

Biodiversity Risk Assessment: Implementation



Scoping the Assessment

- Identifying industry materiality
 - Dependencies
 - Impacts
- Identifying the company's operational sites to be assessed throughout value chain.



Collecting Location-specific Company and Supply Chain Data

- Specifying site's location
- Including adjacent areas to assess indirect impacts
- Specifying industry sector
- Identifying business importance of each operational sites



Assessing Biodiversity-related Risks

- Calculating scope risk (risk score per indicator)
- Calculating site-level risk (overall risk score)
- Interpreting and evaluating biodiversity risks from the WWF BRF calculation
- Evaluating risks from surrounding ecosystems and protected areas



Aggregating Biodiversity Risk to the Company and Portfolio Level

- Integrating the identified biodiversity risks into multi-disciplinary company-wide risk management processes

Central Retail Corporation (CRC) incorporated the WWF Biodiversity Risk Filter (WWF's Risk Filter Suite v3.0) and WWF's biodiversity risk assessment as valuable references to evaluate physical and reputational risks from a biodiversity standpoint. The WWF BRF serves as a location-specific approach, enabling the assessment of potential risks, both impacts and dependencies, on biodiversity stemming from the company's operations. By considering various factors tied to the operational location, such as threatened species, ecosystems, and protected areas, this tool comprehensively evaluates the potential effects on biodiversity.

Scoping the Assessment

In order to conduct the biodiversity risk assessment, the first step involves determining the jurisdictions or provinces where CRC has operational sites. The assessment will focus on these specific locations. The table below provides a summary of the operational sites that will be included in the assessment, and an overview of the assessment's scope across CRC's value chain.

Type of Site	Location
Own operation, Subsidiaries, and Joint Ventures	Thailand (1,274 Sites)
Upstream Activities	Thailand (2,428 Sites) China (155 Sites) United States (8 Sites) Bangladesh (8 Sites) United Kingdom (7 Sites) India (5 Sites) Vietnam (4 Sites) Singapore (4 Sites) Pakistan (4 Sites) Other (20 Sites)
Downstream Activities	Thailand (9 Sites)

In this assessment, CRC includes its own operations, subsidiaries, joint ventures, and extends across the supply chain, covering both upstream and downstream activities.



Collecting Location-specific Company and Supply Chain Data

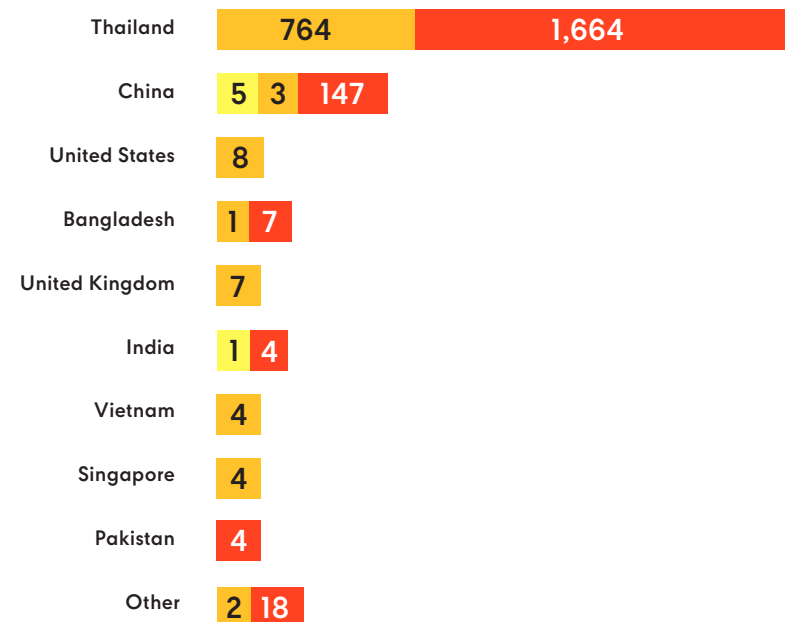
In this step, CRC has identified the geographic location of the assessed site in terms of the coordinates (Latitude/Longitude) on the map, and the industry sector each site corresponds to. Risks are evaluated by WWF Biodiversity Risk Filter. Results are projected based on location that related to retailing industry, CRC activities do not impact the risk level.

Number of Sites by Country

Own operation, Subsidiaries, and Joint Ventures



Upstream Activities



Downstream Activities



WWF Biodiversity Risk Filter levels





Biodiversity Sensitivity Screening for Adjacent Areas to Own Operations

CRC extends the biodiversity risk assessment beyond site boundaries within own operations to include adjacent areas within 0–5 km radius of each location. Using GIS-based spatial analysis, own operation site coordinates were overlaid with global datasets on Protected Areas, Key Biodiversity Areas (KBA), IUCN Red List habitats, and recent land use change.

This approach enabled the classification of sites by proximity to sensitive biodiversity areas, allowing CRC to identify potential indirect impacts and strengthen biodiversity risk management.

Risk Level	Distance from sensitive biodiversity area	Number of Own Operation Sites
High	0–2 km	6 Sites
Medium	2–5 km	16 sites
Low	>5 km	1,252 Sites

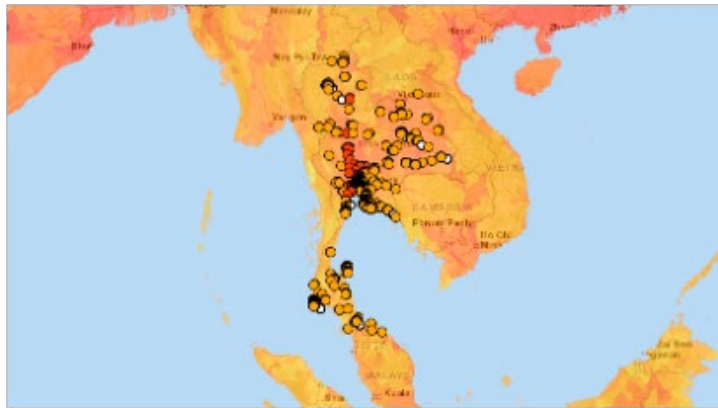


Assessing the Biodiversity Risks

Own operation, Subsidiaries, and Joint Ventures

According to the biodiversity-related risk assessment, most operational sites within CRC's business value chain were assessed as having medium biodiversity-related risk levels. However, 474 sites were classified as having high physical risk, highlighting areas of concern that require close monitoring and proactive risk management.

Scape Physical Risk Spatial Analyst :



Location: Thailand

Number of Sites by Risk Type:



Scape Reputational Risk Spatial Analyst :



Location: Thailand

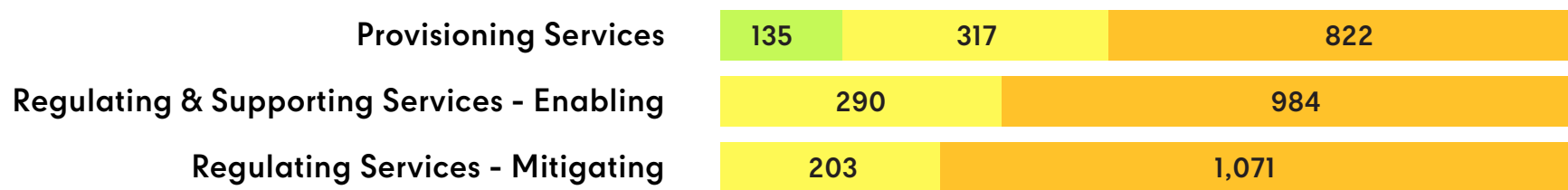
Number of Sites by Risk Type:



Assessing the Biodiversity Risks

This infographic presents the results of CRC's biodiversity-related risk assessment, covering both physical and reputational risks. The assessment identified significant biodiversity-related risks primarily within the physical risk categories, with most CRC operational sites classified as Medium Risk. Reputational risks were predominantly classified as Very Low to Medium, with no High or Very High risks identified. In term of Reputational, pressures on biodiversity and Socioeconomic factors appeared to have Medium risks

Number of sites by Physical Risk Categories



Number of sites by Reputational Risk Categories



WWF Biodiversity Risk
Filter levels



To find more information about risk value details threshold for each risk category and indicator, please visit: <https://riskfilter.org/data-&-methods>

Physical Risk:

Provisioning Services

- Background: Many industries and companies rely directly on natural resources and ecosystem services as inputs for their operations and production. Declines in the quantity or quality of these resources due to ecosystem degradation may result in increased operating costs or disruptions to production.
- Statistics: Most sites were assessed as Medium Risk, while some sites were classified as Low or Very Low Risk.
- Risks: Water scarcity and limited availability of wild flora and fauna.

Regulating & Supporting Services – Enabling

- Background: Businesses rely on regulating and supporting ecosystem services that enable production processes and maintain suitable environmental conditions. Degradation of these ecosystem services may increase production costs or affect business continuity.
- Statistics: Most sites were assessed as Medium Risk, while the remaining sites were predominantly classified as Low Risk.
- Risks: Soil condition, water condition, air condition, ecosystem condition, and pollination.

Regulating Services – Mitigating

- Background: Natural hazards can disrupt business operations, assets, and value chains. Healthy and intact ecosystems can contribute to mitigating the impacts of natural hazards and strengthening business resilience.
- Statistics: Most sites were assessed as Medium Risk, with the remaining sites classified as Low Risk.
- Risks: Landslides, fire hazards, plant/forest/aquatic pests and diseases, extreme heat, and tropical cyclones.

Reputational Risk:

Pressures on Biodiversity

- Background: Reputational risk can arise from business activities that place direct pressures on biodiversity and ecosystem processes, potentially resulting in adverse environmental impacts and increased stakeholder concerns.
- Statistics: Pressures on Biodiversity were predominantly assessed as Medium Risk.
- Risks: Land, freshwater and sea use change, tree cover loss, invasive species, and pollution.

Environmental Factors

- Background: Reputational risk can arise from actual or perceived impacts on important environmental and biodiversity assets, particularly where business activities interact with ecologically sensitive areas.
- Statistics: Environmental Factors were predominantly assessed as Very Low to Low Risk, with a small proportion classified as Medium Risk.
- Risks: Protected and conserved areas, Key Biodiversity Areas (KBAs), other important delineated areas, ecosystem condition, and range rarity.

Socioeconomic Factors

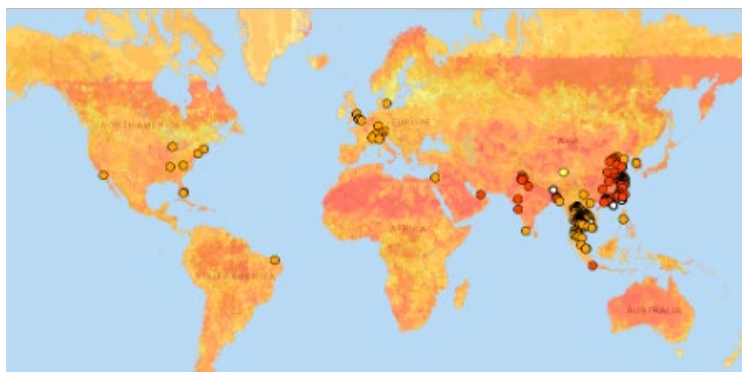
- Background: Reputational risk can arise from actual or perceived impacts on local socioeconomic conditions and from biodiversity-related issues affecting communities and stakeholders.
- Statistics: Socioeconomic Factors were predominantly assessed as Medium Risk.
- Risks: Indigenous Peoples, resource scarcity, labor and human rights, and financial inequality.

Assessing the Biodiversity Risks

Upstream Activities

According to the biodiversity-related risk assessment, CRC's upstream activities were identified as having High physical risk across 1,828 risk types, while reputational risk was predominantly classified as Medium across 2,460 risk types.

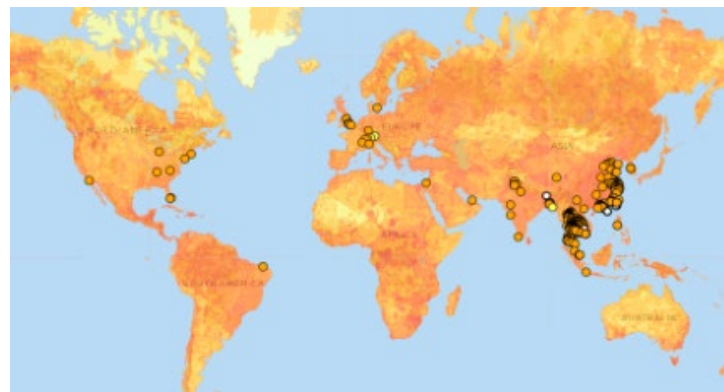
Scape Physical Risk Spatial Analyst :



Number of Sites by Risk Type:



Scape Reputational Risk Spatial Analyst :



Number of Sites by Risk Type:



WWF Biodiversity Risk
Filter levels

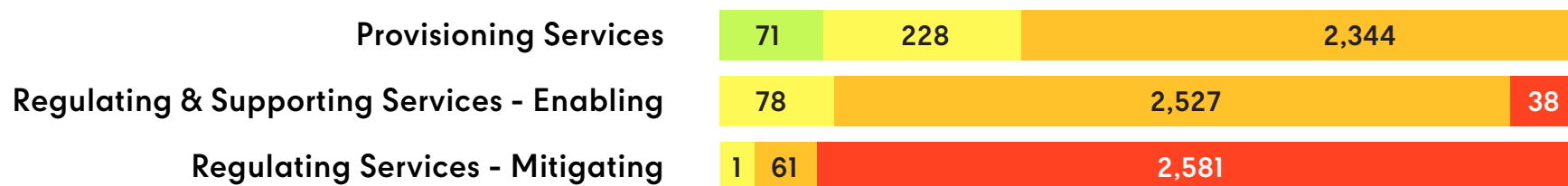




Assessing the Biodiversity Risks

This infographic presents the results of CRC's biodiversity-related risk assessment, covering both physical and reputational risks. The assessment identified significant biodiversity-related risks primarily within the physical risk categories, particularly in Regulating Services – Mitigating, while Provisioning Services and Regulating & Supporting Services – Enabling were predominantly classified as Medium Risk. In contrast, reputational risks related to Environmental Factors were predominantly classified as Very Low to Low. In term of Reputational, pressures on biodiversity and Socioeconomic factors appeared to have Medium risks

Number of sites by Physical Risk Categories



Number of sites by Reputational Risk Categories



WWF Biodiversity Risk
Filter levels



To find more information about risk value details threshold for each risk category and indicator, please visit: <https://riskfilter.org/data-&-methods>

Physical Risk:

Provisioning Services

- Background: Upstream activities may depend directly on natural resources and ecosystem services as inputs for production. Degradation of these resources may lead to resource scarcity, increased costs, and disruptions across the supply chain.
- Statistics: Provisioning Services were predominantly assessed as Medium Risk.
- Risks: Water scarcity and limited availability of wild flora and fauna.

Regulating & Supporting Services – Enabling

- Background: Upstream activities depend on regulating and supporting ecosystem services that maintain environmental conditions necessary for production and resource availability. Degradation of these services may affect productivity and supply continuity.
- Statistics: Regulating & Supporting Services – Enabling were predominantly assessed as Medium Risk, with a small proportion classified as High Risk.
- Risks: Soil condition, water condition, air condition, ecosystem condition, and pollination.

Regulating Services – Mitigating

- Background: Healthy ecosystems can help mitigate natural hazards that may disrupt upstream activities, damage assets, and affect the continuity of supply chains.
- Statistics: Regulating Services – Mitigating showed the most significant physical risk exposure, with the majority assessed as High Risk.
- Risks: Landslides, fire hazards, plant/forest/aquatic pests and diseases, extreme heat, and tropical cyclones.

Reputational Risk:

Pressures on Biodiversity

- Background: Reputational risk may arise where upstream activities exert direct pressures on biodiversity and ecosystem processes, potentially leading to environmental impacts and stakeholder concerns.
- Statistics: Pressures on Biodiversity were predominantly assessed as Medium Risk.
- Risks: Land, freshwater and sea use change, tree cover loss, invasive species, and pollution.

Environmental Factors

- Background: Reputational risk can arise from actual or perceived impacts on important biodiversity and environmental assets, particularly where upstream activities interact with ecologically sensitive areas.
- Statistics: Environmental Factors were predominantly assessed as Very Low to Low Risk, with a smaller proportion classified as Medium Risk.
- Risks: Protected and conserved areas, Key Biodiversity Areas (KBAs), other important delineated areas, ecosystem condition, and range rarity.

Socioeconomic Factors

- Background: Reputational risk may arise from impacts on local communities and socioeconomic conditions associated with biodiversity and natural resource use across the upstream value chain.
- Statistics: Socioeconomic Factors were predominantly assessed as Medium Risk.
- Risks: Indigenous Peoples, resource scarcity, labor and human rights, and financial inequality.

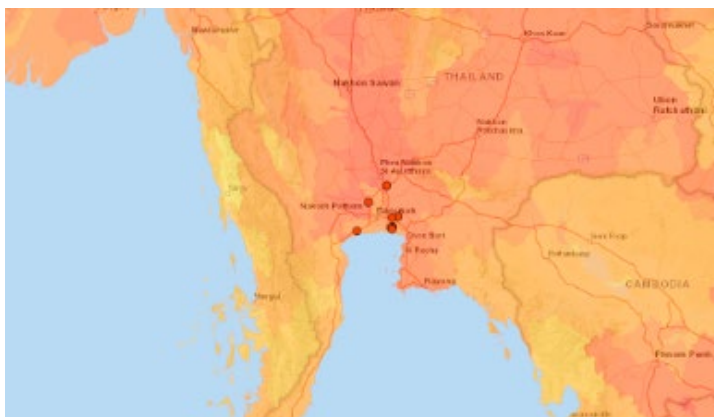


Assessing the Biodiversity Risks

Downstream Activities

According to the biodiversity-related risk assessment, most operational sites within CRC's downstream activities were assessed as having Medium biodiversity-related risk. Physical risks across the assessed sites were classified as Medium, while reputational risks were also predominantly classified as Medium. However, one site was identified as having High reputational risk, highlighting an area that may require closer monitoring and proactive risk management.

Scape Physical Risk Spatial Analyst :



Number of Sites by Risk Type:

9

Scape Reputational Risk Spatial Analyst :



Number of Sites by Risk Type:

8

1

WWF Biodiversity Risk
Filter levels



Assessing the Biodiversity Risks

This infographic presents the results of CRC's biodiversity-related risk assessment, covering both physical and reputational risks. The assessment identified significant biodiversity-related risks across several categories. Physical risks were predominantly classified as Medium to High, while reputational risks varied across risk levels, with certain categories identified as High or Very High Risk. In term of Reputational, pressures on biodiversity factors appeared to have high and Very High risks and Socioeconomic factors appeared to have medium risks

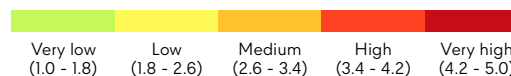
Number of sites by Physical Risk Categories



Number of sites by Reputational Risk Categories



WWF Biodiversity Risk
Filter levels



To find more information about risk value details threshold for each risk category and indicator, please visit: <https://riskfilter.org/data-&-methods>

Physical Risk:

Provisioning Services

- Background: Downstream activities may depend on natural resources and ecosystem services that support business operations and the availability of products and services. Degradation of these resources may lead to higher costs and operational disruptions.
- Statistics: Provisioning Services were predominantly assessed as High Risk.
- Risks: Water scarcity and limited availability of wild flora and fauna.

Regulating & Supporting Services – Enabling

- Background: Business activities depend on regulating and supporting ecosystem services that maintain suitable environmental conditions and enable continued operations. Degradation of these services may affect operational continuity and increase business costs.
- Statistics: Regulating & Supporting Services – Enabling showed a combination of Medium and High Risk levels.
- Risks: Soil condition, water condition, air condition, ecosystem condition, and pollination.

Regulating Services – Mitigating

- Background: Healthy ecosystems can help mitigate the impacts of natural hazards that may disrupt downstream operations, damage assets, and affect business continuity.
- Statistics: Regulating Services – Mitigating were predominantly assessed as High Risk.
- Risks: Landslides, fire hazards, plant/forest/aquatic pests and diseases, extreme heat, and tropical cyclones.

Reputational Risk:

Pressures on Biodiversity

- Background: Reputational risk may arise from actual or perceived business impacts that place pressure on biodiversity and ecosystem processes, potentially increasing environmental and stakeholder concerns.
- Statistics: Most assessments were Medium Risk or below, although some sites were identified as Very High Risk.
- Risks: Land, freshwater and sea use change, tree cover loss, invasive species, and pollution.

Environmental Factors

- Background: Reputational risk may arise from actual or perceived impacts on important environmental and biodiversity assets, particularly where business activities are located in or near ecologically sensitive areas.
- Statistics: Environmental Factors were predominantly assessed as Medium Risk, with some exposure identified as High Risk.
- Risks: Protected and conserved areas, Key Biodiversity Areas (KBAs), other important delineated areas, ecosystem condition, and range rarity.

Socioeconomic Factors

- Background: Reputational risk may arise from socioeconomic conditions and stakeholder concerns in areas where business activities interact with local communities, natural resources, and ecosystem services.
- Statistics: Socioeconomic Factors were assessed as Medium Risk across the assessed sites.
- Risks: Local biodiversity regulations, compliance requirements, regulatory enforcement, and biodiversity-related legal obligations.

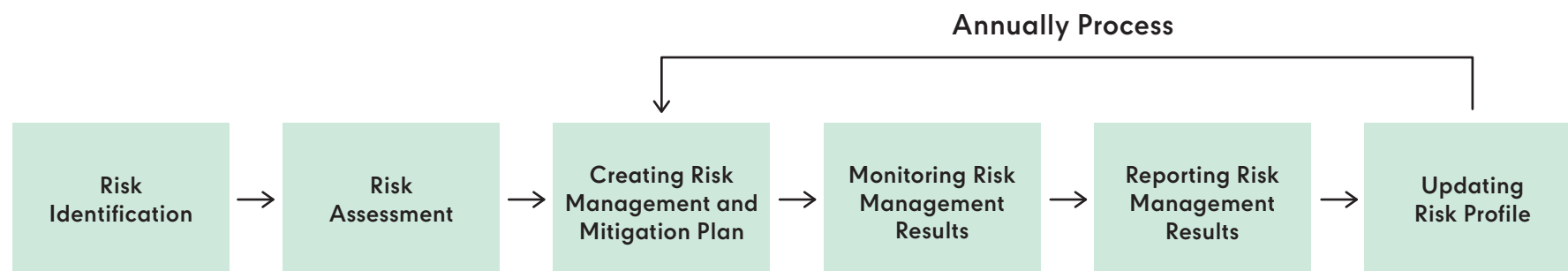


Aggregating Biodiversity Risk to the Company and Portfolio Level

The biodiversity-related risks identified along with other risk indicators such as revenue generation and production capacity, will be integrated into CRC's comprehensive company-wide risk management processes. This integration ensures that all potential risks are considered and enables effective management and control of business operations and value chain, minimizing risks, promoting financial performance, and aligning with the sustainability strategy.



The identified biodiversity-related risks





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