

Process of identifying, assessing, and prioritizing risks and opportunities (assessment and analysis using the LEAP approach)

In this assessment of risks and opportunities, we assessed the dependency and impact relationship with nature and the location of activities for the major business sites selected in advance by scoping, and identified critical dependency and impact relationships and priority sites linked to them. We also extracted nature-related risks and opportunities linked to critical dependency and impact relationships,

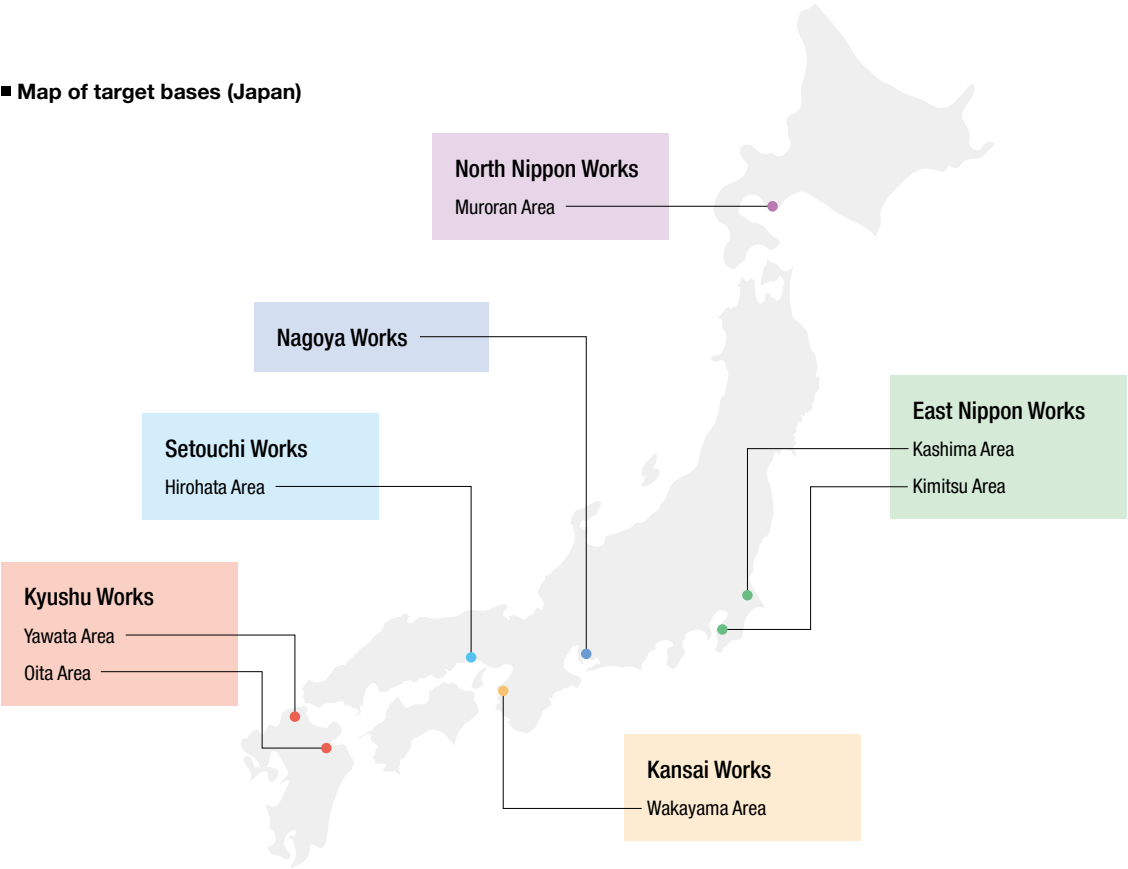
and, based on assumed scenarios, we assessed their materiality based on plotting on two axes: Probability of occurrence and impact on business models, strategies, financial plans, etc. We then identified key risks and opportunities.

Scoping Selection of target projects

To identify critical nature-related risks and opportunities, we “evaluated” nature-related dependencies and impacts, “located” the interface with nature, and “assessed” risks and opportunities for our core business of steel production.

The targeted business sites are the main steel production sites (eight steelworks) in direct operations, and 26 iron ore and coking coal mines (more than 50% of the procurement volume) in the upstream supply chains.

Map of target bases (Japan)



List of target suppliers (by country, number of mines)

Raw material	Country	Number of bases	Procurement ratio (approximate)	
Iron ore	Australia	2	30%	55%
	Brazil	2	25%	
Coking coal	Australia	1	15%	51%
	Canada	1	7%	
	Australia	1	6%	
	Canada	1	5%	
	Australia	1	5%	
	Australia	1	4%	
	Australia	1	4%	
	Canada	1	4%	
	USA	1	3%	

Evaluate

Evaluation of dependencies and impacts

In identifying critical dependencies and impacts of our business activities on nature, we used the ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) tool to evaluate the dependencies and impacts on natural capital and ecosystem services at the sector level. The evaluation results using the tool showed that there were no significant dependencies in both direct operations and upstream supply chains.

In contrast, concerning the critical impact relationships, the use of water resources was identified in direct operations, and the use of terrestrial ecosystems and water resources were identified in the upstream supply chains. However, the tool assessment did not extract the impact on water pollution, which we perceived as an issue, so we added water pollutants to the direct operational impact relationship. The results of the identified impact relationships are shown on the right.

■ Evaluation results on dependency and impact relationship

		Direct operation (steelworks)	Upstream supply chains	
		Iron production	Iron ore mining	Coking coal mining
Change in use of land/ freshwater/and ocean	Use of terrestrial ecosystems			
	Use of freshwater ecosystems			
	Use of ocean			
Use of resources	Use of water resources			
	Use of other resources			
Climate change	GHG emissions			
Pollution	Non-GHG air pollutants			
	Water pollutants			
	Soil pollutants			
	Solid waste			
Other	Noise and light pollution			

Very High (critical item) High Very Low/Low/Medium ND

Locate

Location of the interface with nature

Using the IBAT (Integrated Biodiversity Assessment Tool), WWF Biodiversity Risk Filter, Aqueduct, and other assessment tools, the relevant indicators of the state of nature (importance of biodiversity, ecosystem integrity, water stress, eutrophication, tree loss rate, etc.) were set to assess the vulnerability of the site of activity, the priority areas (which are important to us in terms of dependency, impact, risk and opportunity and are susceptible to business activities) were identified.

■ Results of locating and evaluating the interface with nature

Evaluation Item/Priority Region	[Direct Operation] Steelworks	[Upstream Supply Chain] Mining Activities
Use of water resources (Impact)	Critical impact relationship but no priority base	[Iron ore] 2 bases in Brazil [Coking coal] 5 bases in Canada
Water pollution (Impact)	5 steelworks in Japan	No critical impact relationship
Use of terrestrial ecosystems (Impact)	No critical impact relationship	[Iron ore] 2 bases in Brazil [Coking coal] 5 bases in Canada

Assess

Assessment of critical risks and opportunities

After setting up the base scenario on nature-related critical risks and opportunities in direct operations and upstream supply chains, we identified, evaluated, and prioritized key risks and opportunities. We then analyzed the impact and strategies on our business, and organized management approaches and strategies for them.

Consideration of risks and opportunities

Nature-related risks and opportunities arise from ecosystem service degradation aligned to changes in the status of nature, which were brought by the impact and dependencies of our business and from social transitions to mitigate these changes. (Figure 1)

In the Assessment phase, based on the definition of risks in the TNFD Final Recommendations (Figure 2), we identified risks and opportunities related to the critical impact relationships identified in the Evaluation phase. However, for opportunities, we focused on nature-related issues in general, regardless of dependency or impact relationship.

■ (Figure 2) Definition and occurrence conditions of nature-related risks

	Content
Definition	A potential threat to an organization concerning the organization's and society's dependency and impact relationship on nature. Possibly be derived from physical/transition/systemic risks
Occurrence condition	Possibly arise from both dependency on nature and impact on nature. 1. Changes in the state of nature caused by business impacts or external factors 2. Changes in the flow of ecosystem services aligned to changes in the state of nature 3. Examples include the loss of stakeholder relationships which makes land use difficult, and the release of pollutants that adversely affect the health of local communities and damage the reputation of the organization.

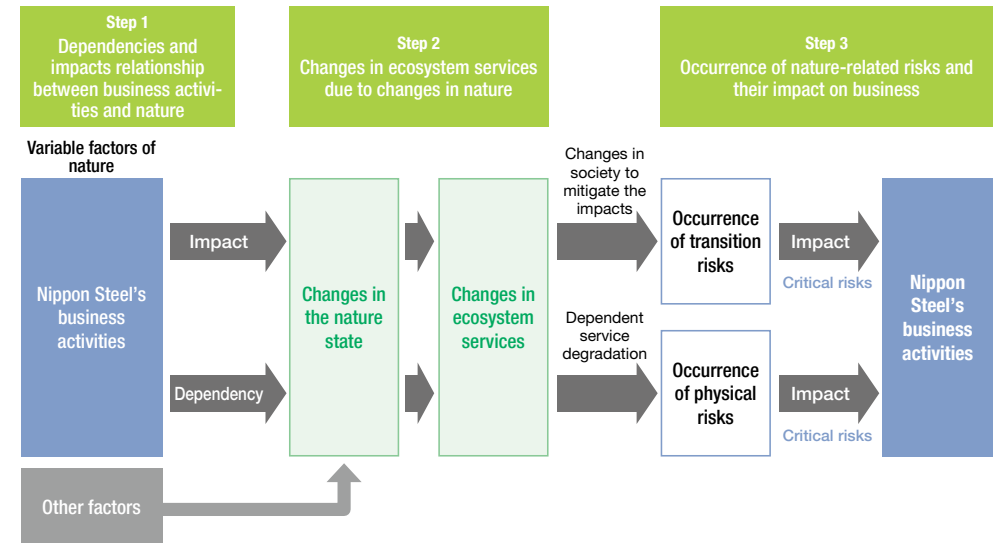
Identifying critical risks and opportunities (assessment of importance)

In order to evaluate, analyze, and prioritize the risks and opportunities identified above, the TNFD approach was referenced to consider a scenario for the base of the assessment in two axes: "Ecosystem service degradation (physical risk)" and "Alignment of market and non-market driving forces (transition risk)."

This time, we identified critical risks and opportunities by setting a pessimistic scenario (ecosystem degradation) with potential maximum physical/transition risks, as the base, and evaluating the importance of risks and opportunities on the two axes of likelihood of occurrence and degree of impact.

In assessing the importance of risks and opportunities, we examined the definition of the likelihood of occurrence and the degree of impact, which form the basis of the assessment, and the overall importance. We then quantitatively assessed risks and opportunities based on the two axes of likelihood and impact.

■ (Figure 1) Image of the pathway of nature-related risks



■ (Figure 3) Image of identifying critical risks and opportunities

