

## JFE Group Value Chain

The JFE Group's value chain encompasses upstream and downstream activities across the globe. We seek to address social challenges by identifying the risks and opportunities that the Group must resolve through its business operations and pursue initiatives that tackle those challenges. We will also continue to strengthen the sustainability of the entire Group and implement countermeasures throughout our value chain.



### Overview of the Value Chain



#### Procurement

To ensure stable supply of iron ore and coal used as raw materials in the production of steel products, we purchase from various sources around the world such as Australia, South America, etc., and transport materials to the steelworks on a special vessel. Equipment and materials used at steelworks plants are also purchased globally. JFE Steel has established these JFE Steel Procurement Guidelines in accordance with the JFE Group Standards of Conduct and the JFE Group Basic Policy on Human Rights, to enhance sustainability across its entire supply chain. We share these guidelines with our business partners and promote sustainability initiatives throughout our supply chain.

#### Manufacturing, Production, and Shipping

The JFE Group is one of the world's largest steelmakers and has cutting-edge technologies for the efficient production and stable supply of high-quality steel products, used in products indispensable to daily life such as automobiles, infrastructure, and home appliances. We also promote resource recycling by recycling steel scrap generated in the process of producing steel products while also repurposing iron and steel slag in cement and other construction materials.

#### Sales and Usage

The JFE Group is committed to developing eco-friendly products such as high tensile strength steel sheets that help reduce the weight of automobiles as well as electrical steel sheets used in electric vehicles. At the same time, we are engaged in a Groupwide effort to accelerate the commercialization of the offshore wind-power generation business. We work at the frontier of production by responding to the diverse needs of different industries through research and development and by improving production technologies.

## Collecting Steel Scrap

Steel products at the end of their product life cycle are collected as steel scrap and recycled as materials for the steel production cycle.

### Environment

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			

#### Initiatives to Address Climate Change Issues

JFE Group views the issue of climate change as a critical managerial concern from the perspective of business continuity, and it considers achieving carbon neutrality by 2050 a top priority. By designating climate change issue as a material issue of corporate management, we are actively tackling the challenge to solve this issue.

#### Opportunities

- Develop ultra-innovative technologies and ensure
- Increased need for renewable energy solutions
- Expand electric arc furnace steelmaking and electric arc furnace engineering businesses
- Increased need for green steel
- Contribute to reduced CO<sub>2</sub> emissions by providing high-performance steel such as high tensile strength steel sheets and electrical steel sheets

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#### Risks

- Heightened decarbonization needs in steelmaking process (blast furnace)
- Increase in investment burden for introducing ultra-innovative technologies
- Introduction of a carbon tax
- Supply chain disruptions caused by severer natural disasters natural disasters
- Risk of floods associated with rising sea levels

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#### Key Initiatives

➤ [Initiatives to Address Climate Change Issues](#) (P.52)

#### Related Pages

➤ [Policy Engagement](#) (P.90) ➤ [Scenario Analysis in Line with the TCFD Recommendations](#) (P.104)

➤ [Development and Provision of Eco-Friendly Processes and Products](#) (P.135)

➤ [Supply Chain Management](#) (P.182) ➤ [Environmental Data](#) (P.235)

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			
<b>Realizing a Recycling-Oriented Society</b>					
<p>Given that such issues as resource depletion are expected to intensify on a global scale, even as we strive to realize a recycling-oriented society, the JFE Group is enhancing resource recycling through recycling co-products generated in the iron and steelmaking process and promoting the international recycling of steel scrap. Steel manufacturing also requires large quantities of fresh water for cooling and cleansing products and facilities. For this reason, the efficient use of water resources with due consideration to the source of the water and stakeholders in the area is a key challenge.</p>					
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Renewed interest in recyclability of steel</li> <li>- Increased use of scrap</li> <li>- Expand the scrap distribution business</li> </ul>			●	●	●
<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>- Shortage of disposal sites for waste generated</li> <li>- Resource depletion</li> <li>- Declining in the grade, rising price and difficulty of obtaining obsolete scrap</li> <li>- Increased environmental impact</li> <li>- Tighter environmental regulations</li> </ul>	●	●	●		●
<p><b>Key Initiatives</b></p> <p>▶ <a href="#">Realizing a Recycling-Oriented Society</a> (P.115)</p> <p><b>Related Pages</b></p> <p>▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135) ▶ <a href="#">Environmental Data</a> (P.235)</p>					
<b>Preserving Biodiversity</b>					
<p>Recognizing that natural capital and biodiversity are foundational for realizing a sustainable society, the JFE Group has endorsed the Declaration of Biodiversity by Keidanren and Action Policy and conducts business in harmony with nature across the world. We particularly recognize the preservation of biodiversity as a key challenge and conduct assessments to minimize the ecological impact associated with our business activities.</p>					
<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>- Risk of drought in the water intake area</li> <li>- Risk of pollution in the discharge area</li> </ul>	●	●	●		
<p><b>Key Initiatives</b></p> <p>▶ <a href="#">Preserving Biodiversity</a> (P.122)</p> <p><b>Related Pages</b></p> <p>▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135) ▶ <a href="#">Environmental Data</a> (P.235)</p>					

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			
<b>Development and Provision of Eco-Friendly Processes and Products</b>					
Under our corporate philosophy of contributing to society with the world's most innovative technology, the JFE Group strives to reduce its environmental impact by developing steel manufacturing processes and providing technologies and products with due consideration for the environment.					
<b>Opportunities</b> - Develop eco-friendly processes and products and ensure competitiveness			●	●	
<b>Risks</b> - Tighter environmental regulations - Increased environmental impact during product use			●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135)					

## Social

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			
<b>Human Rights</b>					
The JFE Group views respect for human rights as both a corporate social responsibility and a foundation of its business. Our determination to not engage in discrimination in our business activities is clearly expressed in our Standards of Business Conduct, which we have upheld throughout our actions. And we pursue Group-wide initiatives based on the United Nations Guiding Principles on Business and Human Rights.					
<b>Risks</b> - Potential human rights risks	●	●	●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Human Rights</a> (P.166)					
<b>Related Pages</b> ▶ <a href="#">Supply Chain Management</a> (P.182) ▶ <a href="#">Social Data</a> (P.253)					

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			
<b>Providing Quality Products and Enhancing Customer Satisfaction</b>					
<p>The JFE Group provides steel products used in diverse areas that are indispensable to daily life, such as automobiles, infrastructure, and home appliances. One of our key responsibilities is to serve customers by meeting their quality requirements and providing a stable supply of products.</p>					
<b>Opportunities</b> - Expansion of sustainable procurement and development of a structure for stable procurement - Ensure competitiveness through stable production and stable quality	●	●	●	●	●
<b>Risks</b> - Disruptions to the supply chain associated with climate change-related disasters and natural disasters such as earthquakes - Lose credibility with customers due to issues related to production and quality - Declining in the grade, rising price and difficulty of obtaining obsolete scrap	●	●	●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Providing Quality Products and Enhancing Customer Satisfaction</a> (P.175)					
<b>Related Pages</b> ▶ <a href="#">Supply Chain Management</a> (P.182) ▶ <a href="#">Social Data</a> (P.253)					
<b>Human Capital</b>					
<p>The JFE Group strives to recruit human resources with different backgrounds and nurture employees who will support its business activities, create workplace environments and systems in which employees feel rewarded in their work and fully demonstrate their abilities, and realize new workstyles that are free from the constraints of time and location. We do this to achieve sustainable corporate growth as well as to comply with laws and regulations.</p>					
<b>Opportunities</b> - Secure excellent human resources through workstyle reform			●		
<b>Risks</b> - Labor shortage - Labor risks - Culture of passing down technical skills is dying out - Occurrence of accidents, including occupational injuries	●	●	●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Human Capital</a> (P.184) ▶ <a href="#">Diversity and Inclusion</a> (P.193) ▶ <a href="#">Strengthening Human Resource Development</a> (P.197) ▶ <a href="#">Creating Work Environments that Motivate Employees</a> (P.199)					
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## Governance

Challenges in the Value Chain	Procurement		Manufacturing, Production, and Shipping	Sales and Usage	Collecting Steel Scrap
	Raw Material Iron Ore/Coal	Machinery			

### Compliance

In expanding our businesses in and outside of Japan, it is important that JFE maintains relationships of trust with all stakeholders, including its customers, shareholders, and local communities. Trust can only be built upon a strong foundation of ensuring thorough compliance. It is therefore extremely important to conduct training on corruption prevention and other compliance training, so that all members of the organization can deepen their knowledge and awareness of compliance and perform their jobs accordingly.

#### Risks

- Legal risks such as violations of antitrust law or competition law



#### Key Initiatives

➤ [Compliance](#) (P.227)

#### Related Pages

➤ [Supply Chain Management](#) (P.182) ➤ [Governance Data](#) (P.259)

### Information Security

The JFE Group formulates various rules on information security management to prevent information leakage and system failure due to cyber-attack or improper system use and continually raise the level of its information security management.

#### Risks

- Information leakage and system failure due to cyber-attack or improper system use

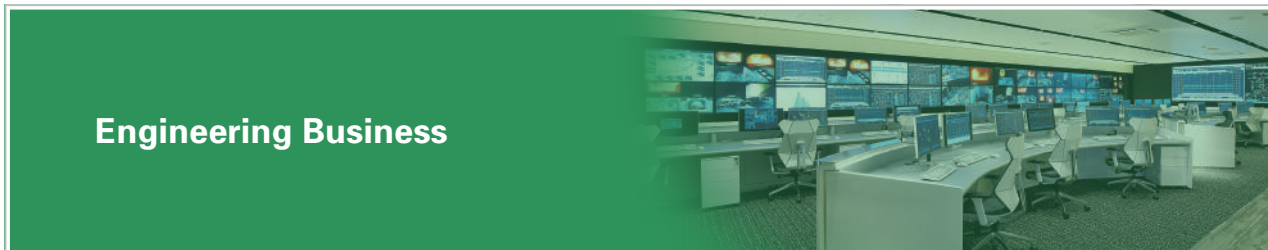


#### Key Initiatives

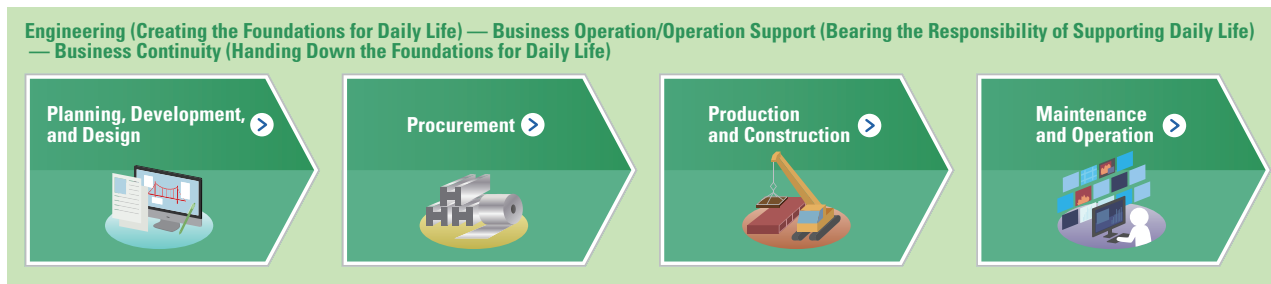
➤ [Risk Management](#) (P.231)

#### Related Pages

➤ [Governance Data](#) (P.249) ➤ [DX REPORT](https://www.jfe-holdings.co.jp/en/investor/library/dxreport/index.html) (https://www.jfe-holdings.co.jp/en/investor/library/dxreport/index.html)



## Overview of the Value Chain



### Engineering (Creating the Foundations for Daily Life)

The JFE Group has built many high-functioning, high-quality facilities in fields such as energy, the environment, and bridges while satisfying the needs of our customers every step of the way, from design to delivery. We have combined and evolved the technologies for processing and assembling in shipbuilding business and technologies relating to materials and combustion in the steel business to create next-generation energy and to address environmental issues. Many of our technologies support society. In addition, we are assembling our resources to develop new business models and new technologies based on existing technologies. We produce high-quality products at low cost by establishing production sites, including one of the largest steel structure production factories in Japan, overseas bases centered on Asian countries, and global engineering structures.

### Business Operation/Operation Support (Bearing the Responsibility of Supporting Daily Life)

The JFE Group engages in many private-public initiatives in the field of public services by applying the operational and maintenance know-how acquired over many years, primarily with regard to the environment and water and sewage plants. Furthermore, we build plants, engage in the recycling business and renewable energy business, and take the initiative to realize a recycling-oriented sustainable society. Going forward, we intend to expand our initiatives even further.

### Business Continuity (Handing Down the Foundations for Daily Life)

The JFE Group is committed to the construction, operation, and maintenance of infrastructure facilities such as plants related to energy and environment, bridges, and coastal structures to hand down safe and secure foundations for the next generation.

## Environment

Challenges in the Value Chain	Planning, Development, and Design	Procurement	Production and Construction	Maintenance and Operations
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### Initiatives to Address Climate Change Issues

The JFE Group strives to reduce CO<sub>2</sub> emissions in society through its eco-friendly products and technologies, including renewable energy technologies and energy-saving products in its engineering business. The Group designates climate change issue as a material issue of corporate management and is tackling the challenge to solve this issue.

#### Opportunities

- Increased need for renewable energy solutions
- Increased demand for CCU\*<sup>1</sup>/CCS\*<sup>2</sup> facilities
- More sophisticated needs in the energy-environment area
- Increased response to climate change related disasters (disaster prevention and mitigation, disaster waste processing)
- Increased demand for waste to resource technology (food waste power generation)

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#### Risks

- Supply chain disruptions caused by severer natural disasters
- Effects of meteorological disasters
- Risk of floods associated with rising sea levels
- Tighter environmental regulations

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#### Key Initiatives

➤ [Initiatives to Address Climate Change Issues](#) (P.52)

#### Related Pages

- [Scenario Analysis in Line with the TCFD Recommendations](#) (P.104)
- [Development and Provision of Eco-Friendly Processes and Products](#) (P.135)
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### Realizing a Recycling-Oriented Society

Given that issues such as resource depletion and environmental pollution are expected to intensify on a global scale, even as we strive to realize a recycling-oriented society, our resource recycling solutions include operating our own waste recycling and energy supply businesses, in addition to constructing and providing plants for waste incineration and sludge digestion to customers. We also provide total management of water and sewage systems, including maintenance and operations, to secure vital lifelines and are thereby contributing to reducing the negative impact on the water environment.

#### Opportunities

- Increased demand for waste to resource technology (plastics recycling, food waste power generation)
- Need for improving operational efficiency and reducing environmental impact

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\*1 Carbon dioxide capture and utilization

\*2 Carbon capture and storage



Challenges in the Value Chain	Planning, Development, and Design	Procurement	Production and Construction	Maintenance and Operations
<b>Risks</b> - Shortage of disposal sites for waste generated - Prevention of resource depletion - Violation of environmental regulations and laws		●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Realizing a Recycling-Oriented Society</a> (P.115) <b>Related Pages</b> ▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135) ▶ <a href="#">Environmental Data</a> (P.235)				
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<b>Risks</b> - Risk of drought in the water intake area, risk of pollution in the discharge area		●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Preserving Biodiversity</a> (P.122) <b>Related Pages</b> ▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135) ▶ <a href="#">Environmental Data</a> (P.235)				
<b>Development and Provision of Eco-Friendly Processes and Products</b>				
Under its corporate philosophy of contributing to society with the world's most innovative technology, the JFE Group will contribute to meeting social challenges related to reducing environmental impact through business operations that focus on the environment and recycling fields as growth sectors.				
<b>Opportunities</b> - Need for improving operational efficiency and reducing environmental impact - Need for cost reduction and energy saving	●		●	●
<b>Key Initiatives</b> ▶ <a href="#">Development and Provision of Eco-Friendly Processes and Products</a> (P.135)				

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Challenges in the Value Chain	Planning, Development, and Design	Procurement	Production and Construction	Maintenance and Operations
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<b>Risks</b> - Potential human rights risks	●	●	●	●
<b>Key Initiatives</b> ▶ <a href="#">Human Rights</a> (P.166)				
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<b>Providing Quality Products and Enhancing Customer Satisfaction</b>				
<p>The JFE Group has developed a global engineering system encompassing one of the largest steel structure production factories in Japan, overseas bases centered on Asian countries, and global engineering structures. We intend to maximize customer satisfaction by complying with the Group-wide quality policy, providing high-quality products and services, and reinforcing our after-sales service system.</p>				
<b>Opportunities</b> - Expansion of sustainable procurement and development of a structure for stable procurement - Implement requested functions - Need for cost reduction and energy saving - Expand the business scale through privatization of public services	●	●	●	●
<b>Risks</b> - Lose credibility with customers due to issues related to production and quality	●			●
<b>Key Initiatives</b> ▶ <a href="#">Providing Quality Products and Enhancing Customer Satisfaction</a> (P.175)				
<b>Related Pages</b> ▶ <a href="#">Social Data</a> (P.253)				

Challenges in the Value Chain	Planning, Development, and Design	Procurement	Production and Construction	Maintenance and Operations
<p><b>Human Capital</b></p> <p>The JFE Group intends to establish its position as a company that is essential to the sustainable development of society while also creating safe, comfortable lives for people everywhere. So that it can continue to enhance corporate value under an increasingly complex and rapidly changing business environment, each and every employee must be able to provide support. We established the JFE Group's Basic Policy on Human Resource Management and the JFE Group Health Declaration and are working on measures to maximize the abilities and vitality of our employees by investing in human capital.</p>				
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Maximize human capital through physical and mental health</li> <li>- Saving labor through new technology</li> <li>- Need for remote monitoring and automation due to a lack of human resources</li> </ul>	●	●	●	●
<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>- Occurrence of accidents, including occupational injuries</li> <li>- Disruptions to the supply chain caused by COVID-19</li> <li>- Labor shortage</li> <li>- Labor risks</li> <li>- Culture of passing down technical skills is dying out</li> </ul>	●	●	●	●
<p><b>Key Initiatives</b></p> <ul style="list-style-type: none"> <li>▶ <a href="#">Human Capital</a> (P.184)</li> <li>▶ <a href="#">Occupational Health and Safety</a> (P.186)</li> <li>▶ <a href="#">Diversity and Inclusion</a> (P.193)</li> <li>▶ <a href="#">Strengthening Human Resource Development</a> (P.197)</li> <li>▶ <a href="#">Creating Work Environments that Motivate Employees</a> (P.199)</li> </ul> <p><b>Related Pages</b></p> <ul style="list-style-type: none"> <li>▶ <a href="#">Supply Chain Management</a> (P.182) ▶ <a href="#">Social Data</a> (P.253)</li> </ul>				

## Governance

Challenges in the Value Chain	Planning, Development, and Design	Procurement	Production and Construction	Maintenance and Operations
<b>Compliance</b>				
<p>In expanding our businesses in and outside of Japan, it is important that JFE maintains relationships of trust with all stakeholders, including its customers, shareholders, and local communities. Trust can only be built upon a strong foundation of ensuring thorough compliance. It is therefore extremely important to conduct training on corruption prevention and other compliance training, so that all members of the organization can deepen their knowledge and awareness of compliance and perform their jobs accordingly.</p>				
<p><b>Risks</b> - Legal risks such as violations of antitrust law or competition law</p>		●		●
<p><b>Key Initiatives</b>  <a href="#">▶ Compliance</a> (P.227)</p> <p><b>Related Pages</b>  <a href="#">▶ Supply Chain Management</a> (P.182)   <a href="#">▶ Governance Data</a> (P.259)</p>				
<b>Information Security</b>				
<p>The JFE Group formulates various rules on information security management to prevent information leakage and system failure due to cyber-attack or improper system use and continually raise the level of its information security management.</p>				
<p><b>Risks</b> - Information leakage and system failure due to cyber-attack or improper system use</p>	●	●	●	●
<p><b>Key Initiatives</b>  <a href="#">▶ Risk Management</a> (P.231)</p> <p><b>Related Pages</b>  <a href="#">▶ Governance Data</a> (P.259)   <a href="https://www.jfe-holdings.co.jp/en/investor/library/dxreport/index.html">▶ DX REPORT</a> (https://www.jfe-holdings.co.jp/en/investor/library/dxreport/index.html)</p>				