interest-bearing debt and shareholders' equity, which serve as the primary means of raising capital in establishing these assets, are set as our main financial inputs. These were also incorporated among the management targets for our medium-term business plan, "Vision 2030 Stage I."	• By efficiently utilizing total assets, we will secure market share and thereby increase consolidated net sales. • Adjusting a balance between interest-bearing debt and shareholders' equity will facilitate improved ROE along with greater capacity for future investment.	• Top market share in domestic sales of titanium dioxide • Forecast performance for FY2022 • Consolidated net sales 129 billion yen • ROE 6.60 %
Manufacturing Capital				
	• Capital investment (FY2021 consolidated) 5.1 billion yen • Titanium dioxide production capacity (No. 1 in Japan) 168,000 tons • Expertise cultivated over many years, essential to high-quality and stable manufacturing	The key manufacturing inputs are production capacity, which underpins our top share of the domestic titanium dioxide market, and capital investment sufficient to increase production of highly functional, high-value-added products. In addition, we have added plant operation expertise for titanium dioxide production, which is a type of process industry, as one type of manufacturing capital.	• We achieve efficient facility operation sufficient to meet demand through the application of our unique expertise coupled with timely replacement investment in production equipment and facilities. • We will take advantage of a new production line for highly functional products installed in April 2021 to increase the share of inorganic chemicals business sales accounted for by highly functional, high-value-added products.	• Change in the titanium dioxide production facility utilization rate (FY2020 consolidated -> FY2021 consolidated) 13.5 % increase • Highly functional, high-value-added products as a percentage of inorganic chemicals business sales (FY2021 consolidated) 32.4 %
Intellectual Capital				
	• R&D expenses (FY2021 consolidated) (Inorganic chemicals 8.1 billion yen Organic chemicals 1.2 billion yen 6.8 billion yen) • Percentage of R&D employees (FY2021 non-consolidated) 20.50 %	Research and development have long been a priority for ISK Group. We ensure that a certain threshold for R&D expenses is met regardless of fluctuations in business performance. R&D activities at the Central Research Institute and Yokkaichi Plant account for the majority of R&D expenses, while some are used for the registration of agrochemicals in various countries.	• Drive the development and patenting, both in Japan and overseas, of new agrochemicals and drugs, highly functional titanium dioxide materials and more, as well as facilitate the creation of new business associated with them. • Further expand registration activities worldwide, and utilize agrochemicals registration as intellectual property.	• Number of patents held (end of FY2021 non-consolidated) 2,527 (Japan 266 Overseas 2,261) • Products developed in-house as a percentage of organic chemicals business sales (FY2021 consolidated) 86.8 %
Human Capital				
	• Employees (FY2021 consolidated) 1,750 people • New graduate hires (FY2021 non-consolidated) 15 men, 3 women • Mid-career hires (FY2021 non-consolidated) 22 men, 11 women	Securing and making the most of a diverse group of human resources is one of the key priorities of the ISK Group. We strive to secure human resources with a challenging spirit and a global mindset, regardless of their gender or nationality, as newly hired graduates or mid-career hires. We also help newly hired employees develop their careers in order to strengthen their basic skills as working members of society, raise the awareness of employees at all levels of their roles, and prepare promising candidates for executive roles.	• We revamped our human resources system in FY2020. This new system provides all employees with the opportunity to take on high-level job challenges and to get various kinds of training. Through these procedures, we draw out greater value from our human resources. • We are also working to achieve greater diversity and thereby make the most of human resources representing different backgrounds.	• Training time per person (FY2021 non-consolidated) 20 hours per person/year • Employees who took childcare leave (FY2021 non-consolidated) 12 people • Female manager ratio (FY2021 non-consolidated) 5.1 % • Paid leave acquisition rate (FY2021 non-consolidated) 77.00 %
Social and Relationship Capital				
	• Transparency in business activities abiding by laws and regulations • Number of countries where we sell our products 74 countries	In keeping with the Group's corporate philosophy, we strive for the sustained growth of our business and growth in our corporate value through a commitment to compliance and management that is transparent, trustworthy, and sound. We're also working to contribute to local communities, with a focus on areas where we operate.	• We promote two-way communication to earn the trust of local residents, for example through efforts to ensure safety and disaster prevention, environmental activities, and active communication of information. • In addition to undertaking human rights initiatives, we observe the laws and regulations in every country and region in which we operate, and we ensure our purchasing activities are characterized by decency and adherence to social ethics.	• Coexistence with local communities • Undertaking procurement activities that fulfill our social responsibility alongside suppliers and subcontractors • Dispersing geopolitical risk
Natural Capital				
	• Yokkaichi Plant FY2021 • Energy (heavy fuel oil equivalent) 140,000 kiloliters • Industrial water 15 million m³ • Seawater 11 million m³ • Titanium ore 130,000 tons	We treat energy, water, and titanium ore consumption at Yokkaichi Plant and our subsidiary, Fuji Titanium Industry, as key indicators so that we work to reduce the volume of our CO ₂ emissions, water usage, and industrial waste disposal.	• By reducing coal-fired boiler CO₂ emissions as part of our efforts to address global warming, we aim to preserve a comfortable living environment. • Through more thorough chemical substances management, we are reducing the amount, and amount transferred of, our emissions, with the goal of reducing the impact on humans and the ecosystem to as close to zero as possible.	• Yokkaichi Plant FY2021 • CO₂ emissions 380,000 tons • Wastewater emissions into public water areas 27 million m³ • Industrial waste 91,000 tons • PRTR-listed substances 1,600 tons

Environmental

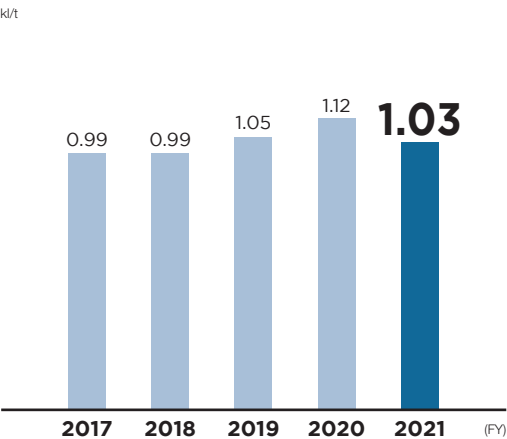
Greenhouse Gas (GHG) Emissions (Japanese group companies*1)



Industrial Waste (Sludge) (Japan, consolidated*2)

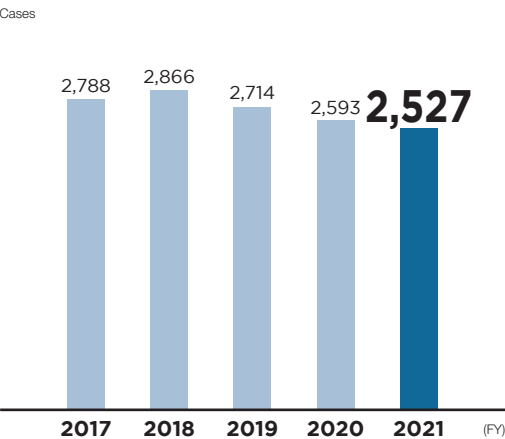


Energy Intensity (Japan, consolidated*2)



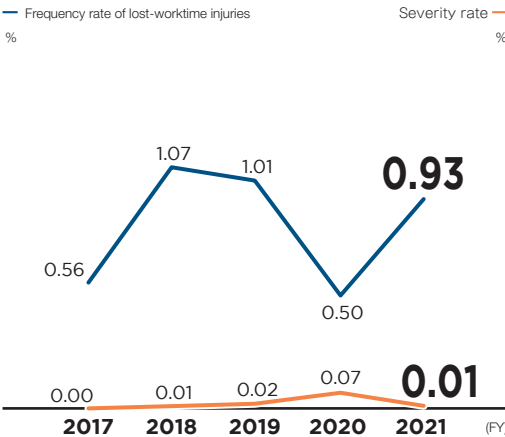
Others

Number of Patents Held (non-consolidated)

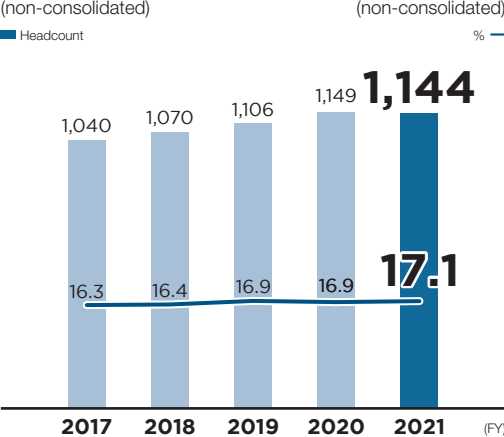


Social

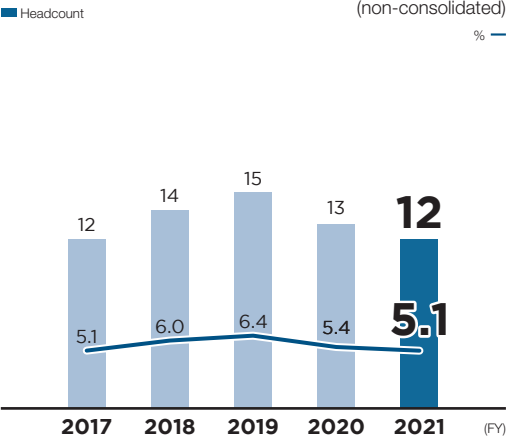
Workplace Accidents (Japan, consolidated*2)



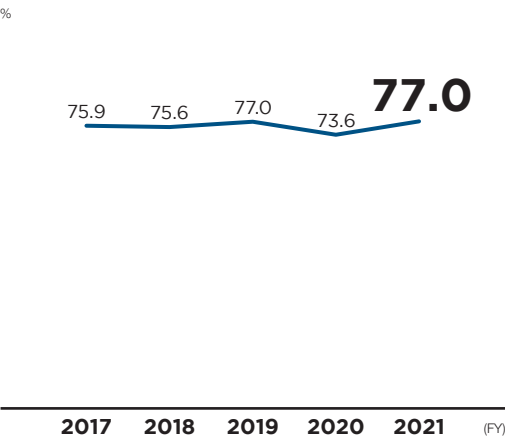
Number of Employees (non-consolidated)



Number of Female Managers (non-consolidated)



Paid Leave Acquisition Rate



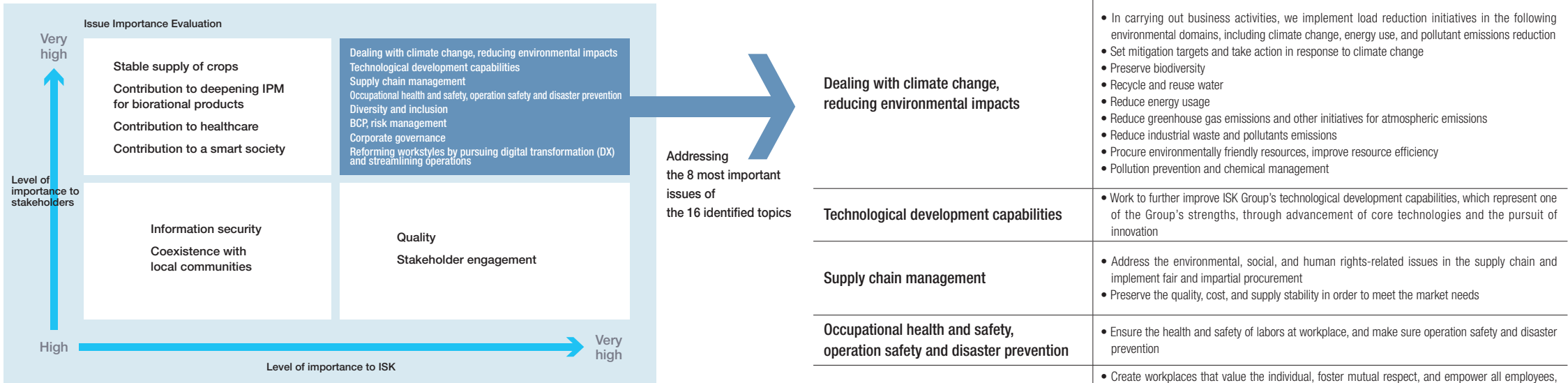
*1 ISK Group (Japan, including Yokkaichi Energy Service Corporation, which the Group absorbed in October 2018.)

*2 All production facilities operated by ISK and its 100% subsidiary Fuji Titanium Industry Co., Ltd.

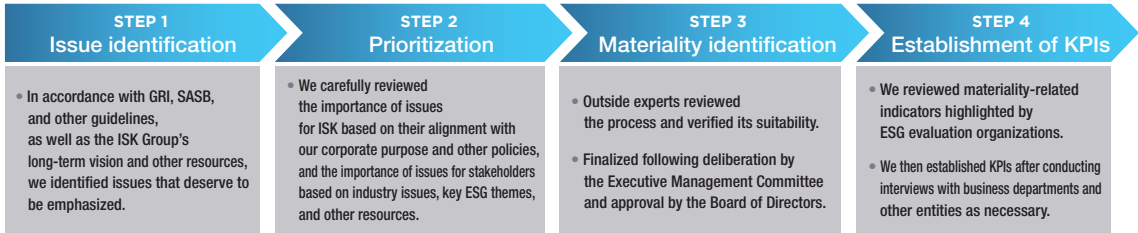
Materiality for the ISK Group

The Group has identified materiality (key issues) with the potential to impact its medium- and long-term corporate value. We’ve established medium- and long-term key performance indicators (KPIs) for eight key issues with an extremely high level of importance for both stakeholders and the ISK Group, which we’ve determined comprise the most important issues, and will undertake specific initiatives to address them. By addressing these issues, we strive for the sustained development of society and the creation of sustainable corporate value.

Identified Materiality



Process for Identifying Materiality and Establishing KPIs



Eight Most Important Issues and KPIs

Materiality	Outline	KPI	Target	Target fiscal year	Scope	SDGs
Dealing with climate change, reducing environmental impacts	Set mitigation targets and take action in response to climate change	CO ₂ emission reduction rate (Scope 1+2, vs. FY2019)	30% or more	2030	ISK Group (Japan)	    
	Reduce energy usage	Reduction in energy intensity	1% or more	Every year	Japan, consolidated	
	Reduce industrial waste and pollutants emissions	Industrial waste emission reduction rate (vs. FY2019)	50% or more	2030	ISK	   
	Pollution prevention and chemical management	Adherence to voluntary control standard values that are stricter than environmental laws (wastewater, waste gas)	Continue	2023	Japan, consolidated	
Technological development capabilities	Work to further improve ISK Group's technological development capabilities, which represent one of the Group's strengths, through advancement of core technologies and the pursuit of innovation	Creation of new products and technologies in each business segment	Establish on per-department basis	2023	Japan, consolidated	      
Supply chain management	Address the environmental, social, and human rights-related issues in the supply chain and implement fair and impartial procurement	Establishment of basic policies and guidelines governing procurement	Announce	2023	ISK Group	   
Occupational health and safety, operation safety and disaster prevention	Ensure the health and safety of labors at workplace, and make sure operation safety and disaster prevention	Frequency rate of lost-worktime injuries, severity rate*	0 accidents	2023	ISK, Fuji Titanium Industry	
		Percentage of employees undergoing health checkups and stress checks	100%, continuing	2022 2030	ISK	  
		Paid leave acquisition rate	75% or more 80% or more	2022 2030	ISK	
Diversity and inclusion	Create workplaces that value the individual, foster mutual respect, and empower all employees, regardless of gender, age, disability, nationality, lifestyle, work backgrounds, values, or other attributes	Female manager ratio	10% or more	2030	ISK	
		Mid-career hires as percentage of managers (average for last three years)	30% or more	2022	ISK	  
	Accommodate individual differences in experience, ability, and thinking, and facilitate skills development and improvement to help all employees achieve maximum performance	Time spent in training and classes	20 hours or more	2022	ISK	
		Cost of training and classes	50,000 yen or more	2022	ISK	
BCP, risk management	Ensure the thoroughness of risk management and BCP (Business Continuity Plan) in order to minimize the impact from external risks	Implemented through Corporate Risk Management Committee initiatives	Achieve plan	2023	ISK Group	 
Corporate governance	Ensure compliance and corporate ethics, foster operational transparency	Participation in at least 1 compliance training session	100%, continuing	2022	Japan, consolidated	 
Reforming workstyles by pursuing digital transformation (DX) and streamlining operations	Pursue DX to streamline operations and implement work style reform	Effective contribution to operational streamlining	3 or more	2022	ISK	
		DX certification	Acquire	2023	ISK	

*Frequency rate of lost-worktime injuries: Number of employees injured or killed in occupational accidents per 1 million total working hours; indicates the frequency of occupational accidents.
Severity rate: Number of working days lost per 1 thousand total working hours; indicates the severity of occupational accidents.



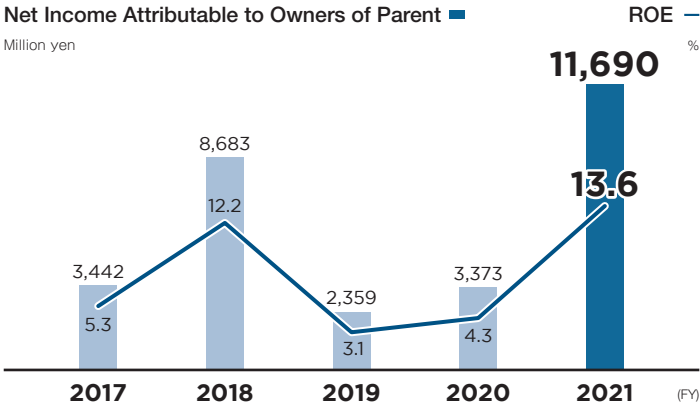
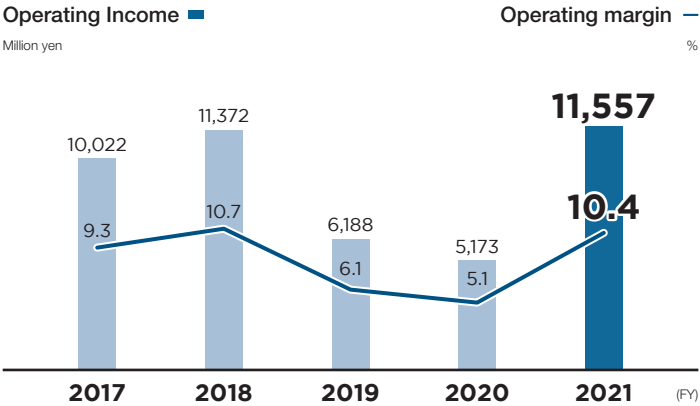
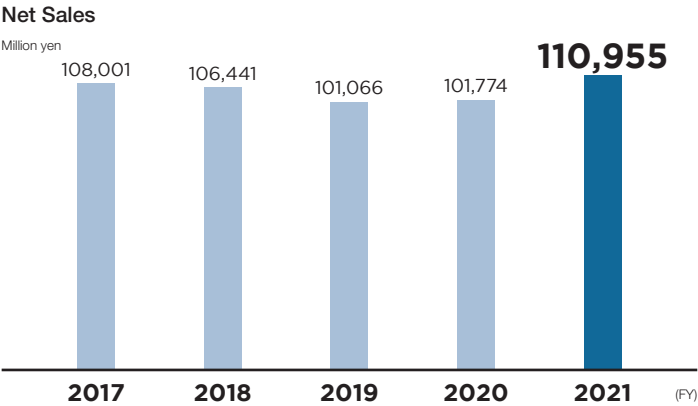
Results for Fiscal 2021 and Outlook for Fiscal 2022

Results Driven by Inorganic Chemicals Business;
Organic Chemicals Business Performance Also Strong

In fiscal 2021, our inorganic chemicals business grew significantly and was the driving force behind the ISK Group's results. There are three reasons for this. The first is the continuing economic recovery from the COVID-19 pandemic, which began in the latter half of fiscal 2020. This recovery has led to increased sales of titanium dioxide, particularly in the automotive and construction sectors. Another reason is that costs were passed on to prices to improve profitability, with prices being raised an unprecedented two times in one year, while, overseas, recovery in the Chinese economy contributed to a tightening of supply in the Chinese and Southeast Asian markets for pigments used in construction. The steady increase in the market price contributed to improvement in profitability. The last reason is the rapid drop in the yen since March 2022, which has bolstered our operating income. What's more, these factors have increased our production facility utilization rate, which has led to increased productivity and improved profitability. Traditionally, it is standard for us to run our titanium dioxide chloride processing at full capacity; however, because of the effects of the pandemic, we lowered it to around 60% capacity in the first half of fiscal 2020. This was one of the reasons why our

inorganic chemicals business went into the red. That has now been turned around. One of the special characteristics of our Group is that market conditions are not always correlated between the inorganic chemicals business and organic chemicals business. In fiscal 2020, we experienced a drop in our inorganic chemicals business, but this was covered by our organic chemicals business. Happily, however, the results for fiscal 2021 have been significant growth in our inorganic chemicals business as well as strong performance from our organic chemicals business. We benefited from favorable weather conditions globally, steadily increasing sales of our agrochemicals in Europe, where they cleared the stringent regulations, and in Brazil, where the expansion in soybean production has produced expanded demand for agrochemicals.

This situation has continued into fiscal 2022 as well and looks to be putting us on track to reaching our sales targets under the Vision 2030 Stage I medium-term business plan (fiscal 2021–2023) a year early. However, we are experiencing inventory shortages in our inorganic chemicals business, which will need to be restored to their appropriate levels. The prices of the titanium ore and coal needed to address this shortage have been rising since last fall, and, particularly after the invasion of Ukraine by Russia, the pace of this rise has increased. This is a current point of concern for us.

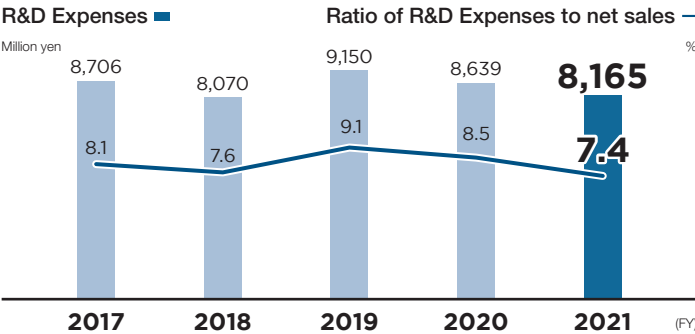


Improvement of the Financial Position and Investment

Implementing 100 Billion Yen of Capital Investment Ahead of Schedule

The recovery in business performance contributed to free cash flow of 12.1 billion yen for fiscal 2021, greatly surpassing the 1.4 billion yen originally forecast. Because this cash covered all necessary business funding, we were able to reduce our interest-bearing debt to around 50 billion yen without borrowing from the bank. In the past 20 years, this is unprecedented. Under Vision 2030 Stage I, we planned to use fiscal 2021 to fiscal 2023 as a period for making our financial position leaner. However, as we have achieved our target early, we have the reserves available to also carry out capital investment ahead of schedule.

As the president discussed in his message, the investment will be focused on two areas: the creation of new business led by the Business Creation Committee and rebuilding the production system at the Yokkaichi Plant. Assuming we can continue to secure the same level of operating income as fiscal 2021, we anticipate the amount of investment will be 100 billion yen over five years, or 65 billion yen if replacement investment is excluded. For the Yokkaichi Plant, already the project team is carrying out a careful examination, and a final report is expected by the end of the year. However, carrying out new investment requires that we keep down replacement investment and repair costs; hence, we are conducting a review of the plant's facilities management system.

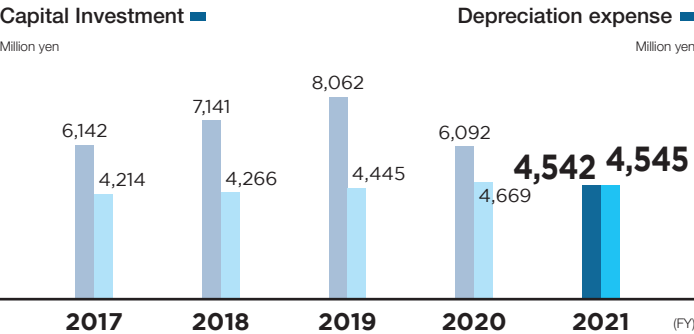


The deciding factor for new investment is, essentially, whether or not we can recoup our capital costs within seven to eight years. Of course, not all investments will be profitable straight away, which is why we must consider the medium- and long-term necessity of these investments. I also believe we need to properly invest in IT and other essential infrastructure for the Group as a whole.

Operating cash flow is our primary source of capital, but it alone will not cover everything; hence, we will increase our borrowing. This means we need to be mindful of our rating. Although our current rating is BBB, our outlook has recently been upgraded from 'stable' to 'positive.' I want us to focus on continuing this trend while, at the same time, putting in place mechanisms for the future that will, for example, alert us when our interest-bearing debt reaches a certain threshold. I believe we should use rating as an indicator as we work to keep overall investment under control.

Also, with regard to the earning capacity that underpins our operating cash flow, even if we are able to keep it growing by passing costs on to prices, there will come a limit. This is a risk that must be calculated. Rating is one indicator we can use to determine what the limit is.

Recapitalization is another means of securing financing, but we are not considering it at this time. This is because both our capital and capital reserves are sufficiently large enough already relative to the size of our company. I believe our equity ratio is just right at its current level (49.5%), and the challenge will be figuring out how to fund investment while maintaining this level.

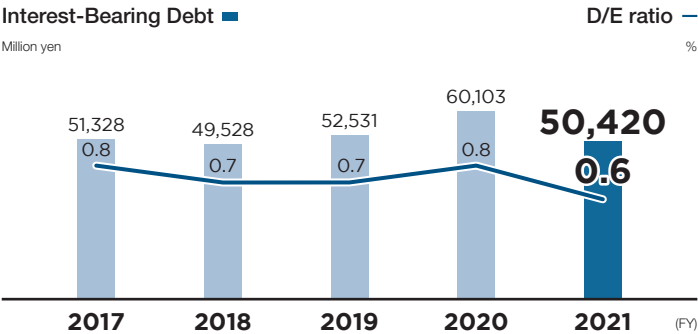


Shareholder Returns and Contributing to Society

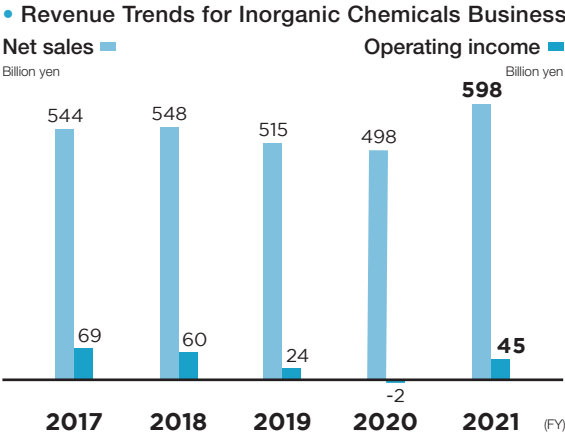
Balancing Growth in Revenue with Consideration for Society

With regard to shareholder returns, our policy is unchanged in ensuring continued, stable dividends for investors. It has been three years since the resumption of dividends. In fiscal 2021, current net income grew significantly, resulting in a lowering of the payout ratio, which drew harsh commentary from analysts. Given that our inorganic chemicals business, which has grown, is subject to industry-specific factors that can cause significant fluctuations in performance, there is no guarantee that dividends will remain stable. Put simply, without profits there can be no dividends. Our aim is to stabilize current net income and achieve an ROE of 10% or higher on a consolidated basis.

Recently, investors have also been asking a lot about our policies and efforts related to the Task Force on Climate-Related Financial Disclosures (TCFD) and carbon neutrality. For the ISK Group, the issue of carbon neutrality is directly connected with the Yokkaichi Plant, where we use coal as fuel in the production of titanium dioxide. Moving forward, we will announce a specific schedule for facilities and equipment replacement as evidence of our commitment to tackling the Sustainable Development Goals (SDGs). In this day and age, a company's existence depends upon whether or not society deems it essential. As a company listed on the Tokyo Stock Exchange Prime Market, we strive to ensure we maintain a sustainable balance between growth in revenue and consideration for society.



Inorganic Chemicals Business



Fiscal 2021 Results Overview (Consolidated)

Major Recovery in Net Sales to 59.8 Billion Yen (Year-on-Year Increase of 10 Billion Yen) and Operating Income to 4.5 Billion Yen (Year-on-Year Increase of 4.8 Billion Yen)

[Titanium dioxide]

- Major growth in sales volume due to domestic and international recovery in demand centered on the automotive and construction-related sectors.

[Functional materials]

- Growth in automotive and 5G-related sales of electronic component materials; major increase in demand in the multilayer ceramic capacitor (MLCC) market.
- Strong sales of electro-conductive materials for automobile bumper primers and other applications.

[Overall]

- Improved capacity utilization in response to a recovery in demand, along with product price revisions to deal with increased costs of raw materials and fuel, facilitated a significant recovery in profitability over the previous fiscal year.

Major Products

• **TIPAQUE™ PFC105 super-weatherable titanium dioxide**

Coatings containing titanium dioxide will degrade when exposed to sunlight and rain. Using this product dramatically improves the long-term durability of coated surfaces, making it especially suited to heavy-duty coating applications, such as for bridges.



• **Highly pure titanium dioxide**

This type of titanium dioxide contains fewer impurities than white pigments and is, thus, used as a raw material in barium titanate, which is the main material in MLCCs. We make use of the chloride process in manufacturing titanium dioxide—the only company in Japan to do so—for the stable production of highly pure titanium dioxide. We are also working on finer atomization of titanium dioxide for use in increasingly miniaturized and sophisticated electronic components, as well as working on new development focused on the future.



• **Electro-conductive materials**

Our inorganic electro-conductive materials provide stable antistatic performance when mixed into coatings and applied to areas where static electricity must be avoided. We have a titanium dioxide-based white product and a transparent product. The white type is used for floor coating in clean rooms or as primer for the electrostatic finishing applied to automobile bumpers. The transparent type is used for imaging films and other applications.



Risks and Opportunities

Risks	Opportunities
• Reduced earnings due to rising costs for electricity and raw materials, such as titanium feedstock	While continuing to monitor market trends, pass costs on to product prices and increase the sales percentage for high-value-added products. Also, including technological improvement, diversify raw materials used to expand the range of options
• Accidents and other problems due to aging production facilities and equipment	Carry out preventative maintenance and study the appropriate timing for replacing equipment and facilities
• Drop in market price and ISK market share as a result of growth among Chinese titanium dioxide manufacturers	Work towards increased and stable revenue by continuing to provide the market with high-value-added products based on ISK's unique technology

Strengths and Factors That Set ISK Apart from Competitors

- Our technological strength cultivated over many years, along with our meticulous customer service, allow us to stably bring high-quality products to market that meet customer needs.
- Our titanium dioxide business has held the top market share in Japan for many years. We are the only company in Japan with manufacturing facilities for both sulfate and chloride processing, allowing us to provide a diverse range of products.
- Super-weatherable titanium dioxide, black heat-shielding pigment, acicular white electro-conductive materials... We've been venturing into a diverse range of applications with these unique product lineups that no other company offers.

Vision 2030-Focused Business Strategy and Initiatives

- Increasing the sales ratio for highly functional, high-value-added products
- Implementing a strategy to expand sales of high-purity materials for electronic components, and electro-conductive materials
- Accelerating development of new products that will serve as drivers of further growth
- Procuring feedstock ore in stable and favorable terms
- Lowering costs at the Yokkaichi Plant by reducing wastes and improving manufacturing and operational processes
- Launching a master plan to optimize manufacturing sites
- Creating a roadmap to reduce greenhouse gases

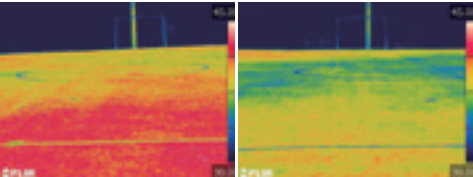
Products Contributing to the SDGs

At ISK, we manufacture and sell black and white heat-shielding pigments to help with energy-saving measures during extremely hot weather. These pigments are characterized by high reflectivity of the near-infrared rays in sunlight and are used as a heat-shielding coloring agent in a variety of applications. For example, applying a coating of these pigments to construction materials keeps them from heating up too much under sunlight.

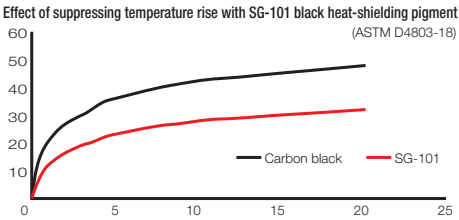
Our PFR404 white heat-shielding pigment, which is a proprietary titanium dioxide pigment containing rod-like particles, has a high degree of whiteness and is used in road marking paints and other applications.

Our SG series of black heat-shielding pigments are characterized by a black color containing very little redness and are chromium-free. These pigments are primarily used with construction materials, but we are pursuing other new and varied applications, such as in automobile interiors and on sports shoes.

In addition, these pigments are being used as infrared reflection materials in LiDAR (laser imaging, detection, and ranging) systems of self-driving automobiles.

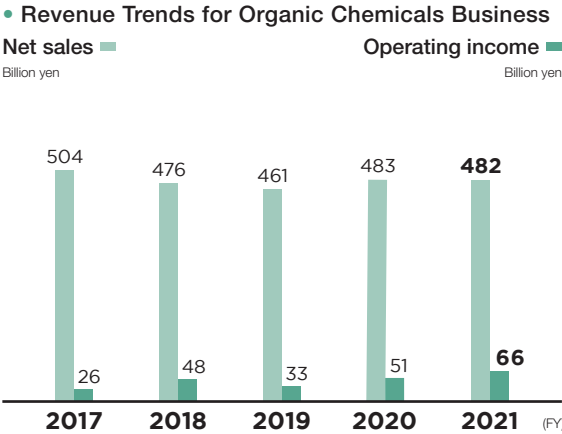


Demonstration testing on a soccer field (black rubber chips for artificial turf): Conventional black rubber is used on the left, while black rubber with black heat-shielding pigment is used on the right



Applying black heat-shielding coating

Organic Chemicals Business (Agrochemicals)



Fiscal 2021 Results Overview (Consolidated)

**Net Sales of 48.2 Billion Yen (Almost the Same As Previous Fiscal Year),
Operating Income of 6.6 Billion Yen (Year-on-Year Increase of 1.4 Billion Yen),
and Strong Performance in Overseas Sales Contributed to Increased Profits**

[Americas]

- In South America, increased cereal production and other factors contributed to strong performance for fungicides.
- In North America, sales of new herbicides were robust.
- Factors such as improved channel inventory contributed to good sales.

[Europe]

- Increased revenue due to higher demand for fungicides and herbicides.

[Japan]

- Declined year-on-year due to lower sales for our flagship nematicide and fungicide.

[Overall]

- Performance was not significantly impacted by the effects of the COVID-19 pandemic, extreme weather, or other factors.

Major Products

• Flonicamid (insecticide)

Our major brands are ULALA™ and TEPPEKI™. This insecticide exhibits high insecticidal activity against sucking insects such as aphids, white flies, and thrips. The main markets are cotton in India and fruits in Europe. Flonicamid has a unique mode of action that makes it effective against pests that have acquired resistance to other insecticides.

Flonicamid has long-term residual effectiveness against target pests but has hardly any adverse effect on the surrounding environment or natural predators, making it suitable for use alongside biopesticides as part of Integrated Pest Management (IPM).



• Fluazinam (fungicide)

Our major brand is FROWNICIDE™. This highly active fungicide is used to control a variety of diseases in a wide range of crops. The main markets are Brazil for controlling soybean Sclerotinia stem rot, the U.S. for controlling diseases in turfs, and Japan for controlling potato late blight and wheat snow mold. Resistance is difficult to develop against Fluazinam, making it effective against fungi resistant to other fungicides.



• Cyazofamid (fungicide)

Our major brand is RANMAN™. This fungicide is specifically effective at controlling downy mildew, late blight, and Brassicaceae clubroot disease. Its primary markets are potato and grape. It is also excellent at controlling diseases in turfs and is widely used in golf courses.

It shows high activity at low dosages and has superior selectivity, which ensures it has almost no effect on crops and useful organisms, making it also well suited for IPM.



Risks and Opportunities

Risks	Opportunities
• Delay in, or failure to achieve, product approval or registration	Take proper approach to countries' registration agencies and authorities; assess other companies' agrochemicals registration and survey their registration status; secure personnel with expertise in highly specialized fields, ensure handover of registration know-how
• Revised and stricter laws and regulations	Appropriately gather information relating to laws and regulations and registration requirements
• New entries and intensifying competition	Lower production costs to strengthen competitiveness; develop new molecule and mixture formulations that will enable ISK to stand out in the agrochemicals market
• Crop injury by agrochemical products	Strengthen safety confirmation by performing growing tests in fields; promote and disseminate appropriate methods for using agrochemical products

Strengths and Competitive Differentiation from Competitors

- Expand market share and improve profitability by launching new formulations and mixture formulations of existing products and by lowering production costs
- Ensure a stable supply and cost reduction by having flexibility in procuring active ingredients through integrated manufacturing that encompasses key raw materials or intermediates and active ingredients, purchasing of active ingredients from other companies, and joint procurement with other companies
- Leverage ISK manufacturing technology to actively sell organic intermediate products
- Shorten the registration schedule (initial registration, label expansion, change of manufacturing site, etc.)
- Add other species of blue flowering plants (blue dahlia, large-flowered blue phalaenopsis)

Business Strategy and Initiatives towards Vision 2030

- Pursuing development and commercialization in a way that's aware of the value chain
- Accelerating the creation of value and restoring our growth trajectory by improving and evolving in-house technologies
- Manufacturing flagship products at the lowest cost in the world and supplying them in a stable manner to customers

Products Contributing to the SDGs

The “w Tenteki” Consortium, which ISK and ISK Biosciences K.K. are members of, received the grand prize in the adaptation field of the development and commercialization category in the 2021 Environment Minister's Awards for Climate Change Action. This event is organized by Japan's Ministry of the Environment as a means of spurring action against climate change. The award was given in recognition of the establishment of a sustainable spider mite control system for fruit trees utilizing complementary natural enemies, under the Ministry of Agriculture, Forestry and Fisheries' Research Promotion Project for Enhancing Innovation Creation, which we participated in from fiscal 2016 to 2018. The excellent controlling effect of our natural enemy products, Miyako-banker™ and Swaru-banker™, was demonstrated on pears, grapes, and citrus fruits. These products are included in a manual for controlling spider mites on new fruit trees.



Target pest: Spider mites



Target pest: Mandarin orange spider mites and thrips



Installation in strawberry cultivation



Organic Chemicals Business (Healthcare)



Director of Healthcare Business
Headquarters
Hiroyuki Watanabe

Fiscal 2021 Results Overview (Consolidated)

Net Sales of 1 Billion Yen (Same As Previous Fiscal Year)

- Domestic sales of animal health products in fiscal 2022 are expected to be double those of the previous fiscal year thanks to further growth in direct sales by ISK. At the same time, we are planning to secure approval and begin initial sales in the U.S. market.

Major Businesses and Products

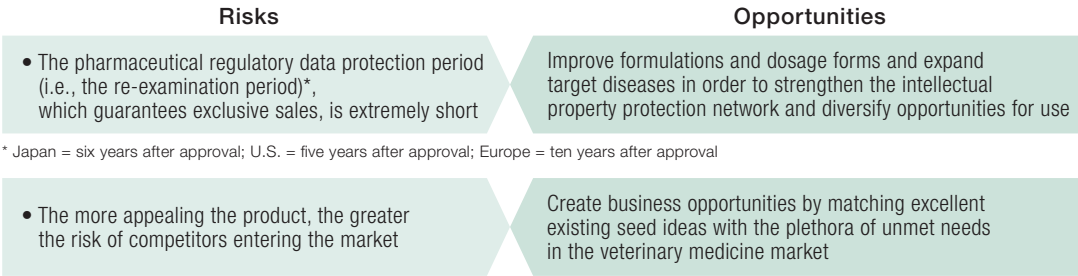
• Manufacture and sales of animal health products

In 2018, we released the world's first anti-pancreatitis drug for dogs onto the Japanese market. Since March 2021, we have expanded from our existing sales of the active pharmaceutical ingredient to directly selling the product (BRENDA™) itself, with the aim achieving greater market penetration. For overseas markets we are releasing the product under the globally unified brand name PANOQUELL™ and plan to first introduce it onto the U.S. market with a dosage form that greatly improves its convenience. Given that there are currently no therapeutic agents for acute pancreatitis on the U.S. market and that there is an urgent need for one, the regulatory agency for the U.S., the Food and Drug Administration (FDA), has accepted PANOQUELL™ for conditional approval under its accelerated approval program. We plan to secure conditional approval and introduce PANOQUELL™ on the market during fiscal 2022. This will be the first time a Japanese manufacturer has released an animal health product overseas that it developed and manufactured. Additionally, we plan to secure approval in fiscal 2025 from Europe's regulatory agency, the European Medicines Agency (EMA). Moving forward, our sales and development teams will continue working together to come up with innovative ideas that will expand sales and business, and thereby revenue, in the U.S. and European markets, where the number of pet dogs is said to be more than 10 times that of Japan.

• Contract manufacturing of active pharmaceutical ingredients

We manufacture the active pharmaceutical ingredient Cevimeline Hydrochloride Hydrate (under the brand name EVOXAC™) for the treatment of dry mouth, which is caused by a salivary gland disorder due to Sjogren's syndrome. For over 20 years, our pharmaceutical factory in the Yokkaichi Plant, which conforms to the exacting standards (cGMP: current Good Manufacturing Practices) of the U.S. FDA, has leveraged the technological strength that we have cultivated in our agrochemicals business to stably supply pharmaceutical manufacturers with high-quality active pharmaceutical ingredients.

Risks and Opportunities



* Japan = six years after approval; U.S. = five years after approval; Europe = ten years after approval

Strengths and Competitive Differentiation from Competitors

- Development, manufacture, and sales that integrate the various functions of R&D, marketing, and pharmaceutical regulatory affairs management
- Access to a global market centered on the U.S. and Europe
- Able to develop related products for product lifecycle management; a wealth of seed ideas for new product development

Business Strategy and Initiatives towards Vision 2030

- Pursuing a vision for the Healthcare Business Headquarters to sustainably contribute to people's quality of life through fine chemical technologies and marketing capabilities
- Focusing on technological development and marketing, which are business processes that can make full use of ISK assets and strengths, to maximize added value. In other words, accurately tying R&D results with the needs of the end-user market in order to create value
- Capitalizing on the following main management resources of the healthcare business
 - Human resources and allocation ensuring effective business development via a synergistic merger of R&D strengths with sales functions
 - U.S. and European business network-based product development and market access
 - CMO/CRO, consulting firms, and other external leverage that can be utilized globally
 - Expertise in pharmaceutical manufacturing that conforms to global cGMP
- Making full use of the above management resources while minimizing all other tangible fixed assets. In other words, conducting fab-less (i.e., having no fabrication facilities) and asset-light (keeping fixed assets light) business and developing an open network-based business model in order to achieve growth under Vision 2030 of 20 to 25 billion yen



Director of the Central Research Institute
Shigeru Mitani

Becoming an institute that can play a useful role in the world while accommodating the changing times

A dual mission defined by improving existing products and conducting R&D into new products

—What does the Central Research Institute do?

The Institute invents and develops useful products that play a positive role in society while helping facilitate the company's future. Broadly speaking, we carry out two kinds of product development. The first consists of developing agrochemicals in partnership with the Biosciences Business Headquarters in the organic chemicals business. We create new formulations and mixed formulations that accommodate regional characteristics and users' needs in response to requests from sales personnel who wish to market a particular product in a particular country in order to achieve sales targets. Because launching new products will be critical in order for us to achieve the goals outlined in the medium-term business plan, we create a schedule by working backwards from the date on which we plan to complete the registration process in the target country and then proceed with development so as to meet that schedule.

The other type of product development consists of discovering, through research, new products that go beyond the conventional wisdom. To date, the ISK Group has invented or developed 16 agrochemical active ingredients, and now we're working to create more. About 200 researchers currently work at the Central Research Institute, and slightly less than half of them are working on those projects. Our research is not limited to agrochemicals. Products need only relate to agriculture or food. Blue Gene™, the world's first blue phalaenopsis, which we launched this year, falls under that category.

—How does the Institute differ from other research institutes?

One difference is that it brings together at a compact site of just 40,000 square meters not only search and synthesis, biology, formulation, safety, and industrialization process synthesis research, but also all functions related to agrochemical R&D, including research planning, research support, and even some intellectual property and registration. Another difference is a culture that fosters good communication and collaboration.

Proprietary technology related to a useful intermediate known as CF₃-pyridines is yet another strength. With regard to this intermediate, which has been used since the 1970s and which remains valuable today, we're currently focusing on exploring how we can produce it as inexpensively as possible while making maximum use of its potential.

Another characteristic of the Institute is that we're investing significant resources into biopesticides so that we can provide environmentally friendly, comprehensive solutions that draw on both biology and chemistry. For example, Banker-Sheet™ is an envelope-sized unit of easy-to-assemble components containing moisture-retaining material that maintains optimal humidity for mites that eat spider mites, such as the beneficial predatory mites *Neoseiulus californicus* (McGregor) and *Amblyseius swirskii* Athias-Henriot. Developed under the 26070C Agriculture & Food Project led by Japan's National Agriculture and Food Research Organization, Banker-Sheet™ can help prevent infestation with spider mites for longer periods of time than existing biological control agents. We hope to harness the product as a driver of future growth because it also complies with public initiatives designed to ensure a safe food supply, for example Japan's Green Food System Strategy and the EU's Farm to Fork Strategy.

—How did the Central Research Institute originate?

The Institute was established in 1964 to develop the company's R&D function, which was originally located at the Yokkaichi Plant. Although initially it carried out R&D in both organic and inorganic chemistry, most inorganic chemistry research has since moved to Yokkaichi, where production is located.

All of ISK's agrochemicals were created here at the Institute. Our best-selling product is nicosulfuron, a herbicide for use with corn. A CF₃-pyridine-derived fungicide known as fluazinam also generates strong sales. Initially it was used to prevent potato blight in Europe, and currently it's used to prevent soybean diseases in Brazil. Most recently, the insecticide flonicamid has developed into a driver of business growth.

—What are some interesting research topics lately?

Biostimulants have become a hot topic recently. These substances and microbes allow crops to reach their innate potential even under challenging conditions like dryness or heat by stimulating them. Sales of biostimulants are growing in the European and North American markets.

Biostimulants were added to the targets outlined in the Vision 2030 Stage I medium-term business plan. I can't provide details yet, but we'd like to start sales during the Stage I period.

However, we can't afford to spend all our time on buzzworthy topics that are generating the most attention. We've been launching new chemical pesticides each year, on a constant basis. We launched five formulations in 2019, followed by two in 2020.



Training researchers with a research spirit imbued with merchant talent, and embracing the challenges of digital drug discovery



—As director, how are you trying to change the Institute?

I want researchers to cultivate a marketing sense. Since it takes 10 years from the discovery of an active ingredient to commercializing the corresponding agrochemical, researchers are prone to lose themselves in day-to-day experimentation. They need to foster an awareness of the business side of things.

To that end, I introduced a slogan that means “research spirit imbued with merchant talent” when I took over as director in 2018. We even made a logo. The goal is to foster human resources who combine specialist skills in research with generalist skills in marketing. In fact, it was one of our researchers who designed this logo. If our researchers make the most of their various skills in this way, I think it will help revitalize our organization.

Since it's important to put in place an environment and ambiance that support those skills, I meet regularly with the Product Development & Marketing Division of the Biosciences Business Headquarters. The goal is to improve communication with the marketing department by talking about progress in research and discussing whether that progress is going the right way. The Development Marketing Department has many employees with experience at the Central Research Institute, and some of them have come back here now to contribute as human resources with experience at both.

“Output is everything” is another of our slogans. Since the researchers here in general like to study, they take the initiative to attend scientific conferences, where they encounter the latest knowledge. However, we don't do enough to share and apply that knowledge. I want to achieve good results by increasing the total amount of information in our organization.

Currently, we have about 25 employees doing research into active ingredient synthesis. If each of them discovered a new active ingredient, we could produce 25 new agrochemicals, but in reality the process isn't as easy as that. Luck plays a major role. If you only recognize the final results as outputs, not everyone will be happy. That's why I'm eager to recognize people who accumulate a series of small outputs through their diligence and tenacity.

—What do you plan to pursue in the future?

Digital drug discovery. That consists of using digital technology to manage research data en masse and efficiently designing combinations using artificial intelligence (AI). We're currently building mechanisms to do that.

The first step is to build a platform for centralizing the necessary data, and we've made a fair bit of progress there. However, the AI part remains to be accomplished. My plan is to work with an outside partner that specializes in AI drug discovery to turbo-charge our search for compounds, under the leadership of computational chemistry experts at the Institute. The goal of this process is to gauge our own current abilities through joint development while learning new methodologies. Experts at the Institute are fired up about this new challenge.

We're also soliciting research topics internally with the potential to contribute to agriculture as a way to create new value, and we've already chosen two to pursue. One involves research into RNA interference, a technique for interfering with the genes of pests that are difficult to prevent with chemical pesticides. The other is food-related and involves research into new protein sources. It will be exciting to see how each turns out. My goal for initiatives like these is to create an institute that can accommodate our changing times by motivating everyone to conduct research and generate results. Those results don't need to be agrochemicals. As long as they play a useful role in the world.

The story of Blue Gene’s development

The world’s first blue phalaenopsis, which took 17 years to realize

Blue Gene™ is the world’s only blue phalaenopsis. It was Shunji Yuki, a researcher at ISK’s Central Research Institute (in Kusatsu, Shiga Prefecture), who successfully developed it over the course of 17 years. What led to the success of this long-running development project? We asked Dr. Yuki about the project.

Dr. Yuki came to ISK after studying chemistry in graduate school. Responsible for genetic modification, he gained experience, including with pharmacological testing of the compounds that would become the archetype for the veterinary drug BRENDA™. He then took on the challenge of applying those technologies to genetic modification of flowers. Starting in 2005, he began targeting orchids, which command high prices and enjoy a large market.

“By nature, the popular moth orchid lacks genes for producing blue pigments, so blue moth orchids of that genus did not exist in the market as other than processed products,” explained Dr. Yuki, who saw opportunity in that fact. However, it takes four years for the plant to produce flowers after the modified genes are introduced. He began the project with an understanding that it would take a long time.

“At the outset, I introduced blue genes derived from petunias to moth orchid,” he said. “That attempt only yielded minuscule pigment deposits. Next, I set my eyes on the Asiatic dayflower as a genetic source. It’s basically a weed, but one that’s distinguished by an attractive blue hue. The cultivar *Commelina communis* var. *hortensis* has been grown in and around Kusatsu, where the Institute is located, since long ago.”

With genetic modification, the key question is whether you can find a gene that functions efficiently in the target organism. It’s said that it sometimes takes 10 or more attempts, each with a different gene, to manifest a desired characteristic. In this case, Dr. Yuki used the blue gene from the Asiatic dayflower. When he did so, the orchid began to accumulate blue pigment five times as efficiently as in the attempt with the petunia. “It was good luck that the second attempt worked,” recounts Dr. Yuki. In 2006, he began conducting joint research with Masahiro Mii, then a professor at Chiba University and an authority on genetic modification. However, sometimes luck went the other way. In 2008, the phalaenopsis research was halted as the company’s performance rapidly deteriorated. “It was hard. But flower research was a far thing from ISK’s core business. I just felt like we had no choice but to stop,” explained Dr. Yuki. Fortunately, Professor Mii carried on the research, and in 2012, a deep-blue phalaenopsis bloomed. In 2013, Dr. Yuki resumed the research following Professor Mii’s retirement and a recovery in ISK’s performance. Professor Mii’s phalaenopsis exhibited a mutation that affected the shape of the petals, so Dr. Yuki set about breeding a blue phalaenopsis with normally shaped petals. After dozens of tests to investigate whether there were any risks due to toxicity or hybridization with wild species, the variant finally received approval from the Japanese government in March 2021. The new phalaenopsis, named Blue Gene following a company vote, debuted at the JGP International Orchid and Flower Show in Tokyo in March 2022.

“The show attracts many attendees who are knowledgeable about orchids, and they praised Blue Gene for its rareness and



Senior Manager, Bioscience Research Laboratory,
Central Research Institute
Shunji Yuki

elegance. Chairman Sadaharu Oh of the professional baseball team SoftBank Hawks and floral artist Etsuko Shihomi both liked it, which made me feel like my hard work over many years had been rewarded.” Then Blue Gene won four awards, including Best Flower, at the Japan Flower Selections, a large flower-themed event, in May. It quickly gained recognition. Dr. Yuki continues to work on the project. “Blue Gene is a smallish size known in flower circles as ‘medium,’” he explained. “If we could make a larger size, the kind that’s often used for celebratory gifts, there would be even more demand. I also want to try introducing the Asiatic dayflower gene into other flowers, and to research how the lifespan of flowers can be extended. Some plant varieties have flowers that don’t last long, but genetic modification offers the possibility of improving that trait.”



Director of the R&D Strategy
Headquarters

Yasushi Nakao

Adopting new production processes in an era when CO₂ emissions are an issue

Pursuing general research into inorganic compounds as well as production technologies

—What kind of department is the R&D Strategy Headquarters?

It has general responsibility for all technology related to inorganic chemical products. In addition to searching for new technologies that can contribute to profit, we develop new products, develop applications for existing products, and improve production technologies. We also foster the development of engineering-related human resources. As a manufacturer of raw materials, the ISK Group sees high demand in non-engineering departments as well for personnel who understand technology. We help them master various technologies and have them fulfill important roles in production control and engineering sales.

Currently, we have 78 R&D employees as well as nine supporting staff members, including in the area of intellectual property management. Another characteristic of the Headquarters is that 20% of its R&D staff specialize in production engineering, a discipline whose task is to improve manufacturing operations.

—What product segments does the Headquarters mainly handle?

All inorganic compounds. Titanium dioxide is used in a variety of forms in many products, but we've long handled materials other than titanium, too, for example bismuth sulfide and copper particles, as well as nanoparticles. If you look at the products we've developed in terms of sales, titanium dioxide for pigment application, which is currently utilized as a white pigment with excellent hiding power characteristics, accounts for 70% to 80% of our sales. Going forward, we're working to increase the number of functional materials, for example electro-conductive materials and high-purity titanium dioxide.

—Where do the Headquarters core strengths lie?

In electro-conductive materials. The titanium dioxide particles that serve as the substrate for our white electro-conductive materials, which are produced by surface-treating titanium dioxide with a tin oxide conductive material to which antimony has been added, are shaped like needles or spheres. We have numerous competitors in the titanium dioxide field, but we're the only manufacturer that produces white electro-conductive materials using needle-shaped titanium dioxide.

The principal application is conductive primer for use with automotive paints. Currently, automotive bumpers and other parts are made primarily of plastic, and to ensure paint bonds efficiently to plastic surfaces, it's necessary to pass electricity through the surface. Electro-conductive materials are used as a primer for that purpose. Carbon black is used in dark-colored paint, but our white electro-conductive materials are used for light colors that approach white because carbon black would darken them. In the architectural field, these materials are also used to keep floors from building up an anti-static charge.

We also have transparent electro-conductive materials; familiar uses include protective films for smartphones. They serve to prevent the build-up of static electricity by allowing electricity to flow to the surface and thereby keep dust from sticking to the screen.

—What are some of the Headquarters' most recent research findings?

The high-purity titanium dioxide that we developed. High-purity titanium dioxide is used as a raw material in the production of barium titanate, which in turn serves as a primary raw material in the manufacture of multilayer ceramic capacitors (MLCCs), a small component widely used in devices like smartphones. Sales of our fine-particle, high-purity titanium dioxide have risen as components become smaller. The ISK Group's products help underpin this segment of the market, in which Japanese electrical component manufacturers have a strong presence. ISK subsidiary Fuji Titanium Industry also manufactures barium titanate. We supply high-purity titanium dioxide and titanium tetrachloride for use as raw materials to barium titanate manufacturers, including Fuji Titanium Industry.

Another buzzworthy product into which we're currently conducting R&D is Organic solvent dispersion of TiO_2 . Originally, titanium dioxide is a white substance with a high refractive index for light, but by reducing the particle size and utilizing our surface treatment and dispersion technologies, we succeeded in giving the substance both a high refractive index and high transparency. A refractive index will be an important factor in maximizing the viewing angle in future imaging devices, and the new material is an optimal light-guiding material in such applications. Generating particles skillfully and dispersing them are both technically difficult processes, but the material holds future promise.

Taking advantage of the experience with paradigm shifts

—What prompted the creation of the Headquarters?

I've heard that it began as the Technology Section of the Titanium Dioxide Production Department. That became the current organization during the second half of the 1970s, when we realized that it would be imperative to develop new products apart from general-purpose titanium dioxide. Later, it worked to develop ultra-fine titanium dioxide and electro-conductive materials, and during the 1980s it developed magnetic iron oxide. One hit product we developed became famous as a brand of white automotive paint. Later, we developed a series of unique products, for example high-purity titanium dioxide and other raw materials used in the production of electronic materials.

—What was your job around that time?

In fact, I've only been at ISK for one year. I first spent 35 years working for a paint manufacturer, where my responsibilities included designing automotive paints. That company had a longstanding relationship with ISK as a material supplier, and when I reached retirement age and moved to an affiliate, I accepted an invitation to do development work at ISK since I figured I'd be able to develop new materials and to take advantage of my many years of experience.

I experienced numerous paradigm shifts during my previous career, for example the transition from solvent-based to water-based paint, and I've seen my job change dramatically multiple times due to changes in the business environment. I'd like to realize such shifts at ISK as well. I also have connections to various material manufacturers and hope to take advantage of those, too.

A new step towards reducing CO₂ emissions

—How do you see the future direction of R&D?

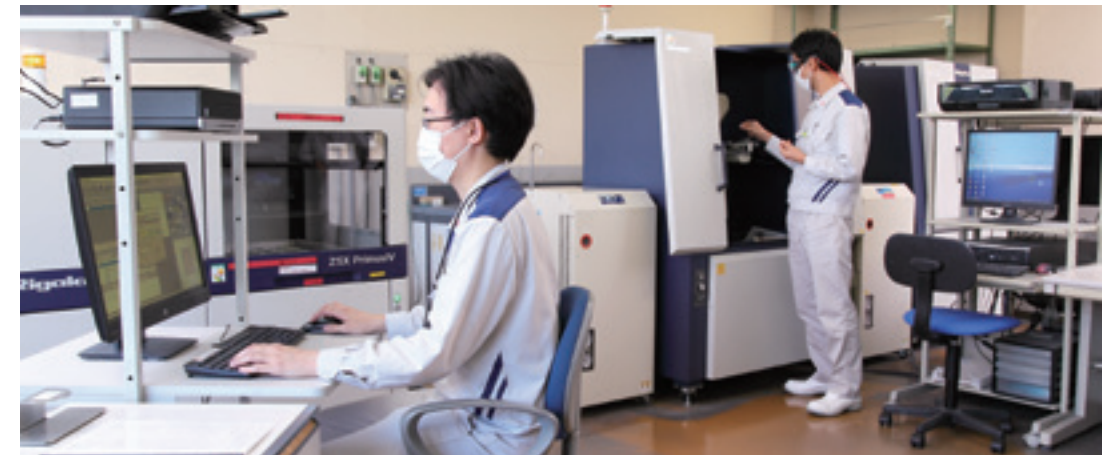
Products related to electronic materials are a growth area. I have high expectations for copper particles, which we're working on as a bonding material for use in power semiconductors instead of solder. We're also pursuing pioneering joint research with ISK's Central Research Institute and a university into organic synthesis technologies in relation to organic semiconductor solar cells.

In addition, the role of production technologies will become even more important in the future. The sulfate and chloride processes that the ISK Group uses to manufacture titanium dioxide were originally based on techniques introduced from overseas during the mid to late 20th century. They remain largely intact despite a variety of improvements made over the years. However, an era is coming in which consumers will question how much CO₂ was emitted in the manufacture of products, just as they examine price and quality. We must develop new production processes to prepare for that era.

The Yokkaichi Plant currently uses coal as its energy source, but we're working to transition to natural gas by 2030 and have formulated a plan for replacing and updating old equipment. We intend to finalize a vision for this process by the end of 2022. However, if our goal is to completely eliminate CO₂ emissions by 2050, it will be difficult to get there with natural gas. We need to think about what lies beyond that, for example hydrogen power generation using ammonia.

We haven't found the solution yet, but I hope to advance a step further towards our goal by using energy efficiently. Right now, we waste a substantial part of the heat produced when burning coal fuel. I'd like to install a system for recapturing that energy. We're already working with an outside energy company to explore other options, for example to see if we can store the 400,000 tons of CO₂ that we release each year, and we'll pursue those efforts even more actively going forward.

The ISK Group has continually worked to generate its own electricity and steam. I hope to make effective use of the DNA that we've accumulated in the process.



Ensuring We Continue to Earn Society's Trust

It is important that ISK Group continue to earn society's trust so that we can grow in a sustained manner. We will help to realize a sustainable society through our business activities while building trust-based relationships with society by communicating with stakeholders and listening sincerely to what they have to say.

Shareholders and Investors

We believe that promoting constructive dialog with shareholders helps facilitate the company's sustained growth and increase medium- and long-term corporate value. We've put in place structures to promote such dialog in accordance with the following policies:

1. We have an IR Committee, which reports directly to the president, as an entity charged with formulating the policies and strategies that guide our IR activities, studying how information should be disclosed, and implementing associated measures.
2. We've appointed a director in charge of public relations to oversee issues related to constructive dialog with shareholders and investors.
3. We hold two IR briefings each year as a means of dialog with shareholders and investors, where our president and the director in charge of public relations brief the stakeholders. We also work to enhance our information disclosure by making briefing notes available on our website. Additionally, we actively accommodate requests from investors and analysts for phone interviews and other access to company executives.
4. We work to provide the materials we disclose in both Japanese and English to make it convenient for shareholders and investors who don't speak Japanese to learn about our operations. Shareholders' meeting convocations are translated into English in their entirety, including business reports. Those materials are made available on our website, the website of the Tokyo Stock Exchange, and the electronic voting platform used by institutional investors.
5. We host an annual roundtable with major shareholders with voting rights about topics such as our business performance and Corporate Governance initiatives. In addition to reporting views and information from those events to the Board of Directors and sharing them with directors and members of the audit and supervisory board, we use them to improve our governance.



2022 ordinary general meeting of shareholders

Supply Chain

ISK Group Code of Conduct includes the following statement: "Together with our suppliers and subcontractors, we will engage in socially responsible procurement activities." In keeping with that priority, we carry out purchasing and procurement activities in a way that takes CSR into account, for example by checking to be sure we do not purchase conflict minerals, while securing cooperation from suppliers.

We make only limited use of tantalum, tin, tungsten, and gold ("3TG"), which are typically recognized as conflict minerals, in the manufacture of our Group's products. Tin compounds, which we use as a raw material in electroconductive materials and other substances, and tantalum, which we use in vacuum deposition, fall under the definition.

We require suppliers of tin compounds and tantalum to submit a report using the Conflict Minerals Reporting Template, a global standard for conflict mineral investigations developed by the Responsible Minerals Initiative. In this way, we verify the certification status of the refineries producing the tin and tantalum purchased by our suppliers. If necessary, we also confirm that the refineries have been certified as conflict-free by a third party.

Providing Quality That Earns Customers' Trust

In an effort to improve quality control, the Yokkaichi Plant holds a "Quality Control Committee" meeting every quarter. The committee, which is chaired by the plant's director, has a membership that cross-functional members from the facility's organization, including departments responsible for production, quality, and engineering, as well as administrative and back-office departments.

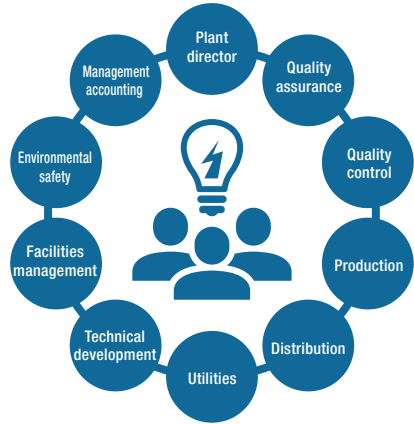
Its activities are to identify quality issues that arise on a daily basis and the status of how each is being addressed, and then to:

- (1) share these information
- (2) verify whether the response status are appropriate
- (3) consider investigating the true cause of issues in order to resolve it

As an organizational entity that cuts across departmental boundaries, the committee is able to bring multiple perspectives to bear on its verification and study efforts in order to facilitate improvements in the plant's management structures.

As an example of the results of this approach, quality-related issues whose causes cannot be identified can be addressed not on the level of individual employees, but rather on an organizational level through the cooperation of production and engineering departments.

In addition, the results of the four annual "Quality Control Committee" meetings contribute to ongoing improvements in the management review undertaken for the management system annual report.



Communication with the Local Community

Yokkaichi Plant

At the Yokkaichi Plant, we place emphasis on informing and understanding local residents about our safety, disaster prevention, and environmental protection activities.

We hold regular plant tours twice a year and special classes for students from local junior high school to build further trust with the local community. In terms of social contribution activities, we voluntarily carry out clean-up activities around the plant, and we also place importance on local events, such as participating in the annual Suzuka River clean-up activities (Suzuka River Clean Operation), which are carried out in cooperation with local communities and companies.

In fiscal 2021, these activities were canceled due to the impact of COVID-19 pandemic.

Central Research Institute

The biannual volunteer clean-up of the surrounding area was successfully conducted in May and November this year, after taking all possible measures to prevent the spread of COVID-19. However, we were forced to cancel tours of the Institute for high-school students again this fiscal year unfortunately, due to the difficulty of undertaking sufficient steps to prevent infections.

In fiscal year 2018, the Institute formed a disaster drill improvement team consisting of personnel chosen from various departments to further raise disaster prevention awareness. Each year the team selects a theme (such as leaks, fires, or earthquakes), and individual departments hold separate drills while studying how to improve training content. Comprehensive disaster drills are then held for all personnel, taking into account lessons learned from the departments' separate sessions. Following the disaster drills in fiscal year 2021, an earthquake-simulating vehicle was used to let employees experience what it's like to be in an earthquake in order to raise disaster preparedness awareness.

Disaster Drills

In preparation for emergencies, Yokkaichi Plant conducts annual joint drills with the plant's Self Disaster Team and the local fire department, which are open to the public. In fiscal years 2020 and 2021, due to the impact of COVID-19, we cancelled the joint training with the fire department and the public was, and conducted emergency drills in-house only. In fiscal year 2022, for the first time in three years, we held a joint drill with the local fire department, and also invited local community associations, with a limited number of people, to avoid the 3Cs (crowding, close contact, and closed spaces) to observe the drill. This time, we used drones from both ISK and the fire department to project the aerial footage of the drill onto large TVs for the visitors to see. We work to improve our level of disaster preparedness each year by adding new elements to the drills.



Joint drill by ISK's Self Disaster Team and the local fire department

Blood Drives

Our Head Office in Osaka and the Central Research Institute hold two blood drives each year, while the Yokkaichi Plant holds three blood drives each year. Between the three of them, the sites attract a total of about 100 donors for each drive. The blood drives have earned ISK letters of gratitude from the governor and from the local branch of the Japanese Red Cross Society. In 2019, the Yokkaichi Plant received a Gold Achievement Award from the Society's Mie Prefecture Branch, making the site one of just 13 corporations in the prefecture to be recognized with the honor and highlighting the extent of its contribution.

ISK will continue to hold blood drives as part of its community service program.



The blood donation bus at the Yokkaichi Plant



Volunteer clean-up campaign near the Institute



Experiencing an earthquake in an earthquake-simulating vehicle

Board of Directors (As of June 30, 2022)



Kenichi Tanaka
Executive Director
Chairman





Hideo Takahashi
Executive Director President
President & Chief Executive
Officer





Kiyomitsu Yoshida
Director;
Senior Managing Executive Officer
Organic Chemicals Business





Yasunobu Kawazoe
Director;
Managing Executive Officer
Director of Finance &
Accounting Headquarters





Masaki Shimojo
Director;
Managing Executive Officer
Director of Inorganic Chemicals
Sales & Marketing
R&D Strategy Headquarters

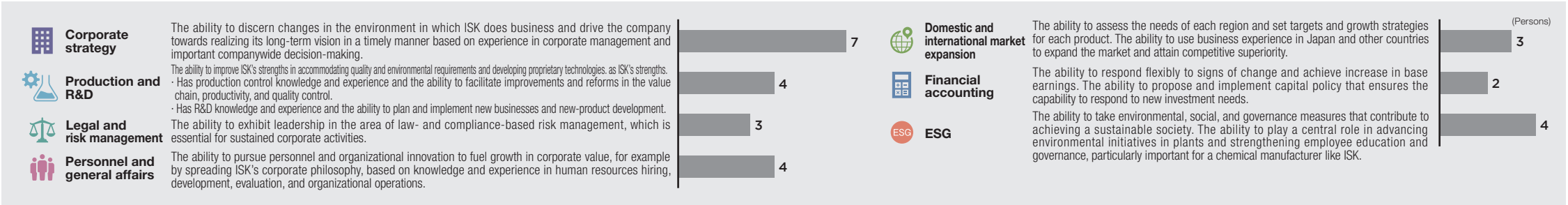




Hiroshi Okubo
Director;
Managing Executive Officer
Director of Corporate
Administration & Planning
Headquarters



Directors' Expertise and Experience Up to three major areas of expertise and experience are noted for each director. The legend below defines the icons used.



Board of Directors (As of June 30, 2022)



Audit & Supervisory Board Members (As of June 30, 2022)



Status

Name	Position	Term	Number of shares held (as of March 31, 2022)	Attendance at Board of Directors meetings (see Note 1)	Attendance at Audit & Supervisory Board meetings (see Note 1)	Committees (see Note 2)			Independent Outside	Reasons for appointment
						Evaluation Committee	Compensation Committee	Personnel Committee		
Director										
Kenichi Tanaka	Executive Director Chairman	8 years	22,600 shares	100% (15/15)	-	-	-	-	-	Mr. Tanaka has exhibited strong leadership since becoming Executive Director President in 2015. In addition to formulating medium-term business plans twice and Vision 2030, our long-term vision for 2030 which serves as the basis for the current medium-term business plan, and managing the entire ISK Group in a precise and efficient manner, he has focused on increasing the effectiveness of the Board of Directors and overseeing the company's operations since becoming Executive Director Chairman in June 2021. His appointment reflects the Board's judgment that he is knowledgeable in the external environment in which the ISK Group operates and in corporate governance and that he can be expected to help increase corporate value on an ongoing basis.
Hideo Takahashi	Executive Director President President & Chief Executive Officer	3 years	11,100 shares	100% (15/15)	-	-	-	-	-	Mr. Takahashi became Executive Director President in June 2021 after working in research, product development, and sales and serving as plant director and director of the R&D Strategy Headquarters. Since his appointment, he has carried out important operational responsibilities and demonstrated appropriate decision-making and supervision in the company's management based on his extensive experience and track record. He continues to be a driving force in the company's management through his experience, track record, and leadership as we strive to realize the Vision 2030 long-term vision. He has been appointed because he can be expected to help increase corporate value on an ongoing basis.
Kiyomitsu Yoshida	Director Senior Managing Executive Officer Organic Chemicals Business	4 years	9,200 shares	87% (13/15)	-	-	-	-	-	Mr. Yoshida has worked primarily in sales, R&D, and research institute operations in ISK's organic chemicals segment. He has carried out important operational responsibilities and demonstrated appropriate decision-making and supervision in the company's management based on his extensive experience and track record. As head of ISK's organic chemicals segment, a position he assumed in June 2021, he has been involved with planning of business strategy and other policies, deliberations, and oversight of operations in both bioscience and healthcare. He has been appointed because he can be expected to help increase corporate value on an ongoing basis.
Yasunobu Kawazoe	Director Managing Executive Officer Director of Finance & Accounting Headquarters	3 years	18,900 shares	100% (15/15)	-	-	-	-	-	Mr. Kawazoe has carried out important operational responsibilities and demonstrated appropriate decision-making and supervision in the areas of finance, accounting, and governance based on expertise in finance and accounting that he accumulated over many years at financial institutions, along with his extensive experience and track record. He has been appointed because he can be expected to help increase corporate value on an ongoing basis by using this experience and expertise in the planning of business strategy and other policies, deliberations, and operational oversight by the Board of Directors.
Masaki Shimojo	Director Managing Executive Officer Director of Inorganic Chemicals Sales & Marketing R&D Strategy Headquarters	2 years	7,000 shares	100% (15/15)	-	-	-	-	-	Mr. Shimojo has worked primarily in sales, research, product development, and manufacturing in ISK's inorganic chemicals segment. He has carried out important operational responsibilities and demonstrated appropriate decision-making and supervision in the areas of R&D and domestic and international market expansion based on his extensive experience and track record. He has been appointed because he can be expected to help increase corporate value on an ongoing basis by using this experience and expertise in the planning of business strategy and other policies, deliberations, and operational oversight by the Board of Directors.
Hiroshi Okubo	Director Managing Executive Officer Director of Corporate Administration & Planning Headquarters	New appointment	5,286 shares	-	-	-	-	-	-	Mr. Okubo has worked in production, environmental, and safety and health departments at our plant. After gaining management experience at an affiliate, he became an executive officer at ISK in 2020 and has since worked in corporate planning and administration. He has been appointed because he can be expected to help increase corporate value on an ongoing basis through the appropriate performance of his responsibilities based on his extensive operational experience and track record.
Hiroshi Katsumata	Outside Director	5 years	7,200 shares	100% (15/15)	-	a)	a)	b)	a)	Mr. Katsumata uses his experience as a director at an industrial gas company as well as his diverse experience and expertise in the field of government administration to offer appropriate advice and oversight, particularly in the areas of business strategy and R&D. He also contributes actively as the chairperson of the Personnel Committee and as a member of the Compensation Committee and Evaluation Committee. He has been appointed because he can be expected to fulfill his role as an outside director from an independent perspective.
Tatsuo Hanazawa	Outside Director	3 years	2,400 shares	100% (15/15)	-	a)	b)	a)	a)	Mr. Hanazawa offers appropriate advice and oversight, especially in the areas of domestic and international market expansion and the environment, based on his domestic and international experience, particularly in agricultural policy, and his experience in environmental matters. He also contributes actively as the chairperson of the Compensation Committee and as a member of the Personnel Committee and Evaluation Committee. He has been appointed because he can be expected to fulfill his role as an outside director from an independent perspective.
Satoshi Ando	Outside Director	2 years	1,000 shares	100% (15/15)	-	a)	a)	a)	a)	Mr. Ando draws on his highly specialized knowledge as an attorney and on his extensive experience and expertise in corporate law to offer appropriate advice and oversight of the company's management from an objective and legal perspective in the areas of law, risk management, finance, and accounting. He also contributes actively as a member of the company's voluntarily formed Compensation Committee, Personnel Committee, and Evaluation Committee. He has been appointed because he can be expected to fulfill his role as an outside director from an independent perspective.
Audit & Supervisory Board Members										
Taizo Kato	Audit & Supervisory Board Member	6 years	10,700 shares	100% (15/15)	100% (12/12)	a)	-	-	-	Mr. Kato has been appointed because he can be expected to practice objective and appropriate supervision and auditing of the company's management based on his service as an Audit & Supervisory Board member at ISK since June 2016 and his long experience in internal auditing operations.
Yoshihito Akiyama	Audit & Supervisory Board Member	1 year	4,382 shares	100% (15/15)	100% (12/12)	a)	-	-	-	Mr. Akiyama, who has worked in administration and sales at ISK and who has served as a director and Audit & Supervisory Board member at affiliates in Japan and overseas, has been appointed because he can be expected to bring his experience and knowledge to auditing procedures at ISK.
Yoshitaka Akikuni	Outside Audit & Supervisory Board Member	7 years	8,200 shares	100% (15/15)	100% (12/12)	a)	a)	a)	a)	Mr. Akikuni has been appointed because he can be expected to bring his far-ranging knowledge and insight, which were cultivated over many years at financial institutions, as well as his extensive experience as an Audit & Supervisory Board member at chemical companies to bear on auditing procedures at ISK from an objective and neutral outside perspective.
Masaaki Harima	Outside Audit & Supervisory Board Member	11 years	5,400 shares	100% (15/15)	100% (12/12)	b)	a)	a)	a)	Mr. Harima has been appointed because he can be expected to bring his specialized knowledge as an attorney and his extensive experience in corporate law to bear on auditing procedures at ISK from an objective and neutral outside perspective.

Note 1: Attendance at Board of Directors meetings from June 25, 2021 to June 27, 2022.

Note 2: Committee service is indicated by a) (member) and b) (chairperson).

Progress in the division of functions between the Board of Directors and the Executive Management Committee

Of ISK's 13 board members, five are Outside Officers (including three outside directors and two outside audit and supervisory board members). They engage in lively discussions on a daily basis at committee meetings Board of Directors sessions and others. The five Outside Officers gathered together to talk about what discussed over the last year.

Discussions at committee meetings

Discussions became both livelier and more specific after the new president took office

Katsumata: After the change of president last year, discussions at meetings of the Personnel Committee I chair have focused primarily on human resource matters about the executive officers and directors who support the president and human resource development to foster future board member candidates. The focus has shifted from the change of president to how to create the support system of President Takahashi. For example, we need a person who is suitable for managing committees like the newly created Sustainability Promotion Committee effectively.

Hanazawa: One topic we continually talk about in the Personnel Committee is successors. It's a topic we are continually aware of.

Ando: Since the new president took office, we've had more specific discussions, due in part to the effects of the Japan's Corporate Governance Code. For example, with regard to human resources involving executive officers, we've asked what the new president expects of them in the future and where he'd like us to make improvements. I think that discussions are livelier than they were in the past.

Akikuni: We hold specific discussions about individual evaluations based on an executive evaluation sheet that includes self-evaluations by those in executive management positions as well as evaluations from supervisors and other information. We also discussed mechanisms what would allow more fine-grained evaluations.

Katsumat: It's a good system, one that offers a glimpse of the personality of the individuals who are being evaluated. In addition to performance, you can find the



Hiroshi Katsumata Outside Director

Mr. Katsumata, who started his career at the Ministry of International Trade and Industry (present-day Ministry of Economy, Trade and Industry), has served as a director and executive officer at private-sector companies including Taiyo Nippon Sanso Corporation. He brings expertise in both government administration and private-sector business to the position. He also chairs ISK's Personnel Committee.

Tatsuo Hanazawa Outside Director

Mr. Hanazawa, who originally worked for the Ministry of Agriculture and Forestry (present-day Ministry of Agriculture, Forestry and Fisheries), has served as a board member at a number of organizations, including an independent administrative agency and a foundation. He brings both domestic and overseas expertise in agricultural policy to the position. He also chairs ISK's Compensation Committee.

Satoshi Ando Outside Director

Mr. Ando is an attorney and also serves as an outside director at Toho Co., Ltd. He brings extensive expertise in corporate law to the position.

Yoshitaka Akikuni Outside Audit & Supervisory Board Member

Mr. Akikuni comes to ISK from Resona Bank Ltd., and he has broad knowledge in securities and asset management. He had served as an outside audit and supervisory board member at an asset management and trust bank and at a chemical manufacturer.

Masaaki Harima Outside Audit & Supervisory Board Member

Mr. Harima became an attorney after serving as a judge. In addition to serving as an outside director at a listed company, he has served in several civil servant positions, including as chairperson of the Osaka Prefectural Pollution Review Board (to date). He also chairs ISK's Evaluation Committee.

underlying personalities, whether a given individual is humble or full of self-confidence. There is room for improvement, for example how to incorporate not only supervisors' evaluations of subordinates, but also subordinates' evaluations of supervisors. We would like to add that perspective in the future.

Harima: In personnel affairs, it's important to have well understanding of people. That's why as a member of the Audit & Supervisory Board I try to meet as much as possible with people in ISK's business headquarters. With some people, their evaluations on the evaluation sheet may be fine, and you only find weakness when you meet with them directly.

Akikuni: Since I'm the only full-time Outside Officer, it's part of my role to communicate information about operations and personnel affairs to the part-time Officers, although I regret to say that I'm not yet fully capable of fulfilling that role.

Hanazawa: The scope of the Compensation Committee, which I chair, is more narrowly defined than the Personnel Committee. Once the year's accounts have been closed, we discuss performance-based remuneration, determine an overall remuneration figure based on ISK's net income and the extent to which other medium-term targets have been achieved, and we decide the relative proportions of base remuneration and performance-based remuneration. Then we discuss the amounts of remuneration for individual directors. This year, our discussion focused on how to treat the proportions that are based on evaluation sheets. In the end, we concluded not to weight evaluations excessively because evaluations are just evaluations, and are by their nature incomplete.

On the evolution of governance

Carefully reviewing risks in order to be positive

Katsumata: In the dialogue featured in Integrated Report 2021, we talked about the need to review agenda-setting standards for the Board of Directors Meetings in order to streamline and accelerate management. Subsequently, we've had the Corporate Administration & Planning Headquarters review suggested agenda items and shift those that do not need to be taken up by the Board to the Executive Management Committee.

Ando: In fact, we reviewed the Board's agenda-setting standards, but the number of decision-making items coming before the Board didn't shrink as much as I thought it would. It's an issue that we need to continue to discuss.

Katsumata: Anyway, the Executive Management Committee increasingly takes time

to discuss the long-term direction of the company and future prospects, such as topics like how to improve production systems for inorganic chemical products at the Yokkaichi Plant and how to address sustainability issues.

Hanazawa: Now when an agenda discussed by the Executive Management Committee comes before the Board, a summary of the committee's discussion is included. I think it's a good change. The Executive Management Committee's role as a venue for discussing agendas before they make it to the Board has become clear. There's a proposal from the Corporate Administration & Planning Headquarters calling for a deliberate discussion of the long-term direction of the company at least twice a year, and we'll monitor whether that actually comes to pass.

One other thing. The topic of how to optimize management speed and risk-taking came up during last year's dialogue.

Harima: If agendas that come before the Board only include advantages while leaving out disadvantages and risks, we as Audit & Supervisory Board members are left with no choice but to point that out.

Hanazawa: If there's no deliberate risk assessment process, then it's not possible to embark upon endeavors that pose risks. Now that Mr. Harima and other Outside Officers have talked about risk assessment, it's gradually coming to be more clearly reported. When it's clear what the risks are, subsequent action can be taken more quickly. I think that's a good development.

Akikuni: My mission as a member of the Audit & Supervisory Board is to audit directors' execution of their responsibilities, but that doesn't mean that all I do is apply the brakes. What I mean is that I want to support management backed by positive and appropriate decision-making and risk-taking by monitoring directors' management based on so-called the principles of management judgement.

Hanazawa: Sustainability issues are one aspect of risk, and the Sustainability Promotion Committee handles those issues through careful discussion. President Takahashi has been paying special attention to this committee, in which I also participate, and I think it's been effective at giving young people an opportunity to think about related issues.

Katsumata: I participated online, and the committee probed discussions about topics that external parties may have interests, for example climate change and human rights. Since human rights is especially likely to be treated as a major issue, it will be necessary to solicit the views of outside experts and to address the topic in a serious manner.

Ando: How do stakeholders see these issues? What should ISK do about them as a company? Both the Executive Management Committee and the Board of Directors are

expressing their views from both of those perspectives.

Harima: One of the agendas raised in the evaluation of the effectiveness of the Board involved the Sustainability Promotion Committee communicating with, and providing adequate information to, us outside directors about sustainability-related issues. We receive reports on discussions held by the committee, and I look forward to those communications continuing.

Future management challenges

Forward-looking discussions by the Executive Management Committee will impact ISK's future

Hanazawa: The production equipment at ISK's Yokkaichi Plant is becoming outdated, and doubts remain about how well the facility could withstand an earthquake. Rebuilding the plant is an urgent issue.

Katsumata: Can the plant's old manufacturing equipment make it until 2030 without causing an accident? We can't allow such an accident. A serious effort needs to be made to address disaster preparedness.

Ando: Building new pillars to support the company's business is also important. The performance of the company's businesses is inevitably prone to the effects of outside factors. Typical examples include rising raw material prices and extreme weather events. I think it would be a good idea to launch new businesses that can make up for these weaknesses.

Akikuni: President Takahashi has raised the idea of building a new business as one way to achieve the Vision 2030 Stage III sales target of over 200 billion yen, but even an M&A, just to take one example, would not be easy. I think the road to success for ISK is not limited to adopt a management policy of building and searching for new businesses, but also to continue polishing its strengths a talented workforce as an R&D-oriented company and adding value to new-product development and existing products as it strives to establish a high and consistent level of profitability.

Harima: There's growing momentum inside the company to discuss challenges that have been insufficiently addressed to date such as the rebuilding of Yokkaichi Plant or investigation of new businesses. This is likely the ripple effect of Vision 2030. However, the direction in which the company should proceed remains unclear, even though it's become clearer than in the past. The future of ISK will likely be determined through future discussions by the Executive Management Committee.

Basic Policy

In addition to making contributions to social development, protection of life and environmental preservation, ISK strives constantly to respect our shareholders, customers, suppliers, local communities and employees while maintaining transparency in business activities abiding by laws and regulations.

In order to enhance corporate value by maintaining steady business growth and securing profitability, efforts to improve business transparency, reliability and corporate health are among management's most important concerns, and we have worked hard to strengthen Corporate Governance through business management and enhanced internal controls founded on compliance.

Corporate Governance Structure

Structurally, we operate as a company with an Audit & Supervisory Board. In addition, we set Executive Management Committee under the Board of Directors in order to speed up decision-making by the Board of Directors and efficiently monitor and assess progress in important activities and projects. We have also introduced Executive Officer system with the aim of speeding up decision-making related to business activities.

Furthermore, we have the committees listed on the following page in order to strengthen our Corporate Governance.

On June 28, 2022, we created a Digital transformation Promotion Team under the Sustainability Promotion Committee to spearhead a companywide effort to strengthen our digital transformation (DX) initiatives.

Sustainability Promotion Committee activities

(From its establishment in November 2021 to August 31, 2022)

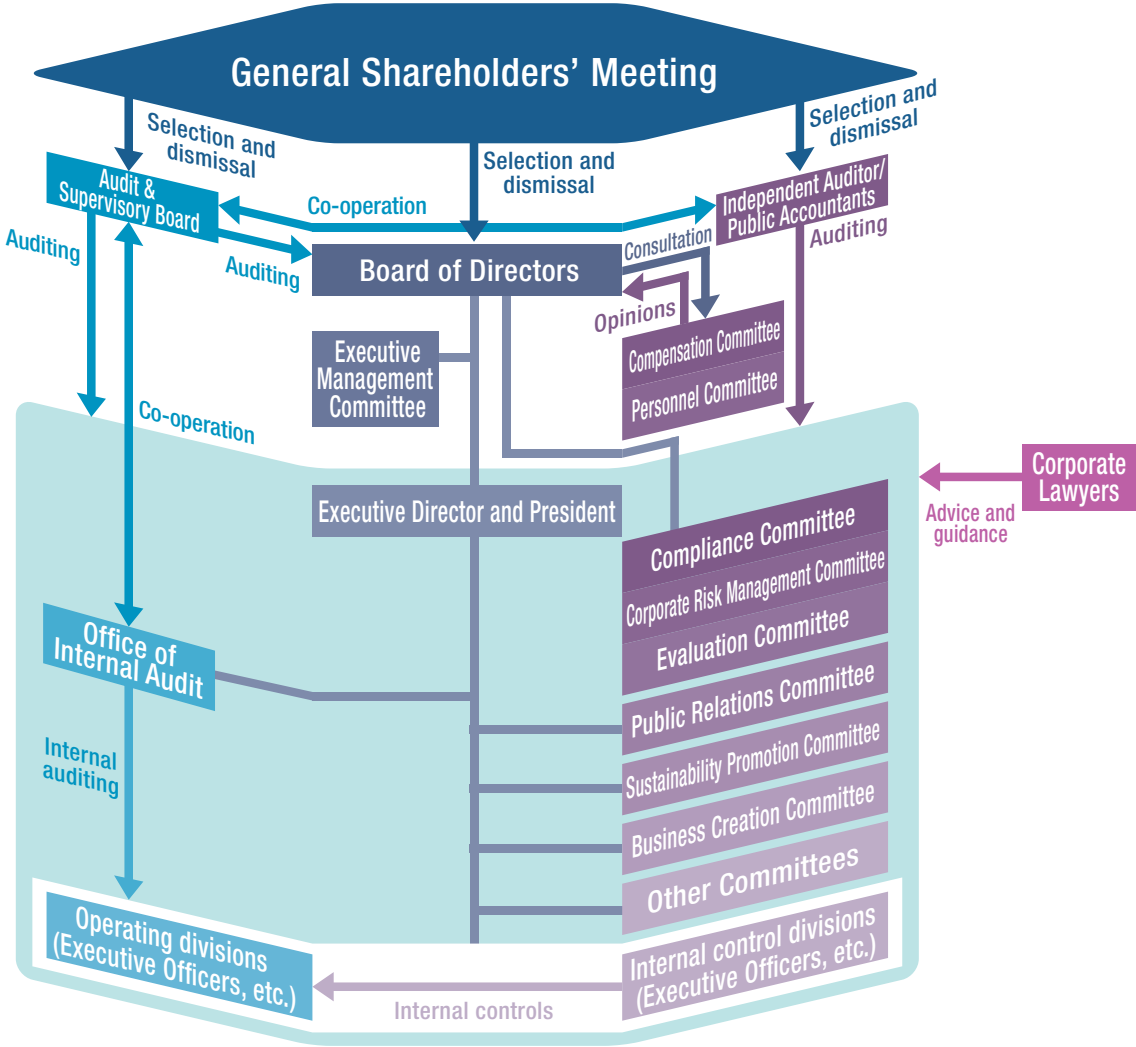
Since its establishment last November, the Committee has finalized a set of policies concerning its future operations, and it convened five times to discuss topics such as:

- Human rights policies
- Health and productivity management
- Approval of TCFD recommendations
- Creation of a carbon neutrality roadmap



The inaugural meeting of the Sustainability Promotion Committee

Corporate Governance Structure



Major Organizational Entities Related to Corporate Governance

Board of Directors	Functions	Meets at least once a month to make decisions concerning important matters, report on the progress of operational execution and action plan implementation, review performance, and discuss and make decisions about how to deal with related issues.	
	Composition	Chairperson	Executive Director and President
		Members	Directors
Executive Management Committee	Functions	The Executive Management Committee under the Board of Directors in order to speed up decision-making by the Board of Directors and efficiently monitor and assess progress in important activities and projects.	
	Composition	Chairperson	Executive Director and President
		Members	The chairperson may require the attendance of such personnel as deemed necessary.
Audit & Supervisory Board	Functions	Audits the Board of Directors' execution of its responsibilities, for example by attending Board of Directors and other important bodies and visiting departments regularly to exchange views in accordance with an audit plan adopted by the Audit & Supervisory Board, at least half of whose membership consists of independent outside Audit & Supervisory Board members.	
	Composition	Chairperson	Inside Audit & Supervisory Board member
		Members	Inside Audit & Supervisory Board members, independent outside Audit & Supervisory Board members
Compliance Committee	Functions	Develops compliance structures based on the corporate philosophy and promotes corporate management predicated on compliance, for example by conducting compliance education and responding to the issues that come from its whistleblowing system	
	Composition	Chairperson (CCO)	Executive Director and President
		Members	Directors, Audit & Supervisory Board members, Headquarters Directors, Outside lawyer, Directors of major subsidiaries, ISK Labor Union chairperson
Corporate Risk Management Committee	Functions	Assesses and manages corporate risk incurred in the course of operations, formulates countermeasures, and deals with risks that have manifested themselves	
	Composition	Chairperson	Executive Director and President
		Members	Inside Directors, Headquarters Directors
Evaluation Committee	Functions	Analyzes and evaluates the overall effectiveness of the Board of Directors	
	Composition	Chairperson	Independent Outside Audit & Supervisory Board member
		Members	Independent Outside Directors, Inside Audit & Supervisory Board members, Independent Outside Audit & Supervisory Board members Note: Five of seven positions on the committee (71%) are filled by independent Directors and Audit & Supervisory Board members.
Compensation Committee	Functions	Offers views in response to requests for advice from the President, who is delegated by the Board of Directors about concerning the remuneration of directors, executive officers, and other personnel in its capacity as an advisory body to the Board of Directors.	
	Composition	Chairperson	Independent Outside Director
		Members	Independent Outside Directors, Independent Outside Audit & Supervisory Board members Note: All five positions on the committee (100%) are filled by independent officers.
Personnel Committee	Functions	Responds to inquiries from the President, who is delegated by the Board of Directors about the appointment of CEO's successor and candidates for new Director or Audit & Supervisory Board member positions, as advising the Board of Directors	
	Composition	Chairperson	Independent Outside Director
		Members	Independent Outside Directors, Independent Outside Audit & Supervisory Board members Note: All five positions on the committee (100%) are filled by independent Directors and Audit & Supervisory Board members.
Public Relations Committee	Functions	Ensures transparency by disclosing information to investors in a timely manner, ensures the timely disclosure of information from Yokkaichi Plant to the local community, and promotes communication between our stakeholders and the company	
	Composition	Chairperson	Executive Director and President
		Members	Directors, Headquarters Directors, and others
Sustainability Promotion Committee	Functions	Undertakes initiatives to address climate change, human rights, diversity and inclusion, health and productivity management, and DX	
	Composition	Chairperson	Executive Director and President
		Members	Directors, Headquarters Directors, and others

Independence Criteria for Outside Directors

Outside Directors and Outside Audit & Supervisory Board members are considered independent if none of the following applies to them.

1. A current or past (within the past 10 years) business executor*¹ for ISK or its subsidiaries (collectively, “ISK Group”)
2. A current or past (within the past 5 years) principal ISK shareholder (i.e., a shareholder that owns 10% or more of ISK's voting shares) or a business executor of the principal ISK shareholder
3. An ISK Group client, or a business executor of an ISK Group client, whose business dealings with ISK Group have accounted for more than 2% of ISK Group's annual consolidated net sales for any of the most recent three fiscal years
4. An ISK Group supplier, or a business executor of an ISK Group supplier, whose business dealings with ISK Group have accounted for more than 2% of said party's annual consolidated net sales for any of the most recent three fiscal years
5. An accounting professional, legal professional, or other type of consultant or a member of a consulting organization, which receives significant financial or other economic benefit*² from ISK Group, other than Director remuneration
6. A party, or a business executor of a party, which receives or has received (within the past three years) significant financial contribution or assistance*³ from ISK Group
7. A spouse, relative within the second degree of kinship, or relative living together, of anyone that meets the criteria of #1 to #6 above

*1 A person who meets the criteria stipulated in Article 2, paragraph (3), item (6) of the Ordinance for Enforcement of the Companies Act.

*2 Normal remuneration averaging more than 10 million yen over the past three years.

*3 Annual contribution or assistance totaling more than 10 million yen over the past three years.

Board of Directors Effectiveness Analysis, Evaluation, and Results

In view of the responsibilities for Boards of Directors stipulated in the Corporate Governance Code, and in order to improve the functioning of the Board of Directors, an Evaluation Committee comprised of Outside Directors and Audit & Supervisory Board members has been established under ISK Board of Directors and in line with Board of Director evaluation-related rules. Every year since fiscal 2016, this committee has analyzed and evaluated the overall effectiveness of the Board of Directors and provided the Board with its results for deliberation and approval, after which an outline of those results is released publicly. In fiscal year 2021, as well, an evaluation of the Board of Directors' overall effectiveness was carried out in accordance with this policy.

Method of Evaluation

In fiscal year 2021, the number of questions was changed to 39 (from 45 in fiscal year 2020). Principal changes included the removal of questions with 100% achievement in fiscal year 2020 that were thought would be reliably achieved in the future, and the addition of new questions to accommodate the revised Corporate Governance Code and integrate past questions. We invited participants to offer their free judgments of the Board of Directors' overall effectiveness as part of the self-evaluation, and we increased the size of the space for participant comments to better solicit views from directors and Audit & Supervisory Board members.

The Evaluation Committee gave this questionnaire to all Directors and Audit & Supervisory Board members. The responses were analyzed and evaluated, after which all 9 Directors were interviewed. Based on the evaluation results report from Evaluation Committee, our Board of Directors made a determination on the evaluation of the overall effectiveness of the Board of Directors for fiscal 2021.

Analysis and Evaluation Results of Overall Board of Directors Effectiveness

Results fell from the previous fiscal year in all eight areas, as did total achievement for participants, which declined from 84.6% in fiscal year 2020 to 76.9% in fiscal year 2021, because some questions were changed.

In addition to the effects of some questions were changed, our analysis indicates that these results reflect a divergence between participants' current understanding of issues and associated progress and achievement on the one hand, and an array of increasingly sophisticated requirements on the other, including the status of initiatives to realize sustained growth and increase medium- and long-term corporate value in line with revisions to the Corporate Governance Code in June 2021, the principles required by the Prime Market (both principles and supplementary principles), and management founded on the SDGs and ESG considerations.

Ensuring the Board of Directors' Overall Effectiveness

With regard to ensuring overall Board of Directors effectiveness, the results differed significantly for inside directors (83.0%) and Evaluation Committee members (75.7%), but the overall figure of 79.1%, while declining somewhat from the 80% level of the last three years, indicates that the Board of Directors' overall effectiveness is being assured.

Future Initiatives

Based on the analysis and evaluation results of the overall Board of Directors effectiveness, the Board of Directors has identified the following six priority initiatives, which it is proactively pursuing in order to effect substantial improvement in its overall effectiveness.

The Climate Change Team (with responsibilities including complying with TCFD disclosures and creating a carbon neutrality roadmap), the Human Rights and Diversity Promotion Team (with responsibilities including human rights policies, human rights due diligence, and promotion of diversity and inclusion), the Health & Productivity Management Promotion Team (with responsibilities including earning certification as a Health & Productivity Management Outstanding Organization), the Integrated Report Team (with responsibilities including production of the Integrated Report), and the Digital transformation Promotion Team (with responsibilities including managing and supporting DX initiatives), all of which report to the Sustainability Promotion Committee created last November, are spearheading specific initiatives to address a range of issues. In addition to identifying latent risks affecting the Group and determining the magnitude of their potential impacts and likelihood of occurrence, the Corporate Risk Management Committee is creating a risk map for the entire Group and taking measures to address them, starting with the highest-priority risks.

We see working to substantively increase the overall effectiveness of the Board of Directors in order to facilitate the formulation of value-creation strategies for the ISK Group and to prepare the foundation for implementing them as ongoing issues, and we will strengthen initiatives in this area going forward.

Six Issues to Address in Fiscal Year 2022

- (1) We will reassess how the Board of Directors and Executive Management Committee operate in terms of their positioning and roles. As we look to realize sustained growth and increase our medium- and long-term corporate value, the Executive Management Committee will facilitate deep, high-quality discussion of important matters, including basic policies concerning our business portfolio, topics that delineate major directions for medium- and long-term issues and business strategy, and formulation of a vision for the future. In addition, the Board of Directors will work to realize efficient operations, for example by accelerating decision-making and fostering intensive discussion of important matters by reassessing how it transfers authority for the execution of operations and conducts internal procedures.
- (2) To ensure active oversight of group companies' operations, we will require regular reporting on risks and issues while working to ensure sufficient oversight of directors' performance of their responsibilities and contributions to overall management.
- (3) In addition to pursuing their own studies, for example to acquire necessary knowledge so that they can fulfill their own roles and responsibilities, directors must provide sufficient oversight of their peers' performance of their responsibilities.
- (4) We will work to substantively strengthen the functions of our internal audit departments and to ensure collaboration between directors and members of the audit and supervisory board. We will also actively use the results of internal audits and other investigations to inform advice and action so that directors can contribute not only in their own area of responsibility, but also to management as a whole.
- (5) We will ensure to provide clear information about issues requiring decisions and compile materials so that the matters being discussed are clear at a glance. We will also provide sufficient materials to facilitate decision-making. Directors must provide sufficient explanation of the agenda topics for which they are responsible, including major risks with the potential to impact ISK's businesses, so as to facilitate active, extensive deliberation.
- (6) We will address issues related to sustainability in an active and engaged manner, ensuring that the state of their progress and matters requiring discussion are deliberated by the Sustainability Promotion Committee, communicated clearly to outside directors and members of the audit and supervisory board, and included in the form of general information in the Integrated Report.

Basic Policy for the Internal Control System

We are continually working to expand and improve our Group internal control systems in order to ensure the appropriateness of subsidiary governance as well as the maintenance of compliance systems. For details, please refer to ISK Corporate Governance Report.

Corporate Governance Report (in Japanese)

https://www.iskweb.co.jp/company/pdf/corporate_governance.pdf?t=220705

Remuneration of Directors

Policy for Determining Remuneration of Directors

Director remuneration includes a base remuneration amount and other remuneration, such as performance-based remuneration. The amount of remuneration for Directors is approved by the Board of Directors within the limit of the total remuneration amount (460 million yen per annum), which had been approved at the 82nd Ordinary General Meeting of Shareholders on June 29, 2005. Outside Directors receive only a base remuneration.

The maximum amount of remuneration for Audit & Supervisory Board members is limited to the total remuneration amount (90 million yen per annum) approved at the 71st Ordinary General Meeting of Shareholders on June 29, 1994. It is only a base remuneration, and individually determined based on deliberation by the Audit & Supervisory Board.

Policies for Determining the Nature of Performance Indicators and for Calculating the Amounts and Quantities of Performance-Based Remuneration and Other Compensation

The performance-based portion of directors' remuneration (excluding outside directors) consists of annual performance-based remuneration and long-term performance-based remuneration, which are structured to ensure both objectivity and a connection with corporate performance in line with the Officer Compensation Regulations approved by the Board of Directors. Annual performance-based remuneration is calculated based on a comprehensive consideration of the company's performance, for example in the form of net income attributable to owners of parent, which is the final result of corporate activities, together with individual performance evaluation.

Policies for Determining Non-Monetary Remuneration and for Calculating Associated Amounts and Quantities

The 99th Ordinary General Meeting on June 28, 2022 of Shareholders resolved to introduce a non-monetary remuneration program, which was subsequently adopted by the Board of Directors as described below.

The non-monetary portion of directors' remuneration (excluding outside directors) consists of transfer-restricted shares, and the total amount of monetary claims necessary to grant those shares to directors (excluding outside directors) may not exceed ¥90 million per year (excluding the employee portion for officers who also serve as employees). In addition, the total number of normal shares newly issued or disposed by the company may not exceed 95,000 per year. (However, if it becomes necessary to adjust the total number of normal shares that are issued or disposed of as transfer-restricted shares, for example due to a stock split or reverse split involving normal shares, including any gratis allocations, the total number may be adjusted within reason.) The Board of Directors is responsible for determining the specific timing and distribution of such awards to directors.

Types and Proportions of Remuneration and Other Compensation for Individual Directors

The relative proportions of base remuneration and performance-based remuneration and other compensation is determined by the Board of Directors after consultation with the Executive Director and Chairman, taking into account advice sought from the Compensation Committee by the Executive Director and President, to whom the Board delegates the task of considering each year's performance and other factors.

Policies for Determining the Timing and Conditions of Remuneration and Other Compensation for Directors

The Officer Compensation Regulations adopted by the Board of Directors stipulate that base remuneration is calculated on a monthly basis and paid on the same day as employees' monthly salaries, while performance-based remuneration and other compensation is paid on the same day as employees' summer bonus.

Delegation of Authority for Determining Remuneration and Other Compensation for Individual Directors

Responsibility for determining remuneration for individual directors at ISK has been delegated by the Board of Directors to the Executive Director and President, who takes into account advice from the Compensation Committee and consults with the Executive Director and Chairman.

To ensure that this authority is carried out appropriately by the Executive Director and President, remuneration and other compensation for individual directors is determined after consultation with the Compensation Committee, which consists of independent outside directors and independent outside audit and supervisory board members. In fulfilling its mandate to advise and report, the Committee draws on information from executive compensation surveys conducted by third parties and the knowledge of committee members.

• Remuneration of Directors in Fiscal Year 2021

Director category	Total remuneration (Million yen)	Total remuneration by type		Applicable Directors (Persons)
		Fixed (Million yen)	Performance-based (Million yen)	
Directors (excluding Outside Directors)	216	178	37	7
Audit & Supervisory Board Members (excluding Outside Audit & Supervisory Board Members)	36	36	-	3
Outside Directors	55	55	-	5
Total	308	270	37	15

Policy on Cross-Shareholdings

ISK maintains an amount of cross-shareholdings deemed to build a smooth, stable, and ongoing relationship with business partners, in line with our business strategy. The status of cross-shareholdings is disclosed in our securities report. Other shareholdings have been appropriately reduced.

Verification of Reasonableness of Cross-Shareholdings

The reasonableness of currently held cross-shareholdings is regularly verified by the Board of Directors about some factors such as the adequacy of the purpose, the benefits and risks in the context of capital cost, of holding those shares. Based on the results of verification, the Board of Directors decides whether to continue holding or sell cross-shareholdings.

Cross-Shareholding Voting Criteria

With regard to the exercise of voting rights arising from cross-shareholdings, our decision is made based on our comprehensive assessment, which includes the content of the proposal, the performance of the company, its management policies, and from the viewpoint of whether or not the resolution will increase shareholder value for the company, and even increase ISK's corporate value.

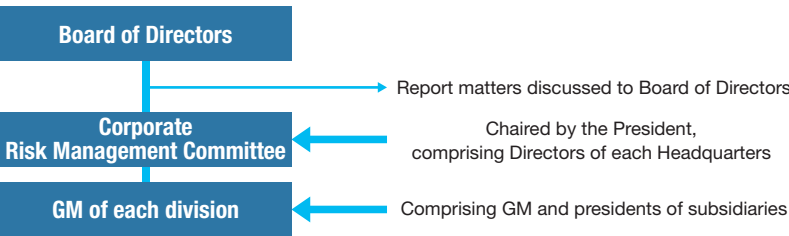
Basic Policy

We in the ISK Group pursue risk management with the aim of preventing various risks that could seriously impact the smooth operation of our business, and in the event of an emergency, appropriately and swiftly addressing it in order not to harm the health, safety, or interests of stakeholders, restoring our business operations as soon as possible, protecting our corporate resources, and minimizing the damage to our business.

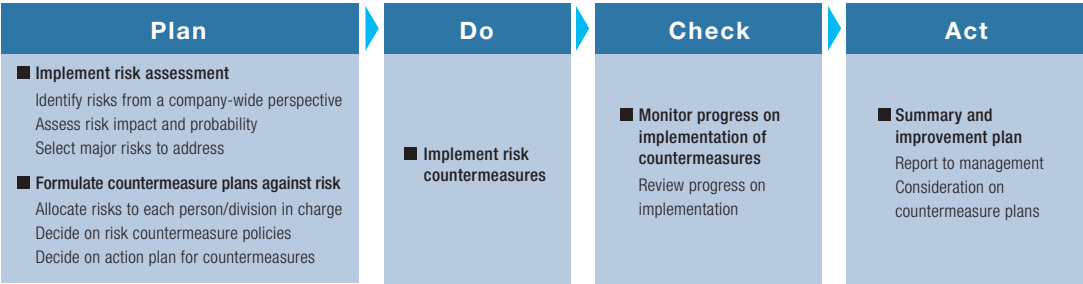
Risk Management System

We have “risk management regulations” governing our basic policy on risk management and risk management system. We have also established the Corporate Risk Management Committee, aimed at appropriately managing and preventing various risks surrounding our business. The Corporate Risk Management Committee is held twice a year, or whenever necessary, summarizing risk assessments, selecting major risks with high priority, discussing plans for risk countermeasures, and confirming progress on those countermeasures.

The Sustainability Promotion Committee’s jurisdiction includes priority issues (Materiality), climate change risk, and human rights risk, for which it advances their measures in coordination with the Corporate Risk Management Committee.



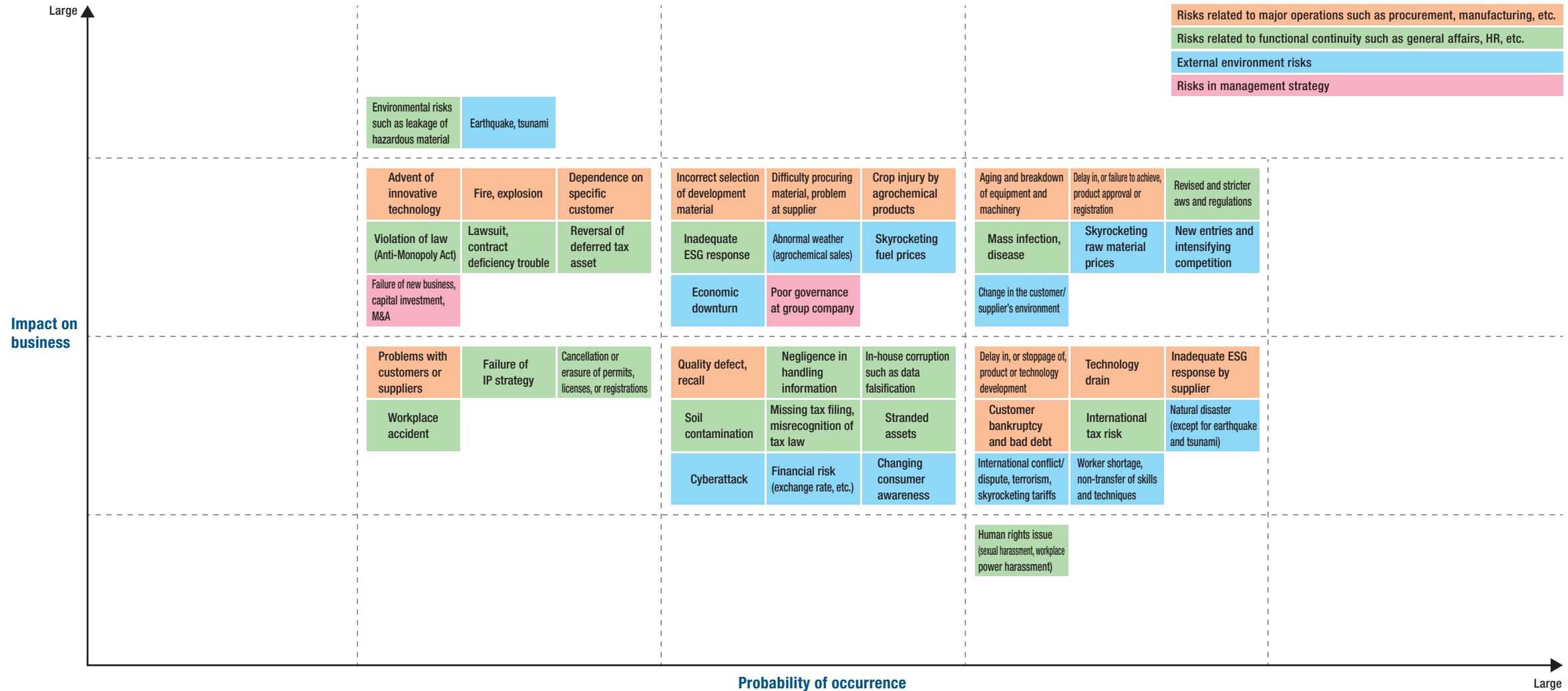
Risk Management Process



Risk Summary and Measures (extract)

Risk	Summary	Measures
Aging and breakdown of equipment and machinery	Risk of plant shutdown due to inoperable situation caused by aging, corrosion, etc., of key equipment and machinery	• Perform thorough repairs and preventive maintenance during annual maintenance shutdown • Replace equipment when the right time • Promote the structure for backup systems
Delay in, or failure to achieve, product approval or registration	Risk of postponement, or abandonment, of launch of new agrochemicals due to stricter agrochemical-related regulations	• Take proper approach to countries' registration agencies and authorities • Assess other companies' agrochemicals registration and survey their registration status • Secure personnel with expertise in highly specialized fields, ensure handover of registration know-how
Revised and stricter laws and regulations	Risk of being unable to continue sales of existing products due to more stringent product registration rules or regulations	• Appropriately gather information relating to laws and regulations and registration requirements
Mass infection, disease	Risk of factory shutdown due to outbreak of infectious diseases such as COVID-19 or seasonal influenza	• Establish Headquarters of Infectious Disease Response, study and implement measures • Thoroughly conduct basic infection prevention measures and hygiene control • Utilize various work styles like remote work
Earthquake, tsunami	Risk of damage to facilities and products, suspension of production and business operations, and human casualties if the plant should suffer serious damage due to tsunami, liquefaction, or other factors resulting from a large-scale earthquake	• Provide aging plant facilities with seismic reinforcement • Step up product storage at multiple bases (at elevated locations, etc.) • Update business continuity plans • Get business interruption insurance to cover business continuity expenses as a response after earthquake • Sign committed line of credit with financial institutions, which is applied to earthquake disasters
Difficulty procuring material, problem at supplier	Risk of supply shortage for specific raw materials due to operational accidents, political instability, or stricter environmental regulations in producing regions or countries. In the case of overseas toll manufacturers, risk of limitations on procurement due to stricter regulations in the country or their operational accidents	• Purchase from various suppliers in multiple countries • Closely coordinate with subcontractors and suppliers • Perform rapid planning adjustment and proper inventory management • Expand the range of usable raw materials
Poor governance at group company	Risk of accounting fraud, bribery, or quality fraud because of lack of thorough control over overseas group companies	• Organize and clearly stipulate the functions and roles of Three Lines model (business divisions, back-office divisions, internal audit division) • Make rules for group companies • Refine and publicize internal rules, strengthen internal auditing
Technology drain	Risk of reduced product competitiveness due to drain of technology or expertise	• Apply for and acquire intellectual property rights such as patents • Conclude agreements to protect confidential information and rights
Worker shortage, non-transfer of skills and techniques	Risk of not securing human resources, or skills and techniques not being passed from the experienced to younger employees, due to fewer young people, an aging population, change in the supply–demand balance of the labor market, and increased job mobility	• Hire employees through diverse channels • Improve visibility of know-how • Train human resources, and study ways to make work environment more pleasant and expand employee support systems

Risk Map



Notes:

1: Regarding level of effect on business and probability of occurrence, we set risk scenarios and assess each risk impact or damage in order for assessors to have a common understanding. The risk scenario used here is a worst-case scenario, i.e. the biggest threat among the possibilities.

2: ISK defines risk as any possibility of physical or economic damage to ISK, loss of trust, or others causing disadvantages.

Basic Philosophy

ISK Group places the utmost importance on compliance. We have formulated a code of conduct in order to carry out business rooted in our corporate philosophy, with the aim of thoroughly complying with laws and regulations, conducting fair and equitable business practices, and maintaining a high level of corporate ethics.

Corporate Philosophy

ISK Group Code of Conduct

<https://www.iskweb.co.jp/eng/compliance/observance.html>

Initiatives for Compliance

Because a company cannot exist without society’s trust, we have launched a compliance committee towards fulfilling our corporate responsibility and contributing to society. The committee puts compliance front and center and ensures that we promptly report any compliance violations.

Compliance Promotion System (Overview)

Based on our reflection on the Ferosilt problem, in November 2005 we appointed a chief compliance officer and established the Compliance Committee. This committee operates under the Board of Directors and is chaired by the President (as Chief Compliance Officer), and comprises directors (excluding outside directors), directors of each headquarters, audit and supervisory board members, affiliate presidents, a labor union representative, an outside lawyer, and the secretariat. In addition, each division has a compliance promotion manager and a compliance leader.

Since the first meeting on December 8, 2005, the Compliance Committee has met about twice a year. It currently meets every March and September, with March 2022 marking the 32nd session.

Highlights from recent years include the following.

- Discussion and revision of the ISK Group Code of Conduct
- Discussion of and response to whistleblowing and compliance violations
- Preparation and monitoring of compliance training plans
- Report on and discussion of compliance activities in each division
- Training for board members on the following topics, led by outside instructors
 - Japan’s Companies Act and governance as they relate to corporations
 - Harassment and insider trading
 - How to approach the SDGs*

* Workshop studying the SDGs and ISK’s related strengths (see next page)

Establishment of Whistleblowing Rules

In December 2021, ISK established its Whistleblowing Rules. Previous to that, in December 2005, the whistleblowing contact office was set up, and our code of conduct has since covered the whistleblowing system, but these newly established rules clarified the details.

While the code of conduct stipulated that whistleblowers would not be disadvantaged within the company for whistleblowing, the Whistleblowing Rules go further by stating that any person acting unjustly towards the whistleblower will be subject to disciplinary action.

As for the number of cases of whistleblowing or consultation related to compliance in recent years, there were two in fiscal 2018, four in fiscal 2019, four in fiscal 2020, and two in fiscal 2021.

Fiscal 2021 Compliance-Related Training and Awareness-Raising at ISK

ISK Group carries out compliance-related training in accordance with an annual plan, which is discussed and approved by the Compliance Committee. Besides job grade-specific training, training on specific topics is planned and carried out according to social conditions. Many ISK Group members joined training.

■ Online learning for new employees

Focus: General compliance-related basic training

ISK: 48 employees, Affiliates: 21 employees Total: 69

■ Advanced compliance training for newly appointed assistant managers

Focus: Development of human resources who facilitate compliance-based management

ISK: 23 employees, Affiliates: 4 employees Total: 27

■ Group training for newly appointed managers

Focus: Acquisition of compliance knowledge required by managers

ISK: 11 newly appointed managers

■ Insider trading regulations e-learning for affiliate company managers

Affiliates: 79 employees

- Participants with legal knowledge about insider trading under Japan's Financial Instruments and Exchange Act took this course summarizing the key points for company employees.

■ Harassment e-learning

ISK: 97 employees, Affiliates: 47 employees Total: 144

- Used teaching materials covering Japan's Power Harassment Prevention Act.

■ Workplace-specific specialized law seminars

- Newly begun in fiscal 2021, these seminars give participants knowledge on laws covering their particular workplace with the goal of strengthening adherence to laws, the basis of compliance.
- Managers select specialized laws that relate to their workplace and lead periodic seminars in that workplace.
- Workplace members take turns being the instructor in sessions in which they explain specialized laws, thus raising workplace knowledge from the bottom up.

■ Compliance library training program

- Plant operators watch videos in the compliance library in their workplace, with the foreman providing explanations and guidance.
- The videos present short dramatizations of familiar, everyday compliance issues, which workers watch periodically at workplace meetings and other gatherings.
- In fiscal 2021, a cumulative total of 673 sessions were held, including the specialized law seminars and library training, with a cumulative total of 6,912 participants.

SDGs Training for Board Members

There are 17 Sustainable Development Goals (SDGs) with the aim of creating a better world. Participating in the SDGs gives companies new business opportunities.

This training focuses on SDGs issues ISK should tackle, with participants discussing concrete actions ISK could take using its management resources.



Implementation Plan for Fiscal 2022 Compliance-Related Training and Awareness-Raising Efforts

In fiscal 2022, ISK is continuing its job grade-specific training, with online learning for new employees, online learning for newly appointed assistant managers, and group training for newly appointed managers. For topic-specific training, we are looking into holding training covering issues such as law revisions. For periodic workplace-specific training, we will urge each workplace to continue holding specialized law seminars and library training. We will also make more employees aware of our whistleblowing system and the history of our compliance activities.

Job grade-specific training

- Group training for newly appointed managers (appointed in FY2022)
- Online learning for newly appointed assistant managers (appointed in FY2022)
- Online learning for new employees (FY2022 new hires and FY2021 mid-career hires)

Topic-specific training

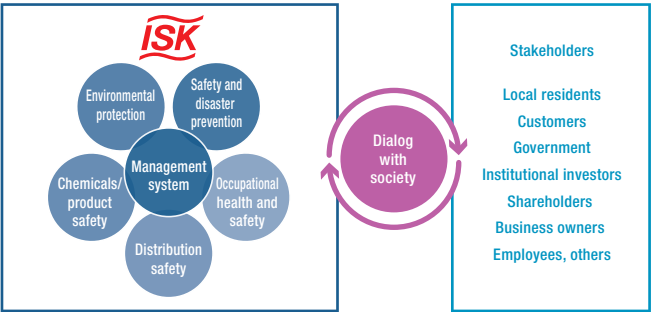
- Publicizing of whistleblowing system (Whistleblowing Rules)
- Publicizing of the history of ISK's compliance activities
- Online learning on personal information protection

Workplace-specific training

- Workplace-specific specialized law seminars
- Compliance library training

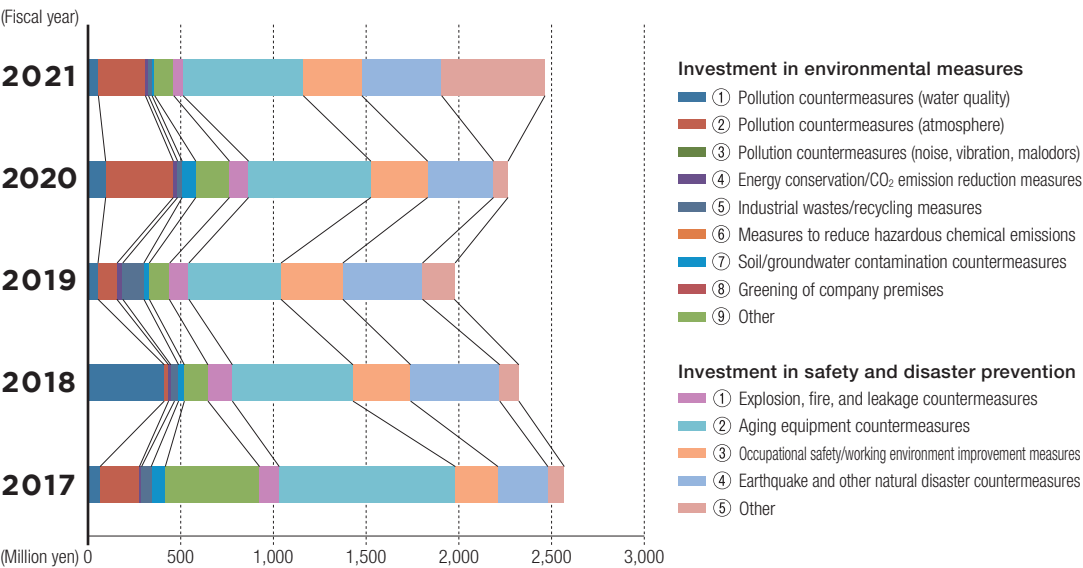
ISK's Responsible Care

ISK undertakes Responsible Care (RC) activities aimed at environmental, health, and safety assurance. In particular, our activities encompass chemical product and distribution safety specific to the chemical industry, as well as environmental protection, process safety and disaster prevention, and occupational health and safety, along with dialog with society, common to many different industries.



Investment in Environmental Measures and Safety and Disaster Prevention Measures

Most investment is allocated to the Yokkaichi Plant. The graph below shows the trends of investment in environmental measures and investment in safety and disaster prevention. In fiscal 2021, we invested intensively to replace aging equipment, prepare for earthquakes and other natural disasters, boost occupational safety, and improve working environments.



What is Responsible Care?

Companies that handle chemicals voluntarily undertake Responsible Care activities to provide environmental, health, and safety assurance covering everything from chemical substance development to production, distribution, usage, final consumption, disposal, and recycling.

The results of these activities are shared and discussed with stakeholders. Responsible Care originated in Canada in 1985 and has subsequently spread to companies around the world.

Responsible Care Achievements in Fiscal 2021 (Summary)

Category	Fiscal 2021		
	Objectives	Achievements	Evaluation
Environmental protection	Planned emission reduction of PRTR-listed materials	The volume of emissions into the air, public water areas, and transferred off-site was reduced.	✓
	Reduce energy intensity and electricity demand leveling assessment intensity by 1% year-on-year	Reduced by 5.2% year-on-year, thus achieving 1% reduction target.	✓
	Reduce, reuse, and recycle waste	Continued reducing industrial waste by reusing and recycling materials with recoverable value.	✓
Process safety and disaster prevention	Eliminate plant accidents (fire, explosion, leakage)	There were no plant accidents.	✓
Occupational health and safety	Achieve “zero lost time accidents” at each ISK site	There were two lost-time accidents at the Yokkaichi Plant and one at the Head Office.	—
Distribution safety	Implement emergency response card (so-called Yellow Card), GHS label, and SDS management	Yellow Cards, GHS labelling, and SDSs were appropriately implemented.	✓
Chemicals/product safety	Properly manage chemical substances and provide customers with SDSs	We appropriately notified the authorities on the use of chemical substances and provided SDSs.	✓
Dialog with community	Provide information to community Interact more with local communities	More two-way communication was carried out with local citizens.	✓

Announcement of Support for TCFD Recommendations

ISK has announced its support for the Task Force on Climate-Related Financial Disclosures (TCFD)* recommendations.



*TCFD (Task Force on Climate-Related Financial Disclosures): The TCFD recommends that companies evaluate the financial impact of the risks and opportunities posed by climate change on their business management and provide disclosure on the four areas of governance, strategy, risk management, and metrics and targets. (TCFD website: <https://www.fsb-tcfd.org/>)

ISK Group has pursued and strengthened sustainable management initiatives from the perspective of SDGs for the “Vision 2030 Stage I,” the Medium-term Business Plan of the Vision 2030. In view of emergency and importance, ISK Group is making efforts toward the “Dealing with climate change, reducing environmental impacts” as an identified priority issues (Materiality). ISK Group strives to analyze, examine, and disclose the information related to the climate change issues under the TCFD recommendations, and in carrying out business activities, ISK Group will contribute to address environmental and social issues to realize a sustainable society and improve its corporate value.

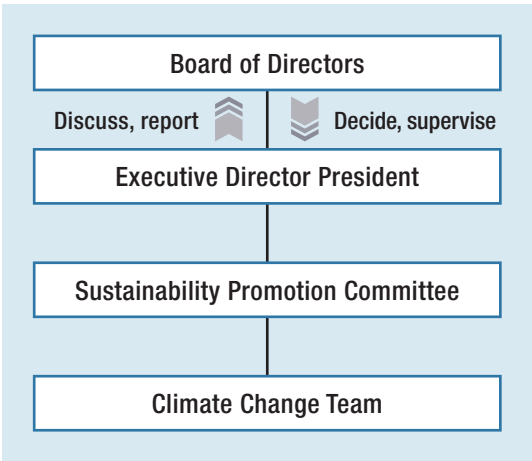
Governance

Concrete efforts in response to climate change are carried out by our Climate Change Team. This team operates under the Sustainability Promotion Committee, which reports directly to the President.

The team comprises people from factory management, manufacturing divisions, administrative department, and ISK affiliates.

The efforts and measures the team comes up with are deliberated on at Sustainability Promotion Committee meetings held at least twice a year, and those approved are consulted on and passed by the Board of Directors.

The progress of activities by the Sustainability Promotion Committee, including the Climate Change Team, is reported every three months to the Board of Directors, which supervises these activities.



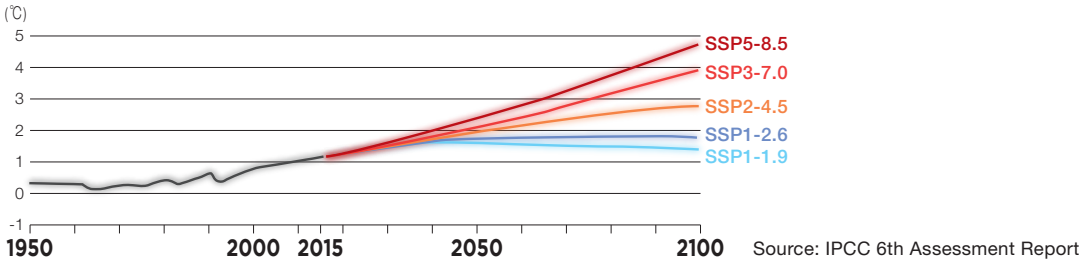
Strategy

Chosen Climate Change Scenarios

Referencing climate change scenarios published by the IEA (International Energy Agency), we selected scenarios of a rise of 1.5–2°C and 4.0°C. Recognizing that climate change's impact on business becomes more evident in the medium- and long-term, we analyzed the impact of climate change until 2050, as the time horizon.

Analysis of the scenario for the first year, fiscal 2022, covers the inorganic chemicals business, which accounts for about half of ISK's net sales and a major portion of CO₂ emissions.

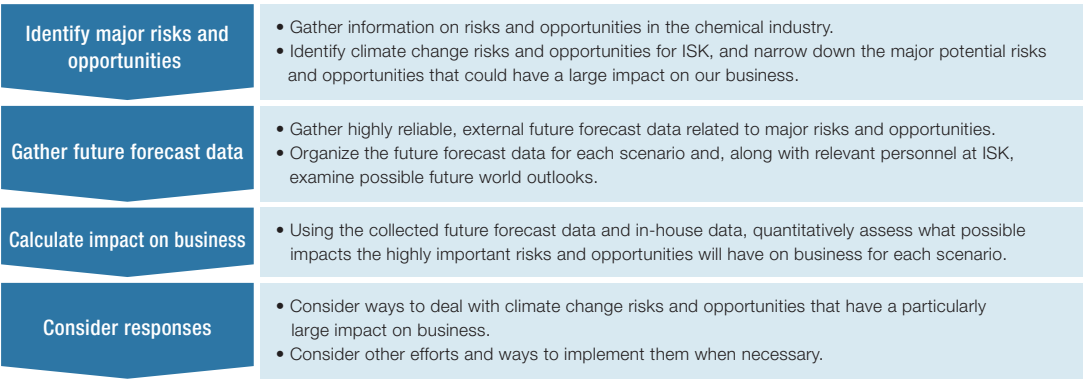
Average Worldwide Temperature Change Based on 1850–1900



4°C scenario (equivalent to SSP5-8.5)
Maximum emissions scenario with no climate policy and development dependent on fossil fuels (Stated Policies Scenario)

1.5–2°C scenario (equivalent to SSP1-2.6)
Scenario with sustainable development and climate policy to keep temperature rise under 2°C compared to pre-industrial levels (Sustainable Development Scenario, Net Zero Emission by 2050 Scenario)

Scenario Analysis Process



Scenario Analysis Results

The ISK Group used external information to analyze the main climate change risks and opportunities in the inorganic chemicals business, and gathered future forecast data related to each risk and opportunity.

Based on this, we considered the risks and opportunities that arise from the transition to the carbon neutral society under each of the 1.5–2°C and 4°C scenario. We then analyzed the major risks and opportunities that could impact our business up until 2050.

As a result, for the 1.5–2°C scenario, we identified risks such as greatly increased operating costs due to the imposition of a carbon tax on CO₂ emissions. Therefore, recognizing the importance of reducing CO₂ emissions across the entire ISK Group, we will proceed with various planned measures towards achieving carbon neutrality by 2050.

In our plan, we will expand our scenario analysis to include our organic chemicals business.

Risk Management

One of the eight priority issues (materiality) that the ISK Group has identified is “dealing with climate change and reducing environmental impacts.”

In recognition of the urgency of climate change, the ISK Group has established the Climate Change Team under the Sustainability Promotion Committee. This team identified climate change risks, the results of which are assessed and controlled by the Sustainability Promotion Committee. When necessary, matters are reported to the Corporate Risk Management Committee.

Business Risks and Opportunities Identified through Risk Level Assessment and Scenario Analysis (Inorganic Chemicals Business)

Time horizon: Short term: 0–5 years, medium term: 5–10 years, long term: 10 years or more

Major Risks and Opportunities			Risks			Business Opportunities and Response
			Explanation	Time horizon	Financial impact	
Transition / 1.5–2°C	Policies/regulations	Introduction of carbon tax, stricter CO ₂ emission regulations	Increased operating costs due to the imposition of a carbon tax on CO ₂ emissions (For 1.5°C: Cost increase of approx. 8.4 billion yen in 2030, approx. 16 billion yen in 2050*)	Medium–long	Large	- Shift boiler fuel away from coal - Rebuild manufacturing systems - Implement carbon capture and use renewable energy
	Technologies	- Shift to meeting consumer needs for low-carbon products - Increased demand for electronic component materials	Delay in developing low-carbon products, delay in developing and establishing manufacturing systems for electronic component materials	Medium	Medium	- Expand sales of heat shield materials and others that reduce environmental impact, create new technologies and products - Speed up development of and strengthen manufacturing systems for electronic component materials for MLCCs (multilayer ceramic capacitors)
	Markets	Rising raw material costs (titanium ore, coke, others)	Increased procurement costs, rising material prices due to limited availability	Medium	Large	- Increase yields and reduce waste - Reduce CO₂ in procurement through cooperation with suppliers and the industry
		Energy cost fluctuations	Sharp price fluctuations in coal, fuel oil, gas, and electricity	Short–medium	Large	- Diversify the energy sources - Pursue thorough energy savings
	Reputation	Greater awareness of environmental consciousness among customers	Fewer product orders and lower investor ratings due to delay in decarbonization	Medium	-	- Proactively strive to reduce environmental impact - Pursue thorough information disclosure
Physical / 4°C	Acute	Rise in severity of extreme weather events such as cyclones and floods	Property damage and lost profits due to disasters	Short	Medium	- Expand and improve BCPs, conduct drills - Increase the number of suppliers - Consider a backup manufacturing system

* 1.5°C scenario: Carbon pricing estimates: \$130/t-CO₂ in 2030; \$250/t-CO₂ in 2050 (IEA's Net Zero by 2050 scenario)

Indexes and Targets

GHG (Greenhouse Gas) Emissions of ISK Group in Japan (1,000 t-CO₂)

GHG emissions	FY2019 (base year)	FY2020	FY2021
Scope1	470	423	486
Scope2	19	19	22
Total	490	442	507

GHG emissions calculated based on GHG Protocol

ISK Group Aiming for Carbon Neutrality by 2050

With climate change becoming a major worldwide issue, the ISK Group has identified dealing with climate change and reducing environmental impacts as priority issues (materiality) and aims to become carbon neutral by 2050.

Reduction Targets

The ISK Group in Japan has set the following reduction targets for CO₂ emissions (Scope 1 and Scope 2). We will continue to strive for reduced emissions and carbon neutrality in order to promote Climate Change Mitigation and Adaptation.

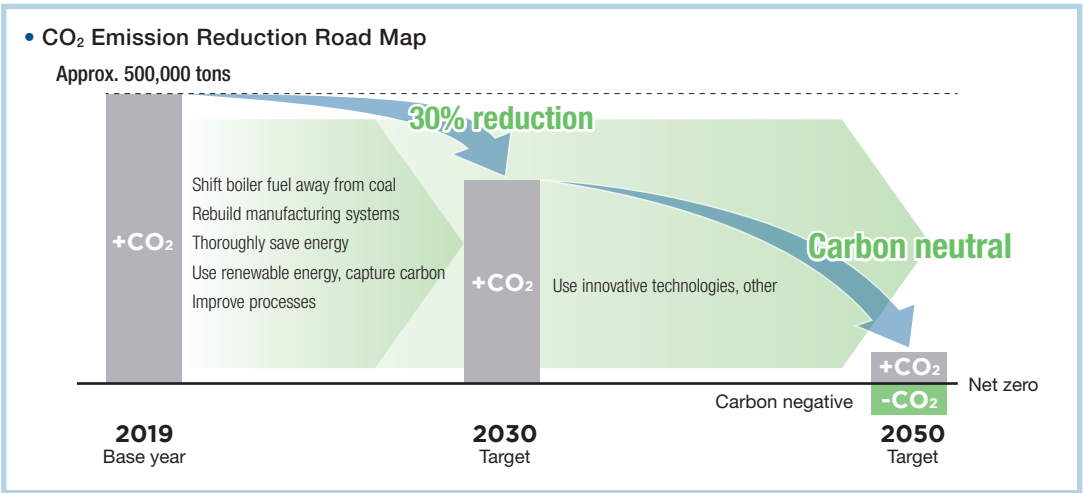
2030: Target CO₂ emissions reduction by 30% (against FY2019)

2050: Challenge carbon neutrality (net zero emissions)

Drawing a Road Map to Carbon Neutrality

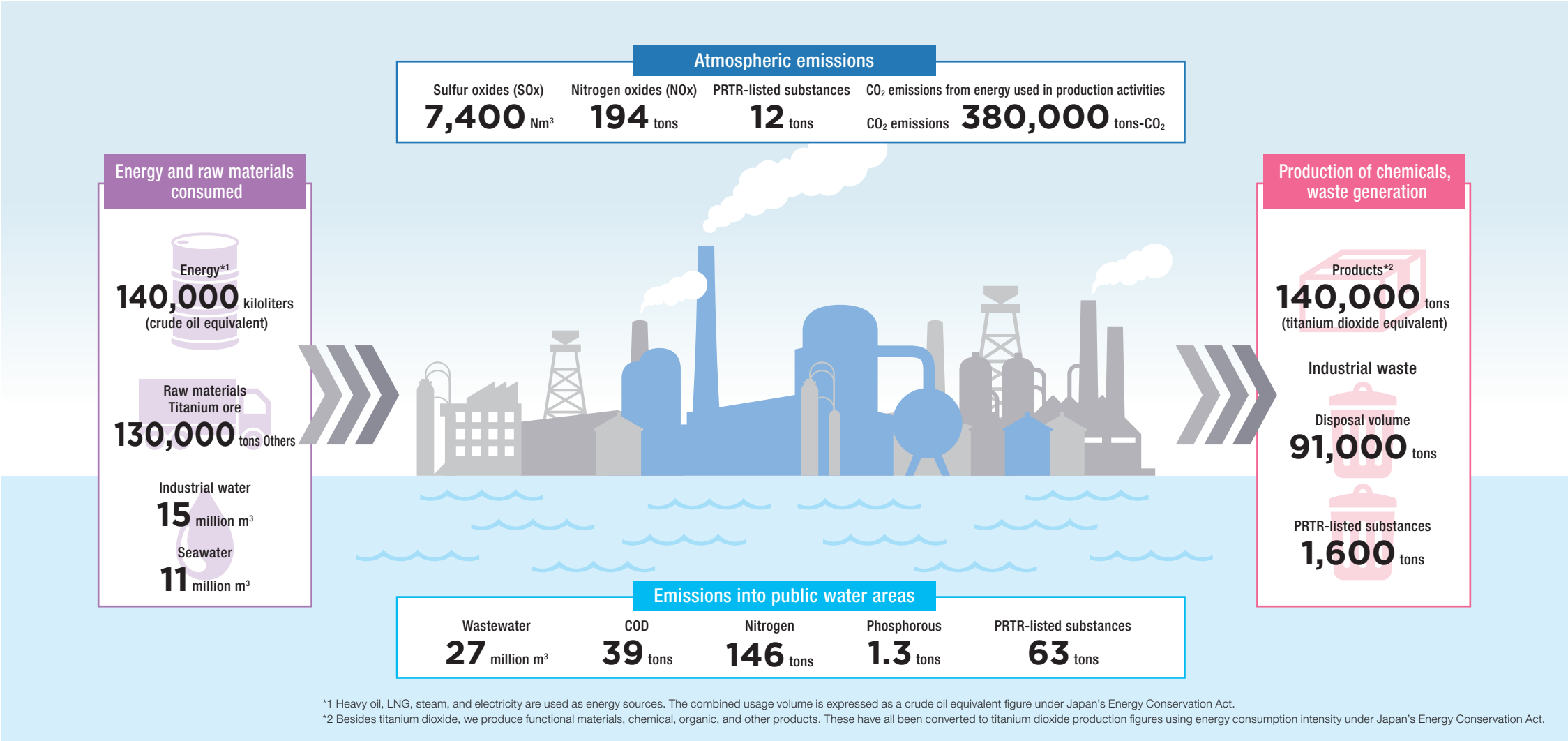
The Yokkaichi Plant, our flagship production base, has been using a coal-fired cogeneration system to achieve optimal energy costs in manufacturing. But because of the occurrence of extreme weather events due to climate change, reducing CO₂ emissions has become a priority issue. We have therefore drawn a road map to carbon neutrality for the ISK Group in Japan through multi-stage CO₂ reductions, with the Yokkaichi Plant at the center of this effort.

We aim to systematically reduce CO₂ emissions (Scope 1 and Scope 2) 30% by 2030 compared to fiscal 2019. This will be achieved, for example, by replacing coal for boilers with low-carbon fuels, rebuilding manufacturing systems, thoroughly saving energy, using renewable energy, capturing CO₂ in various processes, and improving facilities. Towards achieving carbon neutrality in 2050, in addition to the measures mentioned above, we will aim to dramatically reduce emissions through innovative technologies, and explore the development and implementation of decarbonization technologies such as CCUS (carbon capture, utilization, and storage).



Environmental Protection

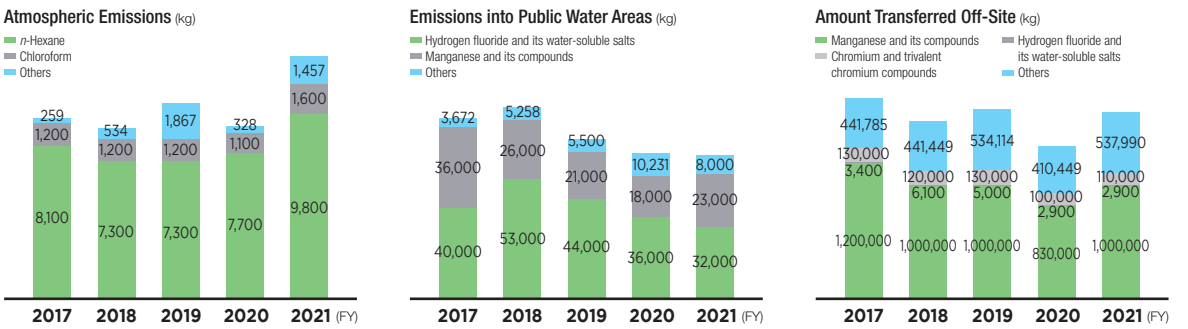
Yokkaichi Plant's Material Balance in Fiscal 2021



Release and Transfer of PRTR-Listed Chemical Substances to Environment

The PRTR (Pollutant Release and Transfer Register) is a system under which the government announces, from where, to where and how much chemical substances are released and transferred that may be harmful to human health and ecosystems. It also aims to encourage companies to exercise self-restraint through disclosure. The Yokkaichi Plant and the Central Research Laboratory handle 27 substances and one substance covered by the PRTR, respectively. These have been reported to the government.

The graphs show the change in the amounts released and transferred at the Yokkaichi Plant in the past five years. Due to a decrease in the use of hydrogen fluoride, the amounts of hydrogen fluoride and its water-soluble salts transferred off-site has also decreased since 2018.

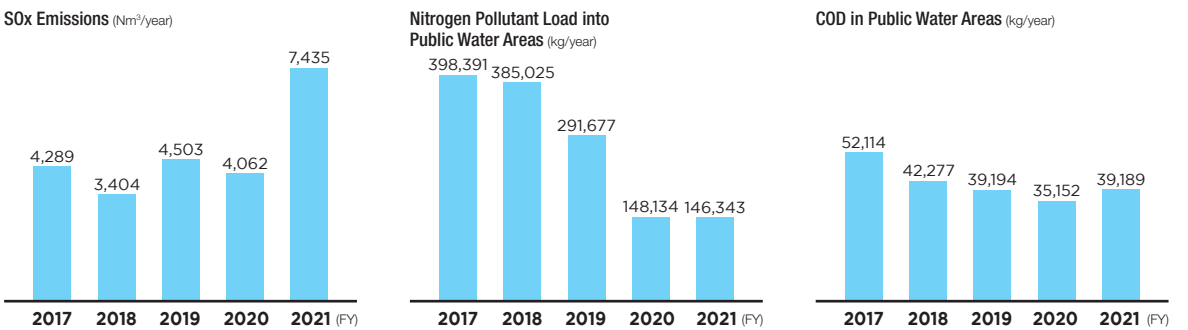


Reducing Environmental Impact on Atmosphere and Water Areas

The graphs show the amounts of substances, covered by total mass emission control, discharged into the atmosphere and public waters at the Yokkaichi Plant.

The plant has voluntary emission standards that are stricter than the total mass emission control values set under Japan's Air Pollution Control Act and Water Pollution Control Act.

The ammonia recovery plant, installed in 2019, operated throughout the year in 2020, thus reducing the nitrogen load into public waters even further than in 2019.



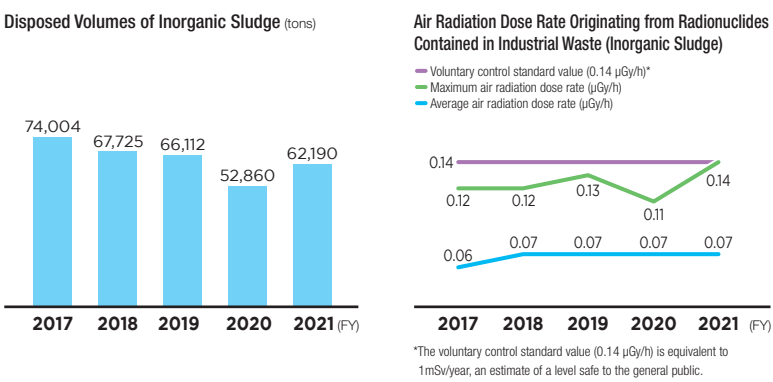
Reduction of By-product Inorganic Sludge

Unnecessary by-product solids (inorganic sludge), generated by each production activity such as titanium dioxide, are properly transported to an industrial waste disposal site. After periodic maintenance of the Yokkaichi Plant in October 2016, we switched to a new method to reduce the generation of the inorganic sludge and it has been decreased.

Due to the COVID-19 pandemic, production of titanium oxide was lower than usual in fiscal 2020, and subsequently the amount of inorganic sludge generated also decreased.

Controlling Air Radiation Dose Rate of Inorganic Sludge

Ore, used as a raw material for titanium dioxide, contains trace amounts of radioactive impurities such as uranium and thorium, and these are treated and disposed of as waste. Prior to being transferred as industrial waste, radiation levels are measured in accordance with a voluntary control standard to ensure that they are safe.



Occupational Health and Safety

Overview of Occupational Health and Safety Activities

ISK’s health and safety policy is to ensure the safety, security, and maintain health of employees and local residents by complying with health and safety-related laws, preventing accidents and disasters, building a pleasant work environment, and constantly raising the level of health and safety. The Yokkaichi Plant has a target of achieving “zero lost time accidents”. Following a series of non-lost-time work accidents in the first half of fiscal 2021, the plant declared a safety emergency and strove for zero workplace accidents during a concentrated period. As a result, in addition to achieving this target, it also raised safety awareness among employees. Regarding workers’ health, we are conducting follow-ups on health checkups to ensure that medical treatment is provided as early as possible when necessary.

At the Central Research Institute, although there were no employee accidents during their commuting time in fiscal 2021, there were two non-lost-time work accidents. Following these, we stepped up measures to prevent further accidents, including reviewing work procedures and thoroughly informing and reeducating employees.

Heatstroke Prevention

With increasingly hot summers prompting greater risk of heatstroke, we have been requiring relevant employees to take courses in preventing heatstroke in the pre-summer period. Led by instructors from beverage manufacturers, these courses explain how to prevent heatstroke by, for example, staying hydrated and knowing the symptoms of heatstroke. These courses are also recorded on video and made available for viewing on company PCs for the education of all employees.

Daily Calisthenics

It’s not known exactly when ISK began holding daily calisthenics, but it has for sure been held every day before work since the 1950s. Daily exercise helps prevent injuries and are important in alerting employees to their physical condition on that day. Daily calisthenics are also believed to maintain good health. With average employee age increasing, calisthenics are growing in importance and ISK will continue to hold them in earnest.



Morning calisthenics



Heatstroke workshop

Process Safety and Disaster Prevention

Process Safety and Disaster Prevention Initiatives

Safety control is the foundation of ISK’s business. At the Yokkaichi Plant, our target is to eliminate fires, explosions, and any kinds of leaks. We conduct risk assessments with What-If Scenario Analysis: when installing new equipment or upgrading existing ones, when updating production methods, and when doing safety assessments of existing equipment where high-risk items such as hazardous substances and high-pressure gas are handled. Then, countermeasures are taken for the extracted potential risks. We also focus on accident case study education, and company executives conduct periodic safety patrols.

Earthquake and tsunami evacuation drills to prepare for a megathrust earthquake are held annually for all personnel and vehicles using the Yokkaichi Plant. This improves our ability to respond quickly and appropriately to such emergencies.



A safety patrol

Hazard Simulation Classes for New Employees and Mid-Career Hires

In 2019, we added hands-on training to our classroom-centered health and safety training for new employees and mid-career hires. Using model equipment so employees can experience risks such as being exposed to liquids when operating valves, the training gives all participants firsthand experience in on-site dangers.

ISK also sends groups of employees to take danger simulation seminars at outside training facilities, where they do things like practice hanging in mid-air with safety belts and experience a simulated accident of getting pinched by or caught in equipment. This heightens their awareness of precaution and teaches them to avoid dangers in their actual work.



Practice hanging by a safety belt

ISK Group Policy on Human Rights

We formulated the ISK Group Policy on Human Rights to further our efforts in respecting individuals. Based on international human rights standards such as the International Bill of Human Rights, the policy proclaims ISK's dedication to preventing discrimination and harassment and respecting individual privacy. It also details how we implement education and training to effectively achieve these goals and conduct due diligence, as well as disclose pertinent information. The ISK Group Policy on Human Rights will guide our efforts to further respect human rights at all our worldwide bases. The policy, which was formulated with advice from outside experts, was approved by the Board of Directors on April 8, 2022.

<ISK Group Policy on Human Rights (Summarized)>

The ISK Group's corporate philosophy embodies the following principles:

- Contributing to a better society, life and environment through chemical technologies;
- Respecting shareholders, customers, suppliers, local communities and employees;
- Abiding by laws and regulations and maintaining transparency in business activities; and
- Respecting the human rights of ISK Group's stakeholders.

In light of these principles, ISK Group adopts the following Policy on Human Rights (this "Policy").

1.Basic Commitment:

ISK Group is committed to the protection and advancement of human rights throughout its global business operations. ISK Group's Policy is guided by international human rights standards including the followings:

- International Bill of Human Rights;
- Declaration on Fundamental Principles and Rights at Work issued by the International Labour Organization (ILO);
- Ten Principles of the UN Global Compact; and
- UN Guiding Principles on Business and Human Rights.

2. Scope of Application and Expectations for Suppliers and Contractors:

3. Respecting Human Rights through Business Activities

- 1.Non-discrimination
- 2.Respect to Privacy
- 3.Anti-Harassment
- 4.Freedom of Association/Collective Bargaining
- 5.Health & Safety
- 6.Fair Wages/Compensation
- 7.Forced Labour/Child Labour
- 8.Coexist with Local Communities

4. Measures for Respecting Human Rights

- 1.Education and Training
- 2.Human Rights Due Diligence
- 3.Response to Occurrence of Problems
- 4.Disclosure
- 5.Review of This Policy

Message from an Outside Expert

The ISK Group Policy on Human Rights, which explicitly draws on the International Bill of Human Rights, the ILO's core labour standards, and other relevant documents, provides a detailed accounting of the ISK Group's responsibilities concerning respect of human rights in its business activities. Its broad understanding of the foundations of prohibited discrimination and its acknowledgment of the need to coexist with the local community anticipate domestic laws, and as such, they deserve particular praise. In making clear its expectations for suppliers and business partners, the Policy aligns itself with the United Nations Guiding Principles on Business and Human Rights.

The process itself, in which ISK conducted an exhaustive series of internal consultations so that it could ensure the new policy would permeate group companies' operations and carefully sought input from outside experts concerning the latent negative impacts of its business activities on human rights (human rights risks), is also rich in meaning and significance.

As if to embody your purpose of "To continue contributing to better living environments through chemical technologies," your businesses are closely related to the living environments of the individuals who make up society. In light of that orientation, I believe that focusing on people and undertaking initiatives that lead the industry in the area of human rights provide a foundation on which additional value can be created. Since ISK is also working to promote communication with residents living near its plant, I expect to see stepped-up dialog with an even broader range of stakeholders in the future.

Now that the human rights policy has been adopted, ISK will presumably also do its utmost to carry out due diligence in the area of human rights, implement a hotline for human rights concerns from both inside and outside the company, and operate it in an effective manner. I will also pay attention to how ISK works to collaborate with the newly established Sustainability Promotion Committee; ensure consistency with supply chain management, which has been identified as a materiality; and enhance disclosure. Both in Japan and abroad, efforts to develop laws and formulate guidelines related to human rights due diligence and to strengthen disclosure of non-financial information are accelerating. I am confident that ISK, as a company with a global business, will take advantage of its human rights initiatives to become even more responsive to expectations from not only domestic investors, but also the international community.

Note: The above comments represent the views of Ms. Omura as an individual attorney. They do not reflect the views of any law offices or organizations to which she belongs, or of any organizations for which she serves as an officer or member.



Attorney, New York State-licensed attorney
Member, Steering Committee,
Business and Human Rights Lawyers Network Japan

Emi Omura

Visit our sustainability website for the entire ISK Group Policy on Human Rights and a message about the policy from an outside expert.
https://www.iskweb.co.jp/eng/environment/human_rights.html

Message from the Director of General Affairs & Human Resources Headquarters

Attract Outstanding Human Resources
by Being an Appealing Place to Work

Human Resource Strategy to Boost Corporate Value medium- and long-term

The ISK Group's purpose is "To continue contributing to better living environments through chemical technologies." To achieve this requires maximizing the strength of our "human resources." As represented by the word "diversity," we fully understand the importance of building a truly diverse environment where people's personalities and values are accepted, where job placements, education, and systems help them fully realize their individual talents, and where they have the opportunity to feel an attachment to their workplace and peers.

To this end, we aim to build a workplace where employees can feel secure yet full of vitality, where they can grow individually through their jobs, feel pride and joy in their work, and respect each other's diverse values. In today's global, digital age, fostering and increasing human resources who use innovation to create new corporate value leads to an expansion of human capital. We believe that building an organization where employees say "I'm glad I joined ISK" will eventually make us a company that further

attracts outstanding people.

In a rapidly changing world that is aptly described by the acronym VUCA (volatility, uncertainty, complexity, ambiguity), it is crucial that ISK keeps coming up with new value and innovation that continue to solve society's problems. This can only be done by "Human." To drive learning and growth, we need to understand ourselves and find the point where our desired direction and goals meet those of ISK. Our aim is to be a "company where employees enjoy rewarding," satisfying work and can fully realize their creativity; a company that fosters leaders who can build an environment that gives rise to new and flexible ideas by enabling employees to enhance their strengths and expertise and continually take on new challenges with curiosity.



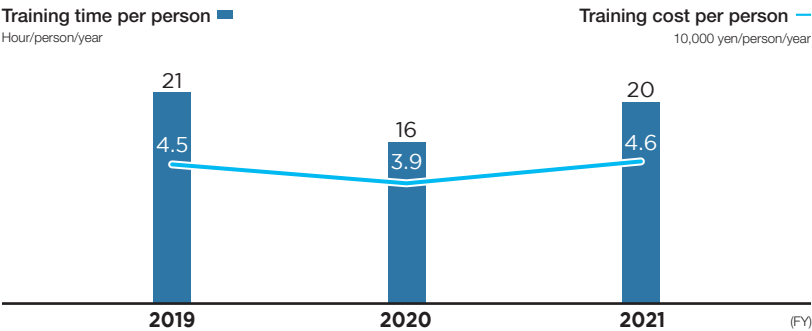
Director of General Affairs &
Human Resources Headquarters
Yoshio Nishiyama

Fostering Global Human Resources Who Provide Value to Society through Innovation

Once employees enter ISK, the company develops their capabilities by holding courses at each business location company-wide at certain points in their careers in order to make them aware of their roles in society and the company and to boost various skills. We also have courses to improve their global business skills, such as online courses they can take at home. They can also go to a language school to learn foreign languages, take part in overseas training, and attend a management school open to all employees to learn global communication skills and further leadership capabilities.

To train the next generation of executives, we hold training for middle managers where they have discussions with others in different industries, learn systematically about the "people", "goods", and "money," that constitute management work, and boost their power of logical thinking. Certain members in this training are selected for "top leader training," in which ISK executive candidates learn not only in-house issues but also interact with employees of other companies in order to learn how to think and act as top-level executives with a problem-solving mindset.

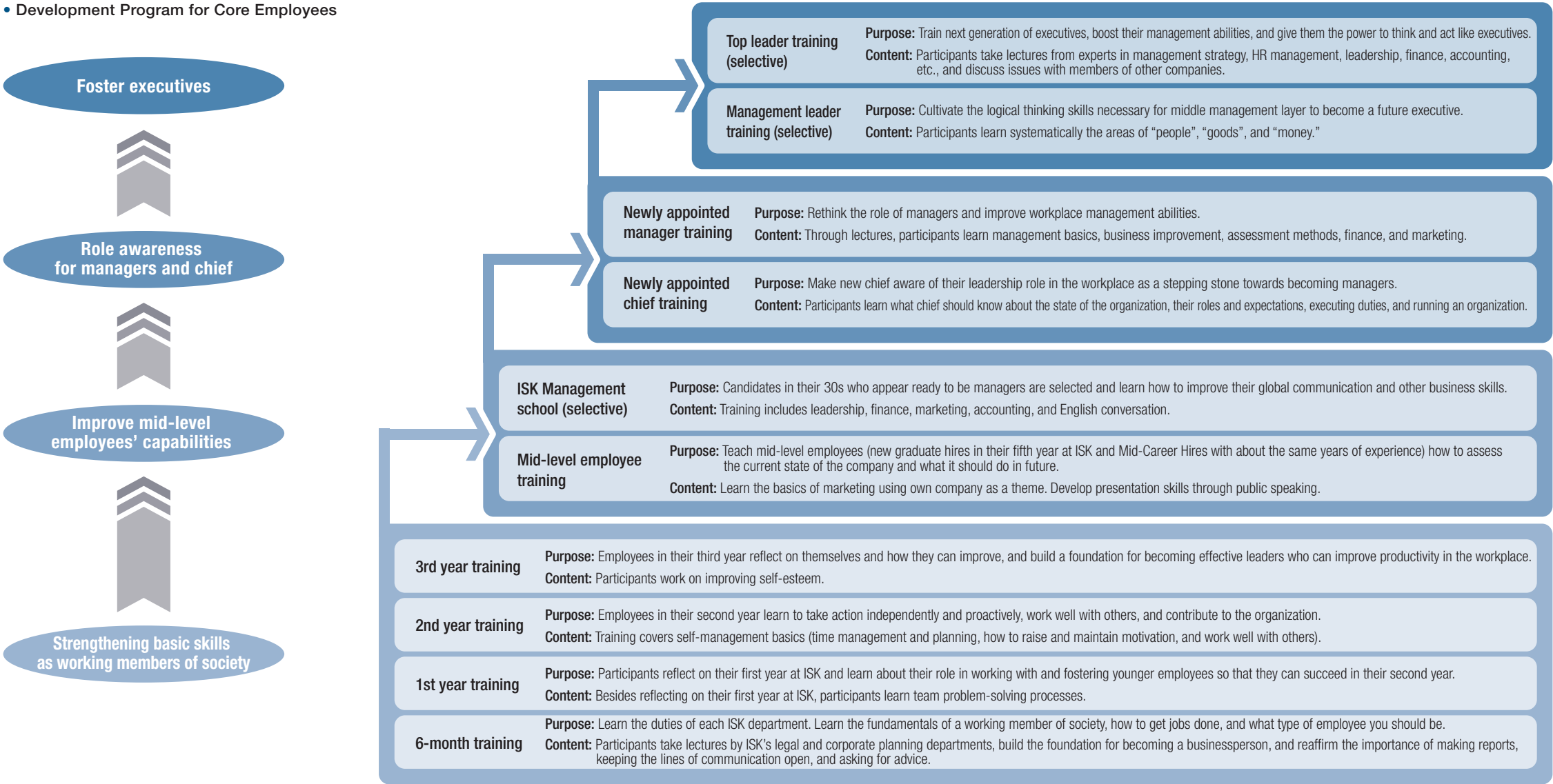
• Time and Money Invested in Employee Training Programs (Non-consolidated)



(Included training to improve employee capabilities, annual training by job level, career training, next-generation executive training, etc.)

	Target year	KPI	Scope
Time spent in training and classes	FY2022	More than 20 hours/person	Non-consolidated
Cost of training and classes	FY2022	More than 50,000 yen/person	Non-consolidated

• Development Program for Core Employees

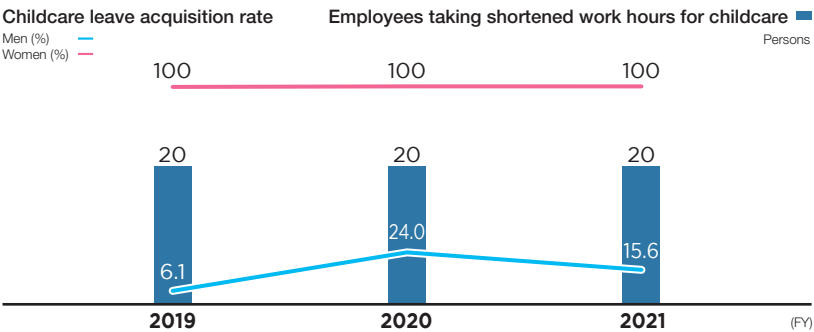


Promoting Diversity

Empowering Women

Because actively promoting women’s empowerment and making workplaces more conducive to women lead to business growth and greater corporate value, we are aggressively hiring women and helping them mold careers at ISK. We are also making it easier for employees to continue working after giving birth and while raising children with company systems that exceed legal requirements. For example, these systems cover days off, leave of absence, returning to work, and shortened working hours. Thanks to the publicizing of these systems and their availability to both men and women, in the past three years 24 women and 13 men have taken childcare leave. In fiscal 2020, 24% of male employees took this leave. We are striving to hire more women and provide career support and other measures so that more women can move to management-level jobs and enjoy rewarding work. To have more women play active roles at ISK in future, our goal is to increase the percentage of female managers from the current 5% to at least 10% by 2030.

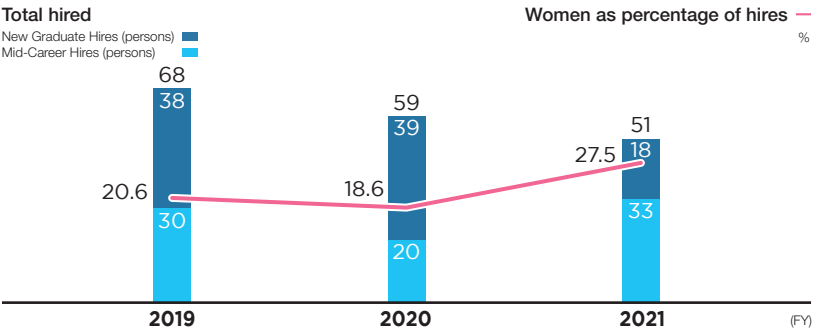
• Increasing Support for Work-Life Balance (Non-consolidated)



Hiring a Diversity of Human Resources

We strive to hire globally minded people with high aspirations and the love of a challenge, regardless of their gender or nationality, or whether they are hired as new graduates or Mid-Career Hires. We strengthen our foundation of diverse human resources by hiring mid-career workers , former employees, and referrals. We also strive to make more women and Mid-Career Hires managers, with a goal of having women account for at least 10% of management and Mid-Career Hires at least 30% (average for the last three years).

• Employees Hired (Non-consolidated)



	Target year	KPI	Scope
Female manager ratio	2030	At least 10%	Non-consolidated
Women as percentage of managers (average for last three years)	2022	At least 10%	Non-consolidated
Mid-Career Hires as percentage of managers (average for last three years)	2022	At least 30%	Non-consolidated

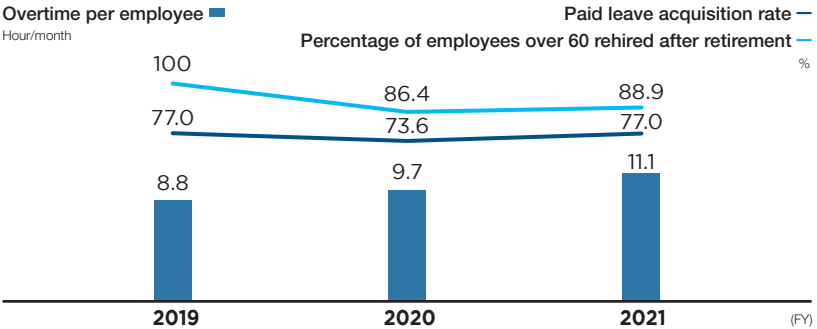
Building a Pleasant Work Environment

Improving Employees’ Health

ISK thinks of employee health from a management perspective. Besides sharing health information and making use of health-related websites, we work with the health insurance union to earnestly promote employees’ well-being by, for example, holding seminars on lifestyle disease prevention and no-smoking campaigns (giving out free nicotine patches and nicotine gum). As key performance indicators for health and productivity management, we have set targets for fiscal 2030 of a smoking rate of less than 10%, at least 80% usage by employees of paid leave, overtime of less than 10 hours a month per employee, and 100% attendance at health-related seminars. We also strive to create a workplace conducive to supporting employees’ mental health. Besides teaming up with outside organizations to carry out stress checks so that employees can keep track of their own stress, we offer support in dealing with stress and hold programs to help employees return to work after stress-related leave.

In Japan, which has the world’s oldest population, companies must maintain employees’ health if the country is to realize a society where people remain active throughout their lives. With the aim of being a company where employees can continue to enjoy safe and secure work, ISK implements numerous health measures with a long-term view to raising corporate value.

• Work Style Reform Index (Non-consolidated)



	Target year	KPI	Scope
Rates for employee health checkups and stress checks	2022	100%	Non-consolidated
Paid leave acquisition rate	2022	At least 75%	Non-consolidated
	2030	At least 80%	

Engagement Surveys

In 2022, we began having all employees take engagement surveys. Employees answered 21 questions in seven areas (business potential, work meaning/contribution, sense of self-growth, support from superiors, interpersonal relations, diverse work styles, sense of fairness of treatment), grading each on a seven-point scale.

The surveys revealed that ISK needs to improve the quality of communication between superiors and their subordinates. Taking into account ISK’s characteristics, the company is taking numerous improvement measures towards improving employee engagement. We will continue conducting surveys in order to help ISK and its employees enjoy a better mutual relationship.

• Engagement of Individuals with the Organization



Diversity Messages

Diverse Human Resources and Multifaceted Careers

All kinds of people—irrespective of their gender, nationality, and home life situation—work in the ISK Group. We spoke with six of them about what makes their jobs worthwhile, how they achieve a work-life balance, and what their future dreams are.

Technical Improvement on the Front Lines of Manufacturing



Kumiko Azuma
Manager, Organic Manufacturing Division,
Yokkaichi Plant

My department produces and packages agrochemicals at the Yokkaichi Plant, and my main job is operations management of agrochemicals formulation. In addition to ensuring that daily manufacturing proceeds according to plan, I also work on improving yield and manufacturing capacity. Two assignments previous, in the department for research into agrochemical formulation, I built up experience and confidence, and the department supervisor recommended me for a managerial position.

My husband also works at ISK, and he spent about a year away working at another location. My request to be transferred to the same location was granted, and we now enjoy our home life together. We share housework duties as much as possible—for example, whichever of us gets home from work first makes dinner—so things are easier now than when we lived apart.

I want to build up experience in the manufacturing department so that I can become more knowledgeable, get a better sense of my job, and eventually think in terms of linking agrochemical formulation research to manufacturing. And with the aim of achieving a manufacturing site where anyone, no matter how strong they are, feels confident they can operate machinery, I want to give my input on how equipment can be improved.

Maintaining Boilers, the Heart of the Yokkaichi Plant



Yurika Hiramatsu
Energy Management Group, Yokkaichi Plant

I majored in electrical science at a college of technology, and I have always wanted to work at a power plant.

I currently conduct maintenance of all utilities equipment used in the Yokkaichi Plant, including things like boilers and generators. I also study ways to save energy throughout the plant and to achieve carbon neutrality in future.

At first I was a little hesitant because I was surrounded by male coworkers, but they help me with the strength aspects of the job so I don't have too big a physical burden. Because I manage utilities equipment, I must always be mentally aware of the importance of preventing problems at all costs. But it's this knowledge that I am supporting the plant's lifelines that gives me a sense of reward and accomplishment.

In order to advance my career and become a true professional, I am constantly studying and acquiring certifications.

I have been able to broaden my horizons by taking part in various projects, and I hope to experience a wide range of work. My aim is to leverage this experience to help women play a more active role at manufacturing sites, and eventually become a manager myself.

Seeking Sustainable Solutions for Worldwide Agriculture



Noureldin Ghazy
Manager, Bioscience Research Laboratory,
Central Research Institute

I am a researcher in ICM (Integrated Crop Management) Group of the Bioscience Research Laboratory at the Central Research Institute. Finding creative solutions for agricultural pests is my primary responsibility. Efforts focus on implementing and integrating beneficial organisms and natural products in pest control programs. Working at ISK, a well-established company, provides me with career development opportunities to put science into action and contribute to society.

I worked in academia for nearly 20 years before joining ISK. I had never imagined that working in industry would be this much enjoyable. The people here are nice and friendly. They are ready and willing to give support at any time. With such a productive environment, we will leverage our diverse know-how to strengthen ISK's business further, take on new challenges, and create new business.

Contribution to the prosperity of humankind is my goal in life. I am aspired to be an influential member of a corporation that aims to provide unique and innovative technologies and products that meet customers' expectations. In line with the ISK philosophy, I want to deliver intelligent, reliable, and sustainable solutions to agriculture industries in Japan and worldwide. I strive to achieve scientific, social, and personal success through my work at ISK.

Diversity Messages

Experience
a Range of Jobs,
from Development to Sales



Mayuko Wada
Sales & Marketing Inorganic Materials Division,
Inorganic Chemicals Sales & Marketing Headquarters

Besides following up with existing customers through their product inquiries, I work to promote the business of value-added products by making sales calls to both existing and potential new customers. Last year I transferred from the development department to the sales department. My work is new and exciting, because I get to actually show customers the products I was helping to develop and hear directly what people besides the developers have to say.

As a gateway to our company, my performance reflects on ISK's reputation, so my job keeps me on edge and is rewarding. There still aren't that many women in our industry, but I'm not really conscious of this because I approach my work sincerely and think of my colleagues and me not as men or women but as ISK employees.

On my recent sales calls, I seem to have more opportunities to speak with female sales reps at customer companies. I am working towards becoming a first-rate sales rep as soon as possible so that young people joining our company next year and beyond will see that, whatever the industry or the job, women can play an active role in so many ways.

Using Company Systems to
Balance Work and
Child-Rearing



Takahiro Iizuka
Product Development & Marketing Division,
Biosciences Business Headquarters

I handle product development, marketing, and sales for Thailand and the Philippines. I am married with three children. The third was born in November 2021, and while my wife was in hospital and recuperating at that time, I took childcare leave to look after our two kindergarten-age children.

I utilized flextime so that my wife didn't have to do everything at home during the day; for example, I started work later, at 10:00, to help the kids get ready for school, and once a week I left work at 4:00 so I could prepare dinner. I am grateful that my boss is so understanding about my need to use flextime and to take sudden paid leave when my children got sick.

During my time off, my group members and boss took care of all my work. Another member of our group took childcare leave in June and July of this year, and I managed their work for them. We all try to learn other group members' jobs so that we can cover for each other during childcare leave or other times someone is away.

Striving Daily to
Better Solve
Customer Issues



Yukari Yanagigawa
Chief, Marketing Planning Office,
ISK Biosciences K.K.

My job is to study ways to more effectively sell ISK agrochemical products in Japan. I do this by, for example, analyzing and forecasting the market environment, and analyzing customer needs. I never once considered that I wouldn't be able to continue work after getting married. I think I was able to continue my job because I set a target, worked with different kinds of people who helped me learn and grow, and gradually came to see how rewarding my job is.

To balance your work and home life, it's important to set achievable housework goals and for you and your partner to complement each other. When my husband and I are both too busy to get everything done ourselves, we do things like hire a babysitter or a house cleaner. I am thankful to my colleagues for considering my family needs at work; for example, they schedule meetings so that I can get my kids to and from school, and they ask my family schedule before arranging business trips.

I want to get better at my job so that I can help ISK solve Japanese agriculture's many issues and contribute to advancement of the industry, and so that I can give customers ideas to more effectively use ISK products. To this end, I have to continue bettering myself.

Financial Summary (Consolidated)

(FY)

Fiscal year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Profit and loss										(Million yen)
Net sales	100,441	105,293	103,330	102,903	101,601	108,001	106,441	101,066	101,774	110,955
Operating income	2,792	3,038	11,104	8,314	8,415	10,022	11,372	6,188	5,173	11,557
Net income attributable to owners of parent	719	-8,207	6,661	9,151	3,804	3,442	8,683	2,359	3,373	11,690
Financial status										(Million yen)
Current assets	103,693	96,321	105,204	109,386	102,565	103,387	107,080	110,324	117,003	121,389
Property, plant and equipment	55,046	47,159	44,525	38,733	39,183	40,843	43,167	46,271	47,107	46,535
Intangible assets, investments and other assets	17,719	21,051	17,932	14,935	15,121	15,536	18,442	15,841	15,909	17,834
Total assets	176,459	164,532	167,662	163,056	156,871	159,767	168,689	172,437	180,021	185,758
Current liabilities	64,713	59,495	56,892	49,725	47,310	47,990	44,712	43,737	42,203	46,731
Long-term liabilities	59,904	60,337	59,990	54,396	46,579	44,638	48,642	52,029	58,302	47,157
Total net assets	51,842	44,699	50,779	58,933	62,981	67,137	75,335	76,669	79,515	91,869
Interest-bearing debt	85,772	77,654	78,738	67,686	58,781	51,328	49,528	52,531	60,103	50,420
Other										(Million yen)
Cash flows from operating activities	-7,198	12,067	6,351	10,268	14,631	16,607	4,907	3,317	4,749	16,501
Cash flows from investing activities	-5,734	-4,125	-3,214	9,656	-5,950	-6,030	-8,590	-6,922	-6,162	-4,319
Free cash flow	-12,932	7,941	3,136	19,925	8,681	10,577	-3,682	-3,605	-1,413	12,182
Depreciation and amortization	5,699	5,271	4,757	4,458	4,215	4,214	4,266	4,445	4,669	4,545
Capital investment	6,127	2,758	3,049	4,507	5,407	6,142	7,141	8,062	6,092	4,542
R&D expenses	8,451	8,965	9,330	8,988	8,173	8,706	8,070	9,150	8,639	8,165
Per share status										(Yen)
Current net income per share	17.97	-205.19	166.58	228.88	95.15	86.12	217.25	59.03	84.41	292.58
Dividends per share	-	-	-	-	-	-	12.00	20.00	18.00	36.00
Financial indicators										
Operating margin (ROS, %)	2.78	2.89	10.75	8.08	8.28	9.28	10.68	6.12	5.08	10.42
Return on equity (ROE, %)	1.42	-17.00	13.95	16.68	6.24	5.29	12.19	3.10	4.32	13.64
Return on assets (ROA, %)	1.59	1.78	6.69	5.03	5.26	6.33	6.92	3.63	2.94	6.32
D/E ratio (double)	1.65	1.74	1.55	1.15	0.93	0.76	0.66	0.69	0.76	0.55

Non-Financial Summary

(FY)

Fiscal year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
GHG (greenhouse gas) emissions (Japanese group companies*1)										
Year-on-year comparison of GHG emissions (%)	-	104.1	100.8	95.7	102.9	100.3	101.3	98.1	90.2	114.8
GHG emissions (thousand tons-CO ₂)	475	495	499	478	491	493	499	490	442	507
Waste (Japan, consolidated*3)										
Industrial waste (sludge) (tons)	100,545	99,888	98,133	95,921	92,162	88,634	80,970	77,559	62,625	74,962
Atmosphere SOx (Japan, consolidated*3)										
SOx emissions (Nm ³ /year)	10,347	12,078	9,516	9,669	8,471	7,812	5,011	6,532	5,478	10,223
Atmosphere NOx (Japan, consolidated*3)										
NOx emissions (kg/year)	129,849	122,908	114,549	112,007	116,212	118,167	115,200	112,033	182,147	194,198
Water quality COD (Japan, consolidated*2)										
COD (kg/year)	64,981	76,215	71,010	79,268	67,938	67,028	66,467	57,978	58,625	62,093
Water quality Total Nitrogen (Japan, consolidated*2)										
Nitrogen pollutant load (kg/year)	224,169	267,272	269,619	290,577	350,037	419,262	406,274	306,695	159,884	163,706
Energy-related (Japan, consolidated*3)										
Year-on-year comparison of energy intensity (%)	102.7	95.7	100.9	105.6	97.8	98.2	99.3	106.3	106.9	91.9
Energy intensity (kl/t)	1.02	0.97	0.98	1.03	1.01	0.99	0.99	1.05	1.12	1.03
Workplace accidents (Japan, consolidated*3)										
Frequency rate of lost-worktime injuries	0.00	1.13	0.59	1.15	2.29	0.56	1.07	1.01	0.50	0.93
Severity rate	0.00	0.05	0.08	0.04	0.09	0.00	0.01	0.02	0.07	0.01
Number of employees (non-consolidated)										
Number of male employees	1,019	1,008	967	935	912	870	895	919	955	948
Number of female employees	173	172	173	171	166	170	175	187	194	196
Male employee ratio (%)	85.5	85.4	84.8	84.5	84.6	83.7	83.6	83.1	83.1	82.9
Female employee ratio (%)	14.5	14.6	15.2	15.5	15.4	16.3	16.4	16.9	16.9	17.1
Diversity and inclusion (non-consolidated)										
Number of female managers	8	8	10	12	12	12	14	15	13	12
Female manager ratio (%)	3.1	3.2	3.9	4.7	4.8	5.1	6.0	6.4	5.4	5.1
Number of employees taking childcare leave	8	15	21	14	12	14	13	18	22	12
Annual paid leave acquisition rate (%)	72.0	71.6	74.4	77.6	75.4	75.9	75.6	77.0	73.6	77.0
Other (non-consolidated)										
R&D employee ratio (%)	24.4	24.1	23.1	21.6	22.7	22.9	22.0	22.0	20.9	20.5
Number of patents held	1,576	1,800	1,743	2,070	2,353	2,788	2,866	2,714	2,593	2,527

*1 ISK Group (Japan, including Yokkaichi Energy Service Corporation, which the Group absorbed in October 2018.)

*2 ISK and its 100% subsidiary Fuji Titanium Industry Co., Ltd.

*3 All production facilities operated by ISK and Fuji Titanium Industry Co., Ltd.

Consolidated Balance Sheet

(Unit: Million yen)

	Previous consolidated FY (March 31, 2021)	Current consolidated FY (March 31, 2022)
Assets		
Current assets		
Cash and deposits	25,941	27,073
Notes and accounts receivable – trade	34,235	-
Notes receivable – trade	-	3,768
Accounts receivable – trade	-	29,525
Contract assets	-	441
Merchandise and finished goods	31,180	32,813
Work in process	5,040	4,633
Raw materials and supplies	18,253	20,051
Other	3,456	4,190
Allowance for doubtful accounts	(1,104)	(1,109)
Total current assets	117,003	121,389
Noncurrent assets		
Property, plant and equipment		
Buildings and structures	40,810	42,395
Accumulated depreciation	(26,136)	(26,995)
Buildings and structures, net	14,674	15,400
Machinery, equipment and vehicles	114,944	115,277
Accumulated depreciation	(94,845)	(94,507)
Machinery, equipment and vehicles, net	20,099	20,770
Land	5,356	5,359
Leased assets	2,195	2,106
Accumulated depreciation	(1,375)	(1,276)
Leased assets, net	820	829
Construction in progress	5,319	3,327
Other	4,026	3,933
Accumulated depreciation	(3,188)	(3,086)
Other, net	837	847
Total property, plant and equipment	47,107	46,535
Leased assets		
Software	535	519
Software in progress	-	484
Leased assets	3	3
Other	11	11
Total intangible assets	551	1,018
Investments and other assets		
Investment securities	6,187	7,456
Deferred tax assets	8,547	8,883
Net defined benefit asset	10	10
Other	698	550
Allowance for doubtful accounts	(84)	(85)
Total investments and other assets	15,358	16,815
Total non-current assets	63,017	64,369
Total assets	180,021	185,758

(Unit: Million yen)

	Previous consolidated FY (March 31, 2021)	Current consolidated FY (March 31, 2022)
Liabilities		
Current liabilities		
Notes and accounts payable – trade	14,476	17,739
Short-term loans payable	8,100	7,770
Current portion of long-term loans payable	8,323	8,298
Current portion of bonds	1,118	1,118
Lease obligations	403	355
Accrued income taxes	614	1,242
Contract liabilities	-	20
Accrued expenses	4,419	4,728
Accrued bonuses for employees	641	851
Reserve for sales returns	21	-
Provision for environment and safety improvement	82	81
Provision for maintenance	-	336
Provision for loss on business withdrawal	193	169
Other	3,807	4,020
Total current liabilities	42,203	46,731
Long-term liabilities		
Bonds payable	5,017	3,898
Long-term loans payable	33,130	24,831
Lease obligations	491	555
Provision for environment and safety improvement	1,741	1,384
Provision for maintenance	140	83
Provision for loss on business withdrawal	86	-
Net defined benefit liability	12,693	13,058
Asset retirement obligations	552	160
Liabilities from application of equity method	451	-
Other	3,997	3,185
Total long-term liabilities	58,302	47,157
Total liabilities	100,506	93,889
Net assets		
Shareholders' equity		
Capital stock	43,420	43,420
Capital surplus	10,627	10,627
Retained earnings	27,872	38,592
Treasury shares	(730)	(734)
Total shareholders' equity	81,189	91,905
Accumulated other comprehensive income		
Valuation difference on available-for-sale securities	(308)	405
Foreign currency translation adjustment	(1,286)	(297)
Remeasurements of defined benefit plans	(78)	(143)
Total accumulated other comprehensive income	(1,674)	(36)
Total net assets	79,515	91,869
Total liabilities and net assets	180,021	185,758

Consolidated Statements of Income

(Unit: Million yen)

	Previous consolidated FY (April 1, 2020 to March 31, 2021)	Current consolidated FY (April 1, 2021 to March 31, 2022)
Net sales	101,774	110,955
Cost of sales	73,151	78,297
Gross profit	28,622	32,657
Selling, general and administrative expenses	23,448	21,100
Operating income	5,173	11,557
Non-operating income		
Interest income	26	16
Dividend income	262	180
Share of profit of entities accounted for using equity method	38	533
Foreign exchange gains	597	1,597
Reversal of allowance for doubtful accounts	457	-
Gain on sales of raw materials	155	103
Other	263	288
Total non-operating income	1,802	2,720
Non-operating expenses		
Interest expenses	537	539
Financial fees	273	258
Other	220	206
Total non-operating expenses	1,032	1,005
Ordinary income	5,944	13,272
Extraordinary income		
Gain on forgiveness of debts	-	552
Gain on change in equity	-	2,736
Other	-	170
Total extraordinary income	-	3,459
Extraordinary loss		
Loss on disposal of non-current assets	677	969
Impairment loss	421	163
Loss on business withdrawal	907	-
Loss on valuation of investment securities	-	2,344
Other	-	162
Total extraordinary losses	2,006	3,640
Income before income taxes	3,938	13,091
Income taxes – current	819	1,533
Income taxes – deferred	(254)	(132)
Total income taxes	564	1,401
Net income	3,373	11,690
Profit attributable to owners of parent	3,373	11,690

Consolidated Statement of Comprehensive Income

(Unit: Million yen)

	Previous consolidated FY (April 1, 2020 to March 31, 2021)	Current consolidated FY (April 1, 2021 to March 31, 2022)
Net income	3,373	11,690
Other comprehensive income		
Valuation difference on available-for-sale securities	120	714
Foreign currency translation adjustment	(48)	971
Remeasurements of defined benefit plans	223	(64)
Share of other comprehensive income of entities accounted for using equity method	(21)	17
Total other comprehensive income	274	1,638
Comprehensive income	3,647	13,328
(Comprehensive income attributable to)		
Comprehensive income attributable to owners of parent	3,647	13,328

Consolidated Statement of Changes in Net Assets

Previous consolidated FY (April 1, 2020 to March 31, 2021)

(Unit: Million yen)

	Shareholders' equity					Accumulated other comprehensive income				Total net assets
	Capital stock	Capital surplus	Retained earnings	Treasury share	Total shareholders' equity	Valuation difference on available-for-sale securities	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	
Balance at beginning of current period	43,420	10,627	25,298	(727)	78,618	(429)	(1,216)	(302)	(1,948)	76,669
Changes of items during period										
Dividends of surplus			(799)		(799)					(799)
Profit attributable to owners of parent			3,373		3,373					3,373
Purchase of treasury shares				(3)	(3)					(3)
Disposal of treasury shares					-					-
Net changes of items other than shareholders' equity						120	(70)	223	274	274
Total changes of items during period	-	-	2,573	(3)	2,570	120	(70)	223	274	2,845
Balance at end of period	43,420	10,627	27,872	(730)	81,189	(308)	(1,286)	(78)	(1,674)	79,515

Current consolidated FY (April 1, 2021 to March 31, 2022)

(Unit: Million yen)

	Shareholders' equity					Accumulated other comprehensive income				Total net assets
	Capital stock	Capital surplus	Retained earnings	Treasury share	Total shareholders' equity	Valuation difference on available-for-sale securities	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	
Balance at beginning of current period	43,420	10,627	27,872	(730)	81,189	(308)	(1,286)	(78)	(1,674)	79,515
Cumulative effects of changes in accounting policies			(251)		(251)					(251)
Restated balance	43,420	10,627	27,621	(730)	80,938	(308)	(1,286)	(78)	(1,674)	79,263
Changes of items during period										
Dividends of surplus			(719)		(719)					(719)
Profit attributable to owners of parent			11,690		11,690					11,690
Purchase of treasury share				(4)	(4)					(4)
Disposal of treasury shares		0		0	0					0
Net changes of items other than shareholders' equity						714	988	(64)	1,638	1,638
Total changes of items during period	-	0	10,970	(3)	10,967	714	988	(64)	1,638	12,605
Balance at end of period	43,420	10,627	38,592	(734)	91,905	405	(297)	(143)	(36)	91,869

Statement of Consolidated Cash Flows

(Unit: Million yen)

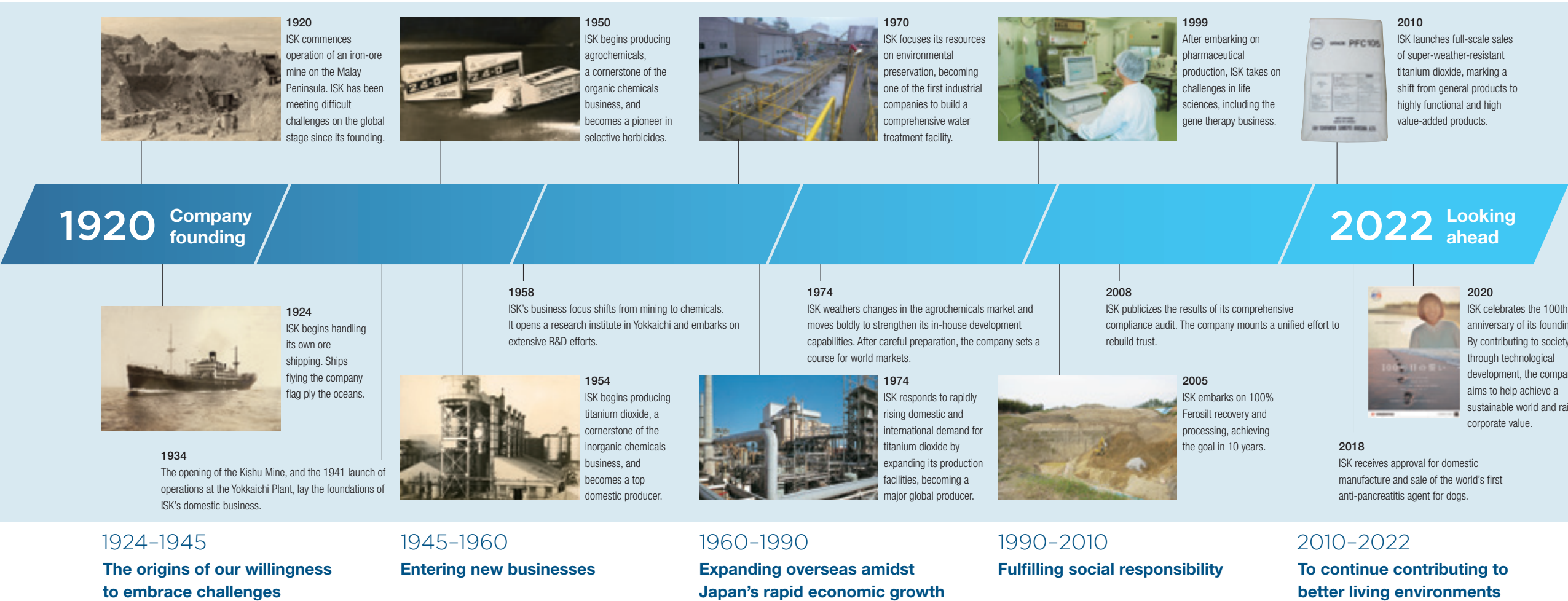
	Previous consolidated FY (April 1, 2020 to March 31, 2021)	Current consolidated FY (April 1, 2021 to March 31, 2022)
Cash flows from operating activities		
Income before income taxes	3,938	13,091
Depreciation and amortization	5,052	4,654
Gain on forgiveness of debts	-	(552)
Impairment loss	421	163
Loss on business withdrawal	907	-
Loss (gain) on change in equity	-	(2,736)
Loss (gain) on valuation of investment securities	-	2,344
Increase (decrease) in allowance for doubtful accounts	(436)	1
Increase (decrease) in net defined benefit liability	(69)	(94)
Increase (decrease) in provision for environment and safety improvement	(262)	(288)
Increase (decrease) in other provisions	(362)	352
Interest and dividend income	(289)	(196)
Interest expenses	537	539
Foreign exchange losses (gains)	(68)	(30)
Share of loss (profit) of entities accounted for using equity method	(34)	(518)
Loss (gain) on disposal of noncurrent assets	148	215
Decrease (increase) in notes and accounts receivable – trade	(2,155)	977
Decrease (increase) in inventories	(627)	(2,339)
Decrease (increase) in other current assets	942	(768)
Increase (decrease) in notes and accounts payable – trade	(3,187)	2,823
Increase (decrease) in other current liabilities	913	201
Other	(25)	(71)
Subtotal	5,341	17,769
Interest and dividends income received	268	196
Interest expenses paid	(571)	(536)
Proceeds from insurance income	27	30
Income taxes paid	(315)	(957)
Cash flows from operating activities	4,749	16,501

(Unit: Million yen)

	Previous consolidated FY (April 1, 2020 to March 31, 2021)	Current consolidated FY (April 1, 2021 to March 31, 2022)
Cash flows from investing activities		
Purchase of investment securities	(12)	(15)
Purchase of non-current assets	(6,150)	(4,484)
Proceeds from sales of noncurrent assets	92	77
Payments of loans receivable	(227)	(61)
Collection of loans receivable	142	104
Other	(5)	60
Cash flows from investing activities	(6,162)	(4,319)
Cash flows from financing activities		
Net increase (decrease) in short-term loans payable	168	(330)
Proceeds from long-term loans payable	13,400	-
Repayments of long-term loans payable	(7,937)	(8,323)
Proceeds from issuance of bonds	3,100	-
Redemption of bonds	(684)	(1,118)
Repayments of lease obligations	(491)	(432)
Repayments of installment payables	(393)	(674)
Dividends paid	(799)	(719)
Net decrease (increase) in treasury share	(3)	(3)
Cash flows from financing activities	6,358	(11,601)
Effect of exchange rate change on cash and cash equivalents	69	550
Net increase (decrease) in cash and cash equivalents	5,015	1,132
Cash and cash equivalents at beginning of period	20,925	25,941
Cash and cash equivalents at end of period	25,941	27,073

For over a century, embracing challenges

Since foundation in 1920, the ISK Group has continued to grow by overcoming difficulties and flexibly changing its business to meet the needs of the times. The bedrock has been a willingness to embrace challenges passed down from our founder and carried on to today.



Company Profile (As of March 31, 2022)

Company Name	ISHIHARA SANGYO KAISHA, LTD.
Head Office Location	3-15 Edobori 1-chome, Nishi-ku, Osaka 550-0002, Japan Tel: +81-6-6444-1451
Founded	September 10, 1920
Incorporated	June 1, 1949
Representative	Hideo Takahashi, Executive Director & President
Capital	43.4 billion yen
Sales	(Fiscal year ended March 31, 2022) Consolidated: 110,955 million yen Non-consolidated: 89,142 million yen
Number of Employees	Consolidated: 1,750 Non-consolidated: 1,144

Network / Group Companies

Network

Head Office, Central Research Institute, Yokkaichi Plant, Tokyo Branch, Chubu Branch, Sapporo Sales Office, Sendai Sales Office, Fukuoka Sales Office, Argentina Branch, Singapore Branch

Group Companies

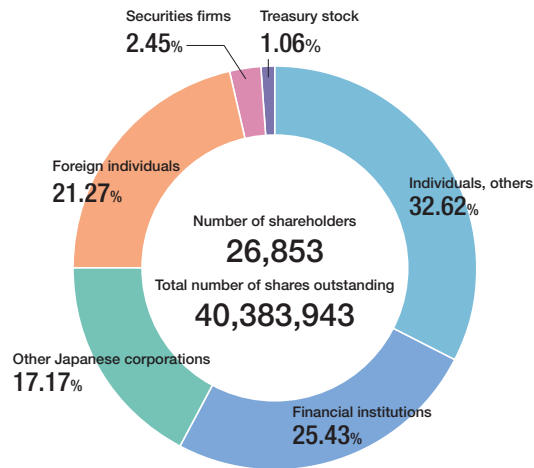
Japan	■ ISK BIOSCIENCES K.K. Sales of agrochemicals ■ ISHIHARA TECHNO CORPORATION Trade in organic and inorganic chemical products, others ■ FUJI TITANIUM INDUSTRY CO., LTD. Manufacture and sales of titanium dioxide, functional materials, others ■ ISK ENGINEERING PARTNERS CORPORATION Construction business ■ ISHIHARA SANJO KAISHA, LTD. Manufacture and sales of industrial gases ■ ISHIHARA KOSAN CO., LTD. Asset management ■ GENOMIDEA INC. Asset management ■ HOKUSAN CO., LTD. Manufacture and sales of agrochemicals	Belgium	■ ISK BIOSCIENCES EUROPE N.V. Administration of agrochemicals business in Europe; manufacture and sales of agrochemicals ■ CERTIS BELCHIM B.V. Sales of agricultural materials
Taiwan	■ ISK TAIWAN CO., LTD. Sales of inorganic chemical products	United States	■ ISK AMERICAS INCORPORATED (Ohio) Administration of U.S. subsidiaries ■ ISK BIOSCIENCES CORPORATION (Ohio) Administration of agrochemicals business in Americas; manufacture and sales of agrochemicals ■ ISK BIOCIDES, INC. (Tennessee) Sales of wood preservatives ■ IBC MANUFACTURING COMPANY (Tennessee) Manufacture of wood preservative and agrochemicals ■ ISK ANIMAL HEALTH, LLC (Ohio) Manufacture and sales support of animal health products ■ ISHIHARA CORPORATION (U.S.A.) (California) Sale of inorganic chemical products ■ SUMMIT AGRO USA, LLC (North Carolina) Sales of agricultural materials and manufacture of agrochemicals
Korea	■ ISK KOREA CORPORATION Sales of inorganic chemical products ■ ISK BIOSCIENCES KOREA LTD. Sales of organic chemical products	Mexico	■ ISK BIOSCIENCES, S.A. DE C.V Registration and sale of agrochemicals
Thailand	■ ISK BIOSCIENCES (THAILAND) LTD. Agrochemical registration and market development in Thailand	Brazil	■ ISK BIOSCIENCES DO BRASIL DEFENSIVOS AGRICOLAS LTDA. Agrochemical registration and market development in Brazil
India	■ ISK BIOSCIENCES INDIA PVT. LTD. Agrochemical registration and market development in India		
China	■ ZHEJIANG ISK & TAURUS CHEMICAL CO., LTD. Sales of organic chemical products ■ ISK (SHANGHAI) CHEMICAL CO., LTD. Sales of organic chemical products		
Philippines	■ AVC CHEMICAL CORP. Sales of agrochemicals		

■ Consolidated subsidiary company
■ Equity method affiliated company
■ Non-consolidated subsidiary company
■ Non-equity method affiliated company

Stock Information (As of March 31, 2022)

Total Number of Shares Authorized	100,000,000 shares
Total Number of Shares Outstanding	40,383,943 shares
Number of Shareholders	26,853
Stock Exchange Listing	Tokyo Stock Exchange, Prime Market
Stock Code	4028

Shareholder Composition



Total Shareholder Return

(Unit: %)

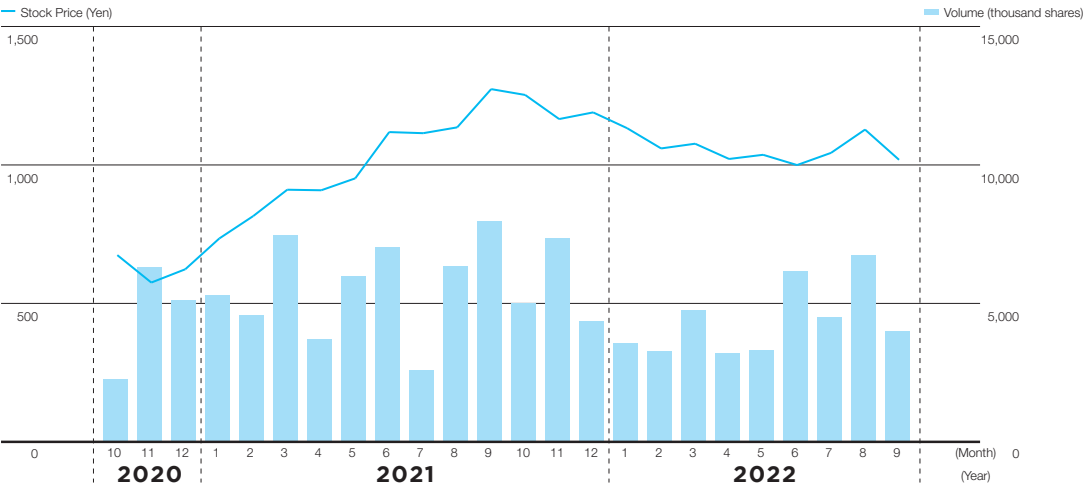
	FY2017	FY2018	FY2019	FY2020	FY2021
ISK	117.0	102.4	52.5	86.3	104.5
TOPIX	115.9	110.0	99.6	141.5	144.3
TOPIX Chemical	123.8	118.8	110.3	149.2	137.3

Major Shareholders (As of March 31, 2022)

Shareholder	Investment in ISK	
	Number of shares held (thousands)	Shareholding ratio (%)
The Master Trust Bank of Japan, Ltd. (trust account)	4,626	11.58
Custody Bank of Japan, Ltd. (trust account)	3,764	9.42
Mitsui & Co., Ltd.	2,019	5.05
Toagosei Co., Ltd.	1,722	4.31
BNP PARIBAS SECURITIES SERVICES PARIS/JASDEC/FBB SEC/BELCHIM MANAGEMENT	1,440	3.60
UPL Japan GK	1,170	2.93
Ishihara Sangyo Kaisha Client Stock Ownership Association	986	2.47
Ishihara Sangyo Kaisha Employee Stock Ownership Association	801	2.01
Fumiya Shino	733	1.84
DFA INTL SMALL CAP VALUE PORTFOLIO	700	1.75

Note: The shareholding ratio is calculated after deducting treasury stock.

Stock Price and Trading Volume



Editorial Policy

This integrated report is intended to provide stakeholders with integrated financial and non-financial information on the ISK Group (on a consolidated basis), which operates in and outside Japan. The report includes business results, as well as management policies and business strategies for creating value in the medium- and long-term.

Coverage

Organizations: Ishihara Sangyo Kaisha, Ltd. (ISK) and its consolidated subsidiaries and affiliates

Period: Fiscal 2021
(April 1, 2021 to March 31, 2022)

Note: The report contains some information prior to and after this period.

Referenced Guidelines

Integrated Reporting, International Integrated Reporting Council (IIRC)
Guidance for Collaborative Value Creation; Ministry of Economy, Trade and Industry, Japan
Environmental Reporting Guidelines (2018 version), Ministry of the Environment, Japan
GRI Standards, Global Reporting Initiative (GRI)

Website

Ishihara Sangyo Kaisha, Ltd. Official Website

<https://www.iskweb.co.jp/eng/>



Investor Relations

<https://www.iskweb.co.jp/eng/ir/>



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- Social initiatives
- Governance initiatives