ambition for biodiversity
BIODEV
2030

INTEGRATING BIODIVERSITY INTO DEVELOPMENT

NATIONAL REPORT SUMMARY

- PHASE ONE

Integrating Biodiversity into Development - National Report Summary

Phase One

BIODEV 2030
GUYANA

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Reviewed by Devon Dublin

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Field of mature rice awaitig the harvest. © WWF-Philippines Gregg Yan

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INTRODUCTION

BIODEV2030 is an experimental approach implemented in sixteen pilot countries, including Guyana, which have multiple socio-economic, environmental and geographical contexts. It aims to provide the governments of each country with the means to identify and lead, together with the private sector and civil society, profound changes in the sectors of the economy that have a strategic impact on development and on the biodiversity of the country. The preservation of biodiversity is a prerequisite for sustainable development. To achieve responsible development, limiting pressures and restoring degraded ecosystems, taking biodiversity into account, must be systematic and integrated throughout production and value chains. In order to halt the loss of biodiversity, the BIODEV2030 project proposes an innovative approach to integrating biodiversity (and the services it provides) into the economic sectors of these 16 pilot countries by involving all the players in society. It does so through *Diagnosis, Dialogue* and *Commitment*. Diagnosis establishes a scientific assessment of threats to biodiversity at the national level, and analyses the potential for reducing impacts and restoring ecosystems, in order to identify priorities for action. Dialogue then favours the emergence of a common vision through multi-stakeholder dialogue, and an arrival at voluntary commitments from the various sectors. Commitments, which accompany the emergence of a common vision, are made in key sectors of the economy in favour of biodiversity, and the encouraging of their integration into action plans.

The Biodev2030 project partners are Agence Française de Développement (AFD) (funding), Expertise France (coordination), the International Union for Conservation of Nature (IUCN) (implementation), and WWF (implementation). The consulting firm was Biotope Siège Social.

Within the framework of this BIODEV2030 (https://www.biodev2030.org/) multi-country project therefore, and with a view to formulating voluntary commitments from the private sector in the area of biodiversity, the sectors which have both the greatest impact on biodiversity in Guyana, but which at the same time also have the capacity to elicit voluntary commitments, particularly in the context of the UN Biodiversity Conference (COP 15) due to be held in December 2022, were pre-identified. From **eight formal sectors** which impact biodiversity in Guyana, prioritizing these sectors for the making voluntary commitments was done progressively, first based on a large bibliographic analysis, then by using a series of criteria, which were weighted and then aggregated to arrive at a pre-identification of **three priority sectors.**

This **Summary** corresponds to the first **phase of the Biodev2030 project in Guyana.**

METHODOLOGY

1. Identification of the sectors of the formal economy to be analysed

Based on a proposal from a working group, eight sectors considered to have an impact on biodiversity were selected: these were forestry, oil and gas, agriculture (rice and sugar), mining, fishing, renewable energy infrastructure (solar, wind, hydropower), tourism, and banking. However, informal activities were removed from the analysis because the actors are -by definition- unstructured and therefore unable to make commitments as such: their activity is diffuse, scattered, isolated and elusive, and they themselves sometimes escape regulatory provisions. Moreover, data and statistics on the informal economy are incomplete and cannot be utilized. Nonetheless, this does not mean that members of the informal sector cannot be included or targeted by commitments made elsewhere by the State or by other sectors.

2. Identification of the main ecosystems, their characteristics, level of protection and description of the impact of the eight selected sectors on biodiversity

Based on an extensive bibliographic and remote sensing analysis, including scientific literature, official documentation, reports, laws and policies, as well as press reports, a diagnosis of the sectoral drivers of biodiversity erosion in Guyana was made. The main results are presented in Table 1 and Table 2.

Table 1. Main sectors impacting each ecosystem

COASTAL	WHITE SAND PLATEAU	FORESTS	MONTANE FORESTS	SAVANNAHS	WATER SYSTEMS	MARINE
Agriculture	Mining	Mining	Renewable energy (future)	Agriculture	Mining	Oil and gas
Oil and gas	Agriculture	Forestry	Tourism (future)	NTFP	Agriculture	Fisheries
Fisheries	Forestry	Tourism		Tourism	Renewable energy (hydropower)	Mining (indirect)
Mining					Tourism	
Renewable energy					Fisheries	

Mining and agriculture impact the most ecosystems:

Mining : 5 ecosystems
Agriculture : 4 ecosystems

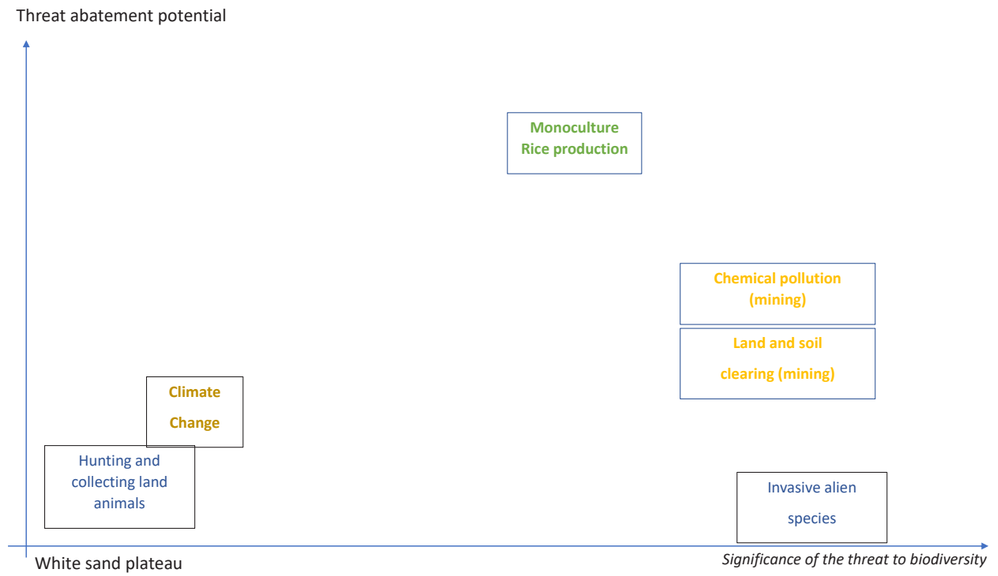
Table 2. Description of ecosystem characteristics and impacts on these from the main sectoral activities

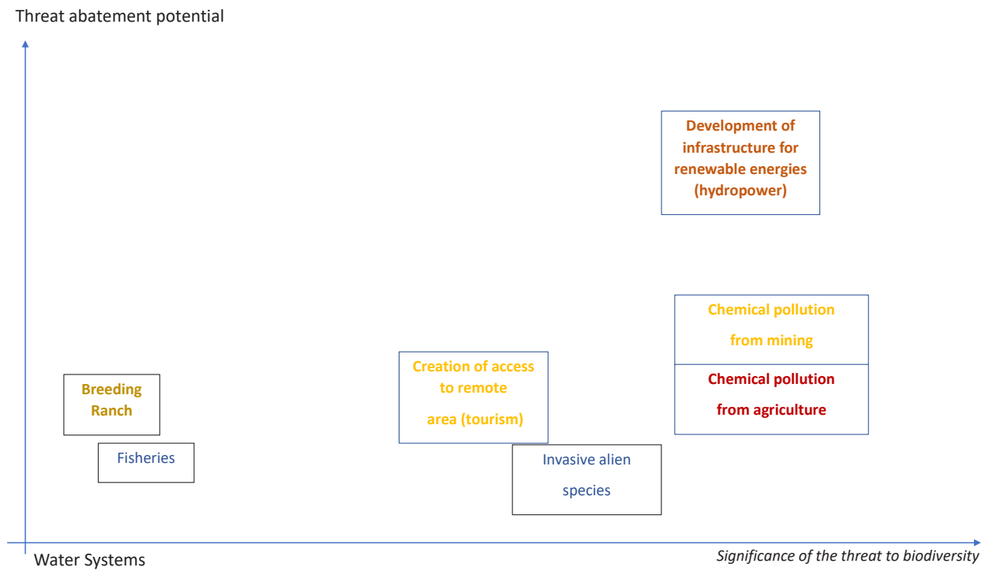
ECOSYSTEMS	CHARACTERISTICS	MAIN IMPACTING SECTORS	CONSEQUENCES
Coastal	Endemic phenomenon (mud) High bird diversity Ecotone contributing to Ecosystem resilience (buffer zone) Filter Blue carbon sink Nursery Protective barrier against disasters High structural importance	Oil and gas (development of offshore bases) Agriculture (agrochemical, polders, tillage)	Soil degradation and contamination Pollution Destruction of mangroves and bird habitats Loss of coastal protection Saline intrusion Plant infestation Contamination of waters
White sand plateau		Mining (sand and bauxite: suspended solids in the water) Agriculture grochemicals)	Elevation of the concentration of various heavy metals in surface and groundwater resources

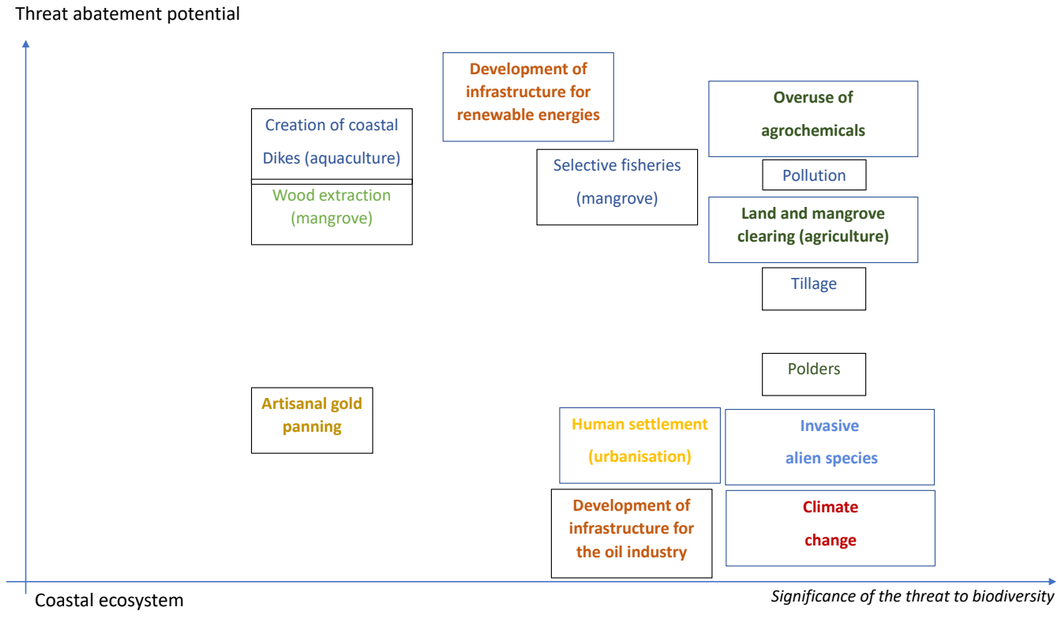
Table 2. Description of ecosystem characteristics and impacts on these from the main sectoral activities

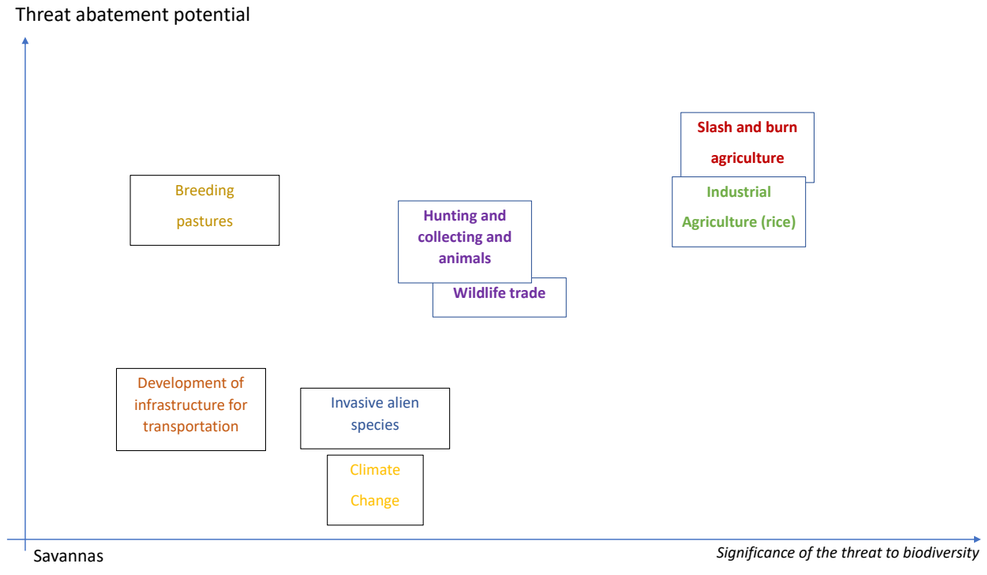
ECOSYSTEMS	CHARACTERISTICS	MAIN IMPACTING SECTORS	CONSEQUENCES
Forests	Niche refugia Functional and taxonomic diversity Ecosystem of high importance (Guyana lowland floristic province, Essequibo alluvial plain, endemism) Carbon storage High connectivity Protection of watersheds Use and non-use value	Mining (especially the gold industry with discharges of tailings) Forestry (conventional logging but also reduced impact logging)	Habitat loss and fragmentation Increased turbidity of waters Erosion Landslides Removal of fertile topsoil hindering natural regeneration) Deforestation Contamination of freshwaters
Highlands, Mountains, Plateaux		Renewable energy (potential)	Few consequences as accessibility is low
Savannahs	Subtle equilibrium (frequency/intensity of fires) Flooded savannahs of the Rupununi hosting gallery forests, wetlands, bush islands, rocky outcrops Cleaning waters, with high water connectivity Refuge zone NTFP Indigenous territory	Agriculture (especially in the Rupununi: use of agrochemicals, irrigation systems, growing threat of megafarms) NTFP (wildlife trade, tibisiri extraction) Tourism	Reduction of habitats Modification of waterflows Reduction of ecological functions Future risk of extensive ecological damage Eutrophication/contamination of both surface and groundwater resources Erosion and loss of topsoil Reduction of population Contamination from wastes Disturbance of wildlife
Freshwaters	High connectivity Special habitat Importance of Essequibo rivers Refuge zone Regulatory, provisioning, supporting and cultural services	Mining (gold mining practices) Industrial agriculture (pesticides, fertilizers)	Increased turbidity and mercury Contamination of freshwater ecosystems (bioaccumulation) Aquatic contamination
Marine	Complex food web and high connectivity Maintains global climate Climate regulation Deep water corals Coral adaptation to turbid waters High productivity	Oil and gas (sonar disturbance, oil spill risk) Fisheries	Disruption of mammalian species Massive die-off of wildlife (macro and micro flora and fauna) Decline in fisheries stock

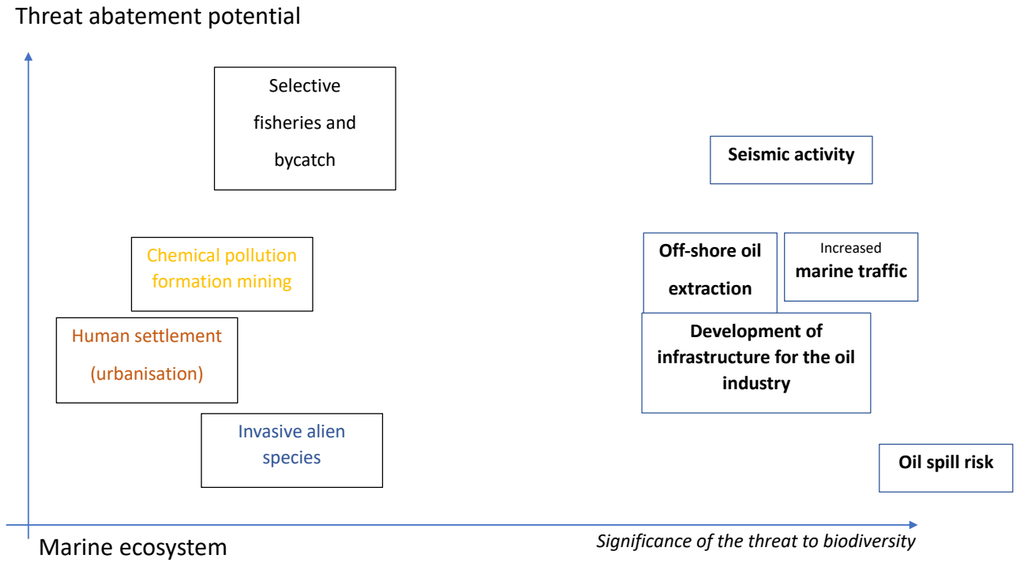
Illustration of the threats identified for each ecosystem and their potential for abatement

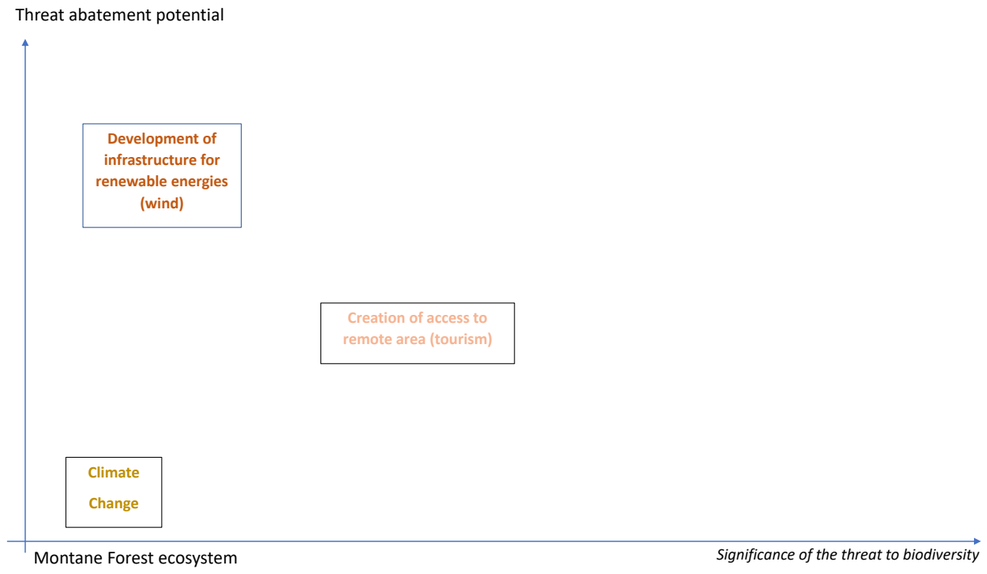


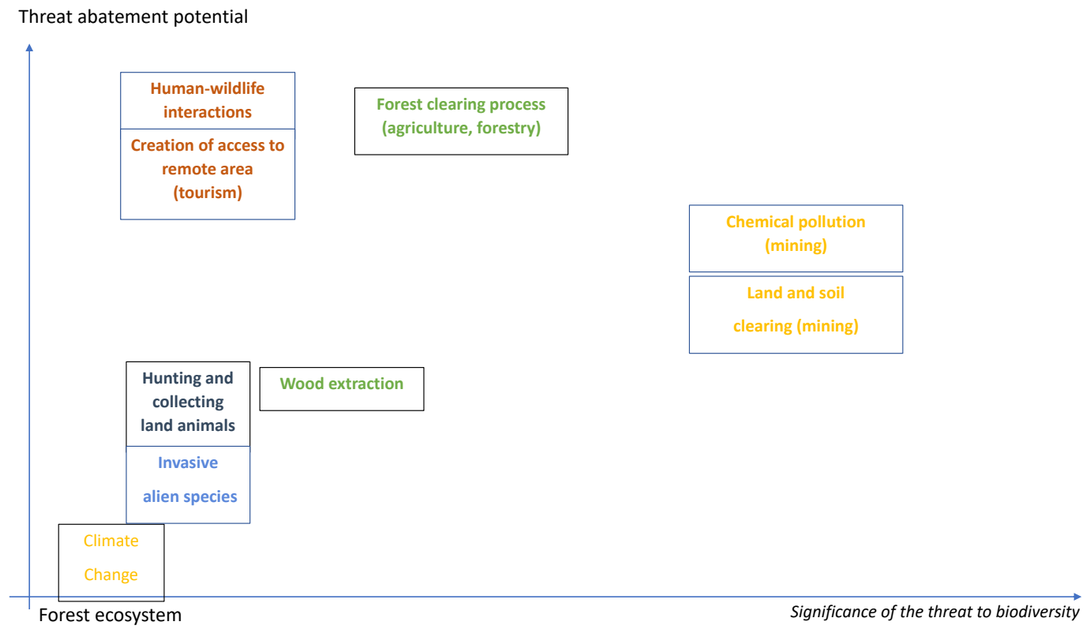



Threat abatement potential
Creation of coastal Dikes (aquaculture)
Wood extraction (mangrove)
Development of infrastructure for renewable energies
Selective fisheries (mangrove)
Overuse of agrochemicals
Pollution
Land and mangrove clearing (agriculture)
Tillage
Polders
Artisanal gold panning
Human settlement (urbanisation)
Invasive alien species
Development of infrastructure for the oil industry
Climate change
Coastal ecosystem
Significance of the threat to biodiversity


Threat abatement potential
Breeding pastures
Hunting and collecting and animals
Wildlife trade
Slash and burn agriculture
Industrial Agriculture (rice)
Development of infrastructure for transportation
Invasive alien species
Climate Change
Savannas
Significance of the threat to biodiversity


Threat abatement potential
Selective fisheries and bycatch
Seismic activity
Chemical pollution formation mining
Off-shore oil extraction
Increased marine traffic
Human settlement (urbanisation)
Development of infrastructure for the oil industry
Invasive alien species
Oil spill risk
Marine ecosystem
Significance of the threat to biodiversity


Threat abatement potential
Development of infrastructure for renewable energies (wind)
Creation of access to remote area (tourism)
Climate Change
Montane Forest ecosystem
Significance of the threat to biodiversity



3. Identification of the sectors of the formal economy to be analysed

A set of 23 criteria were developed for prioritizing the economic sectors. These included both qualitative and quantitative inputs, which then enabled the assigning of an overall score to these sectors. Three categories, impact, reversibility, and willingness, allowed the sectors to respectively be prioritized according to the intensity of their impact on biodiversity, their capacity to act de facto to mitigate this impact (or at least to take it more into account), and their capacity to act intentionally to mitigate this impact (the aim of the study being to create voluntary and concerted commitments coming from the economic sectors themselves).

The mining sector, agricultural sector and forestry sector were highest under this scoring system.

Given their historic presence in the country and the scale of their activities, it is not surprising that these three sectors were listed as priority sectors under the scoring process, combining as it did both qualitative and quantitative analysis. Moreover, as regards mining and agriculture, there are no projections which predict the decrease of these activities; on the contrary, mines will prosper and expand with both the opening of new roads to the south of the country, and the modernization of port infrastructure, which will be the corollary of the oil industry development.

Agriculture is set to diversify, both in favour of more vegetable production, with the construction of megafarms, and intensive and mechanized farming of soybeans and corn (Brazilian model), especially to achieve independence for livestock feed. Finally, in terms of organization, the actors are relatively accessible and identified, and the ministries are well structured. Initiatives in favour of better consideration of biodiversity issues have been identified, and past initiatives can also be recycled and modernized. In agriculture, for example, there is a willingness to form a national plan for organic agriculture, to integrate aquaculture with rice crops, to recover the practice of kitchen gardens, and to regulate and control inputs.


Rice Farming © Pete Oxford

Regarding mining, opportunities for off-setting, improving practices through new techniques and technologies to ensure greater recovery efficiency of abandoned sites, and the creation of collaborative platforms on the best practices to adopt are ideas for development, either at the national level or the wider ecoregional level (Guiana Shield).

As regards the forestry sector, it is well organized and has already made successful commitments in the past (Reduced Impact Logging (RIL), REDD+ etc.), which makes it the 'easiest' partner to work with to create commitments. This can also be explained by the agreement linking the state to the Norwegian REDD+ fund, for which the allocation of funds for conservation is conditional on a minimum of forest exploitation. This is a reward mechanism for good forest management, which is based on an avoidance scenario of projected deforestation. Indeed, the opening of new roads and the end of the ban on log exports suggests that a revival of forestry activity is to be expected. Moreover, good practices are becoming more widespread, and in the forestry sector, the associated requirements of the sector such as transportation and road access are more damaging than logging per se, and thus fall into the economic sector of infrastructure construction and the political area of land use planning.

Concerning other sectors, explanations can be offered to justify their non-prioritization. The country's other historical sectors are fishing, rice and sugar. However, since fishing is mostly artisanal, with the exception of a few industrial actors, it would be challenging to bring these smaller artisanal players together around the same consultation table in order to reach a common agreement on a potential voluntary commitment by this sector. There is no organization representing all artisanal fishing activities (which are in the majority) as a collective, and practices are very diversified throughout the sector. It must be noted however, that the Department of Fisheries is working to revive fishing co-ops. As for aquaculture, this is often practiced in conjunction with agricultural activities. However, there are few studies on the evolution of stocks. In this sector, the damage to biodiversity is mainly indirect, identifiable upstream, via the pollution of waterways (particularly with the bioaccumulation of heavy metals).

The oil sector will clearly be a determining factor in the evolution of the country in the future, and a potential driver of the erosion of marine and coastal biodiversity. Nevertheless, since the sector is very new to the country, historical impact had to be counted as nil under the scoring process, and the


Spectacled caiman on the banks of the Essequibo River © Pete Oxford

sector is as yet too young to make sectoral commitments at this time. Moreover, private actors operate in a climate of fierce competition, which is not conducive to the establishment of sectoral consultations. In addition, political support will be low, as the degree of independence of the state in the development of the oil industry is low. The World Bank is financing the development of the legal and institutional framework aimed at maximizing the economic and social benefits of the sector's development. While the contracts signed between the oil companies and the state have been criticized as being lopsided, the Local Content Act (2021) attempts to maximize the level, quality, and benefits of participation in the petroleum sector.

The impact of renewable energy and tourism is minor compared to the impacts generated by the extractive industries. However, particular attention should be paid to the construction of hydroelectric dams and other renewable energies, which contain their share of environmental damage despite the guise of the green image they project. As for tourism, load capacities exist to protect tourist sites. Ecotourism allows tourists to experience traditional culture, which provides informal environmental education on topics related to biodiversity conservation.

The banking sector is indirectly the sector with the greatest impact on biodiversity and the one most likely to be an agent of change, as it allocates the funds necessary for economic activity. Indeed, several initiatives could be arranged to mitigate the impact of economic activity on biodiversity. For example, loan allocation processes could be conditioned on environmental impact assessments, or, with the integration of clauses dedicated to the protection of biodiversity, loans with preferential interest rates could be granted to sustainable development projects. To do this, Guyana could, for example, rehabilitate a national 'green development' bank, to capture international funds specifically allocated to biodiversity protection. However, this sector did not emerge as a priority sector for several reasons. First its impact on biodiversity is not quantified, and difficult to quantify. Banking networks are international and structured in complex associations, which generally conceal the exact origin of funds, making it hard to seize. Second, Guyana remains very dependent on the international banking sector, and engaging donors for the second phase of this project may be complex. Nevertheless, it would be advisable to organize a multi-donor meeting in order to take these issues into account and optimize the financing of biodiversity.

To inform the final decision of priority sectors with pre-identified opportunities of commitment, and bearing in mind the aforementioned negative impacts of the various sectors, stakeholders were asked about their willingness to make commitments that would mainstrea

Table 3. Proposed Commitments

MINING	AGRICULTURE	FORESTRY	OIL AND GAS
To have the most environmentally friendly practices implemented with the understanding that added income would be possible by marketing the products in that way			
Establish biodiversity reserves	Reduce the use of agrochemicals	Potentially incorporate monitoring/documenting biodiversity in the concessions so that in sensitive areas or if species are present, actions can be taken to preserve them with the help of authorities	Need to be pressured most likely- and would need Government's backing
Use of new technologies that improve recovery	The Agri Sector can formulate and implement the necessary policy framework to mainstream Biodiversity in the day-to-day agri activity. Also the developing of the necessary legislation	Low impact logging with price incentives or conservation concessions with financial incentives	There is a need for a sector-wide strategic assessment of the environmental and social impacts
Promotion of technology that allows greater recovery efficiency, so that mine closure can be realised. Greater emphasis on operations undertaking mine reclamation best practices	Drainage and irrigation compliance with regulatory framework	Expanding biodiversity reserves in large concessions	
Collaboration between regulatory agencies to monitor the impacts of mining, and enforce where necessary, on land and waterways	Using more bio-friendly pest control methods	Follow internationally recognized best practices in activities with the understanding that all players will be onboard	
Increased institutional and stakeholder commitment	It is crucial to focus on the conservation and use of biodiversity, also the sharing of the benefits derived from such resources	GFC has stated that it is undertaking a process to develop certification standards for Guyana. Certification - can help with mainstreaming biodiversity in sector operations	
The environmental bond and fines need to be increased in the sector	Interest in seeing the initiatives that emanate from this first phase and other areas; interest in biodiversity and improvement in environment	Training and education	
		Collaboration with other natural resource agencies that also manage forests for a holistic approach to biodiversity conservation	

FISHERIES	RENEWABLE ENERGY	TOURISM	BANKING SECTOR
If the proper regulatory and policy incentives are provided this will certainly assist in this regard	Prepare a bill and have it presented to the parliament	Follow national/acceptable standards for how to operate in the tourism sector	More voluntary requirements
To ensure that all vessels have adequate exclusion devices, appropriate fishing gear, follow any stipulated fishing seasons, avoid marine protected areas and return to sea species that are threatened	Agree in principle that infrastructure related to renewable energy be constructed with biodiversity in mind to ensure minimum negative impacts	Train tour guides about biodiversity so that they can carry out their duties with biodiversity in mind	Make environmental impact assessments a part of the loan process
Compliance monitoring needs to be improved in the fisheries sector	To always include an environmental impact assessment in projects to determine level of impact on the environment and possible mitigating measures	Potentially award practices that directly maintain biodiversity since other awards are promoted in the sector	The banking sector should include clauses in the funding/loan agreement that incorporate biodiversity mainstreaming e.g. restoration in the mining sector
	Utilize technologies and techniques to minimize negative biodiversity impacts	Source food, transportation and other services from sources that are committed to sustainable practices that positively impact biodiversity.	Provide funding to interested parties with feasible projects related to preserving biodi-versity
		Education and outreach, stakeholders consultation and collaboration	
		Tourism sector is growing in Guyana, with so many of the existing positive impacts on biodiversity, the sector should be supported and incentivized to continue on this path, especially now that the market stands to expand further. - Tourism does have its negative impact on biodiversity, but not nearly as comparable to mining, forestry, agriculture sectors; I feel it's best that the sectors that create widespread damage be shortlisted.	

CONCLUSION

In Guyana, ecosystems are unevenly affected by economic development. The population is concentrated on the low coastal plain, where 90% of the population is located. As a result, commercial agriculture (rice, sugar cane) is developed on the coast, and along with fishing (artisanal) activities generate the most employment in the country. In May 2015, offshore oil was announced to have been discovered in the sea, close to the coast, which has added a source of pressure on this geographical area. This oil boom promises a considerable development opportunity, given the financial windfall that oil extraction will generate. Nonetheless, the government foresees the limitation of oil resources as well as a potential future change in international paradigms which may favour greater taxation on fossil fuels. The government therefore aims to diversify agriculture in parallel, especially in the interior of the country. Guyana's ambition to both become the breadbasket of the Caribbean and reduce its food import bill is real, and indeed, intensive and mechanized soybean and maize farming are among other established projections.

Further inland, the forests (more or less hilly to mountainous) and savannahs are disturbed by other extractive activities, mining and logging, which impact biodiversity even though the country's deforestation rate is one of the lowest in the world, with 0.07% annual deforestation. Indeed, the lack of an extensive road network has long 'saved' the country from forest degradation, with logs and minerals mainly transported by river. However, infrastructure development projects, such as the proposed road between Lethem and Linden, could have a considerable impact on biodiversity by facilitating access to the south of the country. Opening the forests via this road might provide privileged access to loggers and miners (both formal and illegal) as well as facilitate the development of ecotourism. It will also allow Brazil to access these areas, and the sea, by opening up to Boa Vista. The savannahs might thus become more accessible, and the development of mega farms (which have already started) is a likely scenario. Finally, the recent re-approval of the Amaila Falls Hydropower Project risks generating significant impacts on the continuity of hydraulic ecosystems, and opens the door to other projects of this type.

To underpin these economic activities, the banking sectors (along with the insurance sectors, often linked) are crucial and have an indirect effect. For the past 30 years, Guyana has not had a development bank, only commercial banks. So-called 'green' loans aim to finance renewable energy projects, but do not have low interest rates, making the name more cosmetic than meaningful. Guyana remains very dependent on the investment of international banks or foreign companies for its development, which could have a determining role on the degradation of biodiversity, through the projects they choose to finance.

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Mainstreaming Biodiversity is generally understood as ensuring that biodiversity, and the services it provides, are appropriately and adequately factored into policies and practices that rely and have an impact on it. In addition, mainstreaming biodiversity means to integrate all impacts on and dependencies to biodiversity along the production lines and value chains.
Empowering governments together with the private sector and civil society, to jointly identify and engage transformational changes in economic sectors which are strategic for national development and significantly impact biodiversity in Guyana.

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