

Biodiversity Guidelines for businesses

We commit to protect our biodiversity and natural heritage through mindful development and adapting to climate change collaboratively









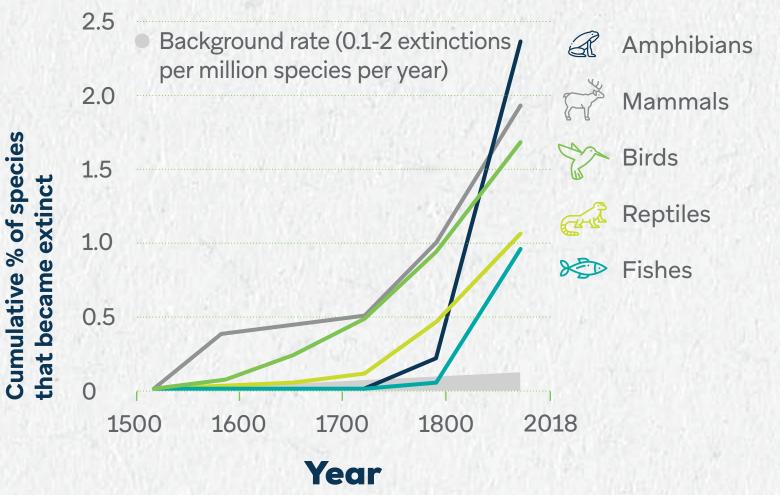
What is biodiversity, and why does protecting it matter?

Simply speaking, biodiversity is "all life on Earth." It's every plant, animal, insect and microbe that make up the ecosystems on our planet. It ultimately supports our well-being by providing food, water, a stable climate, equitable supply chains, medicine and more.

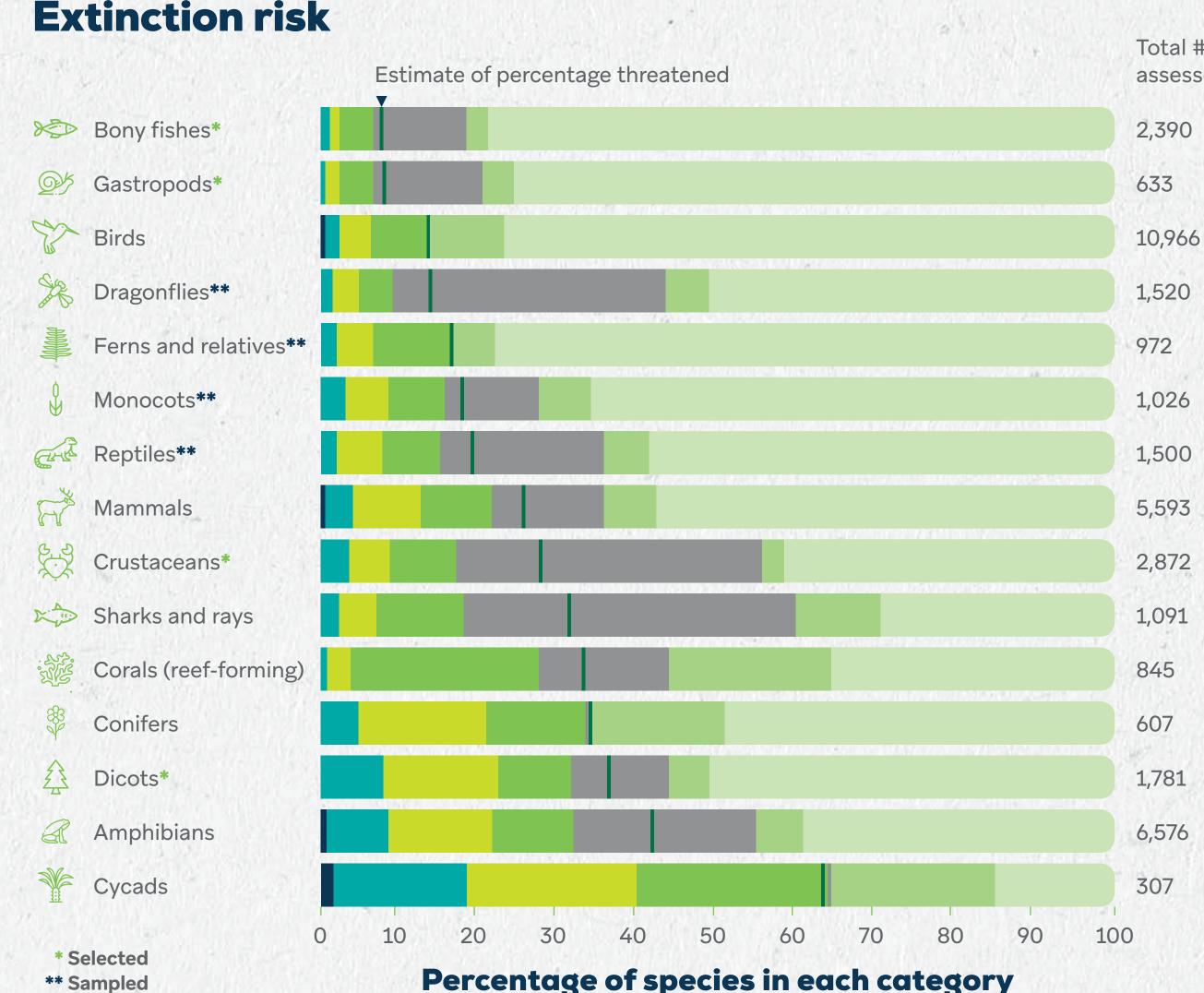
Unfortunately, biodiversity is being lost at an alarming rate. The latest information from the United Nations states that nearly 1 million species are on the verge of extinction. This level of decline is unprecedented in human history; thus, we have no barometer to gauge what this loss could mean. What we do know is that all life is connected, a disruption in one part of the world will have ripple effects in another.

Many scientists note that we're facing the sixth extinction event in the history of our planet, and it's being driven by human activity. Therefore, we need immediate, transformational action to stem biodiversity loss.

Extinction rate



Extinction risk



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Total # of extant assessed species

> **Data deficient** Least concern **Near Threatened** Vulnerable Endangered **Critically endangered Extinct in the wild**

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Percentage of species in each category

Source: IPBES (2019)







The IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) report paints a grim picture of the negative impacts human activity has on biodiversity. "For example, 75% of the land surface is significantly altered by human activities; 66%, that is, two thirds of the surface of the oceans, are suffering from increasing negative impacts; we have lost over 85% of wetlands since the 16th century. To give you another idea of the magnitude of the impacts of human activities on nature, you should know that crops and livestock, for our food, cover one third of the land surface, and three quarters of the resources available in water". Ħ

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The IPBES report also shows (picture below) that we have never extracted so much biomass, natural resources, wood, fish, food, etc., from nature in 50 years. In the chart below, the green arrows show the upward trend in material contributions. However, this is done to the detriment of all other contributions of nature to human societies, including regulatory contributions and non-material contributions.

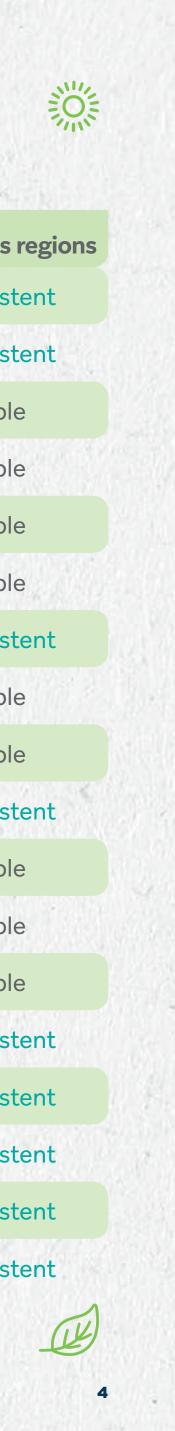
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DIRECTIONAL TREND 50-year global trend

lature's contributions to people	Decrease 🗕 No cha	nge> Increase	Across
Habitat creation & maintanance	\mathbf{O}		Consist
Pollination & dispersal of seeds	Ð		Consist
Regulation of air quality			Variable
Regulation of climate			Variable
Regulation of ocean acidification	Ð		Variable
Regulation of fresh water quantity			Variable
Regulation of fresh water quality			Consist
Regulation of soils			Variable
Regulation of hazards & extreme events			Variable
Regulation of organisms			Consist
Energy			Variable
Food & feed	Ð		Variable
Materials & assistance			Variable
Medicinal, biochemical & genetic resources			Consist
Learning & inspiration	J		Consist
Physical & psychological experiences			Consist
Supporting identities			Consist
Maintanance of options	Ç		Consist

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Biodiversity and sustainable development goals

Biodiversity is multidimensional and therefore, can be linked to almost every SDGs. However, for the purpose of this guideline, the ones most applicable will be considered. Below is a breakdown of how conservation/restoration of biodiversity plays an essential role in achieving the Sustainable Development Goals.

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SDG 13 – Take urgent action to combat climate change and its impacts

Forests, peatlands, wetlands, ocean and coastal ecosystems represent globally significant carbon stores, and their conservation and sustainable use is a critical element for avoiding dangerous changes to the Earth's atmospheric temperature and climate system. Efforts to protect and restore habitats offer cost-effective and proven ways to mitigate climate change. Such ecosystems can also serve as natural buffers against climate extremes and other disasters, and strengthen adaptation to climate change.



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SDG 6 – Ensure the availability and sustainable management of water and sanitation for all

Ecosystems help maintain water supply and quality, and guard against water-related hazards and disasters. For example, wetlands play a role in surface, subsurface and ground water storage, and reduce the risk of flooding. They also help capture, process and dilute pollutants. Similarly, vegetation, such as grasslands and forests, supports the healthy functioning of watersheds. Managing ecosystems to maintain these types of services is generally more cost-effective than employing built technologies.







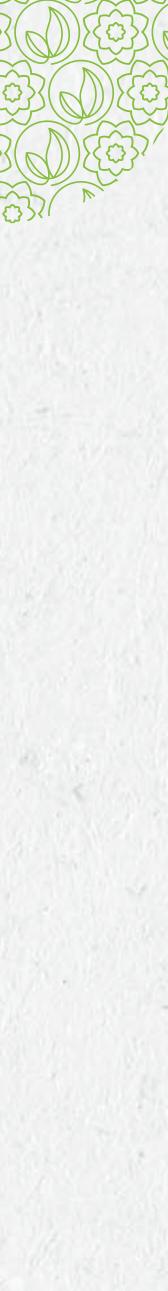
SDG 14 – Conserve and sustainably use the oceans, seas and marine resources for sustainable development

The conservation and sustainable use of biodiversity in marine and coastal ecosystems is a key aspect of sustainable development. Biodiversity underpins all fishing and aquaculture activities, as well as other species harvested for foods and medicines. Conservation and sustainable use of marine and coastal biodiversity is essential to ensure that the world's oceans, seas and marine resources remain vital.

Life on land

SDG 15 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss

The conservation, restoration and sustainable use of terrestrial ecosystems is essential for sustainable development. Targets under this goal include a call to integrate ecosystem and biodiversity values into national and local development planning, poverty reduction strategies and accounts. A



Mauritius – Factsheet

Mauritius and Rodrigues form part of the Mascarene Islands located in the Western Indian Ocean, one of the 25 internationally recognized biodiversity 'hotspots'. The tropical climate, topography and over a million of years of isolation have resulted in the evolution of a diverse biota with a high degree of endemism.

Seychelles

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In Mauritius, forests and their protection are of strategic importance for several reasons. First, Mauritius ranks among the 25 hotspots for biodiversity worldwide and has been designated by the IUCN as a Center for Plant Diversity. Furthermore, as a flip side, since the colonization of the island by humans in the 17th century:

More than 100 species of endemic plants and animals have disappeared. According to IUCN, Mauritius is positioned as the third country in the world with one of the most endangered terrestrial flora.

Madagascar





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Comores

Indeed, to date, studies show that:

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Rodrigues

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Mauritius

kilometers

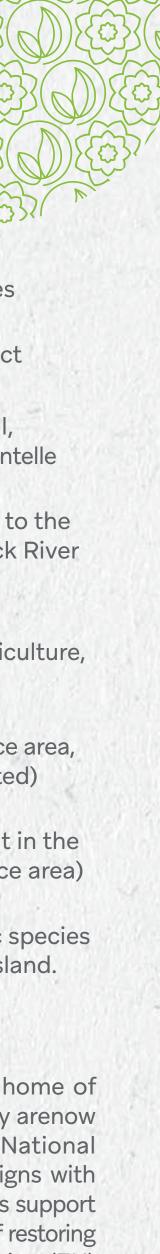
Réunion

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- About 94% of this flora is threatened. Keeping in mind that Mauritius has about 691 native flowering plant species of which 273 are endemic.
- About 77% of native species are already classified as extinct
- 155 flower species are critically endangered.
- Birds such as Foudia Rubra, Mauritius zosterops, kestrel, Pigeon des Mares, and plants such as Bois Corail and Bois Dentelle are included in the world list of endangered species.
- There is only 2% of primary forests in Mauritius (restricted to the south west area), where much is protected within the Black River Gorges National Parks.
- 4.7% of our terrestrial land area is protected.
- Out of total land area of 185,600 ha, 53% is devoted to agriculture, 25% to forests (both plantations and natural forests) and 8% to settlements.
- The most forested districts, in terms of percentage of surface area, are Plaines Wilhems (31% forested), Port Louis (24% forested) and Savanne (20% forested).
- The "other land use" category (mostly shrubs) is prominent in the Black River (58% of surface area), Port Louis (43% of surface area) and Moka (34% of surface area) districts.
- The only native mammals are bats and to date, 9 endemic species of land birds and 11 endemic reptile species exist on the island.

The protection and preservation of primary forests - as the home of terrestrial biodiversity - is therefore necessary and urgent. They arenow rightly taken into account in national policies such as the National Biodiversity Strategy and its action plan (2017-2025), which aligns with the objectives set by IUCN (AICHI objectives for 2020). Through its support program (which is currently in the approval phase), which consists of restoring the coverage of primary forests in Mauritius, the European Union (EU) aims to support the government in the implementation of this policy.



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The coastal zone of Mauritius is also a key resource that supports various economic activities, such as recreation, tourism, fisheries, trade and industry. It is estimated that the economic value of the coastal zone is more than 1 trillion rupees (ICZM Framework, 2010).

Some important coastal statistical data for mainland Mauritius:

Resources	Number/area/length
Length of coastline	322 km
Length of coral reef	150 km
Coral reef area	300 km ²
Lagoon area	243 km ²
Mangroves area	181 hectares
Marine parks	2
Fishing reserves	6
Number of public beaches and extent	130 over a length of 48 km
Population residing in coastal areas	20%
Species of hard corals recorded	90
Corals bleached between 10%-50%	44%
Corals bleached >50%	3%

Source: Les assises de l'environnement (December 2019)

Key facts about corals reefs (source: reef conservation) and why protecting it matters:

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Coral reefs are the rainforests of the ocean: they occupy only 0.7% of the ocean floor but provide a habitat and vital nursery grounds for 25% of all marine species on the planet.

Coral reefs are shelters for fishes: coral reefs support 4,000 species of fish including many commercial fishes such as 'capitaine', 'vieille rouge', and 'ourites' in Mauritius, 700 species of coral, and thousands of other plants and animals.

Coral reefs support shoreline protection and erosion control: Coral reefs protect shorelines from erosion and storm and wave damage. For example, it is estimated that each square meter of reef protects US\$ 47,000 in property value in the US. It also protects seagrass habitats that develop within the lagoon.

Tourism: our coral reefs attract thousands of visitors each year. Tourism is one of the largest industries in the world and sustains 10% of all jobs on earth. 24% of Mauritius economy depends on tourism which procures 41,500 direct jobs and 131,000 indirect jobs.

Business Actions

Potential ecosystem degradation and biodiversity loss are material considerations for all investment decisions. Not because they make for good public relations, but because companies and investors realize that these are fundamental for business success in our carbon and natural resource constrained world.

The objective of this guideline prepared by Business Mauritius is to help businesses to be more engaged by putting environmental considerations at the heart of every decision. It also focuses on the need to demonstrate the impact of actions and proposes a number of indicators to facilitate impact assessment and consolidation.

All companies can have an impact on biodiversity in the course of their business - because they use natural resources, produce or consume products, own and manage areas of land, or finance other activities which have direct and indirect impacts.

Policy-level recognition of a company's responsibility to biodiversity demonstrates, both to people outside and to employees, that the company is taking biodiversity seriously. It sets the scene for the company to deal with biodiversity strategically, across its whole operation, by integrating biodiversity issues into existing environmental management or sustainability strategies. Biodiversity is critical for most businesses - either because their processes require biological materials or because a healthy and stable environment is an integral part of the operation.

Biodiversity is recognized as being key in ensuring a stable environment for businesses to operate in.

Category 1 Ħ Coasta and marine biodiversity

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Biodiversity, the variety of life on Earth, is a large part of what makes tourist destinations such as tropical forests, beaches and national parks so attractive. Mauritius has since the 90s marketed its destination based on the Sea, Sun and Sand which has led to over exploitation of its lagoons/beaches and thus the degradation of the marine ecosystem. However, tourism is not the only cause of marine biodiversity degradation in Mauritius. Below are some of the activities having major impacts on the lagoons:

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- Massive clearing of land for sugar plantations brought with it further sedimentation and associated pesticides and fertilizers being washed into the lagoons.
- The filling-in of what were extensive wetlands, which act as important natural filters has had severe impacts on the lagoons with polluted run-off water directly entering the lagoon.
- Sand extraction for the construction industry, although now illegal, caused more sedimentation and erosion of the seagrass beds. Excessive sedimentation results in poor light quality, inhibiting coral growth and can also smother the coral, killing the colonies.
- Uncontrolled coastal and industrial development with associated pollution, dynamite fishing, and other negative forms of fishing such as the seine nets have all contributed as long-term stressors on the lagoons and reef systems.

Climate change is also a major contributor to the degradation of marine biodiversity. For example, sea level rise is aggravating of coastal erosion. Over the last decade, an accelerated sea level rise of over 5.0 mm per year has been observed. The acidification and rise in temperature of our waters are also contributing factors which result in coral bleaching estimated at 75%.

Objective

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To encourage companies to reduce/limit activities on coastal zones and lagoons by adopting holistic approach (ridge to reef).

Relevant business actions

- Promote green tourism¹ (nature-based tourism products).
- Integrated coastal zone management (ICZM).
- Environmental & social risk assessment should be done for all new projects relating to development along the coast and on wetlands (EIA should be mandatory). Protecting coastal wetlands could save the insurance industry around €50 billion annually through reducing flood damage losses.
 - Increase setbacks (>30m) for development along the coast.
- Zoning guidelines regarding coastal activities (motor zones in lagoons), industrial, commercial, residential zones, green belts.
 - · In the short term, delimitation of lagoon for recreational activities for example, ski lane route (for water skiing activities) less impacting on the seabed/ecosystem.
 - In the long term, non-motorised lagoon activities.
- Review the existing configuration of public beaches to provide more leisure space, by moving parking off-site and integrating an online/smart parking reservation mechanism.
- Rehabilitation of beaches and coastal zones.
- Installation of reef balls to act as reef against waves and also as habitat for fish to reproduce.

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- Planting of mangroves along the coast, to improve the climate resilience of natural ecosystems which are threatened by rising sea levels, storm surges, and more cyclones. But which also act as safe haven for fish, shrimps, crabs and other marine life to reproduce.
- Use of coastal cell engineering.
- Farming and plantation of high temperature resilient species of corals.
- Review existing fishing agreements and fish processing activities to limit over exploitation and damage to the ecosystem.
- Achieve certification or label such as MSC blue fish².
- Regulating or ban seine/large/gill net fishing.
- · Spill containment mechanisms in place.
- Stop sedimentation and pollution from land-based activities.
- Installation of floating nets at river mouths (estuary) to capture drifting waste/litter resulting in micro-plastics.
- Avoid usage of sunscreens with chemical ingredients that end up in water and affect corals.

¹Sustainable Tourism is one that protects the resources upon which it depends.

²Choosing products with the MSC blue fish label allows you to enjoy eating seafood with the knowledge you have made a positive choice to support well-managed, sustainable fisheries. These fisheries are pioneering new ways to conserve the marine environment. By buying fish from sustainable fisheries, you're encouraging more retailers to stock sustainably-sourced seafood and more fisheries to become certified.

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Category 2 (للل) Terrestrial biodiversity

Terrestrial biodiversity can be defined as the variety of life forms on the land surface of the Earth. High biodiversity is often used as an indicator of ecosystem health and has been shown to have direct links to human health. To put it simply, terrestrial biodiversity refers to animals, plants and micro-organisms that live on land, and also land habitats, such as forests, deserts and wetlands.

Forests³ are one of the Earth's greatest treasures – rich habitats teeming with animal and plant species, herbs, fungi, microorganisms and soils. They provide people with food, wood, medicine, fresh water and clean air, and millions of the world's poorest people rely on forests for their livelihoods. To say that forests help to nurture all life on the planet is no exaggeration.

Forests also influence nature's capacity to cope with natural hazards. Their destruction could cause altered rainfall patterns, soil erosion, flooding of rivers and the potential extinction of millions of species of plants, animals and insects. Forests are also huge storehouses of carbon, which means they absorb carbon from the atmosphere and convert it into plant tissue. This is very important for reducing the impact of climate change, a change in the overall state of the Earth's climate caused by a build-up of greenhouse gases in the Earth's atmosphere. Widespread deforestation leads directly to an increase global warming.



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To encourage companies to reduce/limit activities in biodiversity rich areas and adopt new development practices in harmony of nature.

Relevant business actions

- Creation of new native/endemic forest.

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Objective

Promote Ecosystem based Adaptation (EbA)⁴ such as restoration of wetlands and riparian areas, which benefits wetlandassociated species, reduces flooding potential and maintains water quality.

Conserving and regenerating climate refugia. Climate change will increasingly be a consideration in the selection, design and management of protected areas. Many species currently protected in national parks, for example, will no longer be in climatically suitable areas as the climate changes; strategies to facilitate autonomous adaptation (e.g. movement corridors) will need to be considered.

 Creation of a biodiversity corridor/network of forests to improve migration of species.

· Declare mountain ranges, nature parks as protected areas. · Privately owned forests should be classified as protected area. More interventionist strategies include managed relocation, genetic translocation (i.e. moving individuals with different genetic make-up into new populations) and ex-situ conservation, which may be the final option for critically endangered species.

Increase the area covered by primary forests, including mangroves and coastal wetlands.

- Achieve certification such as Sustainable Forest Management⁵ Certification.
 - Buy products from certification schemes, which guarantee that certain environmental and social principles were followed in producing the product. Some examples are the Forest Stewardship Council and Fair Trade.

Adopting agro-forestry practices for reforestation of abandoned land under sugar cane cultivation.

- Restoration of invaded forests from invasive alien species (IAS).
- Discourage the planting or accidental introduction of exotic and non-native species on land-holdings, displacing native species.

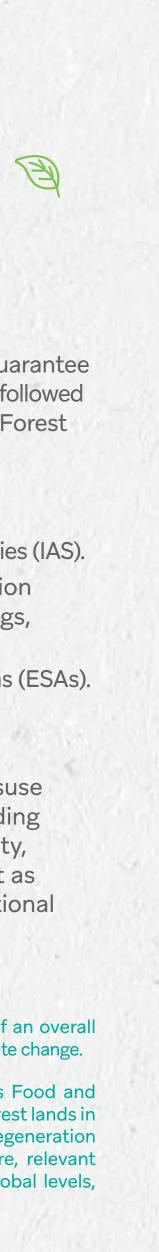
Preserve wetlands and environmentally sensitive areas (ESAs).

- Halting and reversing the decline of pollinators.
- Increase organic farming on agricultural land.
- Ban the use of pesticides. Excessive use and misuse of pesticides result in contamination of surrounding soil and water sources, causing loss of biodiversity, destroying beneficial insect populations that act as natural enemies of pests and reducing the nutritional value of food.

³Rainforests support a large number of endemic terrestrial species.

⁴Defined as the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change.

⁵Sustainable forest management, as defined by the United Nation's Food and Agriculture Organization, is the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.



(مل) **Category 3 Employee involvement**

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Having employees engaged in environmental restoration activities is a win-win situation for both companies and their employees. The employees are more motivated in their work, likely to gain greater job satisfaction and feel an emotional connect with the organization. Employees may also prefer to work with companies that value environmental responsibility.

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Objective

To encourage employee engagement in environment and biodiversity restoration initiatives.

Relevant business actions

- as clean-up campaigns.
- to share ideas/feedback.
- Hours/days spent training staff on environmental matters.

Formal policy where employees are allotted time off (for example, 2 hours per month) to be involved in any (company or own) initiative to restore biodiversity (for example, tree planting, beach cleaning, coastal ecosystem restoration).

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Regular company events where employees get involved in volunteering activities such

Structured mechanism in place such as a dedicated environment team or platform

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In addition to minimizing their footprint and impact on biodiversity, companies also have the responsibility to sensitize younger generations about the importance of biodiversity and its preservation. Communicating internally and externally (to staff, consumers and local communities) on biodiversity impacts and dependencies is critical for businesses to raise awareness about biodiversity and encourage education, knowledge sharing and engagement with key stakeholders. This will ensure that the benefits of biodiversity and ecosystem services are equitably shared across society today and for future generations.

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Category 4 Youth education

Objective

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To actively collaborate with Eco-School⁶ through financial support.

Relevant business actions

- Provide financial support to Eco-school, which is actively engaged in educating the youth about the environment in general; biodiversity being one of the main themes.
- Promote awareness of campaigns developed by Eco-school.

⁶Eco-schools is the largest sustainable schools programme in the world and is operated by the Foundation for Environmental Education (FEE). Eco-schools empowers students to be the change our sustainable world needs by engaging them in fun, actionoriented learning.

https://www.reefconservation.mu/projects/education-andawareness/eco-schools/



(لل) **Category 5** Consumption patterns linked to biodiversity loss Ð

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New WWF report finds crop farming for animal feed responsible for 60 per cent of global biodiversity loss. The report by conservation charity WWF makes it clear that the harmful greenhouse gases produced by livestock are just one negative aspect of the meat industry. Potentially even more destructive is the process by which livestock are fed, with hundreds of thousands of square miles of land given over to growing food crops for animals.

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Industrial farming requires vast tracts for the cultivation of crops such as protein-rich soy, but creating farmland means the destroying existing habitats - and the species that depend on them. Vulnerable areas such as the Amazon, Congo Basin and the Himalayas are particularly at risk. Three-fifths of the global biodiversity destroyed is down to the way our food is grown and to the food we eat, according to the WWF report, Appetite for Destruction. The UK's food supply alone is directly linked to the extinction of an estimated 33 species at home and abroad, as per the same report.

Our consumption choices are driving biodiversity loss. We can consume less and we can be more mindful about what to consume.

Objective

To encourage mindful consumption and raise awareness about the origin of food we consume and its environmental impact along the value chain.

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Relevant business actions



Tuesday Challenge / Meat-Free Mondays. Increase proportion of plant-based foods in diets. Develop a sustainable food labelling framework to clearly inform consumers about how the product is made and environmental impacts across the production chain.

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Evidence shows that a higher standard of wastewater treatment is directly linked to substantial improvements in a river's biodiversity over time. The water is cleaner due to a reduction in ammonia (a chemical present in human sewage that is potentially toxic to animals) plus an increase in oxygen levels (as a result of less organic matter being discharged into rivers or streams).

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Category 6 Wastewater and effluents treatment

Objective

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To encourage companies to adopt efficient wastewater management practices by limiting the effluents discharged in rivers and water streams.

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Relevant business actions

- Treat wastewater before discharge (systematically testing the level of pollutants).
- Promote water recycling and reuse.
- Limit the use of harmful substances/chemicals in production process and putting in place mechanism for safe disposal.
 - Implementation of Safety Data Sheets⁷.

⁷A Safety Data Sheet (SDS) is a document produced in alignment with the UN's Globally Harmonized System of Classification and Labelling of Chemicals (GHS) that the manufacturer, importer, or distributor of a chemical product is required to provide to downstream users.

The purpose of an SDS is to ensure that all workers who handle chemicals have the hazard information they need to safely use, handle and store them.













1. Motor-free lagoons

Action:

To encourage companies limit their leisure activities in the lagoons with the aim to have non-motorised lagoons.

Indicators:

- Does your company conduct motor-free activities in the lagoons? (Yes/No)
- If No, does your company limit its impact by setting up dedicated ski lanes or motor zones to operate?





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Actions & indicators

SigneNatir offers companies the opportunity to commit to biodiversity by focusing on the 6 actions and its corresponding indicators. Companies can choose one or more actions to demonstrate their commitment.

2. Marine & terrestrial

Action:

To encourage companies to reduce/limit activities in biodiversity rich areas and adopt new development practices in harmony of nature. Adopting holistic approach such as ridge to reef.

Indicators:

- Number of endemic trees planted either to enhance or replace loss of biodiversity.
- Area of land consisting of endemic trees and wildlife (animals, birds, reptiles, etc...) classified as protected area (km²).
- Number of mangroves or any other species (such as batatran) planted to restore coastal biodiversity and increase resilience of the coastal zone to climate change impacts.
- Length of shoreline restored (km).





3. Employee involvement

Action:

To encourage employee engagement in biodiversity restoration initiatives. **Indicators:**

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- Number of hours spent by employees volunteering in any (company or own) initiative to restore biodiversity.
- Hours spent training staff on environmental/biodiversity matters.
- Training cost related to environmental/biodiversity matters (Rs).
- Number of clean up campaigns in natural reserves such as invasive alien species removal, plastics/cans collection, etc...



4. Youth education

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Action:

To actively collaborate with Eco-School through financial support.

Indicator:

Total amount of revenue dedicated to Eco-School supporting biodiversity initiatives (Rs).



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5. Meat-free Monday

Action:

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To encourage mindful consumption and raise awareness about the origin of food we consume and its environmental impact along the value chain.

Indicators:

- Number of Monday where only meat free meals are served for lunch.
- If there is no internal restaurant, number of meat-free meals eaten for lunch every Monday.







6. Water efficiency

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Action:

To encourage companies adopt efficient wastewater management practices by limiting the effluents discharged in rivers and water streams. Indicators:

Total of water savings achieved (m³).

- Total volume of wastewater treated and re-used (m³).
- Total volume of wastewater discharged (m³).
- Total weight of sludge or effluent discharged (tonnes).



Let's build together a sustainable and inclusive future for Mauritius **Join SigneNatir business community**

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BM-MCCI Building, Rue du Savoir, Ebène CyberCity, Ebène - 72201 Email signenatir@businessmauritius.org Tel [230] 466 3600 Fax [230] 465 8200

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This disclaimer informs readers that the views, thoughts, and opinions expressed in this guideline is based on research conducted by the author, and is not to be considered as unique reference. Business Mauritius has tried as far as possible, to provide complete and relevant information regarding both local and international context. The present document will be refined and updated on a continuous basis, following feedback from the sustainability network. For the latest version of the guideline, please refer to the SigneNatir website: www.signenatir.mu

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