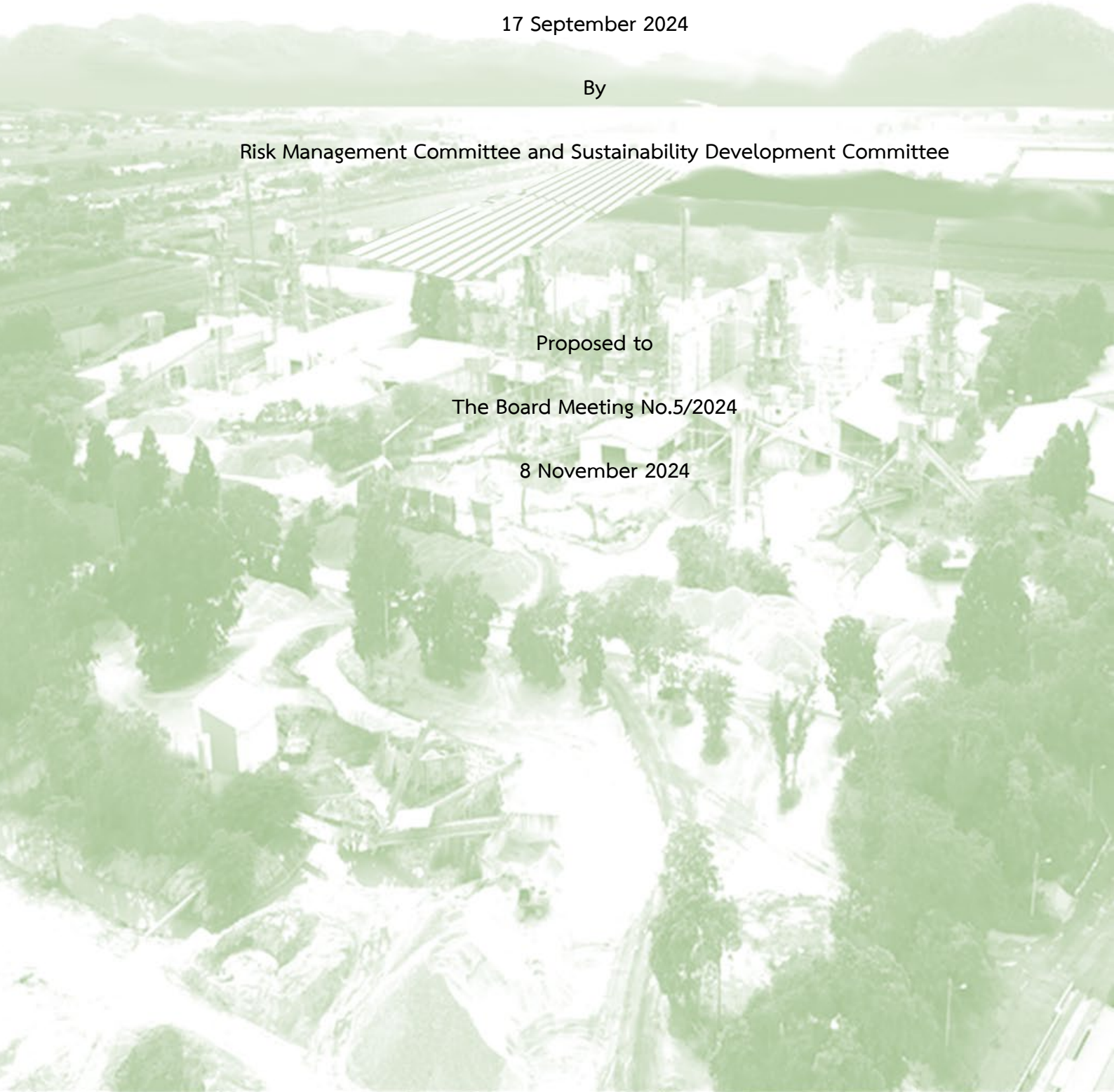
Biodiversity Check Report

GOLDEN LIME PUBLIC COMPANY LIMITED

17 September 2024

By

Risk Management Committee and Sustainability Development Committee



Proposed to

The Board Meeting No.5/2024

8 November 2024

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1. Objective

This report has been developed in alignment with the biodiversity management plan to evaluate potential risks or impacts on biodiversity resulting from land use associated with the business operations of Golden Lime Public Company Limited and its subsidiaries. The evaluation focuses on the biodiversity implications of land use, utilizing a framework and methodologies designed to assess risks pertaining to nature or biodiversity. These approaches adhere to various established standards and procedures in biodiversity management, incorporating both local biodiversity assessment measures and internationally recognized measures.

2. Scope

This report is a biodiversity check and biodiversity risk assessment of the core business locations which are the assets used in the core business of the Company or are the leased or licensed assets of Golden Lime PLC and its subsidiaries (" SUTHA") according to the branches of the Company (Ref: GRI 2-2) as follows:

1) **Gl_HQ** : **Head office**
6th floor , Unit H, Popular Road
Ban Mai Subdistrict, Pak Kret District
Nonthaburi Province 11120
Thailand

2) **Gl_CS** : **Chong Sarika Branch**
No. 7, Soi 11 , Line 3, Village No. 12,
Saraburi-Lomsak Road, New line,
Chong Sarika Subdistrict,
Phatthana Nikhom District,
Lopburi Province 15220
Area 242,824 square meters

3) **Gl _ HW** : **Huai Pawai Branch**
No. 111 Village No. 11 , Huai Pawa Subdistrict
Phra Phutthabat District,
Saraburi Province 18120
Area 152,800 square meters

4) **Gl _ PB** **Phra Phutthabat Branch**
No. 39/2 Village No. 10 , Phukrang Subdistrict
Phra Phutthabat District,
Saraburi Province 18120
Area 82-2-204 rai or 33,024 square meters

5) **Gl _ CS SOLAR SOLAR FARM**
Electricity Generation for the production Process of the Chong Sarika Plant.
11 Village no.12, Chong Sarika Subdistrict,
Phatthana Nikhom District,
Lopburi Province 15220
Area 24 rai or 9,600 square meters

Subsidiary Company

6) TM_HQ Marble Company Limited (subsidiary company)
Head office
No. 274, Building A2-2cd, Soi Sun Wichai 4
Bang Kapi Subdistrict, Huai Khwang District,
Bangkok

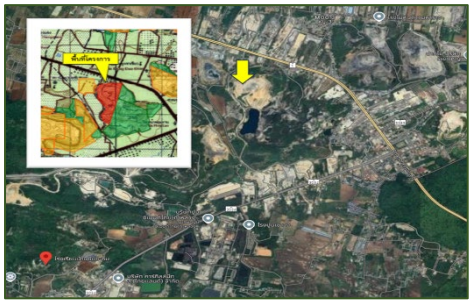
7) TM_Marble
351 Village No. 2, Phahonyothin Road, Km. 127 ,
Na Phra Lan Subdistrict, Chaloem Phra Kiat
District, Saraburi Province
Marble product manufacturing factory

8) TM_TK
271 Village No. 9 , Thap Kwang Subdistrict,
Kaeng Khoi District, Saraburi Province
The Thap Kwang Marble Mine is in the process
of requesting a mining license.
Not yet produced

9) TM_GCC
351/72 Village No. 2, Phahonyothin Road, Na
Phra Lan Subdistrict, Chaloem Phra Kiat District,
Saraburi Province
(Production of calcium carbonate powder)

10) TM_M
arble
351/74 Village No. 2, Phahonyothin Road, Na
Phra Lan Subdistrict, Chaloem Phra Kiat District,
Saraburi Province
(Marble quarry Certificate No. 32499/15852)

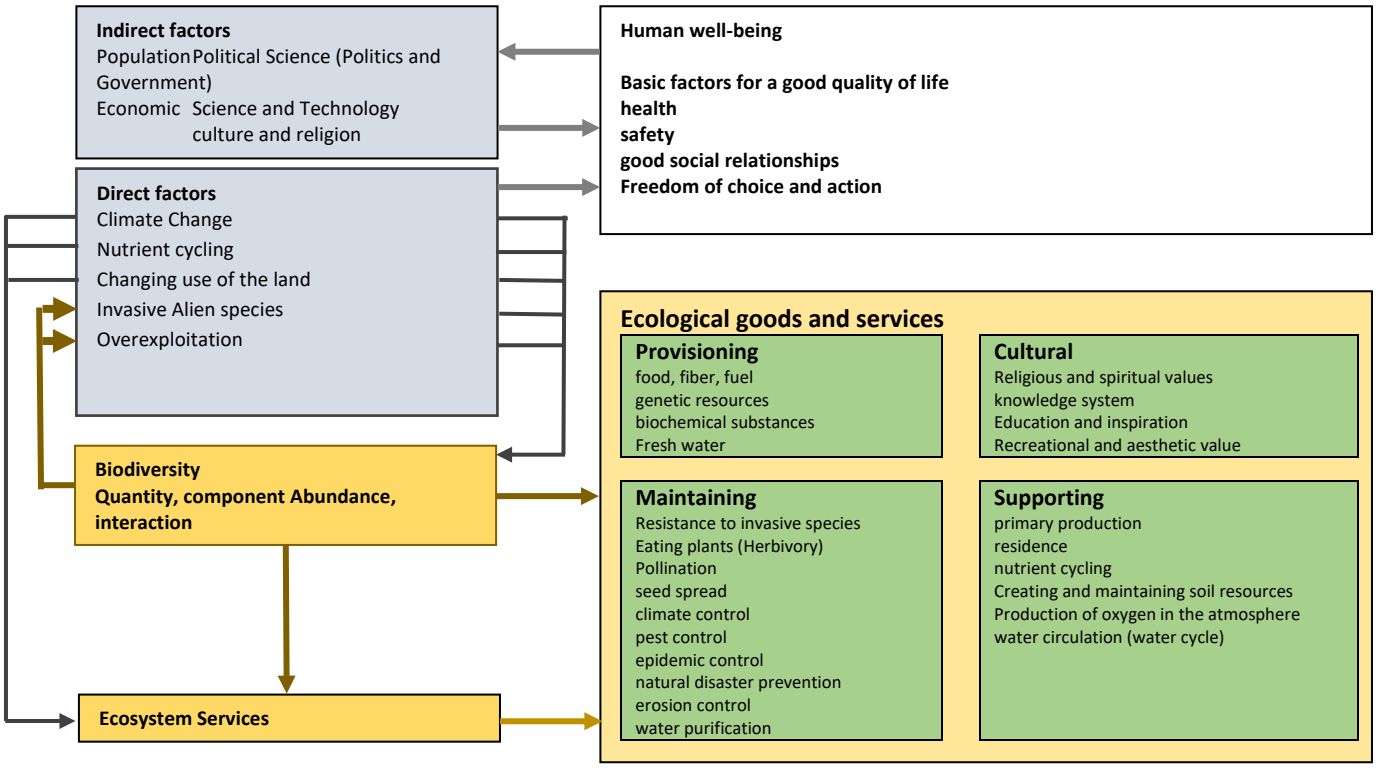
1 1) TM_KK Marble mining project
and industrial minerals such as limestone
To make lime (Limestone mining concession
number 32517/16065)
351 Village No. 1, Na Phra Lan Subdistrict
Chaloem Phra Kiat District, Saraburi Province



3. Definitions

Biodiversity, as defined by the International Union of Conservation or Nature and Natural Resources (IUCN), means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. This includes variation in genetic, phenotypic, phylogenetic, and functional attributes, as well as changes in abundance and distribution over time and space within and among species, biological communities and ecosystems.

Diagram 1: Biodiversity, ecosystem roles, ecosystem services, and Influencing factors



Biodiversity is affected by various factors that drive change and are part of the factors that cause changes in the role of ecosystem functions and directly and indirectly support the production and services of ecosystems. Ecosystem analysis and assessment is divided into 4 main types:

- provisioning, (products obtained from the ecosystem)
- Cultural services (non-material benefits from ecosystems)
- Regulating (benefits arising from controlling ecosystem processes) and
- Supporting services (services required for other services)

The first two types are directly related to human well-being.

Source of data from Figure 1 : From the World Vision Biodiversity Report (No.) CBD convention on Biodiversity:

Prepared by the Secretariat of the Convention on Biological Diversity, translated by the Office of Natural Resources and Environmental Policy and Planning / http://lib.mnre.go.th/lib/report/lokkatas2.pdf

vocabulary	Definition
Biodiversity Check	Studying the linkage of business operations with impacts on biodiversity and ecosystems to identify potential risks or opportunities that will lead to the development of corporate activities that take into account the sustainable use of natural resources.
Biodiversity Ecosystem Services Management (BES)	Actions to reduce impacts on biodiversity values and ecosystem services, such as conservation and protection of biodiversity, management and restoration of degraded areas, prevention of water, air and soil pollution, restoration of habitats for diverse species and restoration of habitats of various species to maintain their integrity.
Biodiversity	Diversity of life in various ecosystems, such as forest ecosystems, marine ecosystems and freshwater ecosystems, and also includes the ecological complexity of living things, including species diversity, species differences and ecosystem diversity (according to the Convention on Biological Diversity).
The value of biodiversity	The inherent value of biodiversity at the genetic, species and ecosystem levels that are beneficial to humans. The value of biodiversity depends on its ecological status, rarity and human use.
Risk to biodiversity **Biodiversity Risk Assessment**	The degree of direct and indirect impacts on biodiversity values. Risk to biodiversity depends on the threats posed, such as impacts on species, habitat destruction and degradation.
Biodiversity Action Plan: BAP	Action plans to help control potential impacts in areas of high biodiversity risk
Ecosystem services or ecosystem services **Ecosystem Services**	Ecosystem resources and processes that support and benefit human activities, including production services (services provided by nature) such as food, energy and water; environmental regulation services (services created by nature) such as flood and drought protection and climate regulation; cultural services (non-material services); and services that support ecological processes such as soil formation and nutrient cycling. / *See details in* ***Chart 1.***

vocabulary	Definition
Habitat	The environment and ecological area that is a habitat for a particular species and is an area that supports the development of the life cycle of that species. This includes the physical conditions and surrounding environment of that area that cause the development of each species and their reproduction.
Protected Area/Conservation Area	An area that has been declared to have legal protection because it is an area of high ecological, economic and cultural value. This protected area includes marine protected areas that have been declared as important marine resources and biodiversity conservation areas (IUCN) Category I-VI. Divided into 6 types Category I. Strict Nature Reserve (1a: Strict Nature Reserve 1b: Wilderness Area): Managed strictly for biodiversity conservation. Serves as reference sites for research and monitoring. Human visitations and impacts are highly regulated. Type II. National Park : Large natural areas set aside for protection of biodiversity and ecosystem processes. Also managed to support human activities (spiritual, education, scientific, recreation) compatible with biodiversity protection. Category III. National monument of feature: Managed to protect a natural feature (e.g. seamount, geological feature, ancient grove) with outstanding cultural and/or natural significance. Can cover a small area, and often have high visitor value. Type IV. Habitat/species management area: Protected area dedicated to the protection of a specific species of habitat. May at times required regular and active intervention to ensure primary management goals are met. Category V. Protected landscape/seascape: An area with a significant natural or cultural value, created by the interaction between people and nature. Managed to safeguard the interactions that sustains the area's value. Often act as model for sustainability Type VI. Managed-resource protected area: Managed primarily for the low-level, non-industrial, sustainable use of natural resources. Generally large, with most of its ecosystems intact.

4. Strategy, objectives and guidelines

Strategy and Objectives		Guidelines
4.1)	Develop a policy and guidelines for biodiversity implementation to demonstrate the intention to drive biodiversity management and set a framework for implementation to be integrated as part of SUTHA 's sustainability implementation framework. (Biodiversity Policy)	Develop policies and guidelines for submission to the board meeting for approval and communication to internal stakeholders and key stakeholders.
4.2)	A biodiversity check is conducted to study the linkages between business operations and impacts on biodiversity and key ecosystems in order to develop principles and methods that are in line with international standards, and to operate in a business context and reduce impacts on biodiversity. Business opportunities can be created from implementing biodiversity activities annually or as appropriate.	Develop assessment forms and reports on biodiversity assessments in accordance with standards that can create knowledge and understanding and are appropriate for the business context.
4.3)	Establishing the restoration plans according to plans and measures to prevent and mitigate impacts from land or resource use.	There is a plan to manage the environmental restoration of the concession area according to the plan and there is an arrangement or participation in annual activities to promote and develop positive biodiversity.
4.4)	In the event of a product development project or investment project that has a new location, conduct an inspection to avoid conducting business or investing in the area/project/process located in an area protected under the definition of IUCN [2.]	Biodiversity audits are underway for new projects
4.5)	Collaboration with external organizations to create positive biodiversity or engagement with stakeholders in management, promotion of green space increase and promotion of sustainable ecosystems.	Develop an annual activity plan that is consistent with the context of biodiversity operations and consider participating in activities to contribute to positive biodiversity management operations.
4.6)	Review to monitor compliance with laws, regulations and mandatory standards related to biodiversity and forests.	By communicating to the relevant responsible persons of both the company and subsidiaries to jointly monitor the laws, rules and regulations related to be aware of trends and if there are any changes, to be able to proceed in accordance with and in accordance with the law.

Strategy and Objectives		Guidelines
4.7)	Land use management and operational/factory area management are in place to avoid and minimize impacts on biodiversity.	There is monitoring and control of impacts from the process and assessment of impacts from water and natural resource use, related risks, which are in accordance with the important location.
4.8)	In cases where significant biodiversity risks are identified in the assessment, a " tiered mitigation" approach is applied, ranging from avoiding the severe impacts, minimizing the impacts by improving operations, restoring and compensating for the losses .	Biodiversity risks are assessed and, where significant risks are identified, strategic plans are implemented as appropriate.
4.9)	Integrating opportunities from biodiversity value as part of SUTHA 's business growth marketing base	Business and marketing development to support growth and demand for products to reduce environmental impact or to create a positive impact on biodiversity.
4. 10	Sufficient studies and data collection are conducted, and communication channels and disclosure of biodiversity management information are provided in accordance with appropriate standards.	Sending relevant personnel to attend training courses to develop knowledge on biodiversity and collecting and compiling data to be able to communicate for training, creating knowledge and understanding about biodiversity, including communicating about biodiversity to directors, executives, employees and relevant stakeholders appropriately.

5) Target and indicators

Monitoring progress in biodiversity action to jointly develop and drive positive biodiversity, SUTHA has set the following targets:

Biodiversity Target		Resources	Indicators
	Biodiversity Check /1 Core production Area assessed every 3 years / or as appropriate or when there is a new project or property or there is a significant change.	- Registration area, factory operating license - Location map, main activities - Environmental Audit Checklist - Animal and plant conservation account information and registration of conservation areas, forest reserves or important heritage sites in each area	- Distance between 1 , 5, 10, 20, 25 km. from the protected area
	A process/project that restores biodiversity or restores the environment from the results of operations and use of land or resources according to the rehabilitation plan of the project or area specified in accordance with environmental management measures.	- Number of projects with annual implementation plans - Implementation of the plan	- Percentage of plan implementation
	Area/project/process located in an area protected by IUCN /2 definition. (project)	- Site inspection That is in the distance According to the specified criteria	- Number of projects or establishments located within a distance from the protected area
	Collaborating with external organizations to create positive biodiversity or engaging stakeholders in management, promoting the increase of green spaces and promoting sustainable ecosystems.	- Plans and activities related to the promotion of biodiversity, environmental impact mitigation, or related matters.	- Number of projects - Expenditure budget - Benefits received
	Integrate by managing impacts on biodiversity and create opportunities from biodiversity value from products to reduce environmental impacts.	- Sales volume of products in groups that promote the environment, agriculture, food and the promotion of good life	Proportion of sales of environmentally friendly products and products that promote sustainable living
	Sufficient information is available and communication and disclosure of biodiversity management information are provided in accordance with appropriate standards.	- Preparation of biodiversity assessment reports - Disclosure of biodiversity performance data - Channels for receiving complaints regarding violations related to biodiversity	- Complaints related to biodiversity and complaints about business process impacts - Sustainability assessment results on biodiversity operations

6) Methodology

SUTHA has established a Biodiversity Check to assess the responsibility of related businesses, including the assessment of risks and opportunities for businesses that rely on ecosystem services, and the determination of measures to reduce impacts or compensate for the impacts on biodiversity.

How to proceed

6.1. Assessment of risks and impacts on biodiversity

The Company has analyzed from the project that locates the main business assets according to the scope, with details as follows:

6. 1.1 Importance of the location and distance from protected or conserved areas by surveying the location of the property, its distance or not under protected areas and areas with high biodiversity such as national parks, wildlife sanctuaries , forest parks, non -hunting areas, marine and coastal protected areas .

6. 1.2 Assessment of dependence on ecosystem services, freshwater resources , use of natural resources or assets, such as land, minerals, energy and fuels.

6. 1.3 Assessment of plant and animal species on the IUCN Red List in the specified areas within the scope of the provinces where the survey was conducted.

6.1.4 Water stress in the area and the risk of water shortages (From tools and from areas and business impacts)

6. 1.5 Pollution from business processes and there are measures to monitor and control and inspection from certified external agencies.

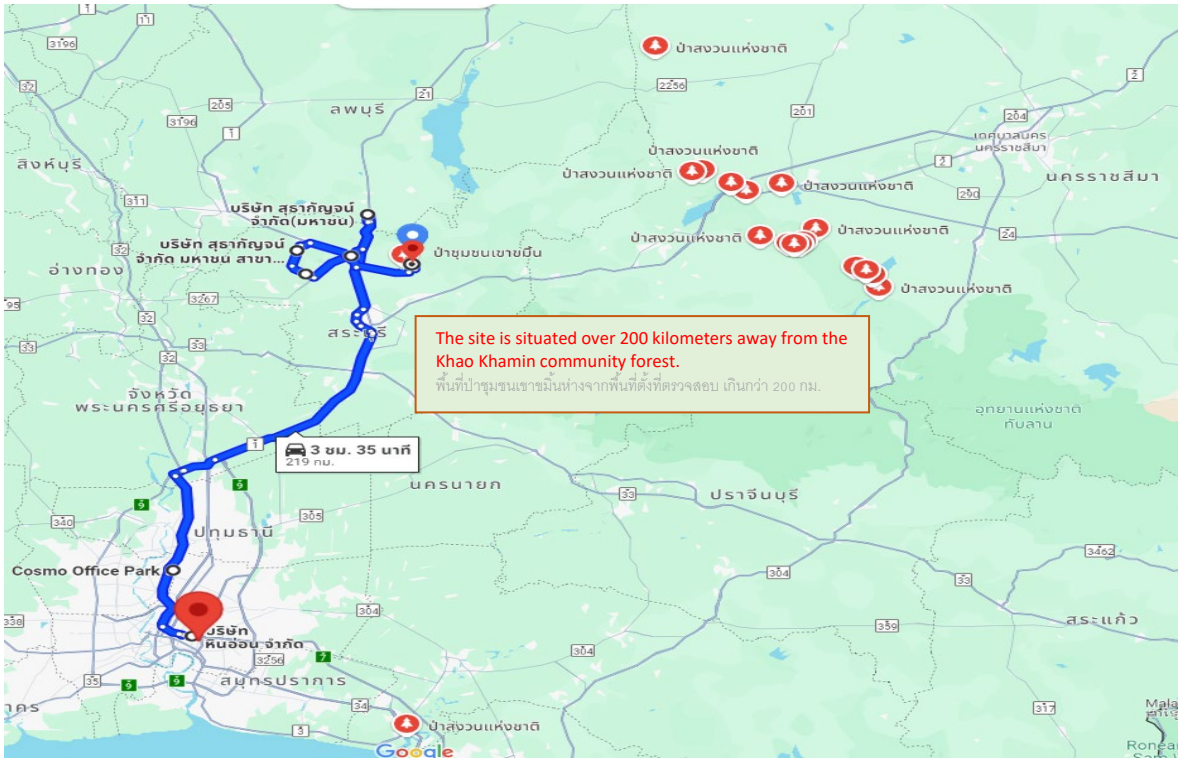
6. 1.6 "Hierarchical mitigation" measures ranging from avoiding severe impacts, minimizing impacts by improving operations, restoring and compensating for losses.

6.2. Assessment for linkages between businesses related to natural diversity

Establish guidelines for biodiversity assessment from self-assessment to assess business responsibility according to assessment guidelines related to biodiversity by applying guidelines from the assessment form. From the manual produced by the Biodiversity-Based Economy Development Office (Public Organization) _BIOdiversity -Based Economy Development Office (Public Organization)_BEDO for self-assessment That has been published

6. 1) Assessment of risks and impacts on biodiversity

6. 1.1 Importance of the location and distance from protected or conserved areas



Distance from protected area

Distance 1 km. (Very High) , distance 5 km. (High) , Distance 10 km. (Medium), Distance 25 km. (Low), Distance 50 km. (Very low), Distance greater than 50 km (Non-Impact)

Evaluation results : Non - Impact

The survey conducted on the locations of assets utilized for primary business operations and production processes, which engage with the ecosystem and resource utilization, has identified a total of 11 sites, including head offices and branches. Notably, all 11 sites, encompassing both factory locations and areas designated for limestone and marble quarrying, are situated at a considerable distance from national forest reserves, with the nearest reserve being over 200 kilometers away. Furthermore, these locations are not situated within protected areas or regions characterized by high biodiversity, such as national parks, wildlife sanctuaries, forest parks, non-hunting zones, marine and coastal protected areas, or any areas that may be adjacent to or potentially impact biodiversity protected under international law.

6. 1.2 Assessment of dependence on ecosystem services, fresh water sources , use of natural resources or assets, such as land. mineral Energy and fuel

Biodiversity Check	The connection between dependencies on nature and nature-related risks and opportunities-impact pathways Business processes that rely on natural resources and their linkage to risks and opportunities that affect nature		
	Located in the Protection Area	Freshwater	Fundamental environmental assets used in process
Project	Risk at location In the area, protected	Dependence on Ecosystem Services	Basic environmental assets used in the process
1) GL_HQ (rental area)	**None-Impact**	Central tap water Unable to store data	(Rental Area), energy Rental space, electricity
2) GL_CS	**None-Impact**	Subterranean freshwater /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources Use of land, use of raw materials from limestone quarry (location No.1 1) and procured limestone, electric power, thermal power (coal), solar power in electricity production, Use of fuel in the transportation process
3) GL_HW	**None-Impact**	Subterranean freshwaters /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources Use of land, use of raw materials from limestone quarry (location No.1 1) and procured limestone, electric power, thermal power (coal), solar power in electricity production, Use of fuel in the transportation process
4) GL_PB	**None-Impact**	Subterranean freshwaters /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources Use of land, use of raw materials from limestone quarry (location No.1 1) and procured limestone, electric power, thermal power (coal), solar power in electricity production, Use of fuel in the transportation process
5) GL_SOLAR	**None-Impact**	Subterranean freshwaters /(1) SF1 Fresh water from underground sources	Land and energy (Solar) Uses solar energy
6) TM_HQ (rental area)	**None-Impact**	Central tap water Data storage not possible.	(Rental Area), energy Rental space, electricity
7) TM_Marble	**None-Impact**	Subterranean freshwater /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources Land use, marble minerals, electric power, fuel oil, transportation processes
8) TM_TK	**None-Impact**	No water consumption No water consumption	The renewal of the marble quarry license is currently underway.
9) TM_GCC	**None-Impact**	Subterranean freshwaters /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources Use land, use raw materials from marble mines (location No.10) , electric power, fuel in the transportation process.
10) TM_Marble	**None-Impact**	Subterranean freshwaters /(1) SF1 Fresh water from underground sources	Land, Mineral and Energy Resources land, to produce minerals from limestone and marble, electricity, fuel in the transportation process.
11) TM_KK	**None-Impact**	Surface water in the area includes water from reservoirs and is treated using natural sedimentation techniques.	Land, Mineral and Energy Resources land, to produce minerals from limestone and marble, electricity, and fuel in the transportation process.

Note / 1) Refer to the environmental assets and ecosystem services account from the document.
Guidance on the identification and assessment of nature-related Issues: The TNFD LEAP approach Version 1.1 October 2023 P.51
(Reference IUCN Global Ecosystem Typology with reference lists of environmental assets and ecosystem services)

6. 1.3 IUCN Red List survey

The Company has gathered information on endangered species in Thailand, specifically from the Coordination Office of Natural Resources and Environmental Management and the Office of Natural Resources and Environmental Policy and Planning. This research focused solely on reports from Lopburi and Saraburi provinces. It identified two reptile species native to the limestone areas of Saraburi: the Saraburi forest tuk-kae and the Wirayut tuk-kae.

<table>
<tr>
<td>
กลุ่มสัตว์เลื้อยคลานเขาหินปูน
อำเภอพระพุทธบาท, อำเภอเฉลิมพระเกียรติ จังหวัดสระบุรี

ชื่อวิทยาศาสตร์ / ชื่อไทย : Cyrtodactylus chanhomeae ตุ๊กแกป่าสระบุรี ตุ๊กกายสระบุรี
ค่าคะแนน (ลำดับความเสี่ยงต่อการสูญพันธุ์) : 34 (สูง)
สถานภาพทางกฎหมาย : -
สถานภาพการอนุรักษ์ : CR (IUCN), CR (สผ. 2560)
สถานภาพการคุกคาม : แหล่งอาศัย (เขาหินปูน) ถูกทำลาย และการจับและส่งออกเป็นสัตว์เลี้ยง
แนวทางการจัดการ : กำหนดพื้นที่อาศัยเป็นพื้นที่คุ้มครองสิ่งแวดล้อม

ชื่อวิทยาศาสตร์ / ชื่อไทย : Gekko lauhachindai ตุ๊กแกวีรยุทธ์
ค่าคะแนน (ลำดับความเสี่ยงต่อการสูญพันธุ์) : 34 (สูง)
สถานภาพทางกฎหมาย : -
สถานภาพการอนุรักษ์ : CR (IUCN), CR (สผ. 2560)
สถานภาพการคุกคาม : แหล่งอาศัย (เขาหินปูน) ถูกทำลาย และการจับและส่งออกเป็นสัตว์เลี้ยง
แนวทางการจัดการ : กำหนดพื้นที่อาศัยเป็นพื้นที่คุ้มครองสิ่งแวดล้อม
</td>
<td>The Company has not conducted a survey of the area or identified any registered reptile species in the two locations where land is utilized, specifically those species that inhabit limestone environments.</td>
</tr>
</table>

Research conducted in Thailand Red Data list of plant species compiled by the Biodiversity Division, Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment.

Focus on the registered plant species in the Saraburi and Lopburi regions as detailed below:

Botanical name	Local name	Habit	Distribution	Habitat	Status: Endemic	Status: Criteria (Pre 1994)	Status: Criteria (1994-2001)	Page no.
Cycas tansuchana K.D. Hill & S.L. Yang.	—	S	C Thailand: Saraburi.	On limestone, mixed deciduous forest, low altitudes.	+		VU	50
Saraburi area, Cycas sajjan tree found on limestone, mixed deciduous forest								
Wrightia strikitiae D.J. Middleton & T. Santisuk	ไมกราชินี	S/T	N, C & SE Thailand: Nakhon Sawan Saraburi, Low Buri, Sa Kaeo.	Mixed deciduous forest, limestone hills, low altitudes.	+		VU	60
Saraburi area, mixed deciduous trees, lowland limestone mountains								
Balsaminaceae								66
Impatiens calcicola Craib	เทียนป่า	H	N, C & SW Thailand: Phitsanulok (Thung Salaeng Luang, Saraburi (Muak Lek), Ratchaburi.	On limestone, mixed deciduous forest, 200-250 m.	+	R		
Impatiens charanii T. Shimizu	—	H	C Thailand: Saraburi (Phra Bat).	On limestone, mixed deciduous forest, 200-300 m.	+		VU	
Saraburi area, Phra Bat on limestone mixed with deciduous forest								

Botanical name	Local name	Habit	Distribution	Habitat	Status: Endemic	Status: Criteria (Pre 1994)	Status: Criteria (1994-2001)	Page no.
Impatiens noei Craib	—	H	N, C & SW Thailand: Phitsanulok (Thung Salaeng Luang), Saraburi, Prachuap	Dry evergreen forest.	+	R		68
Saraburi area on mixed limestone								
Santisukia kerrii (Barnett & Sandwith) Brummit	แคสันติสุข	T	N, NE, & C Thailand: Nakhon Sawan, Khon Kaen, Saraburi.	On limestone, mixed deciduous forest, low altitudes.	+		VU	74
Santisukia pagetii (Craib) Brummit	กาญจนิกา	T	C & SW Thailand: Saraburi, Kanchanaburi, Prachuap	On limestone, mixed deciduous forest, low	+	R		
Dry evergreen forest area, Saraburi								
Zehneria sphaerosperma W.J. de Wilde & Duyfjes	—	HC	C Thailand: Saraburi.	On limestone, mixed deciduous forest, 100 m.	+		VU	83
Saraburi area, dry evergreen forest on mixed limestone								
Diospyros gracilis Fletcher	มะเกลือกา	T	C & E Thailand: Saraburi, Lop Buri, Nakhon Rtchasima, Sa Kaeo.	Mixed deciduous and dry evergreen forests, to 300 m.	+	R		90
Saraburi, Lopburi, Nakhon Ratchasima, Sa Kaeo areas, deciduous trees and dry trees in tropical rainforests								
Euphorbiaceae *Acalypha delpyana* Gagnep.	ขางปอยตัวเมีย	S	Laos, Cambodia, C Thailand: Saraburi.	Dry evergreen forest, wet areas, low altitudes.	—	R		94
Saraburi area, low elevation area								
Plectranthus albicalyx S. Suddee	กะเพราหินปูน	H	NE, C & SW Thailand: Khon Kaen, Saraburi, Kanchanaburi,	On limestone, mixed deciduous and dry evergreen forests,	+	R		123
Saraburi area, mixed deciduous trees								
Magnolia sirindhoniae Noot. & Chalermglin	จำปีสิรินธร	T	C Thailand: Lop Buri (Sap Champa).	Fresh water swamp forest.	+		VU	135
Lopburi area, freshwater peat swamp forest								
Phyllagathis siamensis Cellinese & S.S. Renner	—	H	C Thailand: Saraburi (Sam Lan), Nakhon Nayok (Sarika).	Mixed deciduous forest, 200 m.	+	R		138
Stephania suberosa Forman	บอระเพ็ดพุงชาง	C	N & SW Thailand: Saraburi, Kanchanaburi.	Mixed deciduous forest, limestone, 400 m.	+	R		141
Jasminum calcicola Kerr	เสี้ยวดิน	C	N, C, SW & Pen Thailand: Lampang, Kanchanaburi, Lop Buri and Narathiwat.	Mixed deciduous and dry evergreen forests, limestone, 100-900 m.	+	R		154
Lopburi area, mixed deciduous and dry trees, limestone evergreen forest								
Gardenia saxatilis Geddes	ปัดหิน	S	NE & E Thailand: Chaiyaphum, Nakhon Phanom, Mukdahan, Saraburi.	Dry evergreen forest, 100 m.	+	R		165
Lindernia rivularis Kerr ex Barnett	หญ้าริมธาร	H	C & SW Thailand: Lop Buri (Sub Champa), Kanchanaburi (Sai Yok).	Fresh water swamp forest.	+	R		176
Lindernia satakei Yamazaki	ผักชีพระพุทธบาท	H	C Thailand: Saraburi (Phra Phuthabat).	Mixed deciduous forest, limestone.	+	R		
Lopburi freshwater swamp forest area, Phra Phutthabat limestone								

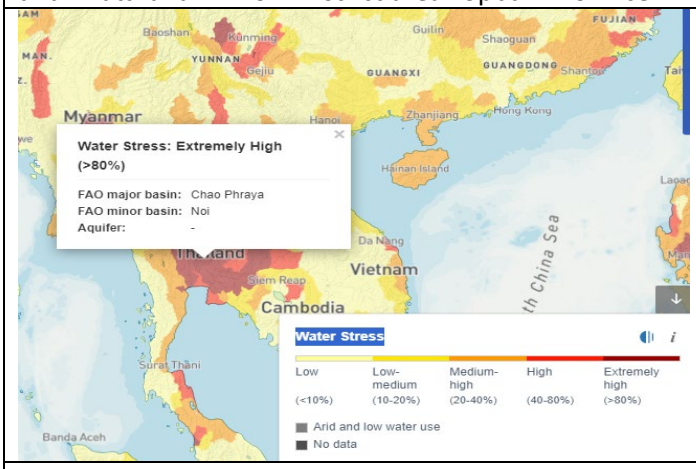
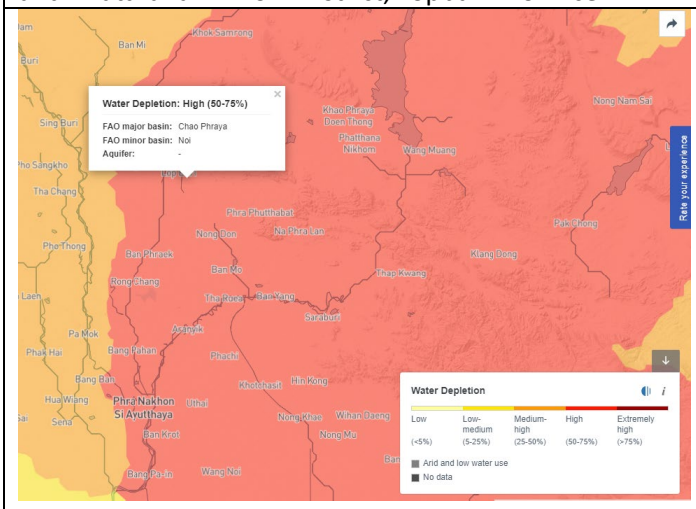
Botanical name	Local name	Habit	Distribution	Habitat	Status: Endemic	Status: Criteria (Pre 1994)	Status: Criteria (1994-2001)	Page no.
Tiliaceae								182
Burretiodendron umbellatum Kosterm.	ป่อเขา	ST	C Thailand: Saraburi (Muak Lek).	Dry evergreen forest, limestone.	+	R		
Amorphophallus scutatus Hett. & T.C. Chapm.	บุก	H	NE & C Thailand: Phetchabun, Saraburi.	Mixed deciduous forest, limestone.	+	R		186
Typhonium medusae Mett. & Sookchaloem	—	H	C Thailand: Lop Buri.	Mixed deciduous forest, limestone scrub, low altitudes.	+	R		189
Typhonium orbifolium Mett. & Sookchaloem	—	H	C Thailand: Lop Buri.	Mixed deciduous forest, limestone scrub, low altitudes.	+	R		
Typhonium sagittarifolium Gagnep.	—	H	C Thailand: Lop Buri, Saraburi.	Mixed deciduous forest, limestone.	+	R		
Typhonium saraburiensis Mett. & Sookchaloem	—	H	C Thailand: Saraburi.	Mixed deciduous forest, limestone.	+	R		
Saraburi area, Lopburi, mixed deciduous forest, limestone								
Typhonium echinulatum Mett. & Sookchaloem	—	HC	Thailand: Lop Buri.	Mixed deciduous forest.	+	R		188
Lopburi area, mixed deciduous forest								

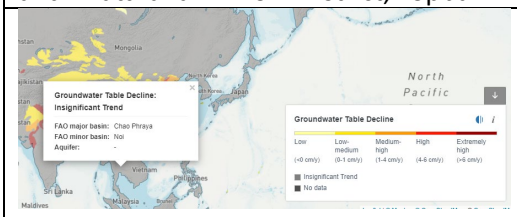
Source : Plant Threat Status Register of Thailand The assessment was conducted using the principles of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (IUCN 1994,2001) and shows the status of plants in Thailand.

Evaluation outcome : The Company has not conducted a survey in the area to assess the distribution of the mentioned plant species. In terms of production and related processes, there is no utilization of raw materials or any materials that may include species or plants listed for conservation. To reduce impact, the Company plans to utilize the data from the survey to collaborate with local agencies for future management strategies.

6.1.4 Water stress and the risk of water shortages

SUTHA has assessed the risk from the data of stress and water scarcity by applying the risk assessment tool from stress and water scarcity. Using the Aqueduct Water Risk Atlas tool 4.0 (https://www.wri.org) Developed by the World Resources Institute (WRI) , it assesses the water situation at different locations across the world's regions, with risks identified such as water scarcity risk from baseline water stress /*, riverine flood risk , and water depletion risk .

Water Stress Risk *(From Water Risk Atlas Tool)* **Freshwater stress in the area** Evaluated from the location in Phra Phutthabat District, Saraburi Province and Phatthana Nikhom District area Lopburi Province	**Risk Level: Extremely high**
	/* Water stress refers to areas where water is used from freshwater sources. Research indicates that regions in Phra Phutthabat District, Saraburi Province, and Phatthana Nikhom District, Lopburi Province, experience elevated stress levels and a significant risk of water shortages. The majority of these areas rely on fresh water sourced from underground sources.
Water Depletion Risk (From Water Risk Atlas Tool) **Risk of water shortages** Evaluated from the location in Phra Phutthabat area, Saraburi Province and Phatthana Nikhom District, Lopburi Province	**Risk Level: High**
	Evaluate the total water use rate in the area with available renewable water sources (Water Depletion) Water Depletion Description: Baseline water depletion measures the ratio of total water consumption to available renewable water supplies. Total water consumption includes domestic, industrial, irrigation, and livestock consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate larger impact on the local water supply and decreased water availability for downstream users. Baseline water depletion is similar to baseline water stress; however, instead of looking at total water demand (consumptive plus nonconsumptive), baseline water depletion is calculated using consumptive withdrawal only The analysis of the chosen method revealed that regions in the Phra Phutthabat District of Saraburi Province and the Phatthana Nikhom District of Lopburi Province face potential freshwater shortages. This evaluation considers the overall water consumption in these areas alongside the availability of renewable water sources, which are deemed to be at high risk.

Ground water Table Decline Risk (From Water Risk Atlas Tool) **Risk of falling groundwater levels** Evaluated from the location in Phra Phutthabat area, Saraburi Province and Phatthana Nikhom District, Lopburi Province	Insignificant Trend
	Decreasing groundwater levels Groundwater Table Decline Description: Groundwater table decline measures the average decline of the groundwater table as the average change for the period of study (1990–2014). The result is expressed in centimeters per year (cm/yr). Higher values indicate higher levels of unsustainable groundwater withdrawals. The analysis of the chosen method revealed that groundwater levels in Phra Phutthabat District, Saraburi Province, and Phatthana Nikhom District, Lopburi Province, were identified. The evaluation showed a decline in groundwater levels, but no significant risk was observed.

- Risk **and impact assessment on water shortage in SUTHA 's business processes :** The Department of Groundwater Resources, under the Ministry of Natural Resources and Environment, has released a report based on a survey of groundwater sources in Phatthana Nikhom District. This report compares the survey data with published sources to evaluate water use stress, which refers to the ratio of water withdrawal to the total available water in the area. It also assesses the availability of fresh water for local use and maps potential water-related risks for SUTHA's operations. The findings indicate that SUTHA is not significantly impacted by water resource shortages. This conclusion aligns with the groundwater depletion assessment from the Ground Water Table Decline Risk (Water Risk Atlas Tool), which shows that groundwater depletion levels are not significantly reduced. The Lopburi Province benefits from surface water due to local rainfall and water storage from the Pasak Jolasid Dam, as well as overflow from the coast, all of which contribute to groundwater replenishment.

1.5 Pollution from business processes, monitoring and control measures, and inspections from certified external agencies, management plans and guidelines.

Location	The connection between dependencies on nature and nature-related risks and opportunities-impact pathways Business processes that rely on natural resources and their linkages to risks and opportunities that affect nature		
	Impact of business processes Impact of business processes	Biodiversity Action Plans (BAPs) in Operation / or Location Measures to reduce and control impacts from processes that may affect biodiversity.	Indication (Number of Complaints) Addition management to reduce the impact in case the complaint
1) GL_HQ	GHG Scope 3 Daily Commute of executives and employees	Virtual meetings, integration of corporate and subsidiary offices to minimize travel, and waste management practices.	None
2) GL_CS	GHG Scope 1, 2, 3 and Dust Pollution	Managing processes in line with ISO 14001 environmental standards and ISO 45001 occupational health and safety involves several key actions. These include investing in solar energy systems, gathering and verifying GHG Scope 1 and 2 data, and registering carbon offsets. Additionally, certified auditors conduct annual assessments of air quality, noise levels, and overall environmental conditions. Effective waste management, minimizing GHG emissions from Scope 1 and 2, reducing groundwater consumption, implementing water recycling practices, managing resources efficiently, and utilizing renewable energy sources are also essential components of this approach. Environmental impact assessment is conducted in accordance with environmental quality analysis standards and methods. Including environmental quality measurement, air quality emitted from stacks, air quality in the atmosphere and work areas, heat in the work area, noise and lighting levels in the work area, quality of used water (not discharged outside the factory), groundwater quality, measurement of hazardous chemical concentrations, measurement and analysis of work conditions, and verification of the amount of greenhouse gas emissions by an authorized auditor / **GL Environment Monitoring.**	3 Complaints (dust) January and February 2024 Make necessary corrections and resolve existing issues. Additional modifications include: - Removing dust that has built up on the roadway and adjacent to the tree line. - Fixing leaks in the chimney. - Lowering the storage height of the material pile from the production process to a maximum of 20 meters. - Eliminating dust accumulation around the factory premises. - Planting additional trees to serve as a barrier against dust around the factory. - Clearing dust that has settled around the chimney and surrounding areas.
3) GL_HW	GHG Scope 1, 2, 3 and Dust Pollution	The process is managed in line with environmental standards such as ISO 14001 and occupational health and safety standards like ISO 45001. This includes the collection and verification of GHG Scope 1 and 2 data, testing of biomass fuels, and conducting trials. Additionally, annual assessments of air, noise, and environmental quality are performed by certified auditors. Efforts are also made to reduce groundwater usage, promote water reuse, manage resources effectively, and utilize renewable energy.	None

Location	The connection between dependencies on nature and nature-related risks and opportunities-impact pathways Business processes that rely on natural resources and their linkages to risks and opportunities that affect nature		
	Impact of business processes Impact of business processes	Biodiversity Action Plans (BAPs) in Operation / or Location Measures to reduce and control impacts from processes that may affect biodiversity.	Indication (Number of Complaints) Addition management to reduce the impact in case the complaint
		Environmental impact assessments are carried out following established standards and methods for analyzing environmental quality. This includes measuring environmental quality, assessing air quality from emissions, evaluating atmospheric and workplace air quality, monitoring heat levels in work areas, and measuring noise and lighting conditions. Additionally, it involves analyzing the quality of water used (not released outside the facility), checking groundwater quality, assessing work conditions, and verifying greenhouse gas emissions by a certified auditor. / **GL Environment Monitoring.**	
4) GL_PB	GHG Scope 1, 2, 3 and Dust Pollution	The process's impact is managed in line with environmental, safety, and occupational health standards. Gather GHG Scope 1 and 2 data and perform yearly audits and measurements for air, noise, and environmental quality by certified bodies , minimizing groundwater consumption, reusing water, managing resources effectively, and utilizing renewable energy.	1 Complaint (dust) -Manage the operation system for clearing dust or materials from the process that must be transported and stored after 4:00 p.m. at one time per day to reduce the chance of dust spreading.
		Environmental impact assessments are carried out in compliance with established standards and methodologies for environmental quality analysis. This process encompasses the measurement of various environmental quality indicators, including emissions from stacks, atmospheric and workplace air quality, thermal conditions in work areas, as well as noise and lighting levels. Additionally, it involves the assessment of water quality used within the facility (ensuring no discharge occurs outside the premises), the quality of groundwater, the evaluation of working conditions, and the verification of greenhouse gas emissions by a certified auditor. / **GL Environment Monitoring.**	
5) GL_SOLAR	-	GHG Scope 1 and 2 data are collected and verified.	None
6) TM_HQ	GHG Scope 3 Daily Commute of executives and employees	Online meeting arrangement	None
7)TM_Marble	GHG Scope 1, 2 and 3 (Note3)	Annual Noise and Environmental Quality Monitoring by certified authorities, Water Recycling, Resource Management	None
		Monitoring is conducted regarding the prevention and mitigation of environmental impacts, as well as the measures for monitoring these environmental effects. / **TMC Environment Monitoring.**	
8)TM_TK	-	-	do not have
9)TM_GCC	GHG Scope 1, 2 and 3 (Note3) Dust Pollution	Annual Noise and Environmental Quality Monitoring by certified authorities, Water Recycling, Resource Management	do not have
		Monitoring is conducted regarding the prevention and mitigation of environmental impacts, as well as the	

Location	The connection between dependencies on nature and nature-related risks and opportunities-impact pathways Business processes that rely on natural resources and their linkages to risks and opportunities that affect nature		
	Impact of business processes Impact of business processes	Biodiversity Action Plans (BAPs) in Operation / or Location Measures to reduce and control impacts from processes that may affect biodiversity.	Indication (Number of Complaints) Addition management to reduce the impact in case the complaint
		measures for monitoring these environmental effects. / **TMC Environment Monitoring.**	
10) TM_Marble	GHG Scope 1, 2 and 3 (Note3)	Annual Noise and Environmental Quality Monitoring by certified authorities, Water Recycling, Resource Management, Tree Planting for Restoration	do not have
		Monitoring is conducted regarding the prevention and mitigation of environmental impacts, as well as the measures for monitoring these environmental effects. / **TMC Environment Monitoring.**	
11)TM_KK	GHG Scope 1, 2 and 3	GHG Scope 1 and 2 data collection and Annual Noise and Environmental Quality Monitoring by certified authorities, Water Recycling, Resource Management, Tree Planting for Restoration	None
		Monitoring is conducted regarding the prevention and mitigation of environmental impacts, as well as the measures for monitoring these environmental effects. / **TMC Environment Monitoring.**	

Note:

1) **GL Environment Monitoring** / The Environmental and Resource Development Company Limited oversees monitoring activities. It is a licensed and registered private analytical laboratory under the Department of Industrial Works, Industrial Pollutions Warning and Research Division, Pollution Analysis Standard and Laboratory Group. This company conducts inspections and assessments assigned by authorized agencies or laboratories and is responsible for preparing the necessary reports.

2) **TMC Environment Monitoring** / Top-Class Consultant Co., Ltd. holds the authorization and certification under license no. 30/2021, as per Section 16 of the National Environmental Quality Promotion and Conservation Act B.E. 2518, granted by the National Environment Board, Office of Natural Resources and Environmental Policy and Planning. The company is tasked with conducting and assigning inspections and assessments from authorized agencies or laboratories, as well as preparing the necessary reports.

3) **GHG data collection of Golden Lime PLC** by SGS (Thailand) Limited excluding the Thai Marble Company Limited (subsidiary)

1.6 Biodiversity mitigation hierarchy The hierarchy follows avoidance, minimization, restoration and offsets in order to reduce development impacts and control any negative effects.

Risk / Impact	mitigation hierarchy: avoidance, minimization, restoration and offsets
Freshwater sources used in the production process Water Stress Risk and Water Depletion Risk By the Aqueduct Water Risk Atlas 4.0 tool (Tool: https://www.wri.org) developed by the World Resources Institute (WRI). The risk level and opportunity of freshwater shortages in Saraburi and Lopburi areas were found to be high.	1) Develop guidelines for managing water resources and implement strategies to oversee water usage, enhance water recycling, and minimize water consumption. 2) The issue of freshwater scarcity due to limited tap water availability has been mitigated by obtaining authorization to access underground freshwater sources from the Department of Groundwater Resources. Requests have been made to drill artesian wells in various locations to serve as a freshwater supply for both consumption and production needs. 3) Ensure the provision of drinking water that complies with consumption standards as a benefit for employees, while also supporting local drinking water preferences, which are vital for public services, including distribution to community service points or agencies. 4) Water management practices are aligned with the principles of a circular economy, focusing on reducing water consumption, enhancing the use of recycled water, and improving the system for storing used water in lime sedimentation ponds for future reuse. 5) Establish preventive strategies to ensure that high-alkalinity water from the production process is not released into the environment. 6) Equipment has been upgraded with technology designed to decrease water usage during the production process.
Dust pollution	In addition to setting up equipment for pollution control, ISO international management standards serve as a framework for management practices. - Comply with applicable environmental laws and regulations. - Conduct environmental quality assessments as mandated by law. - Implement closed systems for operations that may produce dust and noise. - Install a water spray system to manage dust in raw material storage areas and to clean truck wheels. - Set up a Slan installation as a dust protection measure. - Use water spraying and cleaning methods to minimize dust accumulation on the Slan, trees, and the factory's surrounding areas. - Establish a cover system to shield moving or transporting points to limit dust dispersion. - Regularly inspect and repair any parts of the process system and machinery that could be damaged, leading to dust leaks or spread. - Plant trees strategically to mitigate dust around the factory. - Utilize solar energy to address environmental issues. - Manage resources effectively. - Reuse renewable resources. - Designate a responsible individual and management system, including structured measures to address issues and complaints promptly. https://www.goldenlime.co.th/environment-management
Carbon emissions	- Establishing policies for effective Climate Change management. - Investing in solar power generation to enhance carbon offsetting. - Monitoring greenhouse gas emissions to identify reduction strategies. - Defining goals and executing initiatives to lower greenhouse gas emissions related to resource and energy management. - Expanding green areas and encouraging community involvement in tree planting efforts that aid in carbon sequestration.
Change in utilizing land	- Control and supervision are in place to ensure proper compliance with laws and taxes. - Management to comply with the Biodiversity Action Framework - proper land use management.

Risk / Impact	mitigation hierarchy: avoidance, minimization, restoration and offsets
	- Implementation of the plan for prevention and management of impacts, including monitoring of operations to ensure compliance with standards and compliance with relevant laws. - Tree planting plans are being implemented, with trees being planted in planned areas to offset land use from mining processes. - Monitoring is carried out to assess environmental quality according to specified criteria and standards. - Processed water is controlled to prevent it from being discharged into public water sources. - The quality of processed water and water quality from underground sources are monitored.
The utilization of natural resources	- Adherence to applicable laws and regulations has been confirmed, along with the complete and accurate payment of all associated fees. - Resource utilization is being managed to ensure maximum benefit, with process controls established to address environmental, safety, and occupational health considerations. - Efforts are underway to explore and secure sufficient reserves to fulfill the production plan. - Sustainability development is being implemented.

6.2 . Assessment for linkage between businesses to natural diversity

Assessment of Biodiversity Business Responsibility by Applying the Self-Assessment of Biodiversity from the Assessment Form from the Manual Produced by the Biodiversity-Based Economy Development Office (Public Organization) _Biodiversity -Based Economy Development Office (Public Organization) _BEDO

Self-Assessment of Biodiversity Form
Assessment of Biodiversity Business Responsibility
Golden Lime Public Company Limited

1) Strategy/Organization Management

Question Point	answer		Source of information	note
	Yes	No		
1.1 Does the organization consider biodiversity to be important to the environment/operations of the organization?	Yes		https://www.goldenlime.co.th/Managing_biodiversity	
1.2 Is biodiversity/ecosystem services used in the development of the organization's products/production processes?	Yes			Fresh water from underground sources Raw materials from natural minerals
1.3 Is there a management system in place in the organization, and what are they?	Yes			
reply ISO9001, ISO14001, ISO45001, Internal Control, Corporate Governance, Risk Management, Sustainability Management			https://www.goldenlime.co.th/Supply_chain_management	
1.4 Does the organization regularly monitor/assess the impact of its operations on biodiversity?	Yes		https://www.goldenlime.co.th/Managing_biodiversity	
1.5 Is it possible that the organization's operations will have a consistent impact on biodiversity?		No		No complaint regarding biodiversity violations.
1.6 Does the organization have a plan for equitable access and sharing of benefits arising from the use of genetic resources?		No		None No use of genetic resources
1.7 Do raw material suppliers participate in the organization's biodiversity efforts?	Yes			Only some cases
1.8 Is biodiversity considered in the organization's investment budget or other organizational engagements?	Yes			In the form of activities and tree planting and implementation of impact prevention measures for both the company and subsidiaries.
1.9 What biodiversity issues does the organization consider to be a corporate risk? **reply** : There are no material biodiversity issues that pose risks to the organization.				
1.10 What biodiversity issues does the organization see as opportunities for the organization? **reply** : The lime and calcium carbonate products offered by the company possess characteristics that facilitate the mitigation of environmental impacts associated with pollution reduction in soil, air, and water. Lime exhibits significant alkaline properties, making it effective for modifying soil acidity, neutralizing water, and alleviating air pollution by sequestering gaseous contaminants and heavy metals. Additionally, it can be employed in wastewater treatment processes, as well as in the adjustment of soil and water acidity, and in capturing sulfur or waste gases prior to their release into the atmosphere.				

2) Relevant stakeholders

Question Point	answer		Source of information	note
	Yes	No		
2.1 Does the organization work on biodiversity in collaboration with other agencies at the national/international level?		No		do not have yet
2.2 Has the organization received support for biodiversity restoration from external agencies, and which agencies?	Yes			Forest areas for procuring certain types of seedlings for planting according to the rehabilitation plan after mining
2.3 Has the organization worked/communicated biodiversity issues to local stakeholders?	Yes			Through disclosure on the website, annual reports and participation in tree planting activities with local communities.
2.4 Has there been any feedback from stakeholders on biodiversity operations, and how has the feedback been managed?	Yes		Engaging in knowledge seminars with regulatory bodies or through initiatives organized by local agencies and applying the acquired knowledge to enhance operational practices.	

3) Land, buildings and real estate

Question Point	answer		Source of information	note
	Yes	No		
3.1.1 Does the organization own, lease or manage areas in the zone/area adjacent to protected areas or areas of high biodiversity? And what type of areas?		No		There is neither ownership nor leasing within the conservation area.
3.1.2 Does the organization have a land use plan?	Yes			
3.1.3 Is it possible that agricultural activities on the Company's land/property may affect biodiversity?		No		The ownership of land does not influence the genetic makeup of rare plant or animal species.
3.1.4 Is there any monitoring of the environmental status of the organization's land/property and the surrounding area?	Yes			Land exclusively in areas where production facilities are situated.
3.1.5 Does the organization take into account biodiversity conservation in the development of the site/construction plan/maintenance of the organization's assets?	Yes			
3.1.6 Is biodiversity included in the Environmental Impact Assessment (EIA) or Strategic Environmental Assessment (SEA) ?		No		
3.2.1 Is there a survey of common species/endangered species/rare species in the area where the organization operates?		No		Currently, there are no definitive findings; however, research is being conducted to analyze data in areas that could

Question Point	answer		Source of information	note
	Yes	No		
				be impacted, particularly those in proximity to the potential areas of concern.
3.3.1 Is it possible that the organization's management of assets may affect the migration of non-native species?		No		No impact on property management
3.4.1 Is there a possibility that the organization's activities may affect biodiversity and consequently the livelihood of nearby communities?		No		No impact activities
3.5.1 Does the organization have activities to help restore biodiversity that may be affected by land use/other natural resources?	Yes			Such as tree planting activities and activities in collaboration with external organizations.
3.5.2 Does the organization have information on energy use and greenhouse gas/carbon dioxide emissions of its assets (buildings)?	Yes			The organization's Scope 1 and Scope 2 GHGs are collected and verified.
3.5.3 Does the organization have information on water usage and wastewater generation of its property (building)?		No		Building assets are not assets that are part of core business processes.
3.5.4 Does the organization have a plan for managing water use of the property (building)?		No		
3.5.5 Does the organization have information on hazardous waste generation from its assets (buildings)?		No		There is no hazardous waste from the company's business processes.

4) Procurement of raw materials, energy, water, etc.

Question Point	answer		Source of information	note
	Yes	No		
4.1.1 Is it possible that the acquisition of raw materials or the production of the organization may affect biodiversity, and what are the implications ? A : There are some types, such as natural raw materials such as limestone, but they do not have a significant impact on natural diversity because they are not in sensitive areas.				
4.1.2 Does the organization have any biodiversity compensation/restoration activities that may be affected by the acquisition of raw materials or the organization's production?	Yes			There are initiatives that encourage the utilization of products aimed at minimizing environmental impacts, as well as tree planting efforts to enhance the ecosystem, or participation in

Question Point	answer		Source of information	note
	Yes	No		
				events organized by local agencies.
4.1.3 Are rare raw materials used in the production process or are crops grown in a system that requires high yields per unit area (Intensive Farming) ?		No		
4.1.4 Does the organization ask its suppliers about their biodiversity strategies?		No		The primary producers are subsidiaries that adhere to the same policies as the parent company.
4.2.1 Is it possible that the acquisition of raw materials may affect plant and animal species ?		No		No impact on plant and animal species
4.2.2 Are there any unusual events/accidents related to the ecosystem/environment/biodiversity recorded?	Yes			**Accidents** have been recorded (but no unusual biodiversity events have been reported).
4.2.3 Does the organization have a strategy to reduce the impact on plant and animal species?		No		Strategies for promoting environmental impact reduction
4.3.1 Is it possible that the activities of suppliers/service providers to the organization may affect the migration of non-native species ?		No		
4.4.1 Does the organization ask suppliers about their strategies to manage/avoid impacts on the livelihoods of nearby communities?	Yes			Partners are asked to complete a partner assessment form.
4.5.1 Does the organization/supplier have activities to help restore biodiversity that may be affected by the procurement process?		No		There is no impact on this risk.
4.5.2 Does the organization have information on water sources/water usage of raw material sources?	Yes			
4.5.3 Does the organization have information on the impacts on soil resulting from the acquisition of raw materials?		No		
4.5.4 Does the organization have activities to reduce water usage in raw material sources?		No		
4.5.5 Does the organization have information on wastewater treatment at raw material sources to comply with wastewater control standards?	Yes			
4.5.6 Does the organization have activities that create water balance in the organization?	Yes			Water management and water recycling
4.5.7 Does the organization have activities to reduce the amount of carbon dioxide emissions from the procurement process?	Yes			There is a reduction in the amount of electricity

Question Point	answer		Source of information	note
	Yes	No		
				purchased (Scope 2 emissions reduction).
4.5.8 Does the organization have activities to maintain/increase carbon dioxide absorption sources to reduce the impact of raw material acquisition?	Yes			There are tree planting activities.

5) Product development and production processes

Question Point	answer		Source of information	note
	Yes	No		
5.1.1 . Is it possible that production activities such as plastering, land leveling, groundwater pumping, and reforestation may have an impact on habitats? What are the implications ? **reply** : No, the company pumps groundwater through a well that is properly licensed and located in a non-residential area. The amount of water used is controlled to be within the specified amount.				
5.1.2 Is there a possibility that production processes may generate dust, shading, noise and odor? **reply** : There is a possibility of dust, noise and odor from the process, but there is a control system to comply with industrial standards and a management system to comply with environmental standards (ISO 14001) and occupational health and safety standards (ISO 45001).				
5.1.3 . Does the organization have activities to help restore habitats in/around the production area? And what is the approximate area size (square meters)? **reply** : The Company has planted trees in empty spaces and active areas to strengthen dust protection from industrial activities. This initiative may support the ecosystem and create habitats for birds and insects, as well as aid in the restoration of areas affected by quarrying, in line with the annual rehabilitation and tree planting plan.				
5.1.1 . Does the organization have measures to protect species that are at risk of extinction due to the impacts of the production process?		No		The business is not affected by this risk.
5.1.2 Is it possible that the organization's products, packaging or waste have an impact on biodiversity ?		No		
5.2.1 Is it possible that the organization's production processes may affect the increase in the amount of new non - native species?		No		The business is not affected by this risk.
5.2.2 Are genetically modified materials used in the development of the organization's products/production processes?		No		
5.3.1 Is it possible that the organization's production processes may affect human well-being/health?	Yes		The Company addresses the effects of seasonal dust by adhering to legal and control standards. In case of any issues or complaints, prompt action will be taken to manage the situation and minimize the impacts on the community.	
5.4.1 What type of water source is used in the production process and where is it located ?				

Question Point	answer		Source of information	note
	Yes	No		
reply : Water used in the production process is sourced from authorized underground wells located in the production areas of each company branch. There is a proper report detailing usage and payments made to local units.				
5.4.2 Does the organization have data on wastewater generation from the production process? **reply** : The production process will retain the water that has undergone treatment, characterized by high alkalinity, and will circulate it within the retention system, preventing any wastewater from being discharged outside the factory premises. The water utilized in the process will flow through the drainage channel into the factory's water retention tank, where it will be mixed with lime and then pumped for reuse or treatment. This water will be cycled back into the process for various applications, such as washing limestone, cleaning solar panels, and spraying to minimize dust levels.				
5.4.3. Does the organization have information on wastewater treatment in accordance with wastewater control standards?	Yes		The water quality of the retention pond is assessed, revealing a high level of alkalinity, without any external venting.	
5.4.4. Does the organization have data on energy consumption and greenhouse gas/carbon dioxide emissions from the production process?	Yes			
5.4.5. Does the organization have information on the generation of various gases during the production process and how is it managed ? **reply** : Carbon dioxide emissions primarily arise from the calcination process, commonly referred to as lime burning, which incorporates air pollution control systems. To effectively capture dust, smoke, and gases produced during the operation of each lime kiln, a combination of a Cyclone Setting Chamber, Wet Scrubber, and Bag Filter is utilized. This system serves to eliminate dust and flue gases generated from the combustion of coal as fuel. Additionally, there are measures in place to monitor and regulate the levels of total suspended particulates (TSP), carbon monoxide, nitrogen oxides, and sulfur dioxide, ensuring compliance with industrial standards. Furthermore, a renewable energy generation system powered by our solar farm has been installed to offset carbon dioxide emissions classified under GHG scope 2.				
5.4.6 How does the organization carry out activities to reduce pollution from the production process? **reply** : In addition to the installation of machinery for pollution control, ISO international management standards serve as a framework for effective management practices. - Compliance with applicable environmental regulations and laws - Environmental quality assessments are performed in accordance with established legal requirements. - Closed systems are installed for processes that are prone to generating dust and noise. - A water spray system is implemented to manage dust in the raw material storage area and to clean truck wheels. - The installation of a slan serves as a dust protection measure. - Water spraying and cleaning efforts are undertaken to minimize dust accumulation on the slan, trees, and the surrounding areas of the facility. - A cover system is installed to shield moving or transporting points, thereby reducing dust dispersion. - Regular inspections and repairs are conducted on process systems and machinery to address any damage that may lead to dust leakage or spread. - Trees are planted strategically to mitigate dust around the facility.				

Question Point	answer		Source of information	note
	Yes	No		
- Renewable energy sources, such as solar power, are utilized to alleviate environmental issues. - Resource management practices are implemented. - Renewable resources are employed for reuse. - A designated individual oversees the management system, which includes systematic measures to address issues and complaints, ensuring resolution within a specified timeframe. https://www.goldenlime.co.th/environment-management				

6) Logistics and transportation system

Question Point	answer		Source of information	note
	Yes	No		
6.1.1 Is it possible that the organization's use of the route for transportation/warehousing of the area could affect biodiversity ?		No		
6. 2.1 Does the organization have logistics activities that help reduce habitat fragmentation and disrupt the migration of organisms?		No		There are no transportation processes by water, land or air that affect the said matter. In the case of goods transportation, there will be a standardized packaging, wrapping and packaging method.
6.3.1 Is it possible that the organization's transportation may affect the migration of non-native species ?		No		
6.4.1 How does the organization implement logistics activities that help reduce energy consumption and carbon dioxide emissions ? **reply** : An investment project is being evaluated to transition the trucks and vehicles used for transporting raw materials in the quarry process to electric models. This includes funding for the installation of silos for customers, aimed at minimizing packaging usage, maximizing transportation capacity per trip, and decreasing the number of trips required. This initiative could lead to reduced oil consumption, thereby lowering greenhouse gas emissions associated with transportation.				
6.4.2 How does the organization carry out logistics activities that help reduce environmental accidents/disorders ? **reply** : 1) The company offers training for its truck drivers and those of transport contractors to enhance their knowledge and safe driving practices, aiming to minimize accidents during transportation. 2) Employees undergo health screenings to evaluate their health status and driving safety. 3) There is a system in place to monitor tarpaulin coverings and regulate driving speeds. 4) Vehicle wheels are washed to limit dust, and water is sprayed on roads to decrease dust emissions from transportation activities.				

Question Point	answer		Source of information	note
	Yes	No		
5) Safety campaigns and contests are organized to encourage safe driving and road usage among employees. Environmentally, the company ensures compliance with regulations regarding tarpaulin coverings and the transportation of coal raw materials, including washing the wheels of trucks entering and exiting the premises.				

7) Products and services

Question Point	answer		Source of information	note
	Yes	No		
7.1.1 Is there a possibility that the use of the organization's products may affect the habitat/ecosystem ?	Yes		(If used in an unbalanced amount, because lime has a high alkalinity, it is used to adjust the acidity of soil and water. However, if used in high amounts, it will result in high alkalinity, which may affect the ecosystem.)	
7.2.1 Is there a possibility that the Company's products/services may affect endangered species?		No		
7.2.2 Is it possible that the Company's products may contain ingredients of endangered species or may be provided in areas where endangered species are present?		No		
7.3.1 Is there any possibility that the Company's products may affect the increase in the amount of new non - native species?		No		
7.4.1 Is there any possibility that the organization's products may affect the livelihoods of local communities ?		No		
7. 5.1 Does the organization have information on energy use and greenhouse gas/carbon dioxide emissions during the use of products/services?		No		
7. 5.2 How does the organization have activities that help reduce energy requirements and greenhouse gas emissions during the use of products/services? **reply** : Developing products to substitute imported goods in the steel industry involves creating a distribution model and investing in silo installations for customers. This approach aims to minimize packaging, enhance product transport efficiency per trip, and includes a renewable energy initiative to set up a solar power generation system, ultimately reducing overall greenhouse gas emissions from the products.				
7. 5.3 Is it possible that during the use of the organization's products/services, wastewater, noise and pollution may be generated?		No		
7. 5.4 Can the organization's products be reused?		No		Can change over time according to the limestone cycle and return to the natural cycle.
7.5.5 Does the disposal of an organization's products require any specific methods, and what risks are there? **reply** : The company is working on burying waste or using a landfill on its property while ensuring that conditions are appropriate and have no negative impact. Additionally, efforts are underway to minimize waste by exploring projects that could repurpose it for brick production or other applications.				

8) Sales and Marketing

Question Point	answer Yes	answer No	Source of information	note
8.1 What marketing/corporate communications activities does the organization have related to biodiversity issues? **reply** : A strategy has been developed to boost product sales while minimizing environmental impact. This involves engaging with relevant industrial groups to leverage the benefits of lime (Calcium Oxide, Calcium Hydroxide) and limestone (Calcium Carbonate). These materials can help reduce air pollution, assist in wastewater treatment, and produce potable water by capturing heavy metals and neutralizing acidity.				
8.2 Are the organization's customers interested in biodiversity issues?	Yes			Some groups and some individuals
8.3 Does the organization include biodiversity issues in its reports?	Yes			Starting with the annual disclosure report and disclosure on the website and the Stock Exchange system.
8.4 Does the organization have a method for communicating its biodiversity activities to customers/stakeholders/suppliers?	Yes			Communication through the Code of Conduct documents , policies and practices, and annual disclosure reports, and on the Company's website.

9) Human resources

Question Point	answer Yes	answer No	Source of information	note
9.1 Are there any volunteer activities related to biodiversity initiated by employees in the organization?	Yes			
9.2 Does the organization provide biodiversity training to its employees?	Yes			By starting to send relevant employees to participate in training courses organized by the SEC office and creating media to be disseminated through the company's internal communication channels.
9.3 Does the organization have measures/employee regulations that help reduce the impact of travel on greenhouse gas emissions/energy use/biodiversity/other environmental aspects?	Yes			By reducing the number of days employees travel, where action can be taken to reduce employee travel, which will help reduce the amount of greenhouse gas emissions from employee travel.

Review: every 3 years

Or upon a significant change

number	Revision Number	Issued	Proposed date	Acknowledged by the BOD
1	*CS20230902 _ E6_* Check # 01	September 17 , 2024	8 November 2014	The Board of Directors Meeting no. 5/2024

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