HYUNDAI HEAVY INDUSTRIES

Natural Capital(Biodiversity) Impact Assessment Report

July 2025

LEAP approach

Locate Evaluate Assess Prepare

Risk Assessment Process

As part of its efforts to conserve biodiversity and manage natural capital risks, HD Hyundai Heavy Industries conducted a biodiversity risk assessment based on the LEAP[1] (Locate, Evaluate, Assess, Prepare) framework recommended by the Taskforce on Nature-related Financial Disclosures[2](TNFD).

To carry out this assessment, the company utilized international standard tools such as ENCORE, the WWF Biodiversity Risk Filter, and the IUCN Red List, in combination with authoritative domestic datasets including the National Land Environmental Evaluation Map and the Ecological-Natural Map. These resources were used to analyze both the company's dependence on and impact on natural capital.

Natural Capital and Biodiversity Risk Assessment Process

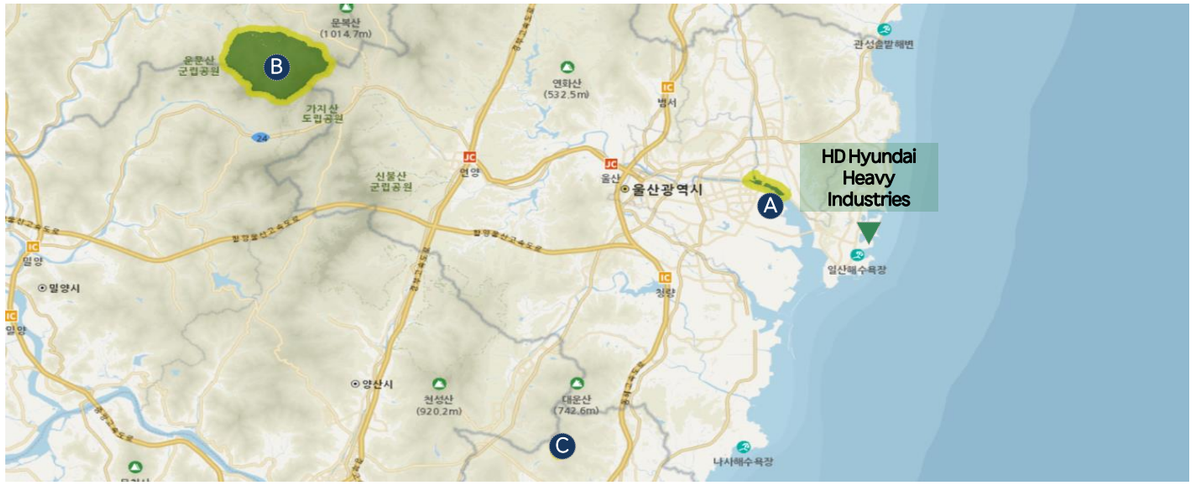
LEAP Framework	Process	Tool
Locate (Identifying Interfaces with Nature)	① Selection of sites for analysis ② Analysis of ecosystem conservation areas and vegetation ③ Identification of biodiversity species at risk	- QGIS[3] - IUCN - National Land Environmental Evaluation Map
Evaluate (Assessment of Dependencies and Impacts)	④ Evaluation of dependencies and impacts on natural capital across the value chain	- ENCORE
Assess (Identification of Risks and Opportunities)	⑤ Identification of risks arising from business activities ⑥ Identification of business opportunities	- WWF Biodiversity Risk Filter
Prepare (Response and Disclosure)	⑦ Development of response strategies and governance framework ⑧ Establishment of key indicators and targets	-

1) A framework recommended by the TNFD for identifying nature-related risks and opportunities
2) An international initiative on natural capital disclosures, established under the leadership of UNEP FI, UNDP, and WWF
3) A geographic information system (GIS) application that provides location-based data viewing, editing, and analysis

Identifying Interfaces with Nature *Locate*

HD Hyundai Heavy Industries has identified interactions between its business activities and the natural environment based on the "Locate" step of the LEAP framework. The company's main site, which includes the headquarters and primary shipyard, is located at 1000 Bangeojinsunhwan-doro, Dong-gu, Ulsan Metropolitan City. Core activities such as ship design, manufacturing, and sea trials are conducted at this location. Accordingly, the spatial boundary for the analysis was defined as the headquarters (main plant). Using the National Land Environmental Evaluation Map and data from the International Union for Conservation of Nature (IUCN), the company analyzed surrounding ecosystem conservation areas and vegetation distribution.

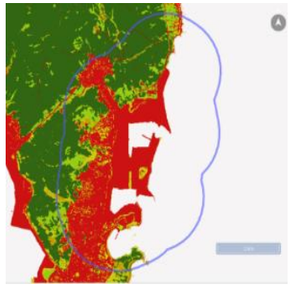
Major Ecosystem Conservation Areas within 50 km of the Site



Protected Area	Distance	Characteristics
A. Downstream Taehwa River	5km	- Designated ecological landscape conservation area by Ulsan - Habitat for migratory birds and other wildlife
B. Mt. Unmum	40km	- Designated ecological landscape conservation area by the Ministry of Environment - Habitat for endangered species such as otters, flying squirrels, and martens
C. Mujechi Wetland	27km	- Designated wetland protection area by the Ministry of Environment - Mountain wetland

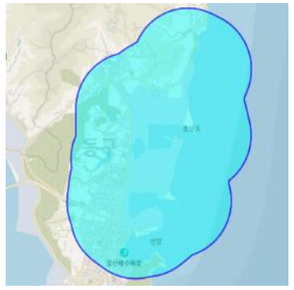
Identifying Interfaces with Nature *Locate*

Analysis of Ecosystems within 2 km of the Facility[1)]



Grade 1
Grade 2
Grade 3
Grade 4
Grade 5
Out of Scope

Grade	National Land Environmental Evaluation Map [2)]
Grade 1	17.6%
Grade 2	5.5%
Grade 3	5.3%
Grade 4	1.2%
Grade 5	28.1%
Out of Scope[3)]	42.2%

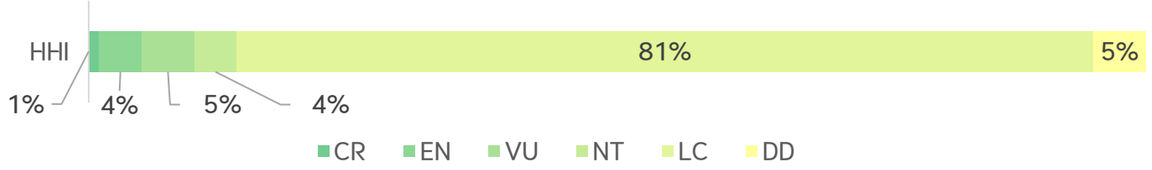


Grade	Environmental Site Analysis
Grade 1 Area in the Ecology and Nature Maps[4)]	0.4%
Grade 2 Area in the Ecology and Nature Maps	14.5%
Ecological and Scenery Conservation Area[5)]	Not applicable
Wetland protected area[6)]	Not applicable
Wildlife Protection Disricts[7)]	Not applicable

1) Proportions are presented based on the total area within a 2 km radius of the site.
2) Map based on Article 23 of the Framework Act on Environmental Policy – the closer to Grade 1, the higher the ecological value.
3) Due to the shipyard's coastal location, a significant portion of the surrounding area is designated as 'Out of Scope' (i.e., marine areas).
4) Map based on Article 34 of the Natural Environment Conservation Act, classifying natural environments by ecological value, naturalness, and landscape value.
5) Based on Article 12 of the Natural Environment Conservation Act, areas with high conservation and research value are designated due to their primitive conditions or rich biodiversity.
6) Based on Article 8 of the Wetlands Conservation Act, areas that maintain a natural state or have rich biodiversity are designated as protected wetlands.
7) Based on Articles 27(1) and 33(1) of the Wildlife Protection and Management Act, areas that serve as habitats or breeding grounds for endangered wildlife species are designated as specially protected zones.

Identification of IUCN[8)] Red List Species within 25 km of the Site

Threatened species on the IUCN Red List (CR, EN, VU)[9)] make up 10% of the total species.



8) IUCN(International Union for Conservation of Nature)
9) IUCN Red List threatened species are classified into three categories – Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) – out of the nine overall categories: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), and Not Evaluated (NE).

Dependency and Impact Assessment *Evaluate*

HD Hyundai Heavy Industries conducted a systematic analysis of its industry's dependency on and impact on natural capital using the ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) tool.

The assessment covered not only the company's business activities within its organizational boundaries but also the broader value chain – including four upstream industries such as raw material supply and three downstream industries such as product usage and disuse. This evaluation assessed both the level of dependency on natural capital and the degree of impact across the entire value chain.

Dependency and Impact Assessment Based on the ENCORE Tool[1)]

Very Low Low Medium High Very High

Classification		Upstream				Core operations	Downstream		
	Industrial Classification	Steel	Equip-ment	Paint	Electri-city	Ship building	Shipping	Repair	Disband /Disuse
DEPENDENCIES	Water Supply								
	Global Climate Regulation								
	Local Climate Regulation								
	Air Filtration								
	Soil and Sediment Retention								
	Water Flow Regulation								
	Flood Mitigation								
	Storm Mitigation								
	Noise Attenuation						-		
	Dilution by Atmosphere and Ecosystems				-				
IMPACTS	Disturbances								
	GHG Emissions								
	Non-GHG Air Pollutants								
	Solid Waste Generation								
	Toxic Pollutants in Water and Soil								
	Volume of Water Use								

1) A tool developed by Global Canopy, UNEP FI, and UNEP-WCMC to support corporate assessments of nature, which evaluates industry-specific dependencies and impacts on nature across five levels.

Assessing Risks and Opportunities *Assess*

HD Hyundai Heavy Industries utilized the WWF (World Wide Fund for Nature) Biodiversity Risk Filter Tool to identify key nature-related risks and opportunities associated with its business activities.

By analyzing the expected timing and duration of these risks and opportunities, the company established a foundation not only for short-term responses but also for the development of medium- and long-term strategic plans.

Natural-related Opportunity Factors

Very Low Low Medium High Very High

Classification	Description	HHI	Impact timing
Physical Risk	-		-
R1. Provisioning Services	Reduced water availability may disrupt water supply		Short- and Medium-Term
R2. Regulating & Supporting Services	Deterioration in air quality may leads to stricter government regulations, which may result in increased operating costs for companies		Medium- and Long-Term
R3. Regulating Services-Mitigating	The increased frequency of tropical cyclones due to climate change may lead to a higher risk of facility damage, rising insurance premiums, and disruptions in production.		Medium- and Long-Term
R4. Pressures on Biodiversity	Expansion of ecological conservation areas could impose constraints on project development		Short- and Medium-Term
Reputational Risk	-		-
R5. Environmental Factors	Failure to consider ecosystems and the local environment may negatively impact brand image		Medium-Term
R6. Socioeconomic Factors	Impacts on the local community during business operations may give rise to social issues		Short- and Medium-Term
R7. Additional Reputational Factors	Conducting business activities without considering related issues may negatively affect the company's reputation		Medium- and Long-Term

Natural-related Risk Factors

Classification	Factors	Description	Impact timing
Resource efficiency	O1. Opportunities from the efficient use of resources	Reducing raw material and production cost through the efficient use of resource	Short- and Medium-Term
	O2. Opportunities through the application of circular economy principles and waste reduction	Enhancing an environmentally friendly image through resource reuse driven by efficient resource use	Short- and Medium-Term
Product and Service	O3. Opportunities through Biodiversity-conscious design and technology development	Creating additional synergies through differentiated business activities	Medium- and Long-Term
Market Opportunity	O4. Opportunities from leading the low- and zero-carbon markets	Market competitiveness can achieved by meeting customer needs through low- and zero carbon technologies	Short to Long term
Reputational Assets	O5. Opportunities form enhancing stakeholder reputation	Enhancing brand image and improving business acceptance through stakeholder engagement	Short to Long term

1) WWF Biodiversity Risk Filter: A comprehensive nature-related risk assessment tool provided by WWF(Would Wide Fund for Nature)

LEAP approach

Locate Evaluate Assess **Prepare**

Establishing a Response Strategy *Prepare*

HD Hyundai Heavy Industries operates a dedicated ESG organization and has established a performance management system based on ESG KPIs through its ESG Promotion Committee. Within the ESG department, a designated manager is responsible for overseeing targets and indicators related to natural capital and biodiversity, ensuring systematic implementation and monitoring.

Going forward, ESG factors will be integrated into company-wide decision-making processes, and natural capital–related risks and opportunities will be reflected in the company's sustainable growth strategy.

In line with this, the company plans to continue advancing initiatives such as implementing the carbon neutrality roadmap, reducing pollutant emissions, and enhancing its biodiversity strategy.

HD Hyundai Heavy Industries is also continuing to invest in low- and zero-carbon technologies, including the development of methanol-, ammonia-, and hydrogen-powered systems. At the same time, the company is expanding environmental mitigation facilities within its processes and pursuing optimal design to improve resource efficiency and minimize environmental impact.

To raise internal awareness, ESG education programs are being implemented, and the company is preparing to establish a response framework aligned with TNFD and ISSB standards. HD Hyundai Heavy Industries also plans to continuously strengthen its disclosure of strategies, targets, and performance related to natural capital for stakeholders.

Setting Key Indicators and Targets *Prepare*

HD Hyundai Heavy Industries has established key management indicators and quantitative targets related to natural capital by incorporating identified risks and opportunities. These targets will be gradually integrated into external reporting frameworks in alignment with future TNFD (Taskforce on Nature-related Financial Disclosures) requirements.

In addition, the company has set medium- and long-term goals—such as its 2050 carbon neutrality declaration and the establishment of biodiversity management indicators—to strengthen the foundation for sustainable management and to continuously secure implementation capacity for the protection of natural capital.

HHI stream clean-up activity

Key Indicators and Targets

Risk/ Opportunity(R/O)	Key activity	Detailed implementation examples	Management indicators	Future response direction	GBF[1] Goals
R1, R5 / O1	Water Conservation	• Reducing the use of drains for freeze protection / Implementing a Hi-energy system	Water consumption(㎥)	• Expanding the application of Hi-Energy	Target 11
R2, R5	Reduction of air pollutants	• 40% reduction in fine dust compared to 2016	NO_X(ton), SO_X(ton), Dust(ton)	• Set a target to reduce fine dust emissions by 5% by 2025 compared to the baseline year of 2023.	Target 7
R5 / O3, O4	Next-generation ship technology	• Development of ammonia-methanol dual-fuel engine	Low-carbon ship[2] deliveries(ship)	• Ongoing development of hydrogen carrier vessel technology	Target 7, 11
R5 / O5	Protecting biodiversity	• Survey of Endangered Species • Conducted 14 sessions of stream clean-up activities under the "One Company, One Stream" program in 2024 • Planted and are currently maintaining 3,670 nationally designated and managed shrubs and trees—such as forsythia, glossy privet, azalea, and boxwood—as well as 2,003 ground cover plants including leopard plant and mondo grass	Number of Endangered Species Surveyed, Number of Conservation Activities Implemented, Number of Nationally Designated and Managed Species Planted	• Planting of nationally designated and managed species and implementation of stream clean-up activities	Target 4, 6

1) GBF (Kunming-Montreal Global Biodiversity Framework):A framework that begins by emphasizing the need for transformative actions across all sectors of society and the economy to achieve the vision of "Living in harmony with nature" by 2050. It consists of four long-term goals for 2050, 23 action-oriented targets for 2030, and implementation and monitoring mechanisms.
2) A vessel that reduces carbon emissions by using dual fuels—LNG, methanol, and other relatively low-carbon fuels—compared to conventional oil-fueled ships.