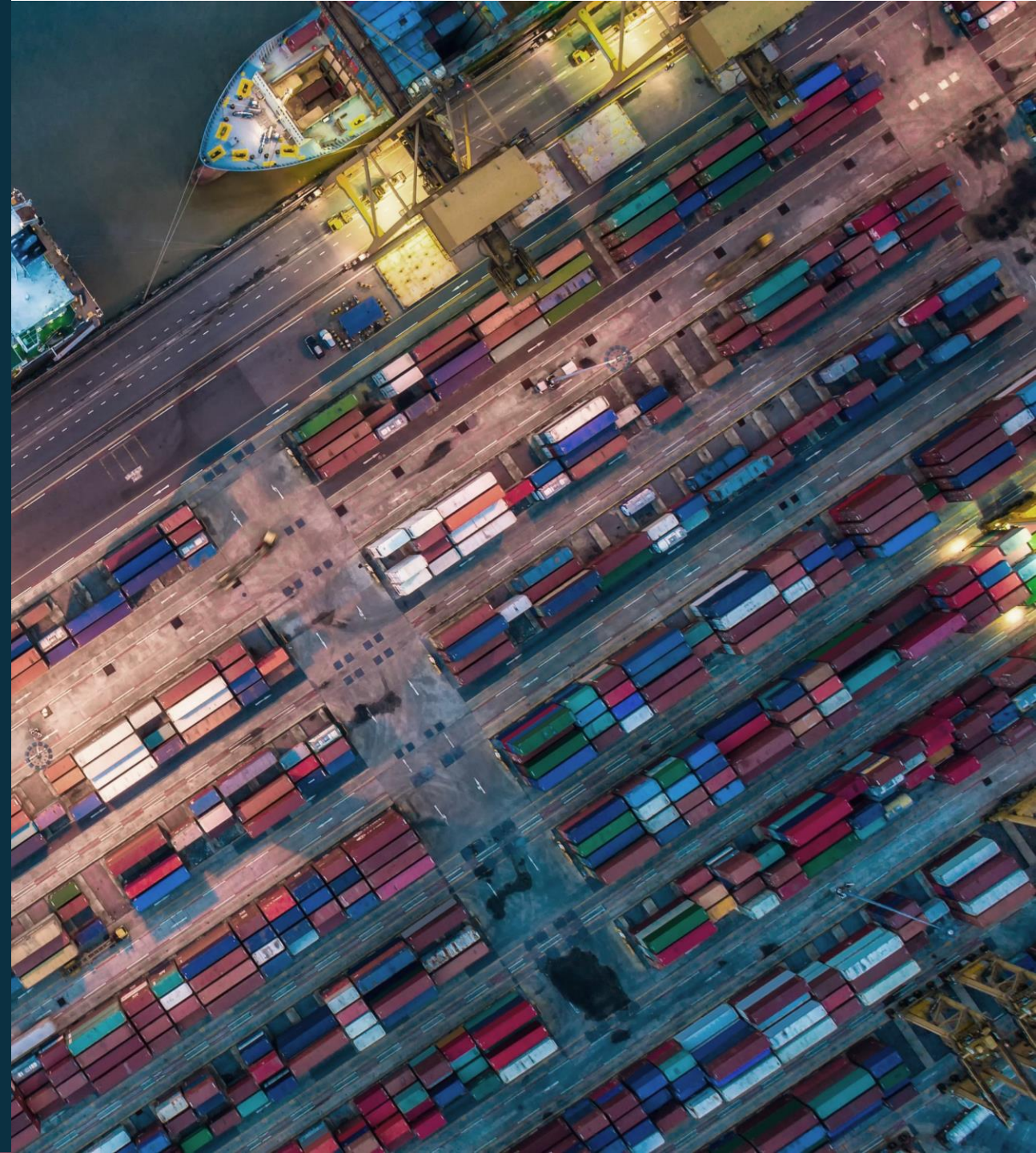


Biodiversity Risk Assessment for Value Chain

Charoen Pokphand Group





Introduction

This study is a pilot project to assess risks within the value chain of Charoen Pokphand Group, with the understanding that nature-related risks do not only arise from our own operations but are also likely to originate from within the value chain, potentially impacting the company. Given the high diversity within the value chain, which includes all subsidiaries of the group, these risks can significantly affect the company's reputation. Therefore, it is essential to assess and manage risks comprehensively for both the company's suppliers and customers.

Understanding the locations of suppliers is crucial for a precise assessment of biodiversity risks in the supply chain. For this pilot assessment, we selected five suppliers in Thailand and four customers in Thailand and other countries from the existing database.

However, this evaluating the Dependency, Impact, Risk and Opportunity (DIRO) of suppliers still presents challenges and limitations. We will continuously improve DIRO assessment process to address these challenges.

Methodology



Identifying the supplier and customer's interface with nature using **the “WWF Risk Filter”** to screen and prioritize biodiversity-related risks at specific locations. In addition, **“Aqueduct”** is also used to measure, map, and mitigate water risks.

Evaluating dependencies and impacts on nature using Encore platform and supplier and customer's operating data.

Assessing nature-related risks and opportunities on nature.

Preparing to respond and report the assessment of DIRO
























































Supplier's Profile




























Supplier 3

Installation services for electrical systems, plumbing, air conditioning, and machinery in buildings and factories.

Assessment of Dependencies

Natural Capital	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5
Material and fibers					
Water					
Fuel and energy					
Climate Regulation					
Air purification					
Flood Regulation					
Water purification					
Store carbon					
Erosion control					
Soil formation					
Photosynthesis					

Assessment of Impact

Pressure	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5
Land/ Sea Use Change					
Resource Exploitation					
Climate Change					
Pollution					
Invasive Alien Species					

Nature-Risk at Supplier's Location

	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5
1. Extreme Heat					
2. Tropical Cyclone					
3. Flood					
4. Water Stress	High (40-80%)	High (40-80%)	High (40-80%)	High (40-80%)	Medium - High (20-40%)
5. Water Condition					
6. Air Condition					
7. Land, fresh water, sea use change					
8. Tree cover loss					
9. Pollution					
10. Protected/ conserved area					
11. Key Biodiversity Area					
12 Ecosystem Conversion					

	Potential Risk Profiles
Supplier 1	<ul style="list-style-type: none"> • Potential damages from severe weather e.g. heat wave, storm, flood etc. cause disruption of the process/ plant downtime; • Water risk cause disruption of the process/ plant downtime; • Overexploitation of natural materials for production may lead to supply chain disruption; • Degradation of ecosystem services and biodiversity loss due to pollution abatement.
Supplier 2	<ul style="list-style-type: none"> • Potential damages from severe weather e.g. heat wave, storm, flood etc. cause disruption of the process/ plant downtime; • Water risk cause disruption of the process/ plant downtime; • Overexploitation of natural materials and fiber for production; • Degradation of ecosystem services and biodiversity loss due to pollution abatement;
Supplier 3	<ul style="list-style-type: none"> • Potential damages from severe weather e.g. heat wave, storm, flood etc. may cause delay of the work or impact on project capital; • Potential loss of biodiversity due to land conversion • Biodiversity loss due to the impact on key biodiversity area • Potential impact on ecosystem due to construction activities
Supplier 4	<ul style="list-style-type: none"> • Overexploitation of natural materials for production may lead to supply chain disruption; • Biodiversity loss due to deforestation and land conversion for raw material sourcing • Potential damages from severe weather e.g. heat wave, storm, flood etc. cause disruption of the process/ plant downtime;
Supplier 5	<ul style="list-style-type: none"> • Overexploitation of natural materials for production may lead to supply chain disruption; • Biodiversity loss due to deforestation and land conversion for raw material sourcing • Potential damages from severe weather e.g. heat wave, storm, flood etc. cause disruption of the process/ plant downtime;

Risk Management



Circular Economy



Climate Resilience Plan



Restore Degraded Ecosystems





Resource Efficiency





Supply Chain Traceability

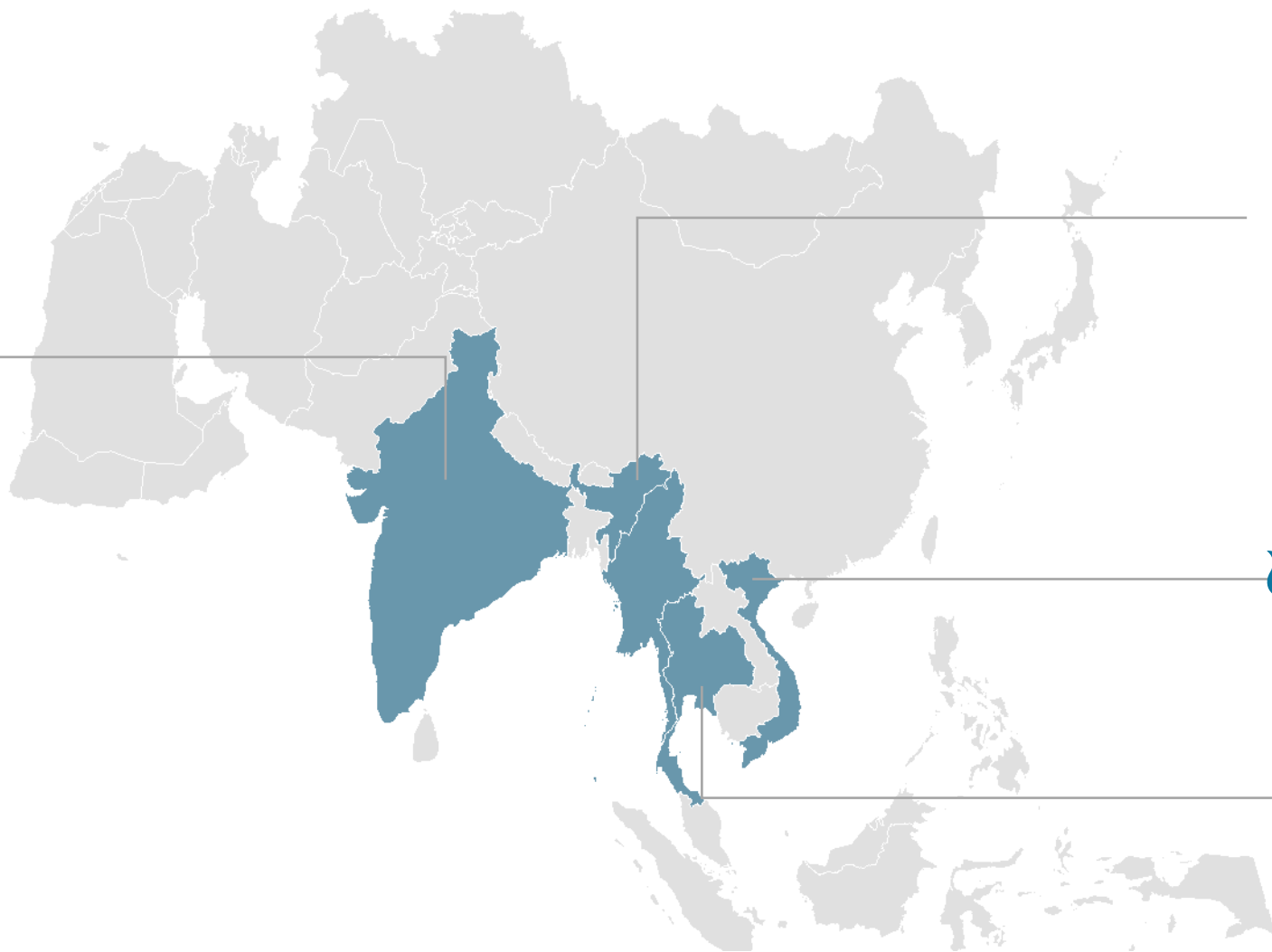
Customer's Profile

Customer 1 
Maize seed
retailer in India













































 **Customer 2**
Maize seed in retailer
Myanmar

 **Customer 4**
Maize seed in retailer
Vietnam





















 **Customer 3**
Maize seed in retailer
Thailand



Assessment of Dependencies

Natural Capital	Supplier 1	Supplier 2	Supplier 3	Supplier 4
Material and fibers				
Water				
Fuel and energy				
Climate Regulation				
Air purification				
Flood Regulation				
Water purification				
Store carbon				
Erosion control				
Soil formation				
Photosynthesis				

Assessment of Impact

Pressure	Supplier 1	Supplier 2	Supplier 3	Supplier 4
Land/ Sea Use Change				
Resource Exploitation				
Climate Change				
Pollution				
Invasive Alien Species				

Nature-Risk at Customer's Location

	Customer 1	Customer 2	Customer 3	Customer 4
1. Extreme Heat				
2. Tropical Cyclone				
3. Flood				
4. Water Stress				
5. Water Condition				
6. Land, fresh water, sea use change				
7. Tree cover loss				
8. Pollution				
9. Protected/ conserved area				
10. Key Biodiversity Area				
11 Ecosystem Conversion				
12. Labor/ Human Rights				

	Potential Risk Profiles
Customer 1	<ul style="list-style-type: none"> • Potential risks related to human rights and labor condition. • Climate regulation risk • Deforestation and land conversion risk • Pest and disease to local flora and fauna due to spread of invasive alien species
Customer 2	<ul style="list-style-type: none"> • Potential risks related to human rights and labor condition. • Climate regulation risk • Deforestation and land conversion risk • Pest and disease to local flora and fauna due to spread of invasive alien species
Customer 3	<ul style="list-style-type: none"> • Climate regulation risk • Deforestation and land conversion risk • Pest and disease to local flora and fauna due to spread of invasive alien species
Customer 4	<ul style="list-style-type: none"> • Climate regulation risk • Deforestation and land conversion risk • Pest and disease to local flora and fauna due to spread of invasive alien species

Risk Management



Human Right
Due Diligence



Climate Resilience Plan



Supply Chain Traceability



Ecological Risk Assessment



Restore Degraded Ecosystems