SCOPING PAPER

Identifying Options for Capacity Development to Implement the Kunming Montreal Global Biodiversity Framework (KM-GBF) in the context of Knowledge Management, Scientific and Technical Cooperation and Technology Transfer

Prepared under the EU-OACPS ACP MEAs 3 Programme by UNEP

EXECUTIVE SUMMARY

In December 2022, the 15th meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) adopted the Kunming-Montreal Global Biodiversity Framework (KM-GBF). The latter includes several elements related to capacity-building and development, technical and scientific cooperation (TSC), technology transfer, and knowledge management, including in Target 20 on strengthening capacities, cooperation, and access to, and transfer of technologies to meet the needs for effective implementation, and Target 21 regarding accessibility to the best available data, information, and knowledge to guide governance and management of biodiversity. The COP also decided to establish a mechanism comprising a network of regional and/or subregional TSC support centres to be coordinated at the global level by a global coordination entity.

The present study focuses on exploring the preparedness of the ACP regions (at regional and national levels) in support of the COP 15 outcomes and decisions related to TSC and technology transfer, and provides an assessment of options to work with the regional hubs of the UNEP MEAs in ACP Phase III Project and other relevant institutions to participate in the proposed "network of regional, and/or subregional technical and scientific cooperation support centers."

Part 1 Scoping

Aichi Biodiversity Target 19 (ABT 19) required that: "By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred,

and applied." The review of the Sixth National Reports and related NBSAPs shows that 151 individual targets, either national or global in nature, were identified by 76 ACP countries (out of 79) as being associated to ABT 19. As regards the specific focus of ABT 19 related targets, most of them can be ascribed to the category of biodiversity related knowledge management interventions, although the emphasis varies between ACP countries, which have prioritized interventions in diverse substantive areas (*as shown below in Tables 3 to 5*). Overall, most ACP countries (53,2 per cent of the total) indicated to have made insufficient progress towards meeting ABT 19 and associated national targets. The second largest group of ACP countries (22,8 per cent) reported to be on track to meet their targets at the time of reporting (such period varied from 2018 to 2020). Finally, an equal number of countries reported no significant change over the reporting period (10,1 per cent), while another 10,1 per cent indicated that such progress was unknown (*see below Table 2*).

Part 2 Assessment

In order to effectively establish an efficient network of institutions to support the implementation of the Convention, its Protocols, and the global Goals and Targets of the GBF, it is important to understand what the factors are that have acted as obstacles in making more progress in each region. The key regional/sub-regional organizations, institutions, and the related TSC programmes and initiatives that provide support for the implementation of the CBD and its Protocols in the Caribbean region include: the Caribbean Community (CARICOM) and its organs/entities - e.g. the Caribbean Agriculture Research and Development Institute (CARDI), the Caribbean Regional Fisheries Mechanism (CRFM), and the Caribbean Community Climate Change Centre (5Cs); the Organisation of Eastern Caribbean States (OECS); the Amazon Cooperation Treaty Organization (ACTO) and its Amazon Research Observatory; the UNEP Caribbean Environmental Programme and the Cartagena Convention; the IUCN regional network on protected and conserved area management; as well as the various national research and university systems - e.g. the University of West Indies (UWI) and American University of Antigua (AUA); and NGOs such as the Caribbean Natural Resource Institute (CANARI). In the African region, the most prominent institutions are the African Union Commission (AUC); the African Union Development Agency; the Central African Forest Commission (COMIFAC) and its Working Group on Biodiversity (GTBAC); the Southern African Development Community (SADC); the Western Indian Ocean Marine Science Association, and network comprising specialized NGOs such as the Coastal Oceans Research and Development in the Indian Ocean (CORDIO); the UNEP Regional Seas Programme; the Lake Chad Basin Commission; the Lake Victoria Basin Commission; and the Congo Basin Forest Partnership (CBFP). In the Pacific region, the most active regional organizations are the South Pacific Regional Environment Programme (SPREP) and the Pacific Community (SPC).

The most frequently used modalities and approaches for TSC, technology transfer, knowledge management, and capacity building by the above institutions include: joint trainings, exchanges of experts and international study tours; peer-to-peer networking; joint research and vocational programmes; various participatory approaches in project steering committees; and partnership and network building through Memoranda of

Understanding (MoU) and project cooperation agreements.

The key challenges and limitations present in the three regions have included respectively: for the Caribbean region – financing challenges as countries have not been able to generate sufficient financing to developed new industries and business models around biodiversity at an adequate scale, outside of agriculture; the challenge of strengthening the enabling environment, creating a space for the recognition and action of the local communities; low private sector engagement, requiring more work on modalities and incentives, taking into account its size and scale in different countries; and language barriers; for the African region – lack of adequate institutional capacity building support through a nodal approach to address biodiversity-related cooperation and support services at scale; biodiversity projects could and should often inform national development programming, but this is rarely possible because there is no provision of funds for these follow-up actions; lack of attractive policies and budgetary allocation to retain qualified professionals to work on biodiversity and MEAs; gaps and capacity limitations in terms of managing transboundary issues and lack of funding; and the need to develop a coordinated "masterplan" for guiding regional and subregional research priorities for biodiversity; for the Pacific region – weak partnerships; the need to work across different and often distant time zones; the overreliance on virtual communication rather than connecting in-person through specific regional activities; the heavy reporting burden for most Pacific SIDS; a limited number of institutions with relevant technical expertise; and the limitations of SPREP as a regional support mechanism mainly to due financial and human resource constraints.

The assessment further highlights the following institutional needs and capacities, which broadly include equipment needs, expertise needs, capacity building needs, financial and other resource needs, in particular: For the Caribbean region – the need to accelerate and complete the NBSAPs update, while placing emphasis on using existing institutions and increasing the role of biotechnology and biosafety; the absence of a dedicated regional centre of excellence on biodiversity; the need to establish and promote coordination mechanisms to keep track of different actors and actions, possibly with biodiversity focal points designated as national level coordinators under the proposed TSC regional network; the opportunity to formalize the institutional need to engage with, and collect data from, CSOs and NGOs to implement the GBF, including through the provision of direct funding to them, in accordance with the whole of society approach; the need consider Traditional knowledge (TK) on equal footing with scientific knowledge, involving TK holders and Indigenous Peoples and Local Communities (IPLCs) in the TSC network; the need to strengthen knowledge management (KM) and the modalities to address documentation needs, including with a view to making relevant institutional learnings more easily accessible and usable across the region; and the need to harmonize and develop regional ABS minimum standards (to avoid a race to the bottom) through a regional approach that can lower the operating and maintenance costs for IT-related monitoring systems, equipment, support, and R&D technologies for the development of ABS products.

For the African region – paramount is the resource challenge to implement the

updated NBSAPs; the limited development of infrastructural resources for TSC, TT, KM and CB; the shortage or no availability of bilateral and multilateral support directed towards the research and university system; and the limited regional and national capacities in terms of using, developing, and maintaining relevant technologies to develop bio-based products, laboratory equipment, and research and development (R&D) infrastructure; the need for CSOs interventions to find a solid grounding in, and a better alignment with the revised NBSAPs' priorities; and a better coordination of ABS transboundary issues, among others.

For the Pacific region – important highlights include the institutional need to decrease the proportion of project-based funding relative to programmatic/core funding; strengthening inter-agency cooperation and coordination, *inter alia*, by strengthening the role of national biodiversity steering committees or similar bodies; enabling a better policy and legislative environment, promoting enforcement and compliance capacities; supporting the establishment of scientific research organizations in Pacific Island countries and ensuring long-term support to sustain their operations; and improving data management practices, support for, and utilization of existing centralized in-country data repositories.

Part 3 Recommendations

In order to achieve a better integration of TSC-related issues into the updated NBSAPs, it is recommended that regional NBSAPs dialogues be used as a platform to advance a coherent TSC regional integration agenda; such work might include the development of coordinated guidance on how to integrate TSC issues into the updated NBSAPs, addressing questions such as whether to treat TSC as a crosscutting issue (i.e. in instance where there will be TSC sub-targets linked to various relevant thematic priority targets) and/or as a self-standing national target (e.g. providing for a direct correspondence to GBF Target 20); the early completion of national needs assessments to define the specific needs for training, capacity building, research and knowledge production, and for new technology, in relation to the implementation of the prioritized national targets, coupled with a cost estimate of the resource requirements to meet those needs, with the view to promoting the integration of the identified priorities into each country's national development strategies.

The specific focus of national and/or regional targets for TSC in the context of achieving the GBF might include: focusing specifically on the indicators in the GBF, and on what is necessary to monitor regional and national targets set out by the updated NBSAPs; promoting an iterative process that would ultimately build multi-functional capacities on biodiversity; and seeking alignment with the other Rio Conventions, Biodiversity-related Conventions, and their relevant indicators for TSC, as well as with the relevant science and technology (S&T) work and indicators in the context of the SDGs.

The priority focus areas for the ACP regions will include enhancing capacities and cooperation for, *inter alia*: achieving the 30x30 Target (Target 3 of the GBF – *30 percent of land, waters and sea areas effectively conserved by 2030*); enhanced implementation

of access to genetic resources and benefit sharing (ABS), including through an appropriate solution and/or mechanism(s) for the sharing of monetary and non-monetary benefits arising from the utilization digital sequence information (DSI) on genetic resources; biotechnology and biosafety, and the transfer of appropriate technologies and technological capacities; developing, adopting and scaling-up nature-based solutions for addressing simultaneously climate change and biodiversity challenges; the uptake and implementation of the One Health Approach; the enhanced management of transboundary aspects of cooperation; facilitating development of national financial plans for biodiversity; promoting the involvement and contributions of indigenous peoples and local communities (IPLCs), women, youth, the elders, and citizens' science to biodiversity management; and strengthening private sector involvement in support of the GBF implementation, taking into account appropriate incentives and business approaches to biodiversity.

As regards the entities or organizations best placed as candidates to host a TSC support centre: for the Caribbean region – the Caribbean Community Secretariat (CARICOM) will most likely be selected to host a TSC centre, having successfully passed stage two of the selection process; the Organisation of Eastern Caribbean States (OECS) was also deemed to possess valuable experience, expertise and skills that will be an asset to the TSC mechanism, and it may be invited to partner with a regional or subregional support centre to provide specialized technical support to Parties in the region. For Africa, the Central African Forest Commission (COMIFAC) and the South African National Biodiversity Institute (SANBI) will most likely be selected to host a TSC centre. The *Centre de Suivi Ecologique* (CSE) based in Senegal and the Regional Centre for Mapping of Resources for Development (RCMRD) based in Kenya have also successfully completed stage two of the selection process and may be invited to host, co-host, or partner with a TSC centre under the different scenarios. The African Union Development Agency and the African Union Commission did not submit an expression of interest and therefore, were not considered during the selection process. However, giver their importance as technical assistance providers in the region and the relevance of their respective mandates in the areas of S&T cooperation and biodiversity, it is recommended that they be proactively engaged in the African TSC support network. For the Pacific region, the Secretariat of the Pacific Regional Environment Programme (SPREP) was the only candidate institution to participate in, and successfully complete the assessment process, and it will likely be selected to host a TSC centre.

Suggestive activities through TSC Networks and pilot interventions should focus in a few specific focal areas, based on the commonalities of countries' interests within each region or subregion, and they might include: various contributions to the 30x30 Target, for instance, building upon the 20 by 20 Challenge in the Caribbean Region, and enhanced cooperation regarding the management of protected areas (PAs) and other effective area-based conservation measures (OECM) for both marine and terrestrial areas; a better understanding, definition of, and access to the finance architecture for biodiversity-related implementation, while capitalizing on existing mechanisms such as the Caribbean Biodiversity Fund; updating the Regional Biodiversity Framework, including regionally relevant biodiversity indictors and targets; and establishing a regional research agenda for biodiversity, while strengthening biodiversity-related data

management. For Africa, priority interventions might focus on, *inter alia*: generating and compiling standardized information, knowledge and data needed for monitoring the Targets and Goals of the GBF in a synergistic and interoperable way; establishing a regional and/or subregional database infrastructure that would support the monitoring of genetic resources; mobilizing technologies to address the priority needs for the region; promoting ABS, science, technology and innovation, supporting the development of value addition products arising from the use of GRs and TK, and strengthening sequencing and analytical capacity for DSI; and coordinated interventions in the sustainable tourism sector, where countries in a subregion might be competing with their neighbors for the same tourism products and facing difficulties to broaden their product portfolio.

With regard to the effective stakeholders' engagement in the TSC networks, it is recommended that stakeholders be mobilized from design phase onwards, emphasizing consistency, which should be undertaken based on a unique plan in the design process on how to involve them at various levels and in different stages of implementation; consultations should be directly linked to the priorities arising from the updated NBSAPs, having a reasonable number of countries to work together on the identified common priorities, and empowering relevant stakeholders in the monitoring process; and to budget and keep engagement costs of any planned activities at a level that countries can afford for their long-term sustainability.

Recommendations on the scalability of pilot activities and long-term engagement postulates that: all governments must be actively involved from the outset in the design and implementation of TSC Network activities; resource mobilization for the GBF should expressly include a TSC and capacity building component so that it can be supported through appropriate international financial mechanism(s); such TSC funding may be envisages in phases, but at least for an initial period until 2030; additional co-financing should be provided by the countries that are serviced by each TSC support centre, and such countries should be able to participate in the governance of relevant centres, while emphasizing the importance of Network focal points at the country level; as regards the funding windows available through the GEF and its GBF Fund, the possibility for direct accreditation of national institutions (e.g. in the TSC Network) to directly access financing for the implementation of the GBF and the related NBSAPs should be provided.

The selected TSC support centres should prioritize support for, *inter alia*: building social, environmental and other fiduciary safeguards and standards into the normative and operational framework of relevant national Network institutions and stakeholders; the development of a portfolio of bankable projects within and between countries in the assigned regions; developing a coherent regional perspective and prioritization modalities to address key biodiversity issues; supporting the management of biodiversity data and information, demonstrating how they can be effectively leveraged for decision making and policy support; using the GBF monitoring framework and the whole of society approach as entry points, in order to have a variety of possible network institutions and stakeholders fully integrated into participatory reporting processes, thereby enabling people's contributions; considering from the outset how to engage with the private sector in the TSC network, for instance, by

mobilizing available technology, ICT partnerships and youth to support the GBF monitoring framework; documenting and routinely sharing lessons learned and best practices for their widest availability; adopting adaptive management mechanisms devised to make adjustments and improvements, ensuring that data flows two ways, and remains accessible and usable; and promoting a two-way capacity development with IPLCs that caters for building capacities for scientists and researchers on IPLCs' rights and needs, and on their expectations from relevant project interventions and interactions.

THE REPORT

Outline

The present scoping paper comprises three main Parts and five Annexes. Part I is constituted by an **Inception Report**, which illustrates the context and scope of this study, and provides a short review of the most relevant documents, policy and legal references. It also presents an in-depth analysis and country review of global and national targets associated with Aichi Biodiversity Target 19 (*Knowledge improved, shared and applied*). It does so by extrapolating, aggregating and visualizing relevant information from National Biodiversity Strategies and Action Plans (NBSAPs) and the 6th National Reports (6NRs) to the Convention on Biological Diversity. An updated list of regional/sub-regional organizations, institutions, as well as programmes and initiatives relevant for biodiversity-related technical and scientific cooperation (which was initially presented as part of this deliverable and further updated in the Assessment Report), is now appended in Annex I.

Part II, the **Assessment Report**, identifies and presents the main capacity needs in the three ACP regions focusing specifically on technical and scientific cooperation (TSC) and technology transfer, including on the basis of the findings arising from the semi-structured interviews that were conducted with selected informants. Following a brief introduction in Section I, Section II overviews the key technical and scientific cooperation programmes and initiatives in the three ACP regions. Section III considers the main cooperation approaches and modalities for technical and scientific cooperation, technology transfer, knowledge management and capacity building, while Section IV identifies their main challenges and limitations. Finally, Section V, presents some overarching considerations on the institutional needs and capacities identified in the three ACP regions.

Part III, the **Recommendations Report**, continues to draw extensively from the findings arising from the semi-structured interviews with selected informants, while also building upon the feedback received during and after the virtual stakeholder meeting that was conducted on 13 September 2023. In particular, following a short disclaimer in Section I, it considers how to integrate TSC related issues in the updated National Biodiversity Strategies and Action Plans (NBSAPs) in Section II. Then, it presents some considerations regarding the possible substantive focus of national or regional TSC targets in Section III. Section IV considers potential host organizations for the

establishment of the regional TSC support centres and/or other potential partners in the ACP regional networks. Section V proposes recommendations on suggested focal themes or subject-matter areas that could be prioritized for consideration by the proposed network of regional and/or sub-regional TSC support centres. Section VI considers the possible prioritization of the objectives pertaining to the Mechanism(s) established by the Fifteenth Conference of the Parties to the UN Convention on Biological Diversity to strengthen technical and scientific cooperation in support of the Kunming-Montreal Global Biodiversity Framework (GBF). Section IIV presents recommendations on suggestive activities to be conducted or facilitated through TSC Networks as well as possible pilot interventions in the ACP regions for short-term actions (2023-2024). Section IIIV considers the strategic and effective engagement of relevant stakeholders in the regional TSC networks. Section IX provides recommendations on the scalability of the suggested pilot activities to catalyze sustained support and engagement for a long-term approach to technical and scientific cooperation.

The final section elaborates some overarching collusions and recommendations by considering, among other things: a step-wise approach to integrate technology considerations and related targets into the updated NBSAPs; possible entry points and modalities for proactively engaging the private sector in the regional TSC networks and activities; the role of the intellectual property (IP) system and of IP-related institutions as part of the broader landscape of science, technology and innovation institutions that account for a conducive innovation ecosystem; the funding and priority realignment that would be required to meet the Goals and Targets of the GBF; and the need to strengthen and leverage relevant institutional learnings as the paramount aspect of knowledge management in support of the GBF.

The ensuing Annexes contain various relevant sources of supporting information, such as: the datasets constructed for the purpose of reviewing the 6NRs concerning the 79 ACP countries (Annex II); the list of ACP Countries and their Status of Ratification of the CBD and its Protocols (Annex III); the list of key informants (Annex IV); and a template comprising the semi-structured research questions used for conducting the interviews (Annex V).

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List of Acronyms

6NR: the Sixth National Report to the UN Convention on Biological Diversity

ABT: Aichi Biodiversity Target

ACP countries: African Caribbean and Pacific countries

CBD: UN Convention on Biological Diversity

CB&D: Capacity building and development

COP: Conference of the Parties

COP 15: the Fifteenth Conference of the Parties to the UN Convention on Biological Diversity

CSOs: Civil Society Organizations

CTCN: Climate Change Technology Center and Network

GEF: Global Environmental Facility

GCF: Green Climate Fund

IP: Intellectual Property

IPLCs: Indigenous Peoples and Local Communities

KM-GBF: Kunming-Montreal Global Biodiversity Framework

MEAs: Multilateral Environmental Agreements

NBSAPs: National Biodiversity Strategies and Action Plans

NGOs: Non-governmental organizations

ORT: Online reporting tool

SIDS: Small Island Developing States

TT: Technology transfer

TSC: Technical and scientific cooperation

UNEP: United Nations Environmental Programme

UNFCCC: United Nations Framework Convention on Climate Change

WIPO: World Intellectual Property Organization

ACP MEAs 3

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Part I

Inception

I. Background

In December 2022, the 15th meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) adopted the Kunming-Montreal Global Biodiversity Framework (KM-GBF). The KM-GBF comprises a set of 4 goals and 23 action-oriented targets for the protection and restoration of biodiversity, including a North-South target for the effective conservation and management of at least 30% of the world's land and water by 2030.[1] It also includes several elements related to capacity-building and development, technical and scientific cooperation, technology transfer and knowledge management, namely in Target 20, regarding, *inter alia*, capacity-building and development, technology transfer, and technical and scientific cooperation to meet the needs for effective implementation, and Target 21, regarding accessibility to the best available data, information and knowledge by decision makers, practitioners and the public to guide governance and the management of biodiversity. In section I of the GBF, on implementation and support mechanism and enabling conditions, the COP noted, *inter alia*, the need for cooperation and collaboration in building the necessary capacity and transfer of technologies to allow Parties, especially developing country Parties, to fully implement the Framework (see: CBD/TSC/IAG/2023/1/3).

Furthermore, the GBF itself was adopted as a package together with a bundle of six intertwined CBD COP decisions addressing: resource mobilization; the monitoring framework; mechanisms for planning, monitoring, reporting and review; benefit-sharing from the use of digital sequence information on genetic resources; and – most importantly for the objective if this scoping paper – a decision on capacity building and development, and technical and scientific cooperation.[2]

In this context, an operational definition of technical and scientific cooperation may refer to a process whereby two or more countries or institutions pursue their individual or collective biodiversity related goals through cooperative actions and/or through exchange of technical and scientific knowledge, expertise, data, tools and resources, technologies and technical know-how. Technical and scientific cooperation may include human resources development, institutional building, exchange of expertise, joint training, joint research, joint development and diffusion of technologies, including indigenous and traditional technologies, and the transfer of such technology and know-how (see CBD/SBI/3/7/Add.2). Such activities may implement, in particular, Articles 16, 17 and 18 of the Convention, as well as any related provisions of its Protocols, through a coordinated and integrated approach.

[1] See CBD Website at: https://www.cbd.int/gbf/

[2] CBD COP Decision 15/8 takes into account the outcome of the review process mandated through SBI Recommendation 3/8, referred to in the ToRs for this Consultancy. See Document CBD/COP/15/12.

The present intervention focuses on exploring the preparedness of the ACP regions (at regional and national levels) in support of the CBD COP 15 outcomes and decisions related to technical and scientific cooperation and technology transfer. The final outcome, which is presented below in the Final Assessment and Recommendations Reports (respectively in Parts II and III of this document), will ultimately provide an assessment of options to work with the regional hubs of the UNEP MEAs in ACP Phase III Project[3] and other relevant institutions to support their preparedness and participate in the to-be-established "network of regional, and/or subregional technical and scientific cooperation support centres".[4] Such network aims at strengthening capacities for enhancing regional cooperation on issues related to science and technology, technology transfer and knowledge management, thereby promoting South-South cooperation on biodiversity.

II. Summary review of relevant documents

CBD COP 15 related outcomes relevant for TSC, CB, TT & KM

The most relevant Target of the GBF that is directly relevant for the objective of this consultancy are Targets 20 and 21. Target 20 sets out to: "Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework."

Target 21 provides to: "Ensure that the best available data, information and knowledge are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation."

Section I of the GBF on "Implementation and support mechanism and enabling conditions" (paragraphs 14 and 15) provide that: "Implementation of the [KM-GBF] and the achievement of its goals and targets will be facilitated and enhanced through

[3] Namely, the CARICOM Secretariat in the Caribbean region, the Secretariat of Pacific Regional Environmental Programme (SPREP) and the African Union Commission (AUC).
[4] CBD COP Decision 15/8, paragraphs 25-26.

support mechanisms and strategies under the [CBD] and its Protocols, in accordance with its provisions and the decisions adopted by [CBD COP 15]. … It further requires cooperation and collaboration in building the necessary capacity and transfer of technologies to allow Parties, especially developing country Parties, to fully implement the Framework."

Section K on "Communication, education, awareness and uptake", affirms that: "Enhancing communication, education, and awareness on biodiversity and the uptake of the Kunming-Montreal Global Biodiversity Framework by all actors is essential to achieve its effective implementation and behavioural change, and to promote sustainable lifestyles and biodiversity values, including by: … (g) raising awareness on the critical role of science, technology and innovation to strengthen scientific and technical capacities to monitor biodiversity, address knowledge gaps and develop innovative solutions to improve the conservation and sustainable use of biodiversity."

Furthermore, with regard to technical and scientific cooperation (TSC), in particular, the COP also decided to establish a mechanism comprising a network of regional, and/or additional subregional technical and scientific cooperation support centres to be coordinated at the global level by a global coordination entity. It also urges Parties and invites others to recognize and promote the important role of science, technology, innovation, and other knowledge systems in supporting GBF implementation. It encourages Parties, in accordance with CBD Article 20, in collaboration with relevant partners to promote, facilitate, and support the development of biodiversity-related technologies and innovations, including biotechnology, as well as locally-designed solutions and indigenous technologies of IPLCs, with their free, prior, and informed consent, to increase technology transfer (TT) for all Parties, in particular for developing countries.

The Decision includes annexes containing: mechanisms to strengthen technical and scientific cooperation in support of the GBF; the ToR for the informal advisory group on TSC; as well as agreed guidance concerning the establishment of a mechanism comprising a network of regional and/or sub-regional TSC centres, to be coordinated at the global level by a global coordination entity, and the relevant selection criteria for the host institutions. Such TSC support mechanisms shall be operationalised as soon as possible. In particular, following the issuance of a forthcoming CBD notification to submit expressions of interest and a detailed proposal of the offer to host a regional and/or subregional TSC support centre, the informal advisory group on TSC will consider the top shortlisted candidates and will provide advice on the most suitable entity(ies) and organization(s), as well as the number of centres required to effectively implement the GBF.

Review of the Sixth National Reports for the Convention and related NBSAPs

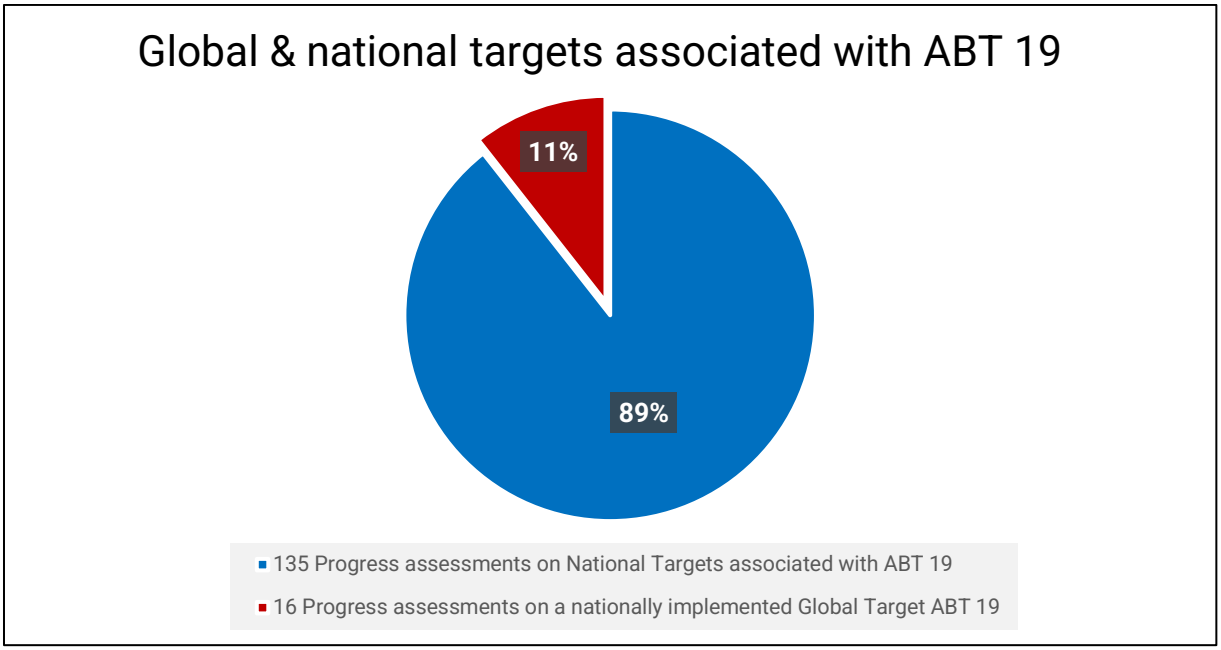
The most relevant Aichi Biodiversity Target in relation to technical and scientific cooperation (TSC), capacity building and development (CB), technology transfer (TT)

and knowledge management (KM) is Aichi Biodiversity Target 19 (ABT 19), which provides as follows:

> By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

By reviewing the relevant Sixth National Reports and related NBSAPs, the following important analytical information can be assessed: a total of **more than 151 individual targets**, either national or global in nature, were identified by 76 ACP countries (out of 79) as being associated to ABT 19 in their NBSAPs and subsequently reported on in the context of their Sixth National Reports.[5]

Table 1: Breakdown of global and national targets associated with ABT 19 in relevant NBSAPs



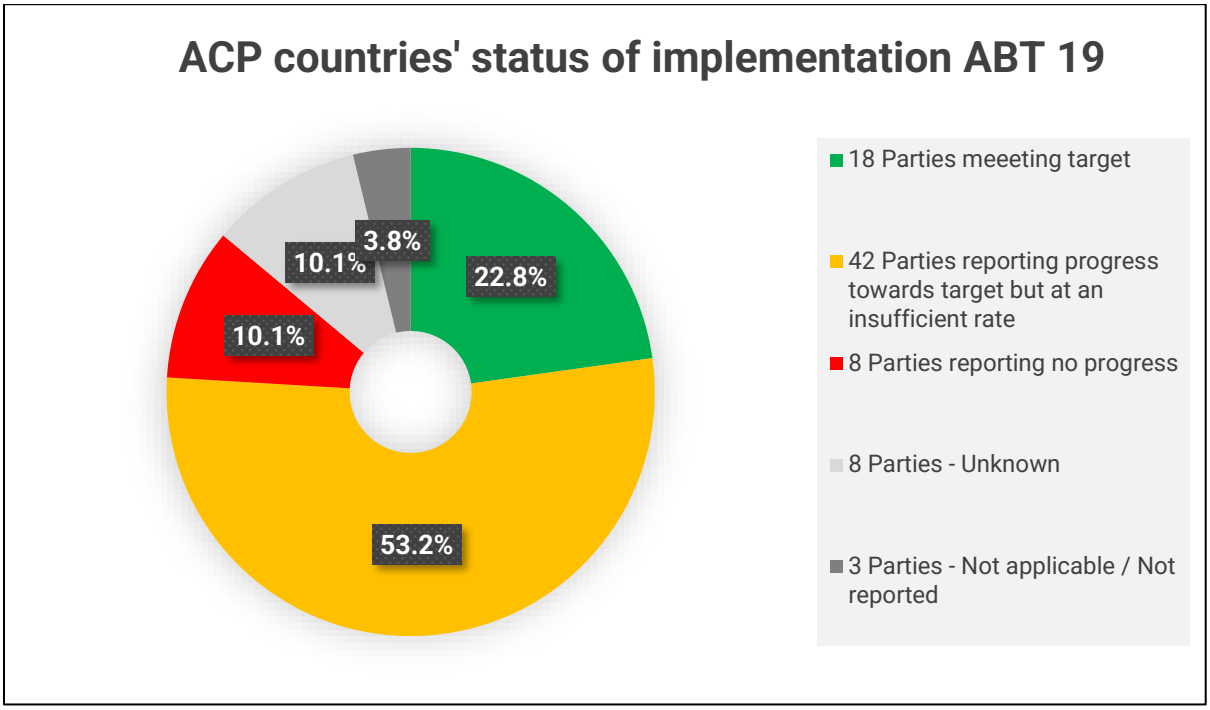
As illustrated in table 1 above, **135 national targets** (89 per cent of the total) were identified by Parties in their NBSAPs/6NRs as contributing to ABT 19 – with the latter being either the primary associated global target or a relevant sub-target. For the remaining **16 global targets** reported on by Parties, progress was assessed directly against ABT 19, most often under the overarching rubric "biodiversity knowledge".[6]

[5] For additional details and specific references, see Annex II – 6NRs: Status of Implementation of ABT 19 associated targets in NBSAPs.

[6] *Methodological Note*: 27 ACP countries have submitted information on progress against their national targets associated with Aichi Biodiversity Target 19 (ABT 19) or directly against the latter (e.g. in the absence of defined national targets) by using the online reporting tool (ORT). For such countries, the information presented below was extracted by using the online reporting tool and qualitatively assessed and verified in individual cases (e.g. in case of incongruences or absence of relevant information, and to clean the dataset against false positive and false negative results). For the remaining 50 ACP counties that have submitted their sixth national reports

Overall, 77 ACP countries (out of 79 in total) submitted their Sixth National Reports for the Convention (6NR), while only two Caribbean countries were not able to make available their submissions prior to CBD COP 15.[7] Another Caribbean country –while having duly reported through the Sixth National Report– did not associate any of its targets to ABT 19. As shown below in table 2, taken together, this group, which did not report specific information on ABT 19, amounts to only 3,8 per cent of the total ACP countries.

Table 2: ACP countries' overall status of implementation of ABT 19



A large majority of ACP countries (53,2 per cent of the total) indicated to have made insufficient progress towards meeting ABT 19 and/or the associated national targets. The second largest group of ACP countries (22,8 per cent of the total) reported to be

"offline" in PDF, the same data was individually assessed and extracted for its integration into the dataset. As noted above, several ACP countries have reported progress directly against the Aichi Biodiversity Target 19. In addition, a much larger number of ACP countries have also reported progress against their national targets associated with Aichi Biodiversity Target 19 (either as the primary reference target for one or more of their national targets or as a relevant sub target). For the purpose of this study, in both cases, the association of a national target with ABT 19 is directly inferred from the information provided by the reporting countries in their Sixth National Reports. However, given the enabling and crosscutting nature of knowledge, science and technology -related cooperation and capacity development, it is worth noting a degree of inconsistency regarding the approach that the Parties have used when establishing the relevance of ABT 19 vis-à-vis their national biodiversity targets (ranging from associating just one national target to several ones covering disparate subject areas). In cases where a country has more than one (national or global) target associated with ABT 19, the average of these assessments is used to generate the overall level of progress achieved towards ABT 19.

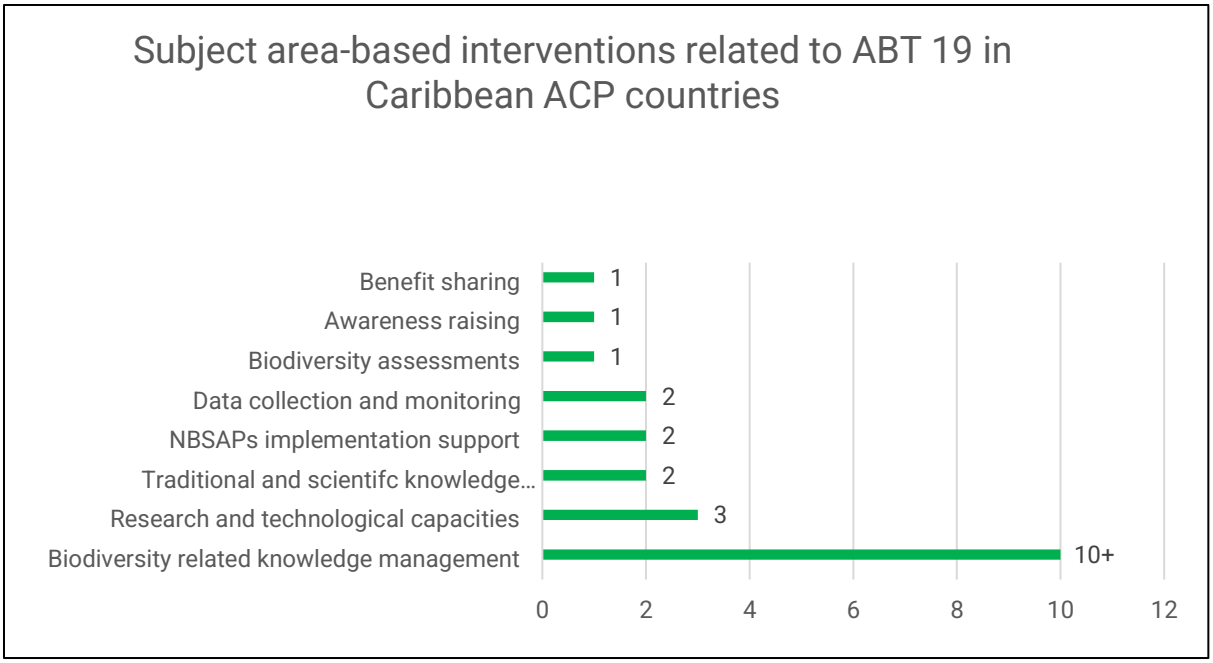
[7] For more details see also the tables in Annex III, which provide ACP country-specific details including a summary on the status of ratification of the Convention and its Protocols.

on track to meet their targets at the time of reporting (such period may vary between individual reporting Parties covering the period that spans from 2018 to 2020). Finally, an equal number of countries reported no significant change over the reporting period (10,1 per cent of the total), while another 10,1 per cent noted that the progress made on such target was unknown.

As regards the specific national focus and implementing actions in support of ABT 19 related targets, most of them can be directly or indirectly ascribed to the broad category of biodiversity related knowledge management interventions,[8] although the emphasis may vary between ACP countries, which have also prioritized interventions in many diverse substantive areas (especially where ABT 19 is relevant as a sub-target).

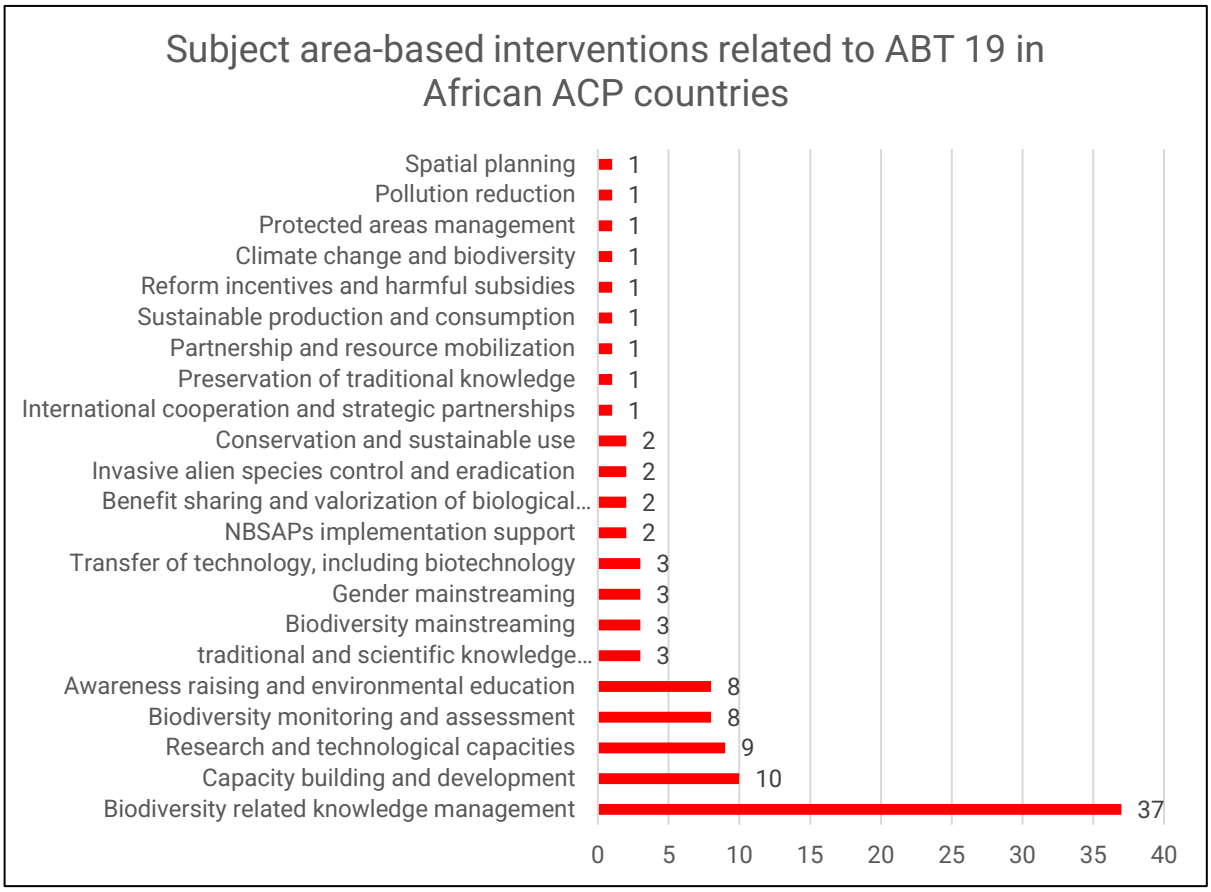
For example, in the Caribbean ACP countries (see below Table 3), such substantive areas of intervention have included, among others: strengthening research and technological capacities and infrastructure, traditional and scientific knowledge documentation and integration, supporting NBSAPs implementation, enabling data collection and monitoring, promoting biodiversity assessments, awareness raising, and benefit sharing.

Table 3: Breakdown of substantive subject area-based interventions related to ABT 19 in the Caribbean ACP countries



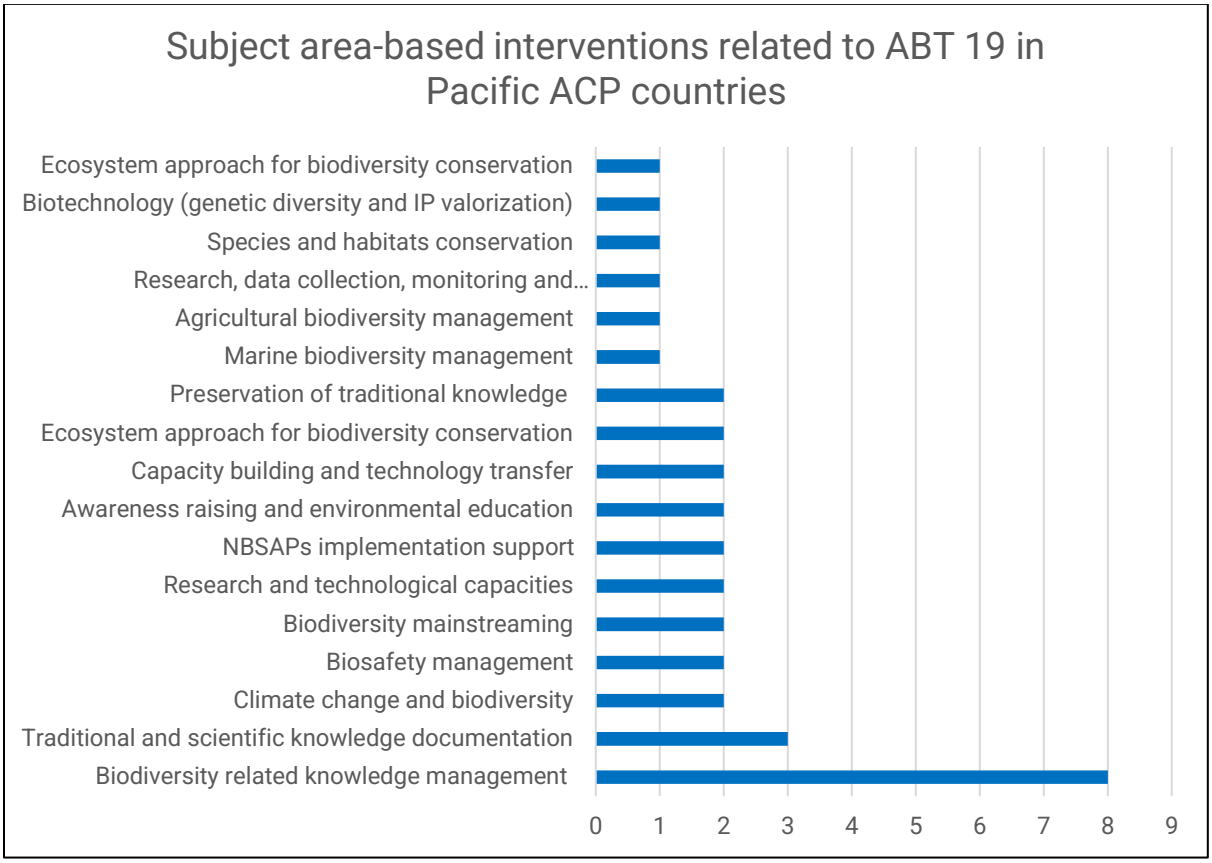
[8] For the purpose of the ensuing analysis, all NBSAPs-related global and national biodiversity targets that have a close similarity, or are equivalent in their formulation, to global ABT 19 are ascribed under the rubric "biodiversity related knowledge management" and may be generally understood to encompass all three elements of "knowledge, the science base and technologies relating to biodiversity".

Table 4: Breakdown of substantive subject area-based interventions related to ABT 19 in the African ACP countries



In the African ACP countries (see above Table 4), substantive areas of intervention have included, among others: biodiversity related knowledge management, capacity building and development (at the individual and/or institutional levels), strengthening research and technological capacities, biodiversity monitoring and assessment, awareness raising and environmental education, traditional and scientific knowledge documentation, integration and application, biodiversity mainstreaming, gender mainstreaming, the transfer of technology, including biotechnology, NBSAPs implementation support, the fair and equitable sharing of benefits and the valorization of biological resources, invasive alien species control and eradication, biodiversity conservation and sustainable use, international cooperation, strategic partnerships and resource mobilization, the preservation and protection of traditional knowledge, sustainable production and consumption, reforming incentives and harmful subsidies, research on climate change and biodiversity linkages and interactions, protected areas management, pollution reduction, and spatial planning.

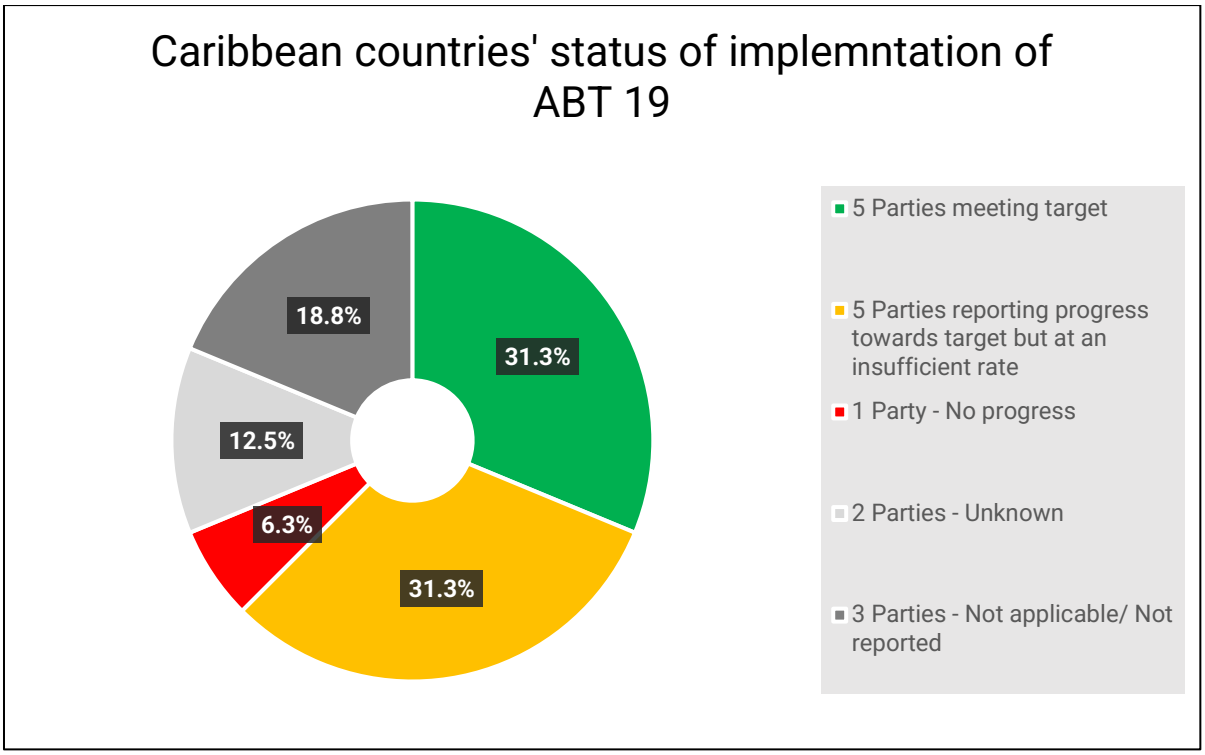
Table 5: Breakdown of substantive subject area-based interventions related to ABT 19 in the Pacific ACP countries



In the Pacific ACP countries (see above Table 5), substantive areas of intervention have included the following: biodiversity related knowledge management, traditional and scientific knowledge documentation and integration, the preservation of traditional knowledge, research on climate change and biodiversity linkages and interactions, biosafety management, enhancing research and technological capacities, and the transfer of technology, supporting NBSAPs implementation, awareness raising and environmental education, promoting the ecosystem approach for biodiversity conservation, enabling better marine and agricultural biodiversity management, biodiversity mainstreaming across sectors and different levels of government, species and habitats conservation, and enhancing biotechnology research and applications (genetic diversity and IP valorization).

The ensuing assessment will continue focusing more specifically and comparatively on ABT 19 implementation in each region. Tables 6, 7 and 8 below show respectively the ACP countries' status of implementation in the Caribbean, African and Pacific regions.

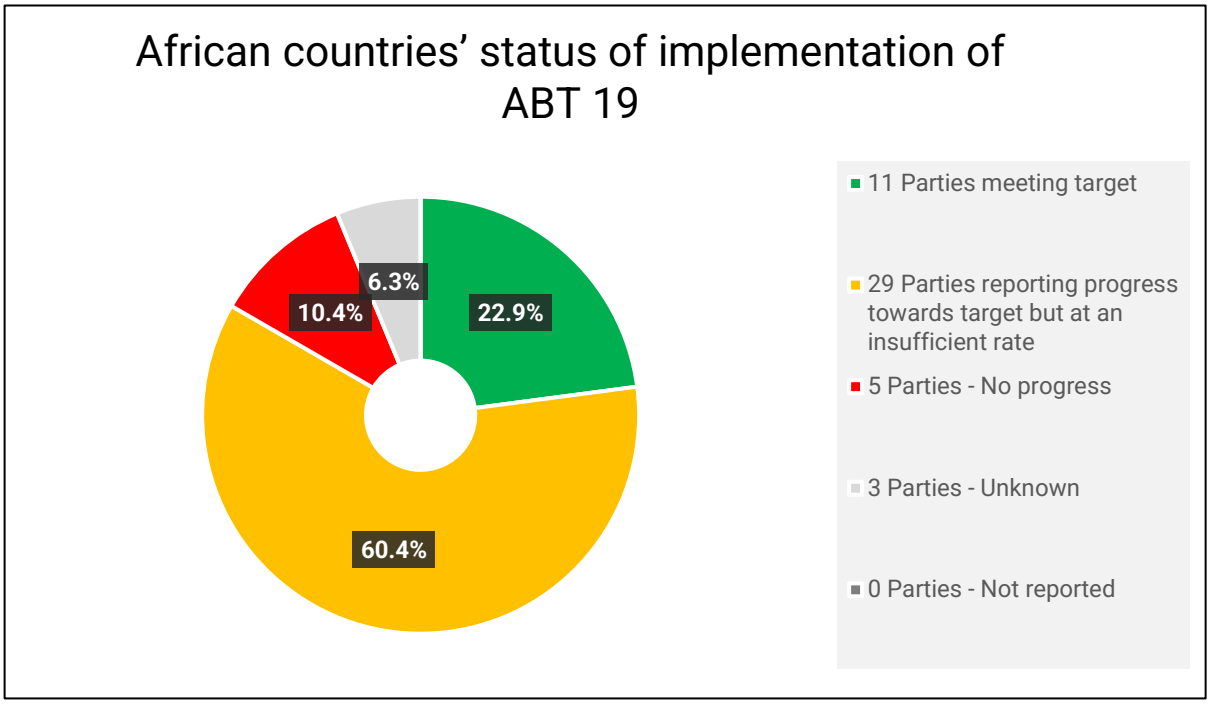
Table 6: Caribbean ACP countries' status of implementation of ABT 19



Proportionally to the total number of countries in each region, the Caribbean ACP countries are the largest group having reported to be on track for achieving ABT 19 related targets (31,3 per cent – see above table 6), followed by the African and Pacific ACP countries (with 22,9 per cent and 13,3 per cent respectively). In terms of absolute numbers, eleven African countries have reported fully successful experiences with biodiversity-related knowledge, science and technology management and cooperation, with five additional Parties in the Caribbean and only two in the Pacific region.

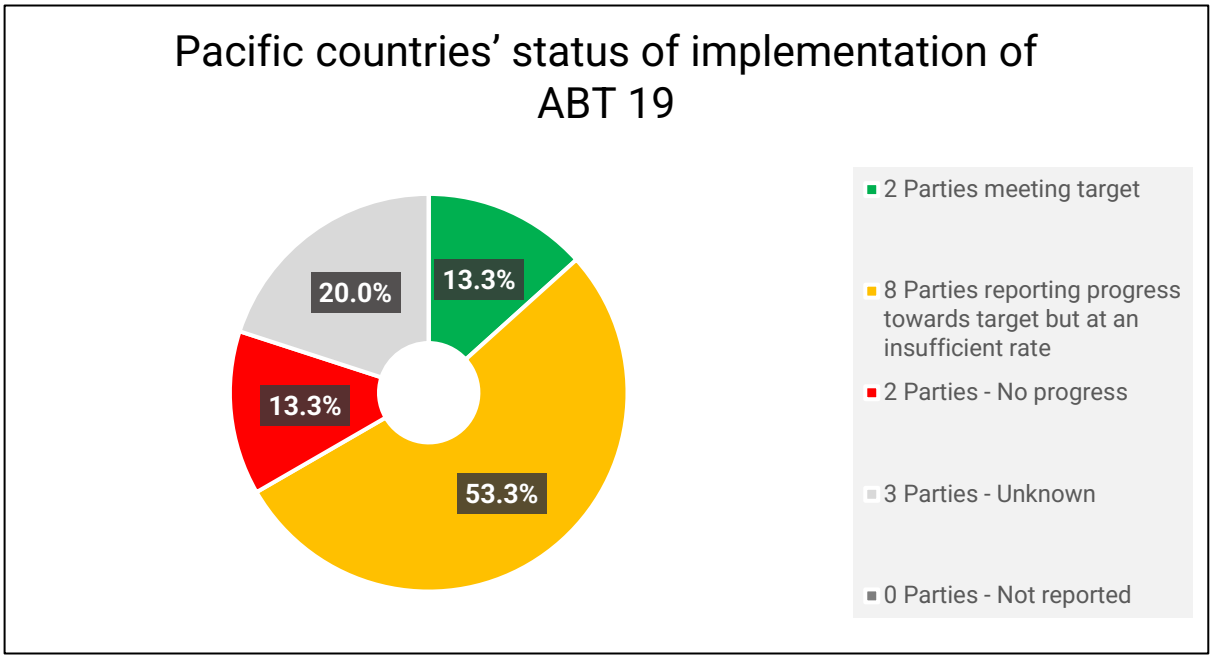
The African ACP countries stand out, both proportionally (60,4 per cent) and in absolute numbers (29 Parties), for reporting progress towards ABT 19 but at an insufficient rate to meet the target by 2020 (see below Table 7). In this assessment category, the Pacific and Caribbean countries follow closely respectively with 53,3 per cent (8 Parties) and 31,3 per cent (5 Parties) as a ratio to their groups' total. As anticipated above, this assessment category – i.e. Parties reporting progress towards ABT 19 but at an insufficient rate – comprises the highest number of ACP countries overall. It is also worth highlighting that the only region where the number of Parties meeting ABT 19 equals those making insufficient progress is the Caribbean region, as the former assessment category (i.e. meeting target) achieves a considerably lower score in the other two regions compared to the latter (i.e. insufficient progress – see below tables 7 and 8).

Table 7: African ACP countries' status of implementation of ABT 19



Considering now the grey portions of the pie charts in table 6, 7 and 8, the Caribbean region presents the largest number of countries where no information is available on ABT 19 related targets and their progress – with two Parties reporting the status of implementation as "unknown" and three Parties not having reported at all or not attributed an ABT 19 associated indicator to their national targets. In table 6 above, these two grey categories taken together amount to 31,3 per cent of the total

Table 8: Pacific ACP countries' status of implementation of ABT 19



Caribbean countries. In the same category, the Pacific and African ACP countries follow with 20 per cent and 6,3 per cent of their respective groupings reporting their implementation status as “unknown” (3 Parties each). Hence, based on this data, the African ACP country group emerges as the one that has most comprehensively reported on ABT 19 associated targets.

Finally, as regards the red portions of the above pie charts, which illustrate the results of the assessments made by countries that have reported no significant progress on implementing ABT 19 related targets, this analysis shows that five Parties in Africa, two Parties in the Pacific and one Party in the Caribbean region have witnessed major setbacks regarding the planned implementation of their contributions towards ABT 19.

III. Way forward

Based on these initial findings and the outcome of the research interviews conducted with key informants, a rapid assessment of the capacities and institutional needs for strengthening technical and scientific cooperation and technology transfer in the three ACP regions is presented in Part II of this document.

Assessment on technical and scientific cooperation and technology transfer comprising a list of ongoing activities focusing on technical and scientific cooperation, technology transfer and knowledge management

I. Introduction

In order to effectively establish and design an efficient network of institutions to support the implementation of the Convention, its Protocols, and the global Goals and Targets of the Kunming-Montreal Global Biodiversity Framework (GBF), it will be critically important to clearly understand what the factors are that have acted as obstacles in making progress in each of the different regions.

A proper framing of the means of implementation requires considering also work on the indicators. Compared to Montreal Protocol and the United Nations Framework Convention on Climate Change (UNFCCC) that have identified one globally significant flagship indicator, biodiversity has a real challenge because it does not have one or two suitable global indicators. Biodiversity presents a much complex problem, including in elaborating an appropriate methodology to visibly monitor if the Contracting Parties and the global community as a whole are moving in the right direction.

The GBF Targets set out a very short time frame up until 2030, with a vision and horizon of up to 2050. In a sense, it may be argued that the 2030 timeline was given as an arbitrary time scale that humans can understand but when one thinks about biodiversity, such time scale presents a clear mismatch *vis-à-vis* the natural process underpinning the evolution of biodiversity, the nature of the issues at stake, and their complexity.

In order to be as effective as possible, given that only seven years are left to meeting the 2030 GBF targets, if the global community wants to reverse the course leading to the sixth global extension, there has to be a huge push from the outset. In order to robustly set ourselves on the path to changing and bending the biodiversity curve back up, it is going to require a deep understanding very quickly, of what has worked well in terms of technical and scientific cooperation, drawing from the lessons learned and relevant experiences of other Multilateral Environmental Agreements (MEAs) and well as regional conventions and agreements.

In a very short time, by the next CBD COP in December 2024, the global community should have ironed out all the aspects regarding the newly established technical and scientific cooperating (TSC) institutional mechanism(s) – not just a blueprint – and should have a deeper understanding of the challenges that will face each one of the regions and how to articulate the TSC support network to address them. In order to do that, there is a clear need to incorporate what Parties have learned, for example, from the cluster of the Chemical Conventions[9], from the other two Rio Conventions,[10] as well as from other conventions and agreements,[11] which have had ambivalent

[9] See, for example, the analysis provided in document CBD/SBI/3/INF/16, "Options for institutional mechanisms to facilitate technical and scientific cooperation under the Convention on Biological Diversity", pp. 8-10, available at: https://www.cbd.int/doc/c/bde7/a113/67739ce2cc86677f2931c30b/sbi-03-inf-16-en.pdf

[10] Ibid. pp. 3-5.

[11] See CBD/SBI/3/INF/17, "Preliminary list of relevant institutional arrangements and networks facilitating technical and scientific cooperation at the global, regional and subregional levels", available at:

experiences with regard to setting up similar mechanisms with networks in order to support TSC.

II. Key technical and scientific cooperation (TSC) programmes or initiatives that provide support for the implementation of the CBD and its Protocols

Caribbean region

The **Organisation of Eastern Caribbean States (OECS)** has (what key informants have revealed to be) the most prominent – if not the only – programme-based TSC support initiative related to biodiversity issues. Within its Environmental Sustainability portfolio, OECS has a well-established Biodiversity and Ecosystem Management Framework,[12] which is aligned with Saint George's Declaration of Principles for Environmental Sustainability[13] and with the draft Caribbean Biodiversity Strategy (being further developed by the CARICOM Secretariat). The OECS Biodiversity and Ecosystem Management Framework presents five strategic action priorities, namely, ecosystem restoration, invasive alien species (IAS) and biosafety, access to genetic resources and benefit sharing (ABS), climate resilient ecosystems, and mainstreaming biodiversity into national development processes. The OECS Biodiversity and Ecosystems Management Programme also allows participating countries to meet several times each year to discuss gaps, identify ways to address them, while also having some dedicated funding for implementing actionable priorities.[14] Within the OECS programme umbrella, for example, an initiative supported by the EU is currently focusing on Integrated landscape Management.[15] Another initiative, the EU-ACP Biodiversity Support Project called BioSPACE Project, is focusing on marine and costal biodiversity.[16]

Almost all other **TSC-related activities** reported below **are project-based and not continuous**, or sectoral in nature, which has resulted in having many data gaps, because such data are collected based on each specific project intervention, and not predicted on the need for continuous monitoring of biodiversity or the long-term programmatic regional priorities and their related key performance indicators.

https://www.cbd.int/doc/c/abf8/a1c3/970e3ed29bdbc63cc7f773eb/sbi-03-inf-17-en.pdf. As regards the principal CBD Secretariat-led TSC programmes, see also CBD/COP/15/INF/6, "Review of technical and scientific cooperation programmes under the Convention on Biological Diversity and its Protocols", available at: https://www.cbd.int/doc/c/9166/6795/2c670647bb5b723c3c48a358/cop-15-inf-06-en.pdf

[12] https://oecs.org/biospace-ilm/images/OECSBiodiversityandEcosystemsStrategy2022-1.pdf

[13] https://www.oecs.org/en/our-work/knowledge/library/st-george-s-declaration

[14] https://oecs.org/en/biodiversity-in-the-eastern-caribbean

[15] https://oecs.org/biospace-ilm/images/ILMProjectSummary080321.pdf

[16] https://oecs.org/biospace-ilm/images/ACPProjectSummary.pdf

While it was noted that presently, the **Caribbean Community (CARICOM)** lacks structured institutional TSC support for biodiversity, it was also highlighted that some key regional institutions that operate under its auspices are significantly contributing towards delivering TSC support at the sub-sectoral level. For instance, the **Caribbean Agriculture Research and Development Institute (CARDI)**[17] and the **Caribbean Regional Fisheries Mechanism (CRFM)**,[18] both operate at the sub-sectoral level across the region. Reflecting on the importance of regional integration in light of the 50th anniversary of the Caribbean Community, the **Caribbean Community Climate Change Centre (5Cs)**[19] also provides a good example of effective collaboration where heads of Governments have given the mandate to a specific institution to carry forward an agreed road map and its implementation. The work of 5Cs already touches upon the interlinkages between climate change and biodiversity, however, a full engagement on biodiversity-related TSC issues and as a capacity-building provider would require an expansion of its current mandate.

The **Amazon Cooperation Treaty Organization** (ACTO)[20] provides another important cooperation platform involving eight countries, amongst which Suriname and Guyana are receiving support for the management of biodiversity in the Amazon, water management and forestry. ACTO recently launched the so-called **Amazon Research Observatory**,[21] a platform centralizing biodiversity data provided by the 8 participating countries. Unfortunately, the contribution of Suriname and Guyana in term of data delivery through the platform is still very limited due to lack of capacity and funding.

Besides these regional and sub-regional platforms and mechanisms, informants consistently highlighted that the bulk of TSC-related activities were incidental to **one-off project interventions**, the majority of which is **supported by the Global Environmental Facility (GEF)**. For example, in Cuba, the main support and opportunities for TSC are provided by GEF projects that focus on capacity building, training and technology transfer in the areas of biosafety (which is about to be concluded) and on ABS (involving the acquisition of technological capacities and equipment to undertake marine bioprospecting on algae, as well as expert missions planned in Dominican Republic and possibly Brazil and Colombia). These projects have included relevant training activities as well as some resources to acquire technology and laboratory equipment, materials, etc. (e.g. GMO detection and testing labs) and have included a strong South-South cooperation dimension, with study visits being an important cooperation mechanism. Another relevant example concerns a GEF project that has supported the establishment of a Biosafety Master's Programme at the University of West Indies (UWI), St. Augustine Campus, where two civil servants from Antigua and Barbuda could already benefit from the programme, as well as a regional GEF funded project implemented through CABI and UNEP on IAS.[22] Furthermore, the

[17] https://www.cardi.org/
[18] https://crfm.net/
[19] https://www.caribbeanclimate.bz/
[20] http://otca.org/en/
[21] http://otca.org/en/launch-of-the-amazon-regional-observatory/
[22] https://www.cabi.org/news-article/cabi-supports-plans-for-a-caribbean-invasive-alien-species-trust-fund-to-mitigate-threats-to-biodiversity/

Caribbean Public Health Agency[23] (another CARICOM organ) is implementing an integrated land and water ecosystem management project, with funding support from the GEF, where OECS focuses on component 3 on enhancing policy, institutional and legislative frameworks.

Regarding the third pillar of the Convention on the fair and equitable sharing of the benefits arising from the utilization of genetic resources, and the implementation the Nagoya Protocol on ABS, including all aspects concerning technical and scientific cooperation, and capacity building, emphasis was placed on the work conducted by regional and subregional organizations (e.g. OECS, CARICOM), IUCN[24] and various stakeholders in partnership with the **GIZ-ABS Capacity Development Initiative**. For example, it was reported that GIZ and CARICOM have supported legal trainings for the drafting of ABS contracts, but also webinars during the Covid-19 pandemic in preparation for the negotiations at CBD COP 15, and on specific topics such as digital sequence information (DSI) and synthetic biology.

IUCN is a key partner, for example, supporting protected and conserved area management work, and providing relevant tools and expertise in the region. Other regional initiatives worth of mention include the **Caribbean Environment Programme** operating out of the **UNEP Caribbean Sub-Regional Office**, based in Jamaica, which focuses on implementing the Cartagena Convention (The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (WCR), an important regional legal instrument for the protection of the Caribbean Sea.)

Operating predominantly at the national and sub-regional level, informants have also stressed the importance of the **national research and university systems**, as key stakeholders that enable TSC and technology transfer, contributing to the long-term institutional capacity developed required for biodiversity-related cooperation in the region. Relevant examples include, among others: an ongoing initiative spearheaded by the **University of West Indies** (UWI), St. Augustine (Trinidad and Tobago) and Cave Hill (Barbados) Campuses, which are working towards a new partnership with Newcastle University, UK, that would allow sending students annually to collect biodiversity data relevant for monitoring purposes under the GBF; an initiative by the **American University of Antigua** (AUA) which is currently focusing on starting a programme on barcoding of plants; and Antigua and Barbuda's involvement in the LIFEPLAN Project, executed in partnership with a the Swedish University of Agricultural Sciences (SLU),[25] which ensures the overall coordination and provides support to conduct biodiversity assessment of various species, including spores soil, invertebrates, and others. Other relevant national initiatives having an important TSC component are upcoming and/or in the planning stage such as discussion with **UNEP-WCMC** on conducting a national ecosystem assessment in Guyana. The OECS

[23] https://www.carpha.org/

[24] https://www.iucn.org/es/news/mexico-america-central-y-el-caribe/201901/caribbean-abs-week-global-goals-local-implementation

[25] The LIFEPLAN project is aiming to serve as an international database of biodiversity data, https://www.helsinki.fi/en/projects/lifeplan

Commission is also in discussion with UNEP-WCMC and CANARI on conducting additional national Ecosystem Assessments in the region and possibly a regional assessment. In particular, Saint Lucia and Saint Vincent and the Grenadines were identified as priority countries for such national ecosystem assessment.

Finally, it is also relevant to highlight the so-called **NBSAPs Accelerator Partnership**[26] – an initiative initially championed by Colombia with support from Germany and others – which has similar aspirations as the Nationally Determined Contributions (NDCs) Partnership for climate change. The former is broadly considered a useful initiative to help countries identify and prepare suitable projects, including through a step-by-step guide to elaborate bankable proposals and priorities and as a NDCs-equivalent for biodiversity. The Accelerator would then provide support to identify what are the projects that Parties need to implement in each country based on the best scientific evince, and identify best ways to do the matching with available resources, expertise, technologies, etc. CANARI is also doing important biodiversity work in the region, such as by delivering support to conduct the national ecosystem assessment in Grenada.

African region

Besides the comprehensive list of organizations and initiatives that is reproduced below in Annex I, key informants have highlighted the following specific considerations regarding the institutions and initiatives that are most relevant for the African region and its sub-regional contexts. It was noted that sub-regional organizations in Africa have not been particularly effective because they only reach a relatively small number of stakeholders and, with a few exceptions that are highlighted below, they do not seem to have had a very big impact on the ground. Therefore, a key challenge for any new TSC institutional mechanism would be to consider how to adequately connect the TSC support centres and network with national implementation through the NBSAPs and with relevant national institutions. It was also emphasized that ideally having a sort of "menu" of scientific and technical capacity development offers that is based on the demands that come out of the national biodiversity plans could be very useful.

Consistently with the findings arising from the Caribbean region, most informants confirmed that technical and scientific cooperation was primarily enabled through multilateral and bilateral project support. For instance, in countries such as Liberia, the support from the United States is particularly important, as well as through the GEF implementing agencies (e.g. UNEP and UNDP), and by international NGOs such as Conservation International. However, it is problematic that such interventions are project-based, and the project cycles are usually only 2 or 3 years long, with most capacitation activities are undertaken through workshops. Consequently, these activities alone are not sufficient to ensure a retention of adequate capacity on the ground by the end of the concerned interventions. Other relevant examples include:

[26] https://www.unep.org/news-and-stories/press-release/new-partnership-aims-accelerate-global-biodiversity-framework

- an impact project under GEF-7 focused on ecosystem restoration in the eastern belt of Botswana and its neighbouring countries, with FAO operating as implementing agency;
- the **Kavango Zambezi Programme**, which elaborates an integrated plan for transboundary biodiversity management of the area;
- a number of sub-regional water protocols and the important work of the **Okavango Commission** that manages a river-based transboundary water programme focusing on capacity building between participating countries (i.e. Namibia, Angola, and Botswana) and also addressing land degradation and restoration issues, land use planning and improved livelihoods for the communities living near the river banks, as well as improved water resource data and a flood early warning system;
- cooperation implemented through the **ORANGE-SENQU River Commission**[27] involving Botswana, Namibia, Lesotho and South Africa.

In the field of **marine science and conservation**, it was highlighted the importance of initiatives undertaken under the **UN Decade on Ocean Science for Sustainable Development**,[28] which provides a broad platform and support mechanisms for science and conservation in the oceans, as well as work undertaken through the **UNESCO International Oceanographic Commission (IOC)**.

At the sub-regional level, it is worth mentioning the **Nairobi Convention for the Protection, Management and Development of Coastal and Marine Environment of the Western Indian Ocean (WIO) Region**,[29] which is part of UNEP's Regional Seas Programme, and provides a mechanism for regional cooperation, coordination and collaborative actions to enable better management of the shared marine space in the WIO region. In addition, the **Western Indian Ocean Marine Science Association**,[30] supported by Sweden and other donors, and involving 10 countries in Eastern Africa, has proven to be an effective cooperation mechanism in the field of marine science and conservation. The latter is also working in tandem with a range of specialised organizations such as the **Coastal Oceans Research and Development in the Indian Ocean (CORDIO)**,[31] which has a specific thematic focus on coral reefs, and provides sub-regional level technical support, cooperation, monitoring, training, and works on the development of relevant indicators under the GBF. Given the effectiveness of these specialised cooperation mechanisms, it was highlighted that it is critical for Africa to rely on regional and sub-regional support mechanisms and entities. This is because going from close to two hundred Parties under the CBD to a single central TSC

[27] https://orasecom.org/
[28] https://www.unesco.org/en/decades/ocean-decade#:~:text=Proclaimed%20in%202017%20by%20the,catalyse%20new%20opportunities%20for%20sustainable
[29] https://www.nairobiconvention.org/
[30] https://www.wiomsa.org/
[31] https://cordioea.net/

coordination mechanism would not be practical or feasible in order to efficiently support implementation of national and regional biodiversity targets under the GBF.

Another important consideration is that there is a major gap concerning **ecosystem level thinking** in African countries (e.g. in terms of connectivity of natural systems) and the TSC support centres and network should actively address this gap. For example, there would be an opportunity to do this for the **Kalahari sub-region** that would include South Africa, Botswana and Namibia and Angola, because they share the same ecosystem and need to manage it jointly. Other relevant examples include the **Masai Mara**, which would including all relevant East African states, the **Great Lake region**, and the **Congo Basin Forest Partnership (CBFP)**, which reportedly has been an effective cooperation mechanism in the sub-region as the participating countries have common needs and interests, and common borders, and share biological resources across those borders.

Finally, on the emerging thematic issues of **Digital Sequence Information (DSI)**, the most relevant initiatives include:

- the **Africa Bio-genome Project**[32], which builds capacity and infrastructure to generate, analyze and deploy genomics data for the improvement and sustainable use of biodiversity and agriculture across Africa, aiming at progressively sequencing all of African biodiversity;
- some African member are also very active in the global **DSI Scientific Network**[33] which focuses on the science-policy interface, and aims to giving the research community a coordinated voice in the ongoing international policy discussions on DSI;
- at the pan-African level, the **African Union Development Agency**, formerly known as NEPAD, has been active on capacity building and development in the field of biotechnology. Currently, discussions with the **ABS Capacity Development Initiative** are ongoing with a view to bringing together scientists and policymakers to get a better understanding of the concerns of the African scientific community of practice around DSI issues.

Pacific region

SPREP, for the Pacific region, has highlighted the following cooperation initiatives and modalities:

Joint research programmes:

- SPREP and its key partners (Conservation International, USGS, Birdlife International Pacific etc.) have collaborated to design, plan and conduct Rapid Biodiversity Assessments in Pacific island countries;

- SPREP has collaborated with the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) on marine spatial planning,

[32] https://africanbiogenome.org/
[33] https://www.dsiscientificnetwork.org/

environment indicator development, marine litter, Science-based applications for Pacific resilience to climate change;

- SPREP has collaborated in past years with University of Tasmania (Australia) on mangrove monitoring techniques, coastal ecosystem-based adaptation and guidance on coastal rehabilitation measures;

- SPREP and the University of Newcastle (Australia) have an ongoing partnership through which PhD scholarships were facilitated for Pacific island research candidates to study either 1) climate change impact on the spread of invasive weeds or 2) understanding the human-invasive species relationship for climate resilient communities;

Joint training delivered with partners:

- Pacific Islands Community-based Conservation Course (PICCC) – this course was delivered through a partnership between SPREP, University of the South Pacific, UN Environment Programme and the International Centre for Protected Landscapes (ICPL). The course was delivered in 2002, 2005, 2007 and 2009;

- Marine Protected Areas Surveillance And Management Training For Managers – the training was coordinated by the Agence Française pour la Biodiversité (AFB) and SPREP as part of the Pacific Biodiversity Blue Belt Project funded under the European Best 2.0 grant. The Blue Belt project supported New Caledonia, Wallis and Futuna, French Polynesia and Pitcairn, in their efforts to protect marine and coastal ecosystems. The training engaged officers from New Caledonia and Wallis and Futuna and increased their understanding of the available technologies to help Marine Protected Area surveillance;

- Protected Area (Aichi Target 11) Roadmaps developed in 2015/2016 in collaboration with the Pacific Island countries, SCBD, WCPA, and partners of the Pacific Islands Roundtable for Nature Conservation and Protected Areas (PIRT).

Activities facilitated through the Pacific Regional BIOPAMA Observatory (SPREP-PA):

- National training on Other Effective area-based Conservation Measures (OECMs) – collaboration between SPREP, IUCN Oceania, UNEP-WCMC and the government of the Cook Islands (national environment service) through the EU-ACP Biodiversity and Protected Areas Management Programme (BIOPAMA) to trial and document experience from recently finalised international guidance on identifying, recognising, supporting and reporting Other Effective area-based Conservation Measures (OECMs) – Cook Islands case study.

- Regional training on OECMs – this training was a collaboration between SPREP, IUCN Oceania Regional Office (ORO), UNEP-WCMC and the IUCN WDPA Specialist Group on Other Effective area-based Conservation Measures (OECMs) through the EU-ACP Biodiversity and Protected Areas Management Programme (BIOPAMA) to rollout and implement guidance on identifying,

recognising, supporting and reporting Other Effective area-based Conservation Measures (OECMs) – Cook Islands case study.

- Regional training on the Global Database on Protected Area Management Effectiveness (GD-PAME) – this training was a collaboration between SPREP, IUCN Oceania Regional Office (ORO) and UNEP-WCMC under the EU-ACP Biodiversity and Protected Areas Management Programme (BIOPAMA) to raise and reinforce understanding of protected area management effectiveness (PAME), why it is important in the context of national protected area priorities and reporting obligations to the CBD, to introduce and highlight the role of data collection and management, through the Global Database on Protected Area Management Effectiveness (GD-PAME) managed by UNEP-WCMC, and to formulate a regional roadmap and timeline for collation of PAME data for updating the GD-PAME.

Peer-to-peer knowledge transfer:

- The Pacific Invasives Learning Network (PILN), a peer learning network, facilitated by SPREP helps to join the forces of 22 teams in Melanesia, Micronesia, and Polynesia through connecting in-country practitioners to share effective ways to battle invasive species. PILN's mission is to empower effective invasive species management through a participant-driven network that meets priority needs, rapidly shares skills and resources, provides links to technical expertise, increases information exchange, and accelerates on the ground action;

- SPREP has facilitated mangrove restoration peer-to-peer exchanges between SPREP member countries in past years as a means of learning and sharing best practice, experience and knowledge on mangrove restoration methodologies that have been successfully applied in-country;

- SPREP facilitated community-based marine protected area management between SPREP member French Territories (New Caledonia and Wallis and Futuna);

- A Traditional Ecological Knowledge exchange workshop was facilitated by the Secretariat of the Pacific Regional Environment Programme (SPREP). The workshop was held on 24-28 July 2023 and was attended by traditional owner groups from Australia and reef custodians in Samoa as part of the ReefCloud initiative under the Coral Reef Innovation Project. The workshop explored the role of traditional governance systems and their applicability to management, as well as the value of community communication channels for sharing information across the community.

Partnership and network building:

- SPREP has memoranda of understanding with several regional and international organisations working in the nature/biodiversity conservation

space, including with the Secretariats of biodiversity related MEAs space, for example – the CBD Secretariat, IUCN Oceania, Conservation International, Birdlife International, WWF-Pacific, UNEP, UNEP-WCMC, Ramsar Secretariat, CITES and CMS Secretariats, World Heritage Convention. Several successful joint initiatives outlined in the ensuing sections of this report are a result of these partnerships;

- SPREP acts as the secretariat for the Pacific Islands Roundtable for Nature Conservation, which is a coalition of nature conservation and development organizations, governments, inter-government, donor agencies and community groups created to increase effective conservation action in the Pacific island region;

- SPREP signed onto the Global Partnership for Achieving Aichi Target 11. The partnership was a strengthened commitment to mobilise the global community to implement Target 11 and was launched during the 14th Conference to the Parties on the Convention on Biological Diversity in Sharm El Sheikh in 2018.

- SPREP participated in the recent Meeting to develop a GBF Target 3 Partnership held recently in Cambridge, United Kingdom (2-4 May 2023). SPREP is continuing to engage in and provide input to the process of development of the partnership. The meeting is a follow-up to the Target 3 Partners' meeting that was held on 12 December 2022 and organized by the Secretariat of the Convention on Biological Diversity and the International Union for the Conservation of Nature's World Commission on Protected Areas at CBD COP15 in December 2022;

- SPREP has facilitated and assisted partnerships and cooperation towards meeting biodiversity related goals such as the bilateral sister-sites agreement on large-scale marine protected areas between New Caledonia and the Cook Islands;

- SPREP has also provided support to the Micronesia Challenge, which is a commitment by five Pacific island countries the Republic of Palau, Guam, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, and the Republic of the Marshall Islands to preserve the marine and terrestrial resources that are crucial to the survival of Pacific traditions, cultures and livelihoods. In 2006, the leaders of the five countries committed to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020;

- Partnerships between the Pacific and the Caribbean were strengthened through participation of two representatives from the Caribbean Community (CARICOM) Secretariat in Guyana in the Pacific Regional Preparatory Meeting for the 11th Conference of the Parties to the Convention on Biological Diversity (CBD COP11);

- Partnerships and joint collaboration between SPREP and the Secretariats of the three Biodiversity related MEAs (CBD, Ramsar and CMS) was strengthened through the planning and delivery of the first-ever Pacific regional joint pre-COP meeting for the three Conventions.

International study tours:

- SPREP in partnership with Reef Ecologic (an Australian consultancy) facilitated an intensive three-week Coral Reef Management Fellowship programme for five Pacific coral reef managers at the Great Barrier Reef, Australia. The Pacific coral reef managers were able to join, interact and share with their peers from the Caribbean and Indian Oceans, whom also participated in the Fellowship;

- SPREP is also partnering with the Great Barrier Reef Marine Park Authority (GRMPA) and the Government of Australia to deliver the Pacific Coral Reef Collective – Cairns Workshop and Site Visits from the 30 July to the 5 August 2023 in Cairns, Queensland Australia. The workshop will engage experts and decision makers from Pacific Island Countries and Territories who have participated in development of the Pacific Coral Reef Action Plan and in subsequent discussions on implementation priorities for coral reefs in the Pacific. The workshop will provide an exciting opportunity for reef managers from the Pacific to experience real life examples of reef management issues and challenges and solutions on the Great Barrier Reef. The workshop will include site visits to various locations on the Great Barrier Reef and discussions with scientists, community reef managers and stakeholders who work hand in hand with the Government to achieve best outcomes.

Technical assistance for CBD national reporting, regional preparations and engagement at the CBD COPs

- SPREP has provided technical assistance to its member countries that are CBD Parties with fulfilling their reporting obligations under the Convention and also with regional preparations for engagement in CBD COPs. Some examples are below:

  https://www.sprep.org/news/pacific-gear-international-biodiversity-conference

  https://www.sprep.org/news/pacific-island-preparations-for-cbd-cop14-underway

  https://www.sprep.org/news/strengthening-the-one-pacific-voice-for-a-new-global-agreement-to-halt-biodiversity-loss

  https://www.sprep.org/news/sprep-supports-one-pacific-voice-on-biodiversity-at-cop15

https://www.sprep.org/news/building-the-capacity-of-pacific-delegates-to-navigate-the-complex-world-of-cop15-negotiations

III. Considerations on the main cooperation approaches and modalities for TSC, TT, KM & CB

Caribbean region

In the **Caribbean region**, experts highlighted that the base documents that describe the overall goals, objectives and activities implementing the counties' obligations to the CBD are the NBSAPs, and that often multiple institutions are involved in carrying out research, collaboration and trainings, and contribute to the achievement of outcomes in the NBSAPs.

At the regional level, reportedly, most of the cooperation and collaborations occurs between universities and between the two regional CARICOM institutions (i.e. CARDI and CRFM). There are a number of opportunities, which are utilized for technical cooperation, technology transfer, joint research programmes, including triangular cooperation with universities in third countries (e.g. in the USA and EU). For example, the University of West Indies and its Cocoa Research Unit has strong collaboration with external research agencies to support cocoa research across the region.

As regards the modalities though which technical and scientific cooperation takes place, **joint training activities** prominently feature as the most frequently used, which Cuba leading the way and not just receiving training, but also sending many experts in other countries. Informants also noted that joint training activities mostly occur through regional projects supported by the GEF and, in the case of OECS, it complements the work of other agencies such as CARICOM, for example, regarding the trainings for negotiators.

Joint technology development and transfer is not a modality that is frequently used across the region, with the exception of Cuba for whom it represents the second most important TSC modality and, to a lesser extent, OECS that supports the provision of some equipment to member countries such as drones for biodiversity monitoring, communication equipment and the like. In most other countries, the Ministries of Environment are not directly engaged in the technology transfer process and this is expected to happen mainly at the University level.

Exchange of experts have been highlighted by some informants as an important tool to fill key knowledge gaps and to address biodiversity issues that will increasingly require cross-pollination between disciplines and expertise, such as in the case of environmental and social impact assessments.

Joint research programmes are another important TSC modality, including not only the university systems but also the national technical and vocational systems, which should work in tandem through joint research programmes to address **problem-based learning**. In particular, the latter is something the public can easily identify with and

should be better used in conservation, alongside empirical data and theoretical models and thinking.

Informants also stressed the role of **peer-to-peer knowledge transfer and exchange learning**, which is critical, including in the context of fisheries-related activities, ecotourism (e.g. turtle watching), and the co-management of MPAs. For example, in the case of Grenada, the latter has included the participation of Government and non-government stakeholders and the productive sectors (e.g. fishing cooperative). Sustainable livelihood for the communities is a critical issue and diversifying livelihood opportunities in a way that is respectful for local traditions is key. Another example concerns Antigua and Barbuda where peer-to-peer knowledge transfer, using a whole of society approach, and working very closely with environmental NGOs, in particular the Environmental Awareness Group (EAG), was instrumental for eradicating invasive alien species (IAS) such as rats, and the knowledge exchanged with folks from St. Lucia was successfully applied in order to generate and adopt innovative solutions for IAS management.

Partnership and network building was also recognised as an important cooperation mechanism, including between the Pacific and Atlantic countries on various issues, for example, a waste characterization study that was supported through IUCN (in order to address waste as a key driver of biodiversity loss), and on improving the management of Sargasso sea grasses. It was also highlighted that the proposed NBSAPs accelerators would be directly contributing to partnership and network building. A few informants also mentioned **international study tours,** although this cooperation modality is not frequently used in the Caribbean region.

OECS noted the important role of establishing **Memoranda of Understanding** (MoU) and **project cooperation agreements** with various partner institutions, important efforts in providing members with communication equipment and support for awareness raising, as well as improved accessibility to persons with disabilities on matters of public participation, in accordance with the **OECS Stakeholder Engagement Strategy**. Other institutional mechanisms that have been very effective in promoting coordination in the sub-region include the **OECS Biodiversity and Ecosystem Management Committee,** with the participation of primary and alternate focal points from member countries, which operates as a coordination and information exchange mechanism for senior officials. In this regard, it was suggested that CARICOM could contribute to facilitate and expand its reach by supporting the involvement of other Caribbean countries that are not members of OECS. Another key governance mechanism is the **Council of Ministers for Environmental Sustainability**, which meets at least once a year to make decisions and endorse outcomes, such as the OECS Biodiversity and Ecosystem Framework referred to above in the previous section.

Other important aspects that have been emphasised in relation to the cooperation approaches and modalities for TSC, TT, KM and CB, include the following considerations:

- The key role of **experiential learning** for university students, trainees, and other key stakeholders.
- The necessary involvement of local community groups through the **whole of society approach**, which needs to promote direct participation from the bottom up, including youth, women, and persons with disabilities. At the implementation level, one informant noted that in a small island context, biodiversity-related sustainable actions may not always be expected to be continuously maintained by the Government, and such support should be complemented by the engagement of communities, which in many cases have the actual stewardship and responsibilities in conservation and sustainable use. In this context, the actual livelihood opportunities that are generated, for example, by ecotourism, are an essential element to ensure the long-term sustainability of the actions for present and future generations. Therefore, a whole society approach is paramount and it means making sure that from inception, as much as possible, all interventions are participatory in approach - not just consultative - but participatory. This means that when community-level meetings are organised, for technical and scientific cooperation to be effective in achieving specific targets under the Global Biodiversity Framework, a greater effort needs to be made to design interventions centred on what the communities express as their perceived needs, avoiding to come up with a pre-prepared framework, but allowing the space for it to grow.
- As the overall **importance of primary data** is growing, research cooperation is therefore becoming very critical, including based on **traditional knowledge** (TK) and in the context of ABS. This it is very important to build on the support and participation of research institutions and the university system, so that they can contribute to building the capacity of nationals within the country as well as regionally.
- Ultimately, making sure that the context for technology transfer is respectful for TK and that the technologies being shared are **culturally appropriate, suitable and relevant** at local level for the local communities.

African region

In the **African region**, key informants have highlighted the ensuing cooperation modalities, noting, for example, that **peer-to-peer networking** has generally been effective, but it always requires proper facilitation to lead and steer work, which could then be very helpful to frame problem thinking across borders and in terms of corridors and connectivity, and working a system level.

Various **joint research programmes** have been successful, for example, in East Africa, CORDIO has supported some of them directly through granting opportunities. It was also noted that such programmes have great potential, but to unlock fully that potential requires carefully assessing which particular research would better serve and support the GBF implementation. As one informant puts it: “it’s not just about doing the

research jointly, it's the fact that that research is something that would benefit from being done jointly."

A related point is that it is critically important to work jointly in **designing the research agenda**. At present, there is no ready-made response, masterplan or reflection on what type of research is needed for the NBSAPs implementation in a particular country, or in a particular sub-region, or around a particular cluster of topics. Therefore, there is a need to better focus the research that is funded at the regional, subregional and national levels to direct a better use of existing funding in the first place. If such **research priorities** were clearly identified at the outset, then it would be relatively easy to steer researchers, who want to apply for an ABS permit – for example – not just to do any research that matches their personal and academic interests, but also designing research proposals in a way that can be most useful to the country and its people in order to address the Goals and Targets of the GBF, and contributing to building up more transferrable, useful capacities at the national level. Then, a **complementary mechanism for integrating the research findings** would also be needed.

> For example, one can imagine a research programme where a large number of researchers in different African countries are already doing research, such as in pasture science, all working according to a unified methodology and feeding the results into a common database. The national authorities and local people would then be better equipped to derive some actionable results out of that research.

While many researchers are doing biodiversity-related research in Africa, such research is not well connected to agreed priorities and through appropriated research networks at the regional, sub-regional and national levels. Because of this, often researchers produce reports that are only useful in a limited manner, despite the fact that they include useful data and findings, because they are not accessible and findable by other people and policymakers who might make sense of them in a broader strategic sense towards supporting better biodiversity governance, conservation, sustainable use, benefit sharing, and socio-economic development.

In addition, the GBF sets up a system for **monitoring and reporting** against its global Goals and Target by 2030, and with a horizon up to 2050. Therefore, it was suggested that if the new TSC institutional mechanism could, more thoughtfully and deliberately, integrate scientific and technical support into what the global community is going to be reporting for against the GBF targets, and help design common formats and a common repository, that would be something of global value. In sum, there would be a need to **make TSC** much more deliberately **instrumental for monitoring and reporting under the GBF**. This would also help identify opportunities and challenges related to partnerships and networks. Admittedly, networks are not necessarily an efficient use of resources because of the high overhead costs for coordination. However, if the network was built around the idea that it would contribute to construct a real-time global monitoring framework that allows to assess our progress towards living in harmony with nature by 2050, then just having that orientation, and using the

monitoring framework and the targets as a skeleton to that, would contribute to the global goal of managing the planet's biodiversity in a sustainable manner.

Additional mechanisms that have contributed to create technical and scientific cooperation opportunities include: the effective and inclusive use of **participatory approaches in project steering committees** with the involvement of CSOs and other relevant stakeholders; **international study tours** (e.g. on ABS contract negotiations); and **exchanges of experts**.

Pacific region

As anticipated in the previous section of this report, the main cooperation modalities and approaches that are successfully implemented by SPREP in the Pacific region have included: joint research programmes; joint trainings delivered with partners; various activities facilitated through the Pacific Regional BIOPAMA Observatory (SPREP-PA); peer-to-peer knowledge transfer; partnership and network building; international study tours; and technical assistance for CBD national reporting, regional preparations and engagement at the CBD COPs.

IV. Challenges and limitations

Caribbean region

During this rapid capacity assessment, informants from the **Caribbean region** broadly reflected on cooperation approaches or modalities that have failed to deliver an effective support for the implementation of the CBD and its Protocols, or that have only had a limited or insufficient impact on the ground. The following important considerations have arisen:

- In the wake of the post-Covid-19 recovery, one informant emphasised that **virtual engagement** opportunities have provided relevant information but they are perceived as being less effective than face-to-face training sessions, because in a virtual environment most peoples feel compelled to do multitasking if there are multiple urgent competing demands. Therefore, face-to-face trainings and exchange programmes were generally considered more effective by the respondents.
- When pursuing relevant cooperation opportunities, a key concern is about impacts, especially on communities. Therefore, **reducing language barriers** was identified as a valid concern by some Caribbean countries as most opportunities in the region are predominantly available for English speakers only.
- In the context of **ABS agreements**, most of the benefits received are in the form of research data, and having local students or personnel assisting with data and/or materials collection provides an opportunity to learn about appropriate methodologies, research tools, etc. In addition, ABS regulatory frameworks are

not sufficiently implemented and countries in the region have received little benefits in return from commercial applications of their biodiversity. Since the Caribbean countries have been unable to clearly demonstrate these benefits, there is little policy or political support for biodiversity issues.

- Also in terms of **financing**, countries in the region have not been able to generate sufficient financing to develop new industries and business models around biodiversity outside of agriculture (and – to a lesser degree – ecotourism).
- While the Government shall create an **enabling environment**, it is critically important to include also non-government stakeholders for long-term sustainability of the actions. In this regard, there is a need to differentiate between grassroots civil society organizations (CSOs) and international NGOs. While some larger international NGOs are well established, the former are locally based and more fragile entities. Meanwhile they are also very important for accountability purposes. This shows the need to create and maintain a **space for action of the local communities**, mindful that there can be administrative standards, which are too burdensome for small CSOs, as they require external (and expensive) services to audit their books, such as in the case of anti-money laundering legislation (modelled around the US legislation). In sum, creating an enabling environment for civil society to act on biodiversity issues was deemed really important.
- As regards the specific issue of cooperation for the establishment and management of protected areas (PAs), there must be caution about the language used, because there is resistance on the ground against PAs that would or could exclude participation and involvement of local communities. In this regard, it was highlighted that terms such as “co-managed areas” or “conserved areas” would be better suited to reflect local realities and the important “conservation and sustainable use” issues faced by the local communities.
- The **involvement of the private sector** is still problematic and has not been very effective. There is a need to better unpack what the private sector is (e.g. definition of small-scale farmers vs commercial businesses), and to define appropriate modalities and incentives. For example, in Grenada, the Hotel and Tourism Association is an important partner, which has already collaborated with the Government, given that the tourism sector is strongly underpinned by biodiversity. This experience has also highlighted the need to find diversified entry points to engage with the private sector in other areas, and taking into account that its **size and scale can be very small**, especially in SIDS, and that often there are no available **corporate and social responsibility (CSR) standards** that are readily applied and/or locally applicable in a small island context.
- As anticipated above, informants noted that the engagement and feedback from politicians and policymakers on biodiversity issues remains low. **Biodiversity is not a front burner issue** and it takes a back sit to climate change,

livelihoods, and a number of other priorities. It is only when countries have to meet their reporting obligation under the Convention and its Protocols that relevant information on implementation of biodiversity-related actions is collected and analysed. To some extent, this has resulted in a **practice to monitor biodiversity**-related information that is **not** very **well structured** and the "retrofitting" of information has become frequent.

- In order to counter the above, there is a need to better capitalize on the emerging and growing **love of nature** and **love of data,** including through approaches such as **citizens' science**.[34]

Summary Table and Average Scoring of key challenges and limitations in the Caribbean region[35]

• Inadequate level of funding	***Very high impact***: this is a key constraint in the region. While the GEF funding is critically important for supporting TSC activities, the support that countries receive from the star allocation is inadequate to meet their needs. Many Caribbean countries have also struggled to utilize the financial resources from the star allocation mainly because of the limited capacity of their fiscal regimes as well as an allegedly suboptimal capacity of the GEF implementing agencies in the region, which is led by UNDP and to a lesser extent UNEP. For example, the SIDS made the least use of the GEF 6 allocation from the international waters funding envelope compared to other developing countries (as they only used approximately 11 per cent GEF 6 allocation). Therefore, countries are facing a multifaceted challenge about efficiently utilising available resources, while simultaneously having to develop the capacity to mobilize and utilize more of the financing that should be available from all relevant sources.
• Lack of mechanism(s) to facilitate regional and/or sub-regional coordination	***Low impact***: in the region, there are relevant organizations such as OECS and CARICOM, which provide a good level of coordination.
• Inadequate identification and prioritization of needs	***High impact***: while some Caribbean countries have started updating their NBSAPs, most of them still need to undertake a more thorough assessment on what needs to be done in order to meet the KM-GBF Goals and Targets. OECS Member States have recently conducted a capacity need assessment in the context of the Integrated

[34] See, for example, the Sandwatch Programme by UNESCO, available at: https://www.unesco.org/en/sids/sandwatch

[35] The average scoring attributed in this table to each one of the pre-identified key challenges and limitations may range from low impact to very high impact. It is calculated on the basis of the average of the values that were attributed by key informants from each region during the interviews. However, given the timeline of this study and other practical constraints, the number of available interviewees was limited to some key selected informants (see Annex IV). As a consequence, these values are indicative only and they do not necessarily or comprehensively reflect all the perspectives from the ACP countries in each region. Besides these indicative average value attributions, whenever additional comments, examples or explanations were provided on a specific item, they are also reported in the table.

requiring TSC, TT, KM and CB	Landscape Approaches and Investments in Sustainable Land Management (ILM); and the Biodiversity Support Programme for ACP SIDS and Coastal Environments Project (BioSPACE), which are funded under the European Union Global Public Goods and Challenges Programme. However, the identification and prioritization of GBF-related needs still requires a consequent amount of work for its completion across the region.
• Lack of high-level institutional willingness and support to engage in TSC initiatives	***Medium to high impact***: lack of awareness on biodiversity issues in the general public and the media was also identified as a factor exacerbating the impact of this limitation.
• Lack of institutional policies to facilitate TSC between countries	***Medium impact***
• Bureaucratic hurdles and delays	***Medium to high impact***: it was noted that this particular challenge should also account for the non-negligible due diligence required of development partners when project funding is received.
• Limited availability of technical resources and expertise in your region and/or in relevant languages	***High impact***: currently, there is no regional pool of biodiversity experts from which countries could benefit; this is because there is no centre of excellence in the region with a specific focus on biodiversity. In many cases, countries have to depend on external assistance through technology cooperation and development cooperation, which is financed through overseas development assistance (ODA). There are a number of experts in the region but they are not part of any structured pool of technical support and that is a serious limitation. There are also limited human resources for project coordination and in-house oversight in the public administrations, especially for large projects. Project funding usually covers only the costs of the direct project team but it may still be an issue to provide for higher level supervisory/oversight functions, which can be quite burdensome for larger projects – especially in terms of person time required for these tasks. Language-wise the region is primarily English speaking with minorities (in terms of the overall population size) that speak French, Spanish and Dutch. For example, this language barrier is felt in the OECS Biodiversity and Ecosystem Committee because often it is not possible to provide translation into French.
• Lack of a long-term approach to cooperation,	***High impact***

particularly at the regional and/or sub-regional levels	

Other specific considerations include the following:

- The NBSAPs duration should coincide with the duration of strategic programming cycles under the CBD (e.g. the Aichi Biodiversity Targets), but often they are more short-term and there can be a lack of long-term vision. Typically, they are supposed to have a 10-year horizon but many NBSAPs have a shorter duration and their priorities are also subject to fluctuations due to changes in policies and government changes. This challenge also highlighted the need to engage in a rethinking and restructuring of how biodiversity in mainstreamed across sectors. **Biodiversity mainstreaming** is an important factor given the critical **dependencies** that many productive sectors have on biodiversity in the region.
- More **effective communication**, and **public education and awareness** are needed to see the behavioural changes required to achieve the targets and goals of the GBF.
- **Economies of scale** have an important implications for SIDS; hence, the importance of regional integration.
- Having small offices and a very limited number of people who can train the trainers (ToT) and work on MEAs-related issues is an enormous limitation. Because if this, public administrations in charge of environmental issues have to brunch out and train CSOs and community-based organizations to undertake and/or support the necessary field work. Therefore, the **whole of society approach** is very important to make sure that all stakeholders have access to the opportunities offered through technical and scientific cooperation.
- **Time scales** are also important and a huge constraint for the SIDS. **Above average damage** from catastrophic events/incidents (e.g. due to climate change, costal erosion, etc.) are nowadays a reality with islands eroding much faster that it is accounted for – including biodiversity erosion. Hence, there is a need not to think just in terms of average values as the impacts are also felt much faster. For example, in SIDS, **stochasticity** and its impacts on biodiversity are not well account for. Many SIDS have no inland where terrestrial species can retire to and, if due to the rising sea levels, they lose a particular population, the latter may happen to be a unique population with all the consequences that can be associated to a global extinction event. In terms of disaster risk reduction, preparedness is being built around the average expected impacts, for example, from sea level rise under a specific RCP (representative concentration pathways) model. But within that average, the response measures do not take into consideration that stochastically impacts of individual events are hugely fluctuating, and what people are experiencing in SIDS is **above average frequency and impact** of the said events. That means that SIDS are being faced

with more stochasticity that is having an impact on them and that is not well accounted for.

Further considerations on stochasticity and above average frequency and impact of catastrophic events in SIDS – A testimony from Grenada

Something recently considered by UNFCCC COP 27 was the establishment of a new loss and damage fund, the modalities that will surround how it will be capitalised, and how it will be accessed by developing countries. However, these issues, in a sense, are all of a second order of importance. When one takes out the average frequency and impact of catastrophic events and incidents, what remains there and how we are going to treat that is what constitutes the first order of importance for us. How to prepare for that is what the islands need to be thinking about, because in other areas and countries they are not going to be impacted, but for the SIDS there is no place else to go. There is no inland for SIDS and that is something that is important to address also when designing and participating to technical and scientific cooperation in the context of biodiversity.

African region

The key challenges and limitations for the **African Region** will be illustrated by drawing from the following experiences and examples:

- In Liberia, a project that was successful in carrying on its positive impacts beyond the project cycle was a sustainable land management project, which resulted in a revision of the College of Agriculture and Forestry of the State University's curriculum, which was instrumental for to students to take on various tasks on sustainable land management issues. Because it was bases at the university level, it yielded good results since, after concluding their trainings, students and practitioners continued to work within the sector. However, it was also stressed that proper **institutional capacity building** was lacking, and in many other project interventions, when a project ended, the results were presented to the Government, and that was most often the end of it. From the Government perspective, ideally, the project results should then inform **national development programming**, but often this is not possible because there is no provision of funds for any follow up actions in the national budget. Thus, the actions that are identified by the projects for further implementation are not acted upon because the Environmental Protection Agency and the Forestry Department do not have any budget allocation to support such activities. Any continuation actions can only be implemented by civil society and by international NGOs, such as Fauna and Flora International. As a consequence, the **monitoring of** such **follow-up actions** is also very difficult. Thus, it was recommended that at the end of each project cycle, a state budget to continue the recommended actions, as identified by relevant project

interventions, would be needed to ensure their implementation, and appropriate monitoring and reporting.

- A related challenge is that although there are **training** and other TSC **opportunities to send students abroad**, most often when such trained personnel returns to work for the public sector administration (such as the Environmental Protection Agency), they only work for a short period of two years, which is mandatory by law, and then they leave to work for the private sector or abroad. This is because salaries and career development opportunities are not sufficiently attractive, and there is no "retention plan" to hire and retain trained students and professionals to stay with the environmental agencies on the long run. In order to address the above challenges, there is a need to develop a clear **policy and budgetary allocation to retain suitable professionals to work on MEAs**, and this has to be accounted for in the national budget.
- Along the same reasoning, the focus on **building individual capacities** through sponsoring people to do **PHD research in foreign universities** was arguably considered as a **misalignment of priorities** regarding where investments are most needed in a developing country context. This is because most individuals with PhDs then do not return to work in their home countries, but prefer to teach in universities in the North or work for the UN. In order to make such investment more valuable, developing countries need to make sure that they contribute to a system (namely, to the research, innovation, and university system of the whole country, including by adopting appropriate policies and incentive mechanisms).
- In Southern Africa, there are important **gaps and capacity limitations in terms of managing transboundary issues**, for example, under the Nagoya Protocol as well as regarding the transboundary movement of LMOs/GMOs in the sub-region, as there are no commissions or cooperation mechanisms specifically addressing these topics. There are also some gaps regarding transboundary issues affecting the conservation status and measures in transboundary protected areas (PAs).
- Finally, what has been problematic, for example, with regard to the Nagoya Protocol, is the **complexity of the intergovernmental processes** and the lack of capacity within governments either to implement appropriate regulatory frameworks on the ground or to provide adequate support mechanisms and incentives for scientific cooperation and conservation. For example, because of the regulatory complexity around the use of genetic resources, access and benefit sharing (ABS) requirements have been reported to prevent a variety of research collaborations that could otherwise inform conservation policy and action. Hence, the lack of understanding of processes to facilitate the right kind of research and collaborative work is largely still a problem.

Summary Table and Average Scoring of key challenges and limitations in the African region[36]

• Inadequate level of funding	***Very high impact:*** In many African countries, biodiversity conservation issues are not well reflected in the national budgets and biodiversity related activities are mostly supported by bilateral and multilateral institutions, which is not sustainable. As a consequence, it is difficult to retain highly qualified experts because of the inadequacy of salary levels and other incentives. Funding for transboundary activities remains a challenge also when resources are available for domestic activities.
• Lack of mechanism(s) to facilitate regional and/or sub-regional coordination	***Medium to high impact:*** while there are coordination mechanisms at the regional and sub-regional levels, a fully-fledged nodal approach to address biodiversity-related cooperation and support services at scale is lacking. Such an approach should focus on concentrating highly skilled analytical service delivery (e.g. bioinformatics) in a reginal or subregional centre of excellence, taking into account the necessary economies of scales. This synergistic nodal concentrated approach would generate better outcomes and a better use of available resources and technologies.
• Inadequate identification and prioritization of needs requiring TSC, TT, KM and CB	***Medium impact***: in the African continent, the infrastructure for knowledge management (KM) is slowly improving, but the prioritization for an adequate environmental KM system is still very limited and the latter is absent in several countries. Technical trainings alone are not sufficient to build the required IT capabilities and infrastructure.
• Lack of high-level institutional willingness and support to engage in TSC initiatives	***Low to medium impact***
• Lack of institutional policies to facilitate TSC between countries	***Medium impact:*** Informants highlighted that conservation activities are not well integrated into the university and research systems, and the technical tools are missing because there are no institutional arrangements with such systems to acquire and/or develop relevant environmental technologies. An informant also stressed that **conflicting policies**, such as those concerning the import and safe handling of GMOs from neighbouring countries, present an important challenge. However, overall, it emerged that given the large number of institutions involved, institutional policies as such might have only a relative/limited impact. What can facilitate effective and impactful cooperation would be a joint vision in the form of the GBF and its Goals and Targets.
• Bureaucratic hurdles and delays	***Medium impact:*** it was noted that when there is an existing instrument, for example, in the form of an MOU/MOA, bureaucratic hurdles are not necessary a problem. However, it was also

[36] See above footnote 35 and related explanations.

	underlined that the impact of these kind of limitations is generally high when it concerns the regulatory environment for the use of genetic resources under ABS legislation and obtaining ABS permits.
• Limited availability of technical resources and expertise in your region and/or in relevant languages	***High impact:*** The requite expertise is generally not found in management positions. Because of this, even when technical expertise is available and shared, decision making is often done in the absence of it, and it is blind to arguments favourable to appropriate biodiversity-positive outcomes. Therefore, the lack of higher-level biodiversity champions in the policy-making space is an important limitation. It was also highlighted that many African countries do have technical resources, but these are not effectively utilized, such as in the case of **unused laboratory equipment and analytical machines** (e.g. HLPC) in universities, which are initially provided through cooperation projects without envisaging important elements such as: a mid- to long- term budget for consumables, the need to access technicians for calibration, and a plan to train university/laboratory personnel capable of using them beyond the principle investigator. (See above also the comments on lack of coordination mechanisms, the potential role of centres of excellence, and issues of economies of scale for service delivery and bioinformatics.)
• Lack of a long-term approach to cooperation, particularly at the regional and/or sub-regional levels	***Medium to high impact***: as already noted above, there is no "masterplan" for guiding regional and subregional research priorities for biodiversity. In addition, any commitments to a long-term approach to cooperation depends on Governments' priorities, and such requisite prioritization of biodiversity is often lacking. To illustrate this, it was noted that it is often problematic to connect technically qualified professionals engaged on biodiversity issues with the policymakers, and it is difficult to incentivize a proper buy-in from them. Therefore, there is a need to change perceptions on environmental issues, which are often seen as a secondary issue, as an advocacy issue, and not as national development priority. For instance, in countries where the extractive sector drives the economy, it is very difficult to balance the latter with conservation priorities, because in the short-term environmental concerns and natural resource management approaches could prevent the Government from perceiving revenues for national development – despite this being unsustainable without addressing the environmental concerns in the mid and long terms.

Pacific region

SPREP noticed that many examples exist of globally implemented support mechanisms failing to deliver in the Pacific islands region. This due to global, or even Asia Pacific regional approaches failing to connect effectively with the region due to weak partnerships, different time zones, and relying on virtual communication rather than connecting with the Pacific in-person through specific Pacific region meetings, workshops and activities. It was suggested that the solution to this is to utilize existing regional mechanisms such as SPREP.

One example of an initiative that achieved limited success, but was well intentioned and provided many lessons, was a trial project focused on 'Streamlined reporting by Pacific island countries (PICs) to the biodiversity-related multilateral environmental agreements (MEAs)' funded and led by the Australian Government of which SPREP was the main collaborating partner. The trial project ran from 2008 to 2010 with the main objective of reducing the burden of national reporting for PICs to the biodiversity related MEAs by reducing duplication in reporting, and making the reporting process simpler and less resource-intensive. The project focused on five MEAs - the CBD, CITES, World Heritage, CMS and Ramsar and involved the trialling of a consolidated reporting template which combined elements of the national reporting formats of the five MEAs. The template was trialled in five SPREP member countries – Cook Islands, Fiji, Kiribati, Papua New Guinea and Samoa. The final report for the trial presented at the 21st SPREP Meeting of Officials in September 2010 and despite support from countries and a willingness to see the consolidated template utilized beyond the trial, this did not eventuate. Rather, it was agreed to continue to support the concept of streamlined reporting in international meetings, where possible.

Overall, it was emphasized that SPREP and the Pacific region has relevant technical expertise, however, the capacity of SPREP as a regional support mechanism for the Pacific is currently limited primarily by financial and human resource constraints.

V. Considerations on institutional needs and capacities

Caribbean Region

A commonly shared consideration on the required institutional needs and capacities is that a comprehensive assessment would need to take into account the **updated NBSAPs**, which have not yet been completed in the Caribbean region. It would also require a clear understanding of the institutional landscape – who is responsible for what, where the gaps are, and where there is agreement to fill those gaps through the enhanced support of regional and/or sub-regional institutions. Emphasis should be placed on using **existing institutions**, and on investing and strengthening them by widening their mandate. Key informants gave some relevant examples, such as the Caribbean Community Climate Change Centre, which could play an important role also in the field of biodiversity, as well as the work to be facilitated though the High Ambition Coalition for Nature and People.[37]

As already emerged from the above sections, at the national level, there are a variety of urgent needs, including equipment needs, expertise needs, capacity building needs, finances and other resource needs. Some aspects would benefit from being coordinated at the regional level and a clear gap identified by informants is the absence of a **regional centre of excellence dedicated to biodiversity**. Such a centre would, among other things, be responsible for maintaining an inventory or pool of technical experts available to the region and facilitate a network between them.

[37] https://www.hacfornatureandpeople.org/home

Appropriate **coordination mechanisms** also need to keep track of all the different actors that are involved (including donors' coordination and implementation coordination at the national level). In this regard, it was noted that in some countries this coordination role was attributed to finance departments, who are not necessarily well equipped to actively play such role because they are not sufficiently familiar with the broader institutional and stakeholder landscape. Therefore, the assessment, designation and clear coordination are key, and it was recommended that biodiversity focal points should be designated as national level coordinators for TSC under the proposed regional network. Alternatively, a clear designation needed to be made, while such coordinators need to know and understand clearly their roles and responsibilities in this capacity. This is because often the assumption is that somehow the coordination will happen spontaneously; meanwhile, consistent coordination is often overlooked as those in charge of relevant interventions are pressed with moving ahead with the implementing actions. Finally, it was noted that policy coordination, such as through national pre-COP consultations, was very useful, but that the latter should also be facilitated after major COPs for implementation, cross learning, and stakeholder's coordination.

Further emphasis was also placed on the **whole of society approach**, which is important to engage community-based organization (CBOs) and non-governmental organizations (NGOs) so that their work can properly be accounted for in moving towards achieving the goals and targets of the GBF. Hence, especially in small island countries, it is crucially important to **formalize** the **institutional need** to engage with, and collect data from CSOs and NGOs to implement the GBF Goals and Targets. Formalizing their contributions and transparency will be essential also for enabling the **provision of direct funding to CSOs** that directly contribute to implementing the GBF in the Caribbean countries.

Additional considerations on capacities and institutional needs have included the following:

- The necessity to promote **traditional knowledge** (TK) on equal footing with scientific knowledge as part of relevant knowledge management activities, and involving TK holders and indigenous peoples and local communities (IPLCs) in the TSC network.
- **Knowledge management** (KM) and the modalities to address **documentation needs** can be improved. This is because most biodiversity-related interventions, while being documented, are not easily available or accessible. Hence, KM mechanisms and opportunities must be strengthened at national and regional levels on an ongoing basis in order to make relevant **institutional learnings** more easily accessible and usable, including mechanisms to make institutional memory widely available regionally.
- There is also an expectation that -at least for some Caribbean countries- the role of **biotechnology** is going to increase in the new NBSAPs. Since the **biosafety** aspects were not always well defined in the previous generation of NBSAPs, these will likely become an even more important national and regional priority going forwards.
- The **harmonization** of policies and relevant regulatory requirements (such as

the development of **ABS minimum standards** in the region to avoid a race to the bottom), as well as a **regional approach** to **lower operating and maintenance costs** for IT-related monitoring systems / equipment/ support/ and R&D technologies for ABS.
- The regular availability of **training opportunities** on an ongoing basis was also deemed very important in the region.

African Region

Further to underscoring the resource challenge to implement the updated NBSAPs in the African region, some specific considerations include the following:

- Strengthening human resource capacity to manage TSC, TT, KM and CB is necessary. There are many scientists and relevant scientific developments in the region, but only a **limited development of the actual infrastructure for TSC, TT, KM and CB** (e.g. training resources, how to manage datasets and knowledge, as well as the coding and IT capabilities that are required for that). Individuals do get some training in this regard, however, at the level of institutions, with staff turnover, it can be difficult to retain or replace staff with the same level of skills when they leave the public sector administration and organizations. Furthermore, there is no regular or coherent CB supporting TSC, TT, KM.
- **Bilateral and multilateral support**, being important sources of support, should be directed toward the **research and university system** (rather than the GEF implementing agencies). In this respect, it was noted that the recipient countries should have a say in which agency to implement project funding beyond the current GEF implementing agencies.
- Environmental conservation issues and Rio Conventions issues should be clearly accounted for in the **national budgets** and the use of such resources should be reported to the national Parliaments for **accountability** (instead of the executives only).
- **Conservation organizations** are undeniably important contributors to national implementation. At the same time, at the level of the execution of individual projects, they must find a solid grounding in the revised NBSAPs, which should define the key priorities country-wise. Hence, such interventions should directly contribute to the goals and targets set out in the NBSAPs – because, at present, in some instances individual projects have had a relative low relevance *vis-à-vis* the identified national priorities.
- Finally, some African countries have provided a high priority for addressing institutional needs related to the coordination of **ABS transboundary issues**, and have also highlighted their current limited capacities in terms of using, developing, and maintaining relevant **technologies to develop bio-based products**, laboratory equipment, and research and development (R&D) infrastructure.

Pacific region

As regards the required institutional needs and capacities of the Pacific region, the following recommendations were provided:

- Decreasing the proportion of project-based funding relative to programmatic/core funding;
- Strengthening informed decisions by making and garnering of political support at the national level;
- Strengthening inter-agency cooperation/coordination through reviving and/or strengthening national biodiversity steering committees or similar bodies;
- Encourage more Pacific islanders to undertake BsC and MsC degrees in Biodiversity Conservation, Conservation Biology, Marine Science, Zoology, etc.;
- Enabling policy and legislation – updated National Biosafety frameworks, enforcement and compliance, access and benefit sharing, etc.
- Identifying, capturing and maintaining specialised expertise in specific thematic areas (e.g. – Protected Areas, Traditional Knowledge, Invasive Species, Access and Benefit Sharing, etc.)
- Improved and long-term data collection and improved data management practices and systems;
- Increasing buy-in support for, and utilisation of existing centralised in-country data repositories;
- Regularly maintained systems, updated guidelines and processes, and provision of relevant decision support tools;
- Establishment of scientific research organisations in Pacific island countries and long-term support provided to sustain their operations.

Recommendations for activities through Networks with pilot interventions in the ACP regions for short-term actions (2023-2024).

Recommendations Report on suggestive activities through Networks (already available and those to be created) with pilot interventions in the ACP regions for short-term actions (2023-2024).

Purpose:

d) To suggest options for regional networks on technology transfer and scientific cooperation, considering available expertise and knowledge as well as suggesting a limited number of focal themes for consideration by UNEP and regional hubs; and

e) Identify 2-3 pilot activities for the period 2023-2024 to demonstrate the implementation of recommendations from CBD SBI 3 / CBD COP 15 outcomes related to technical and scientific cooperation.

Specific work:

g) Prepare recommendations on suggestive activities through Networks (already available and those to be created) with pilot interventions in the region for short-term actions (2023-2024).

I. Disclaimer

For each one of the ensuing sections, the various substantive considerations and recommendations are clustered and presented by ACP region as the specific inputs underpinning such recommendations were initially raised by informants from that particular region. However, it is worth noting that in many cases, *mutatis mutandis*, key recommendations and action points can be valid and relevant for other ACP regions as well.

II. Considerations regarding the integration of TSC related issues in the updated NBSAPs

As regards the integration of technical and scientific cooperation (TSC) issues in the updated NBSAPs, it was noted that possible guidance on how to undertake such exercise could be useful, including examples and case studies of countries that have already done this with success. Regional dialogues on the NBSAPs would provide suitable fora to advance a coherent TSC regional integration agenda.

The **Caribbean countries** have highlighted the following considerations. The majority of the NBSAPs' updated national Targets will need TSC as an essential means of implementation. The latter will need to be integrated in the specific implementing activities as a crosscutting target. Therefore, for a majority of countries, TSC may not necessarily be addressed as a stand-alone target.

On the one hand, it was remarked that when addressing substantive activities such as the restoration and rehabilitation of ecosystems (i.e. forest, marine, and freshwater ecosystems, etc.), technical and scientific cooperation is often their backbone. On the other hand, with regard to the NBSAPs activities concerning institutional strengthening, public education and awareness, and building the capacities, etc., there will be more work required at the national and regional levels to adequately infuse TSC across the full spectrum of activities covered by the NBSAPs. In order to achieve that, the updated plans for supporting the implementation of the Kunming-Montreal Global Biodiversity Framework (the GBF) will need to be paralleled with the completion of **national needs assessments** to define the specific needs for training, for capacity building, for research and knowledge production, and for new technology, coupled with a **cost estimate** to meet those needs – both overall and in specific priority areas (e.g. assessment of the cost involved for the maintenance of protected areas). Such process would require consultation of all stakeholders through a thorough application of the whole of society approach. Furthermore, countries will need to elevate fully the NBSAPs to the level of national policy and **integrate** the identified **priorities into** each country's **national development strategies** in order to receive high-level attention by Governments and development partners alike. Hence, the issue of enhancing the "visibility" of biodiversity was recognized as an important issue requiring to **mainstream biodiversity** so that it becomes a primary focus of Governments' action, because it underpins many essential aspects of life and livelihoods in the region.

In the **Pacific region**, it is expected that SPREP will facilitate the integration of TSC issues into NBSAPs through targeted in-country and/or regional technical assistance for the review and update of NBSAPs beyond 2020. SPREP will also host a face-to-face regional workshop focussed on the GBF and updating of NBSAPs including enabling factors such as TSC.

In the **African region**, most counties are still considering whether to treat TSC as a crosscutting issue and/or as a self-standing national target, with informants noting that TSC does not have to be necessarily dealt with in one target (corresponding to GBF Target 20 – *Capacity building and development, technology transfer, and technical and scientific cooperation for implementation is strengthened*). Hence, some consider

it preferable to have TSC sub-targets that would link to the relevant thematic areas – i.e. sub-targets to acquire technologies and expertise to address priority issues such as invasive alien species (IAS), protected areas (PA) management, access to genetic resources and benefit sharing (ABS), etc.

Considering that one of the current weaknesses concerns the connection between the required resources and the work that needs to be done on the ground, on the one hand, and the Ministries and focal points responsible for the NBSAPs, on the other, it was noted that national TSC facilitation mechanism(s) and targets in the NBSAPs should further such **internal coordination**. Importantly, the latter should ideally be facilitated though an **inter-ministerial engagement mechanism** between ministries of environment and ministries of science, research, technology, innovation, development, education, health and agriculture, among others, with mandates to ensure policy coherence and address biodiversity-technology interlinkages.

In addition, since a key challenge is to address the resource gap to implement the updated NBSAPs, it was highlighted that bilateral and multilateral support, being one of the main sources of support, should be directed toward the research and university system, rather than channelled primarily through the GEF implementing agencies. This is because the contributions of the research and university system are of paramount importance for promoting TSC and technology transfer at the national and regional levels in support of the updated NBSAPs and the GBF.

III. Considerations regarding the focus of national or regional targets for TSC in the context of achieving the GBF by 2030

In the **Caribbean region**, it was noted that while the focus of TSC related targets would need to be discussed with other Parties at the regional level, as they had no opportunity yet for unpacking the GBF, clearly the updated national targets must lead to action that can be adequately financed. Hence, the need to develop national financial plans to ensure that activities can be adequately funded. In this context, a focus of cooperation could be to provide a better, more coherent and coordinated **understanding of the financial architecture**, including both domestic and external resources for implementation of the GBF.

What has also affected the effectiveness of biodiversity interventions at the regional level is the lack of an agency dedicated to it. Biodiversity is not addressed as a standalone priority and is not recognizable as a viable sector. Because of this other issues often take precedence over biodiversity so that its champions and stakeholders have to keep demonstrating its importance.

Here is where a **business approach to biodiversity** has also to come forward more prominently. Arguably, some informants have indicated that the private sector largely does not understands its role in biodiversity conservation, sustainable use or benefit

sharing.[38] Thus, the importance of involving more of the **private sector** on biodiversity issues presents a fundamental opportunity that could be addressed through enhanced technical and scientific cooperation. In this regard, governments could prioritize enhanced cooperation on providing an enabling environment and support for the implementation of GBF Target 15 (*Businesses assess and disclose biodiversity dependencies, impacts and risks, and reduce negative impacts*) as well as coordinated efforts creating a level playfield at the regional level to achieve GBF Target 18 (*Reduce harmful incentives by at least $500 billion per year, and scale up positive incentives for the conservation and sustainable use of biodiversity*). The TSC Support Center(s) and network could consider other important capacity building interventions such as delivering trainings for small and medium enterprises (SMEs) on: how to incorporate an environmental management culture as part of overall company strategy; quantification of the resulting benefits; technology protection measures and the process and importance of intellectual property (IP) protection in the generation, management and deployment of intangible assets and relevant biodiversity-related technologies.

Furthermore, at the regional level, not all GBF targets are equally relevant for all countries. For example, in the OECS countries, a target such as the **30x30 Target** (i.e. GBF Target 3 – *30 percent of areas are effectively conserved by 2030*) would benefit from a regional approach which may be the most appropriate and effective. Meanwhile, CARICOM, OECS and other relevant organizations should continue work with member countries to highlight some priority indicators for the targets that they will consider as a priority for the region and for which they will devise regional targets.

Important cooperation focus areas could include: **climate change and biodiversity**, **biosafety**, and **ABS** – among others. Importantly, the focus of national and regional cooperation-related targets would also require seeking **alignment with the other Rio Conventions** and their relevant indicators for TSC, if any, as well as with relevant science and technology (S&T) work and indicators in the context of the Sustainable Development Goals (SDGs).

In the **Pacific region**, it is expected that national targets for TSC (for incorporation into the NBSAPs) would be formulated with SPREP technical assistance for countries on a case-by-case basis (priority-driven). Such targets would focus on utilising TSC as an effective means of achieving the quantitative elements of the GBF targets. SPREP already supports a set of national and regionally endorsed targets and these are set to be reviewed and revised in alignment with the GBF and its monitoring framework.

In the **Africa region**, informants highlighted that: establishing regional or national targets for TSC within a regional framework would be useful; **TSC support should be focusing** specifically **on** the **indicators** in the GBF, and on what is necessary to monitor the regional and national targets set out by the updated NBSAPs; this should be done

[38] Corroborating the above perception see, for instance, David R. Boyd and Stephanie Keene, "Essential elements of effective and equitable human rights and environmental due diligence legislation", A Policy Brief from the UN Special Rapporteur on Human Rights and the Environment, June 2022, available at: https://www.ohchr.org/sites/default/files/documents/issues/environment/srenvironment/activities/2022-07-14/20220713-SR-Environment_ExecutiveSummary.pdf

through an **iterative process** that would ultimately **build multi-functional capacity on biodiversity** issues; and that the transboundary aspects of cooperation should be very prominent. Emphasis for TSC was placed also on new biodiversity targets that may be set, for instance, on the One Health approach (especially as some African countries were heavily impacted by pandemics – e.g. a health-related target to address Ebola, Covid, and other zoonotic diseases, etc.), and on IPLCs' contributions to biodiversity management. It was also suggested that the Nairobi Convention could provide a forum for national and regional integration of TSC into relevant aspects of the NBSAPs work in Western Indian Ocean countries.

IV. Recommendations on suggested entities or organizations that would be best placed as potential candidates to host a technical and scientific cooperation support centre

Overall, it was emphasized that while any candidate entity could not have expertise in all the subject areas of the CBD, it was important to have a good coordination mechanism with other implementing agencies working on biodiversity issues in the ACP regions.

The following entities and organizations have been suggested as potential hosts of a TSC support centre and/or as active partners in the **Caribbean network**:

- Relevant **CARICOM Organs** to be determined by its Member States, such as the **Caribbean Community Climate Change Centre** (5Cs), which is already accredited to the Green Climate Fund;
- The **Organisation of Eastern Caribbean States** (OECS), which is flexible and agile (having the technical and policy coordination mechanisms) but limited in reach;
- The **Caribbean Natural Resources Institute** (CANARI), which has experience in participatory approaches and on the ground action and building capacity of community groups, and works on IPLCs and TK issues;
- The **Amazon Cooperation Treaty Organization** (ACTO);
- The **research and university system institutions**, which need to have specific focal points for the GBF and related TSC aspects, including: The **University of West of Indies (UWI)** with its 4 campuses: Mona in Jamaica, Five Islands in Antigua, Cave Hill in Barbados, particularly the Center for Resource Management and Environmental Studies, and St. Augustine in Trinidad and Tobago, and The **American University of Antigua (AUA)**.

Additional proposals: reportedly, Guyana has made it known that it has the interest and resources to establish a facility to support biodiversity work and the GBF implementation: the proposal would be to combine two existing institutions, namely, the **Iwokrama International Center** (born out of an agreement between Guyana and the British Commonwealth in 1996) and the **Center for the Study of Biological Diversity** (established with support from the Smithsonian Institute), and expand into a regional mechanism to support biodiversity. This proposal was highlighted as a critical

opportunity that CARICOM countries may wish to further explore and support. Reportedly, Guyana has the required seed funding through a bilateral agreement with Norway to establish such facility. However, how it could be structured and operationalized would require further discussions at the level of the Caribbean Community.

Other potential TSC network members and partners might include:

- The UNEP Regional/Sub-regional Offices (Jamaica / Panama);
- The FAO Regional Office for Latin America and the Caribbean;
- The UNDP Regional Hub in Panama;
- IUCN;
- Fauna & Flora International (FFI); and
- The Environmental Awareness Group (EAG) (Antigua and Barbuda).

In the **Pacific region**, the **South Pacific Regional Environment Programme** (**SPREP)** was put forth as a potential candidate to host the institutional mechanism to support implementation of the GBF in the Pacific region. The **Pacific Community (SPC)**, which is the principal scientific and technical organisation in the Pacific region, also provides important mechanisms for South-South and triangular cooperation in the region (for instance, it has a strong focus on cooperation in agriculture) and may also be considered as a potential host organization.

In the **Africa region**, it was highlighted that the **African Union Development Agency** has a strong science and technology orientation, and the political mandate to drive the technical and scientific pillar of Africa's Agenda 2063. It was also emphases that the **African Union Commission** is presently coordinating the development of the Africa Biodiversity Strategy and Implementation Plan, which in addition to the GBF includes a set of CITES related actions (with a separate matrix). At the subregional level, relevant host institutions might include, *inter alia*:

- The Economic Community of West African States (ECOWAS);
- The Common Market for Eastern and Southern Africa (COMESA);
- The Western Indian Ocean Marine Science Association, which would be well suited for this role in its subregion, and has the necessary network and relations with specialty groups working on sectoral or thematic issues such as CORDIO;
- The Southern African Development Community (SADC); and
- The South African National Biodiversity Institute (SANBI).

Furthermore, the TSC Network should prominently feature **national research and university institutions**, because these are perennial institutions able to sustain TSC in the long term, and the knowledge that they produced would remain relevant for the country or region. It was also noted that the **agricultural research institutions** should play the essential role of mainstreaming biodiversity into the agricultural sector, including relevant CGIAR Centres[39] such as the International Livestock Research Institute (ILRI) and others.[40] Finally, it was suggested that the burden relating to the

[39] The Consultative Group on International Agricultural Research, available at: https://www.cgiar.org/
[40] See: https://www.ilri.org/where-we-work/eastern-and-southern-africa/kenya

service provision for administer the TSC networks and collaborators would be reduced if such networks are brought together by the common vision enshrined in the GBF, and that Indigenous Peoples and Local Communities (**IPLCs**), civil society organizations (**CSOs**), and **industry** are a important strategic allies to translate the research into impactful results on the ground.

V. Recommendations on suggested focal themes or subject-matter areas that could be prioritized for consideration by the proposed network of regional and/or sub-regional TSC support centres

The following priority focal areas were identified for enhanced technical and scientific cooperation by the Caribbean countries:

- **Invasive alien species (IAS)** in line with GBF Target 6 (*Reduce rates of introduction and establishment of invasive aliens species by 50 percent*);
- **Access to Genetic Resources and Benefit Sharing (ABS)**, including benefit-sharing on **Digital Sequence Information (DSI),** in line with GBF Target 13 (*Fair and equitable sharing of benefits from genetic resources, digital sequence information and associated Traditional knowledge*) and Decision CBD/COP/DEC/15/31;
- Management of **protected areas (PAs)** and **other effective area-based conservation measures (OECM)** for other ecologically significant areas, in line with GBF Targets 1, 2 & 3; cooperative work in these areas should include consideration of: **transboundary cooperation** issues, a re-assessment of key biodiversity areas, **Payment for Ecosystem Services** (PES) and other schemes to maintain the PA system financially sustainable, and **public private partnerships** (PPP) involving the private sector and local communities that are living in the concerned areas, which must be engaged in their management, monitoring, etc. Furthermore, the scope of work should cover the full cycle and encompass all technical, scientific, knowledge and innovation aspects, and it should address key challenges such as those related to illegal mining in the Amazon region.
- **Biosafety** and biosecurity, in line with GBF Target 17 (*Strengthen biosafety and distribute benefits of biotechnology*)
- **Synthetic biology** in line with Decision CBD/COP/DEC/15/31
- **Resource mobilization and financing** in line with GBF Target 19 (*Financial resources increased to $ 200 billion per year, including $ 30 billion through international finance*); such work would require consideration of: various sustainable finance mechanisms and options, as well as the need to have an umbrella environment financing with various finance window and increased cohesion between these various windows;
- **Biodiversity and climate change** in line with Decision CBD/COP/DEC/15/30**;**
- **Marine biodiversity**, in line with GBF Targets 2 & 3, considering, *inter alia*, the restoration of coral reefs and costal ecosystems, in tandem with ecotourism, and island biodiversity;
- Supporting the **involvement of citizens** in biodiversity conservation, sustainable use and benefit sharing, in line with the whole of society approach, and focusing

on how to mobilize citizens, particularly on sustainable production and consumption issues beyond just awareness raising.
- Cooperation work concerning the need for **aligning ongoing and future biodiversity projects with the GBF.**

Deep-dive on ABS and DSI -related considerations

In the Caribbean region there is a strongly felt need to develop the capacity, through science, technology and innovation, and to become involved not only in the deliberations on DSI but also in the repositioning of biodiversity and of the scientific institutional mechanisms and infrastructure to directly benefit from DSI – e.g. from the point of view of domestic capacities and in the context of the newly established Global Benefit Sharing Fund, as well as in order to upgrade legislation to the standard required for supporting the policy framework and other relevant initiatives in this area.

In this regard, it was highlighted that more emphasis should be placed on the third pillar of the Convention (i.e. the fair and equitable sharing of benefits). There is a definite need to be focusing on the technology and its availability, as the human genome sequence was first completed over 20 years ago, and compared to those times, today the technology has become much cheaper and is readily available. This is huge advantage. Hence, access to technology should be prioritized to promote ABS and unlock the potential for the use of genetic resources. This should also enable the new Benefit Sharing Fund to generate resources for the conservation sustainable use of biodiversity at scale.

The priority focal areas for the **African countries** might include, *inter alia*:

- Focusing on generating **standardised information** related to the GBF and its Targets that is **synergistic and interoperable**;
- Noting that the GBF Targets spread across the SDGs and they are not just about biodiversity, but include biodiversity and human use, and the economy and social benefits together, an important focus would be on strengthening the socio-ecological sciences to understand people's dependencies and trajectories to improve biodiversity and also how biodiversity contributes to the welfare for all people;
- On the technology side, it is the technology that assists the kind of integrated science necessary to meet the objectives of the Convention. In the African region, there are already many relatively simple **technologies** which are available **for monitoring, assessment**, and instrumentation to measure various variables that are important, as well as the ability to integrate the data and analyse it. However, the deployment of these technologies needs to be further strengthened, reaching a more capillary and effective diffusion, and they need scaling up;
- On innovation front, it will be important to mobilize **citizens science** and democratizing science, so that more people can be involved in setting the most

relevant research questions, collecting information, and assessing results and progress towards the GBF Targets;

- **Public education, public awareness, and information dissemination** present a serious problems in the African continent. Meanwhile, they are extremely important to implement the CBD. Hence, given the increasing need for the general public to act in a responsible way, a peculiar focus of the TSC support centres should be to produce relevant information materials in a language and style that the average citizens can understand, especially in the rural areas, and also educational materials, flyers, etc., available in the local languages, and ultimately leading to the development of **educational curricula** that are **adapted and localised** to reflect relevant biodiversity issues and concerns;
- **ABS, Science, Technology and Innovation**, with a view to supporting the development of value addition products arising from the use of genetic resources and associated traditional knowledge (TK), including value chains development and TK documentation and protection in accordance with national bio-economy strategies. This focus area might also include triangular cooperation with international institutions that have sequencing capacity as well as technology transfer aspects – e.g. facilitating the acquisition, maintenance, etc., of laboratory equipment for the sequencing of samples and related DSI work;
- **Biotechnology and biosafety**, with a focus on facilitating the uptake of relevant technologies for the testing of GMOs and their detection in food, etc.;
- The **management and effectiveness of protected areas (PAs)**, particularly the joint management of **transboundary parks**, with a focus on how to engage the private sector to effectively support conservation and address land degradation;
- **IAS management and eradication**, including consideration of possible IAS sustainable uses in order to dispose of them; and
- Enhanced cooperation regarding the **sustainable tourism sector**, where countries in a particular subregion might otherwise be competing with their neighbours for the same tourism products and facing difficulties to broaden their product portfolio.

At the time of writing, SPREP on behalf of the Pacific ACP countries, had not yet provided information on this particular aspect of the report.

VI. Considerations on the possible prioritization between specific objectives pertaining to the Mechanism(s) established by CBD COP 15 to strengthen TSC in support of the KM-GBF

For the **Caribbean region**, the following indicative order of priority[41] has emerged

[41] The average scoring attributed in this table to each one of specific objectives pertaining to the TSC Mechanism(s) established by CBD COP 15 may range from low priority to very high priority. It is calculated on the basis of the average of the values that were attributed by key informants from each region during the interviews. However, given the timeline and other practical constraints of this study, the number of available interviewees was limited to some key selected informants. As a consequence, these values are indicative only

regarding the specific objectives pertaining to the TSC Mechanism(s) established by CBD COP 15:

Specific objectives	**Ranking value**
(a) To enhance local, national, subregional, regional and international capacities in relation to science, technology and innovation by means of human resource and institutional capacity building and development;	*Very high priority*
(b) To enable technology assessment and monitoring of appropriate technologies;	*High priority* Historically, it was noted that people like to test out the effects of technologies on small islands. Therefore, the application of the precautionary approach is very important particularly for SIDS.
(c) To promote and facilitate the development, transfer and use of appropriate technologies, including indigenous and traditional technologies subject to free, prior and informed consent, according to national legislation;	*High priority* It was highlighted the importance of recognizing and appropriately valuing indigenous and traditional knowledge (TK) of Indigenous Peoples and Local Communities (IPLCs), taking into account the risk of biopiracy and loss of relevant indigenous knowledge.
(d) To promote and encourage joint research, cooperation and collaboration in the use of scientific advances and good practices in research;	*High priority*
(e) To promote the development, implementation and scaling up of innovative solutions;	*High priority* It was underscored the need to continuously demonstrate the business case for biodiversity because approaches that just emphasize environmental compliance alone for protecting biodiversity are bound not to be successful in the long run.

and they do not necessarily or comprehensively reflect all the perspectives from the ACP countries in each region. Besides these indicative average value attributions, whenever additional comments, examples or explanations were provided on a specific objective, they are also reported in the table.

(f) To facilitate access to and exchange of relevant technical and scientific data, information and knowledge.	*High priority* However, it was noted that the implementation of this objective might not have as much immediate impact because currently the region does not generate a huge amount of knowledge and information.

As regards the **African region**, a key informant stressed that the above objectives are not constituted by discrete activities. Countries will need support on all those activities against a coherent high-level plan and guidance from the Global Biodiversity Framework and its indicators, which supposes that all these activities can be done at different levels and at an appropriate intensity. In order to enable this, the research system must be well connected to the NBSAPs and a regional analysis of the data should be elaborated on an ongoing basis. In turn, the latter would encourage joint research and make available tools and data to further enable such joint research. On average, informants attributed a very high priority for objectives (a) and (c) in particular, and a high priority for the other objectives, with a slightly lower ranking for objective (b) (*see the first column of the above table*).

At the time of writing, SPREP on behalf of the Pacific ACP countries, had not yet provided information on this particular aspect of the report.

VII. Recommendations on suggestive activities through TSC Networks and pilot interventions in the ACP regions for short-term actions (2023-2024)

In line with the priorities and orientations expressed above, the Caribbean countries have suggested the following possible activities to be implemented through the regional and subregional TSC Network:

- The management of **protected areas (PAs)** and **other effective area-based conservation measures (OECM)** for other ecologically significant areas should be prioritized in the region because it incorporates many biodiversity issues, including support for marine and terrestrial biodiverse areas, how to finance them, such as through ecosystem service schemes, improved coordination with the network of UNESCO World Heritage sites, etc. Possible activities could focus, among other things, on the uptake and use of the **IUCN Management Effectiveness Tracking Tool (METT)**[42] – See below the deep-dive on a proposed pilot on the **30 by 30 Target**;
- Enhanced cooperation and support for a better understanding of, and for further defining and accessing the **finance architecture** for biodiversity-related

[42] https://www.iucn.org/news/protected-areas/202112/management-effectiveness-tracking-tool-mett-new-edition-mett-handbook-launched

implementation actions. This work should address the current barriers to access multilateral funds (e.g. GEF, GCF, etc.) and also capitalize on the sustainable financing architecture that already exists in the region, namely through the **regional trust fund** that was established over a decade ago to meet the 20 by 20 challenge;[43]

- Enhanced cooperation on food systems transformation towards more **resilient food production systems**, with a strong focus on **agricultural traditional knowledge** (AgTK) and **agroforestry,** which are critical to reduce the current high vulnerability to climate disasters (such as during the hurricane season) and provide more stability and resilience to agroecosystems – e.g. through the presence of trees on farms, etc. Such work should also lead to a better understanding of the linkages between, and impact of climate change on biodiversity, and of how to address such impacts;
- **ABS regional coordination and harmonization**, *inter alia*, to develop a solid business case and business model for ABS throughout the region. Such work would include enhanced cooperation for the development commercial terms and approaches for ABS collaborations, partnerships, and bioprospecting in the region (in line with the TSC mechanisms' objective (f) on innovative solutions – see in the table above), including the development of model and/or standard mutually agreed terms (MATs) as well as advanced training and technology acquisition for the generation, storage and analysis of **digital sequence information (DSI)**;
- **Transboundary cooperation** approaches, also taking into account the new Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction under UNCLOS (UN BBNJ Treaty);
- Enhanced cooperation focused on engaging **young people** interested in biodiversity issues and attracting them towards biodiversity-positive jobs in this sector as a viable carrier option. Such work would need to consider how to possibly change the way biodiversity is taught in schools and universities, how to prioritize start-ups, etc.
- **Updating the Regional Biodiversity Framework**, in line with the GBF and regional priorities, including the development of regionally relevant biodiversity indictors and targets;
- **Establishing a regional research agenda for biodiversity** – for instance, OECS has a marine research agenda and a protocol. However, a common research agenda for terrestrial biodiversity is missing in the region and the current marine research agenda should be further expanded;
- Joint development of **guidelines and benchmarks on nature based solutions**; and
- Better coordination, support and harmonization of biodiversity-related **data management.**

Deep-dive on a proposed pilot activities contributing to the 30 by 30 Target building

[43] The **Caribbean Biodiversity Fund** (CBF) is a regional umbrella environmental fund that implements innovative solutions and consolidates regional conservation impacts in the Caribbean through a range of financial instruments. Available at: https://caribbeanbiodiversityfund.org/

upon the 20 by 20 Challenge

Work addressing the **30 by 30 Target** should be prioritised in the Caribbean region. It would be a low hanging fruit that builds upon the achievements of the **20 by 20 Challenge**, where Nature Conservancy and partners had worked closely with the Caribbean countries, in the same way as they did with the Coral Triangle Initiative,[44] to set up a sustainable financing mechanism. A key learning was the understanding that one of the biggest barriers was access to sustainable financing. In response, there was a huge effort supported by the KfW, a German state-owned investment and development bank, to set up seed funding that could attract investments to support conservation work on the Caribbean islands. Thus, although the 20 by 20 Challenge was not achieved, many of the challenges that were encountered at the time have already been addressed.

At a regional level, for instance, TSC activities could focus on the **identification of marine areas** that could capture key representative ecosystems that would be cross-boundaries and would contribute to the 30 by 30 Target. Prioritizing such activities would have the advantage of having already the requisite support build in for sustainable financing. As noted above, the region already has a sustainable financing architecture at a regional level, through the **Caribbean Biodiversity Fund (CBF)**, that every country can have recourse to. Meanwhile, the Caribbean countries have also established National Trust Funds that can draw down from the regional trust fund. Therefore, if all countries were to agree on a pilot activity to immediately support the 30 by 30 Target at a regional level, and amongst those activities they could agree that each country is going to identify pristine representative sites that together would make up 30 per cent of terrestrial and inland water areas, and of marine and coastal areas of the region, that would be a tremendous advancement.

Another important learning from the 20 by 20 Challenge was that funding for the actual **gazetting** of these areas is really important. All countries had legislation that addresses marine protected areas (MPAs), marine managed areas, etc., but the gazetting was one of the things that was most challenging because they did not have a budget for that at the time. Several other pilot supporting elements are already in place, such as a **caucus with key stakeholders** and an agreement from all the different users that was developed overtime, including by implementing the Caribbean Regional Oceanscape Project (CROP)[45] and drawing from the marine spatial planning exercises that were undertaken across the board for the islands within the Caribbean. This work has generated a very good understanding of who the users are, where the key spaces are, etc. Therefore, concrete pilot activities building on the 20 by 20 Challenge could attain the required political buy-in right away, because they would be building upon existing data and information, and also having already swept aside some of the key challenges that the Caribbean countries had faced, preventing them from achieving the Aichi Targets and the 20 by 20 Challenge.

[44] https://coraltriangleinitiative.org/
[45] https://oecs.org/en/crop

Examples of concrete activities and technical work that would still be required would include work on developing a **formal definition of the areas** to be protected. In the case of marine protected areas, aside from the fact that such areas may deserve protection for multiple reasons (some of them because they are pristine and they should to stay that way, others because they need rehabilitation), practically, in the Caribbean a variety of conditions were found. For example, in Grenada, these could include a mix of coral, rubble with seagrass, plus a soft bottom centre, which has required an important amount of work for classifying them. Hence, unpacking the details of classifying these different areas presenting a variety of different characteristics requires all kinds of bathymetric work to begin with in order to understand all the different types of bottoms that are present within national jurisdiction. In the coastal zone, the challenge is even bigger, because relevant coastal areas may include areas with mangrove, with acacia forests (like the low mountain thicket in Grenada), etc. Some of these terrestrial areas have struggled because substantial developments have taken place. Hence, the importance of including coastal areas as well in the ongoing and future regional work concerning the 30 by 30 Target.

As regards technical and scientific cooperation, it would be important to consider, among other aspects, how to scale up and secure the achievements made thanks to the restoration of coral reefs through micro fragmentation and a wet lab in Grenada – as one relevant example – as the country comprises a vulnerable area of the island that is low lying and is at risk from sea level raise. In this example, the training of the local population to help with the out-planting of coral fragments was very important. Likewise, **restoration activities** within MPAs identified as part of the 30 by 30 Target would be essential and building the capacity to pursue this work as a career choice for the local population becomes extremely important. This is because for small islands, **ecosystem based adaptation** approaches are comparatively cheap and can provide immediate tangible benefits.

Another key ecosystem that to date has been overlooked is constituted by the seagrasses. Recent research has shown that seagrasses can sequester 8 to 30 times the amount of carbon per hectare of mature stands of Amazonian forests. This means that such ecosystems need to be more thoughtfully considered and small islands are for the first time being able to argue that they should rightfully participate to the carbon markets. Besides coral reef restoration, TSC activities should facilitate a solid common understanding of how the 30 by 30 Target and relevant restoration activities can contribute to addressing climate issues beyond the dissipation of wave energy that corals can do. It is about accounting for what the other ecosystems can also do, and how to build the capacities and understanding of how to make sure that those ecosystems are able to thrive. Only technical and scientific cooperation can enable the Caribbean countries to achieve the above, such as in the case of the recent collaboration between the Centre for Environment, Fisheries and Aquaculture Science (CEFAS)[46] of the UK and the Environment Division of Grenada looking at **blue carbon**. Contributions from research and science are

[46] https://www.cefas.co.uk/

absolutely necessary if the Caribbean countries want to include blue carbon in their toolbox of **nature based solutions**. An adequate focus of TSC activities in this area would ultimately make apparent a common understanding of the linkages between biodiversity and climate action, for example, by revealing how much protecting and restoring 30 per cent of marine and terrestrial areas of particular importance for biodiversity can contribute to carbon capture and storage.

Deep-dive on engaging youth and advancing genetic work and understandings of the DNA potential in schools

Special emphasis could be placed on the third pillar of the Convention concerning the fair and equitable sharing of the benefits arising from the use of genetic resources and, in the context of CBD COP Decision 15/9, also digital sequence information on such resources. Through technology sharing and debunking myths about DNA, and considering that DNA technology has become increasingly popular (as it is being used to frame people for crimes both in the media and in popular fiction series), it has become much easier to inform and educate a large section of society than in the past. With those small incremental increases in the general public knowledge, the third pillar of the Convention can now properly be unpacked.

In developing countries, where fair and equitable benefit sharing issues should be placed at the front and centre of sustainable development trajectories, facilitated access to the required human, institutional, financial, and technological resources is critically needed, as is the unpacking of the understanding of relevant science and technology, and of the governance issues involved.

In order to do that, one must look at the DNA attributes related to the ACGT bases – adenine (A), cytosine (C), guanine (G), and thymine (T) – and arguably, in the context of the Convention, it will be necessary to overcome the whole dichotomy between material and information. Despite the political entanglements and complexities around the modalities for subjecting the use of DSI to benefit sharing obligations, a bottom-up, innate understanding will come through, if it is properly enabled by a broad and pervasive technology sharing within society, starting from school students and youth.

It is one thing in science to have acquired knowledge by reading books, and it is another thing to develop practical, applied knowledge and learnings. For example, the TSC network could support educational programme activities that would allow secondary school students to learn how to extract DNA on experimental basis – and ultimately, aiming at revising the science curricula so that all secondary school students by age 12 should have practiced how to extract DNA. Nowadays, this can be easily done. It is possible to practice wildlife forensics and the use of DNA to achieve that. For example, if a person if found to have caught meat out of season and authorities want to know if it is an iguana or a pigeon, this can be easily done through the genetic work.

Applied practical work that makes use of DNA technology should become

commonplace in the science courses at secondary schools. The first human genome sequence was completed over 20 years ago. Meanwhile, there is a definite need to be focusing on the technology and its availability. The advantage of the technology, compared to the science and innovation aspects, which are equally important, is that it is hands on and counts immediately towards implementing the third pillar of the Convention. Hence, the need to operationalize it to the fullest extent in order to generate the benefits, knowledge, and resources that are needed for the conservation and sustainable use of biodiversity.

In the **African region**, informants recommended to consider the following possible activities to be implemented through the regional and subregional TSC Network:

- To build a network for **compiling information, knowledge and data needed for monitoring the Targets and Goals of the GBF**, thereby helping to implement the monitoring framework; the TSC Network should also directly support research on actions that could be taken for improving the status of biodiversity under the various relevant indicators and related GBF targets. One of the key constraints is that Governments do not access and use existing data very effectively, particularly when such data does not come from the Government, but comes from NGOs, scientists and other citizens. Thus, establishing a process for integrating all the data that is necessary and available for supporting the full implementation of the GBF could be an important pilot. Some existing networks and organizations are already doing that, such as the Western Indian Ocean Marine Science Association, but having such an activity properly nested as part of a formalized TSC support centre and network would be helpful to ensure that countries will fully buy into it, and use it, thereby consolidating existing relationships and partnerships, and creating new ones;
- To support the establishment of a **regional and/or subregional database infrastructure** that would support the **monitoring of genetic resources** under the Nagoya Protocol; particular attention should be paid to enhance the connectedness and interoperability between existing and to-be-established databases in the infrastructure network, including by appropriately "tagging" the origin of genetic resource samples and related DSI through unique standard identifiers for their improved traceability and for monitoring purposes;
- To promote **science-policy dialogues** with the view to mainstreaming biodiversity issues into existing high-level policy fora;
- Ultimately, to focus on **mobilizing technologies** to address the priority needs identified for the region, using specific thematic areas as entry points for collaboration (biodiversity conservation, restoration efforts, IASs, etc.).

Deep-dive on mobilizing available technology, ICT private sector partnerships, and youth to support the GBF monitoring framework

It has already been emphasised above the importance of enhancing the contributions of citizens' science to support the GBF implementation. This can help relevant institutions and citizens to keep track of the impacts of our actions on the status of biodiversity. Everyone nowadays, through a mobile phone, has a tool that provides both a simple way to tag and document the GPS location of any particular specimen found, and a powerful interface that can match images with automated

optical recognition which can be used for a capillary monitoring of biodiversity. Against this backdrop, the upcoming TSC support centres and network institutions could facilitate an intervention whereby a partnership with information and communication technology (ICT) companies would provide mobile phones, data, and essential training to school kids across the region to monitor the status of biodiversity. Meanwhile, scientific work should be centrally coordinated in order to get the necessary information standardised so that the participating students would generate information that is synergistic, interoperable, and directly usable for monitoring selected priority targets under the GBF.

In a nutshell, the essential elements of the proposed pilot activity include:

- Focusing on the existing technical capacity, which should be widely diffused by relaying, in particular, on the involvement of students and youth;
- Much focus on the ground should be on IPLCs and citizens science (through the enhanced and purposeful use of mobile phone technology for monitoring and recording);
- Artificial Intelligence (AI) and optical recognition could provide real time biodiversity monitoring capacity but need to have a centralised repository, which should be hosted and curated by the to-be-established TSC support centres and network;
- The ICT sector should be fully engaged with a view to encouraging school children with free data, while also supporting more sophisticated analysis of that information at centralised level.

At the time of writing, SPREP on behalf of the Pacific ACP countries, had not yet provided information on this particular aspect of the report.

VIII. Considerations on key stakeholders and their strategic and effective engagement in the TSC Networks

The Caribbean countries have emphasized the importance of engaging a wide range of stakeholders, including:

- Mobilizing **all citizens and youth** through the whole of society approach;
- **Universities and academia** (including, for example, Saint Georges' University, the University of West of Indies (UWI), the American University of Antigua (AUA) and others which are mentioned earlier in this report);
- **Governments** at different levels (including central and local Governments) and CBD Focal Points;
- Relevant **CARICOM Organs** as well as the Caribbean Community Climate Change Centre;
- Regional and national **CSOs** such as CANARI (The Caribbean Natural Resource Institute) working with grassroots and civil society organizations;
- **Environmental NGOs** (such as the Environmental Awareness Group (EAG), which based in Antigua and Barbuda, Fauna and Flora International (FFI), and others);

- **IUCN** including BIOPAMA and other relevant regional and global programmes;
- **Indigenous Peoples and Local Communities** (IPLCs);
- The **private sector**;
- **Financial institutions** (i.e. the banks);
- Other relevant **national agencies** and **national trust funds**;
- Engagement with the **media facilities**, including traditional media and social media, which should play an important role in engaging the public at large.

Additional considerations on effectively engaging the above stakeholders have included the following suggestions:

- Stakeholders need to be mobilized from design phase onwards, with virtual engagement modalities being an option as a start or through direct physical engagement whenever possible;
- The need to keep consistency – engagement work should be based on a unique plan in the design process on how to involve stakeholders;
- The opportunity to use the OECS Stakeholder Engagement Strategy as a useful basis for such engagement work;
- The need to engage stakeholders at different levels, through a bottom-up approach: arguably, this could be done at the subnational and local levels through bottom-up approach to start with, and then consider national level engagement;
- That TSC is not an end in itself, it is a means to an end. The latter can only be realised by applying a life cycle approach that positions TSC as one of the vehicles to provide innovative solutions that can deliver benefits to people and societies. The other vehicles being respecting and utilizing local and traditional knowledge, and looking at business cases, and how these fit into subnational and subregional governance mechanisms and livelihood opportunities. This will require a complete rethinking of how to give voice and participation to people at the local level beyond traditional models and electoral cycles;
- The needs to effectively mobilize a pool of biodiversity experts in the region, including youth and women, especially in relation to the novel GBF Target 22 (*Ensure participation, justice, and rights for IPLCs, women, youth persons with disabilities and environmental defenders*) and Target 23 (*Implementation follows a gender-responsive approach*), which will required particular attention for their integration into the NBSAPs;
- The importance of empowering stakeholders also in the monitoring process.

In the **African region**, a rapid stakeholder analysis suggests engaging with, *inter alia*:

- The African Union Development Agency and African Union Commission;
- Policymakers, Governments, Environmental Protection Agencies, and the CBD Focal Points;
- Higher learning institutions, academia and other relevant research institutions;
- NGOs, CSOs and other community level organizations, particularly conservation organization;
- Marine and coastal stakeholders (including within the Government, relevant ministries, biodiversity agencies etc.);

- IPLCs;
- The private sector, whose engagement should be very prominent especially as it relates to technology transfer and other forms of agreed technical, financial and capacity support;
- Other relevant knowledge partners and stakeholder representatives, such as the tourism sector, because of its important dependencies on biodiversity.

Additional considerations on stakeholder engagement have included the following suggestions:

- Stakeholder engagement will be important at all stages, including when planning relevant activities for their direct ownership;
- The engagement process should be initiated at the national level, including through a comprehensive national identification process, which is very important. Then, a regional and/or subregional forum for actual consultation with selected stakeholders would also be necessary;
- Stakeholders consultations may start virtually and then be carried out at subregional workshops preferably in presence, as appropriate;
- Consultations should be directly linked to the priorities arising from the updated NBSAPs, having a reasonable number of countries to work together on the identified common priorities;
- Relevant interventions should focus, as much as possible, on the concrete, immediate needs of stakeholders to support implementing GBF, with a peculiar focus on the GBF Targets and indictors (as anticipated above);
- SADC has already developed a biodiversity-related stakeholder engagement strategy, which constitutes a valuable tool for use in Southern Africa countries, and that can be of inspiration for the elaboration of similar strategies in other subregions;
- Ultimately, it should be a priority to consider how to keep engagement costs of any planned activities at a level that countries can afford for their sustainability throughout the planned interventions and in the long term.

At the time of writing, SPREP on behalf of the Pacific ACP countries, had not yet provided information on this particular aspect of the report.

IX. Recommendations on scalability of the pilot activities to catalyze sustained support and engagement for a long-term approach to TSC

In regard to the scalability and long-term sustainability of activities and initiatives spearheaded by relevant institutions that will participate into the to-be-established TSC Network in the Caribbean region, the following important recommendations are applicable for ensuring a long-term approach for TSC programming and implementation:

- **Governments** must be actively involved from the outset in the design and implementation of TSC Network activities; they should be involved in the stakeholders engagement activities, and should have responsibility to sustain the actions initiated through the pilot activities once the regional and sub-

regional TSC networks are fully established and operational;

- Pilot activities need to consider from the outset how to **engage the private sector** in the network to both help provide the means of implementation and in order to understand and effectively reduce the private sector's impact on the environment (for instance, engagement with the construction industry, when applicable, would be critically important, since it has had a relative large impact compared to other sectors, e.g. in small islands developing states);
- The **GEF** needs to develop and adapt a mechanism akin to that used in the GCF, which allows for the **direct accreditation of national institutions** (i.e. any accredited entity at the national level) to directly access financing for implementation of the NBSAPs and other relevant agreed strategies and action plans to implement the GBF. This highlights the need of removing the necessity for having mandatory recourse to the GEF implementing agencies (or other third parties) simply to ensure the applications of **social, environmental and other fiduciary safeguards and standards**, which should rather be built into the normative and operational framework of relevant national institutions. The fact that the GCF has already moved in such direction attests that it cannot be a long-term approach to cooperation (through the vertical funds) to always make use international organizations such as the GEF implementing agencies because they have the necessary good governance standards in place. These safeguards and standards have to be "domesticated" and built into the governance of national and regional institutions. By meeting the requirements for hosting a regional and/or sub-regional TSC support centre, relevant institutions should provide adherence to the above safeguards and standards and also built capacities of other relevant network institutions and stakeholders in this regard. This is a key element that will allow to scale up and advance TSC programmes and initiatives under the Network;
- The forthcoming **TSC Support Centres and network institutions** should proactively collaborate to support the development of a **portfolio of bankable projects,** knowing in advance the countries' priorities in each region. This would save a huge amount of time and energy in developing funding proposals;
- It is important to support cooperation not only through different workshops, but rather by focusing on how to better understand the system, taking into account relevant priorities and opportunities in the context of the UN Development Cooperation Framework, in order to develop a **coherent regional perspective to address key biodiversity issues**;
- Strong collaboration between participating institutions in the Network to ensure a **consistent monitoring and evaluation** of the GBF Targets at the national and regional levels was also deemed essential for effective long-term implementation support;
- It was highlighted that the Caribbean region is very data deficient. There is a deficient way of **managing biodiversity data and information**, therefore, the forthcoming TSC Support Centres and Network need to provide support for Caribbean countries to appropriately value such data and information, and demonstrate how they can effectively use them for decision making and policy support;
- Noting that the Convention on Biological Diversity and its two Protocols have each one a clearing house mechanism, it was remarked that several countries

in the region simply do not have the **capacity to manage three different clear house mechanisms** (CHMs). Therefore, it was recommended that serious consideration should be given to finding a way to simplifying the current knowledge management structure (i.e. by bringing all the CHMs together as an effective solution to data and information management);
- Finally, **information sharing and communication** are very important throughout the entire life cycle of any planned TSC activities or initiatives by the regional and/or sub-regional Network – i.e. key **lessons learned and best practices** should be routinely documented and shared across the TSC Networks and beyond.

Furthermore, the ensuing insights and recommendations have arisen from key informants from the **African region**:

- For the TSC Centres and Network to deliver on a long-term basis, it will be necessary to leverage the right level of investments. **Resource mobilization** will be crucial, including the process of selecting expertise from the developing world. The process of calling on relevant expertise should be holistic and privilege professionals that are properly qualified from developing countries. Financial support also needs to be secured. While some of it will come from national sources, it should accrue also from regional and international financial institutions. Thus, financing for the GBF should include this component so that it can be supported through appropriate international financial mechanisms. In addition, short-term interventions should be avoided, meaning that **funding for TSC should be envisages (in phases) for at least an initial 10 year period**.
- Highlighting the benefits for the host country (of a TSC Centres) as well as co-financing from the Government will be both important since political is crucially enabler for science, technology and innovation (STI) cooperation on biodiversity issues. Ideally, **co-financing should** also **be provided by the other countries in the region** that are serviced by a TSC Support Centre, and such countries should have the opportunity to contribute to and participate in the **governance** of such Centres. In this respect, it will of paramount importance to nominate **Network focal points** at the country level to liaise and share relevant information, especially for the countries that are not hosting a TSC Centre.
- The emphasis should be on **building on existing platforms ad networks**, but also strengthening the ties between participating countries and non-state actors will be critical. STI cooperation should help build those bridges focusing around the monitoring framework. Since the GBF Targets are oriented on delivering on the framework, using the **monitoring framework** as an entry point might be useful because there is a clear need to increase capacities to do the monitoring work on the ground with very many indictors.
- It was also highlighted that the CBD processes around monitoring have been reluctant to involve stakeholders and stakeholders' interest, with countries almost erecting barriers around their efforts to report on the GBF, while such monitoring and reporting needs to be a joint effort with stakeholders on the ground, the knowledge holders, involving youth, etc. The TSC support Centres and Network would be instrumental in achieving this. Hence, having such

Network fully integrated into the national and GBF reporting processes is important for ensuring that the latter become much more **participatory and integrated**, **enabling people's contributions**, whereas now they tend to be very narrowly "firewalled" around the interests of the countries.

- It was also noted that while conservation organizations can be important contributors to national implementation within and beyond the to-be-established TSC Network, at the level of the execution of specific projects and activities, they must find a solid grounding in the revised NBSAPs, which should define priorities country-wise. Hence, they should directly contribute to the Targets set in the updated NBSAPs.
- Another relevant entry point would be keep the TSC Centres **focused in a few specific focal areas** – i.e. not to focus on too many objectives at the same time – and to organize prospective cooperation according to the **commonalities of interests** of countries within each region or subregion under the GBF.
- The main focus should be on **institutions working together** in the TSC Network and not just individuals.
- **Adaptive management mechanisms** should be devised to make **adjustments and improvements** along the way, while ensuring that data flows two ways, and remains accessible and usable by relevant stakeholders, in accordance with the whole of society approach. This also means that the TSC Support Centres and Network institutions should have responsibility for **making** such **data and information actionable,** and particularly **at the level where action occurs** such as at the IPLC level.
- **Two-way capacity building with IPLCs** – i.e. helping to build capacities for scientists and researchers on IPLCs expectations from relevant interventions and interactions.

Additional recommendations on the potential host institutions have stressed that most of the more competent technical and scientific institutions that exist in the African continent and elsewhere are not necessarily very well placed to mobilize resources, because they do not have the required expertise and the required level of access. This is because bilateral development cooperation is negotiated at a high level between the donor Government and the recipient Government, and the channels of communications between the scientific and technical institutions and, for example, the Ministry of Economic Planning that is going to be negotiating on behalf of a recipient country, are not necessarily very clear or effective. Hence, at the development cooperation level, the **demand for resources for technical and scientific cooperation** programmes **is not** necessarily **conveyed with enough clarity and priority**. One possible way to address this issue would be to clearly identify the funding for biodiversity-related science and technology cooperation as a general need for all ACP countries and not just for one region. Then, the following step would be to **identify** some **key institutions where the capacity to** specifically **focus on resource mobilization can be developed**, which would act on behalf of the whole group of countries, by mobilizing the resources wholesale and retailing them to client organizations in the three regions in accordance with an agreed methodology.

At the time of writing, SPREP on behalf of the Pacific ACP countries, had not yet provided information on this particular aspect of the report.

X. Concluding remarks

Looking at biodiversity-related technology transfer, technical and scientific cooperation, and knowledge management (TT, TSC & KM) from a national and regional perspective in the ACP countries, a number of overarching conclusions and recommendations may be advanced for further consideration by Governments, participating network intuitions, and partners in the establishment of a regional technical and scientific cooperation support centre(s) and network.

As regards the facilitation of technology transfer through the regional TSC centres and networks, their effectiveness will hinge firstly on ensuring that countries know what technologies are required, and which ones are more relevant to the national and/or regional contexts based on the prioritizations made in the updated NBSAPs. This determination might include considerations on availably, costs (including information on the benefit-to-cost ratio of a particular technology or project intervention), scalability, cultural appropriateness (e.g. in the case of indigenous and traditional technologies), and available alternatives to achieve the same specific biodiversity target or outcome in a relevant sector.

It is worth noting that the Climate Technology Centre and Networks (CTCN) under the United Nations Convention on Climate Change (UNFCCC) has already elaborated a variety of useful tools and support mechanisms to help countries in reaching specific mitigation and adaptation targets through technology interventions.[47] Some of these tools can be easily adapted and taken into account as a useful point of departure for the elaboration of appropriate support tools to be devised by the regional TSC centres and networks for promoting and facilitating the development, transfer and use of appropriate biodiversity-related technologies.

Some examples of relevant biodiversity-related technologies may include, *inter alia*: "(1) technologies for spatial planning and managing biodiversity, including geospatial technology, remote sensing and geographic information systems; (2) technologies for monitoring biodiversity, such as DNA technologies, camera traps and acoustic recording devices, smartphone apps for use in citizen science, drones, invasive alien species trackers, satellite technologies; (3) decision support technologies, such as early warning systems, digital technologies for the aggregation of complex data and data visualization; and (4) indigenous and traditional technologies, innovations and practices of indigenous peoples and local communities used with their free, prior and informed consent."[48]

[47] See, for instance, the CTCN Incubator tools, comprising a sample "Technology Roadmap ToRs", available at: https://www.ctc-n.org/node/33425; the CTCN Programme for small and medium enterprises, available at: https://www.ctc-n.org/SMEclinics; CTCN Incubator Module 2 - Mapping Climate Technology Projects, available at: https://www.ctc-n.org/sites/www.ctc-n.org/files/documents/CTCN%20Incubator%20Module%202_Project%20Mapping.docx

[48] See CBD Website, Guidance Note on GBF Target 20, available at: https://www.cbd.int/gbf/targets/20/

The required support shall focus on, *inter alia*: the identification of what technologies are relevant and where; their availability; the source(s) of these technologies; any intellectual property (IP) related issues which may impact on their accessibility, the future use of the technology, and its scalability, as well as on the possibility to deploy any IP assets generated through their use as a global public good (e.g. in terms of freedom to operate analysis); and on how these technologies are going to be supported in the long-term (e.g. their maintenance, the availability of consumables, etc.) and funded.

A national or regional target (or targets) related to TT, TSC & KM could address one or more of these key constitutive elements in parallel, and may consider further elaborating the following components:

- A **technology need assessment** to identify priority sectors and create a list of relevant biodiversity-related technologies; this component should be supported by a thorough analysis of the priorities and targets established in the **updated NBSAPs** as well as a clear **project mapping** of all past, ongoing and planned projects related to biodiversity-related technologies to identify current bottlenecks and barriers to technology deployment;[49]
- A **prioritization** component, which could be part of a broader technology action plan, involving consultations with relevant stakeholders at national, subregional, and regional levels (such as those highlighted in section VIII of this Report), in order to identify a few high-impact technologies to focus on, and assess how cooperation could be framed and leveraged among these stakeholders, including through South-South and triangular cooperation;
- **Technology roadmap(s)** to achieve specific biodiversity targets included in the updated NBSAPs through technology interventions, namely by translating the outcomes of the technology need assessment into concrete, time-bound actions related to a selected group of priority technologies or sector(s); the former should ideally include a quantifiable objective, time-specific milestones, and a consistent set of concrete actions, developed jointly with relevant stakeholders, who commit to their roles in the roadmap implementation; roadmaps should also present a clear business case for biodiversity-related science and technology (S&T) projects and programmes considering, for instance, market and supply chain analysis, financial incentives analysis, environmental cost-benefit analysis, etc.

The **proactive engagement of the private sector** has a particularly important role to play in ensuring that biodiversity is protected, preserved and used in a way that is sustainable in the long term. As noted above in Section III, governments should prioritize enhanced cooperation on providing an enabling environment and support for the implementation of GBF Target 15 (*Businesses assess and disclose biodiversity*

[49] It is worth noting that biodiversity-related technology components may be deployed across a variety of programme and project interventions, including business-as-usual development projects targeting poverty reduction, agriculture, improved nutrition, and climate change adaptation, among others. For instance, see: CTCN's Active Technical Assistance Projects using Ecosystems and biodiversity –based approaches and solutions (41 projects), available at: https://www.ctc-n.org/technical-assistance/data?f%5B0%5D=ta_page_approach_facets%3A14949

dependencies, impacts and risks, and reduce negative impacts) as well as coordinated efforts creating a level playfield at the regional level to achieve GBF Target 18 (*Reduce harmful incentives by at least $500 billion per year, and scale up positive incentives for the conservation and sustainable use of biodiversity*). In this regard, Technical and Scientific Support Centres and network institutions could focus, for instance, on providing expertise and technical support to organisations and businesses on the practical application of the **disclosure recommendations and sectoral guidance to report and act on nature-related dependencies, impacts, risks and opportunities** that have been developed by the Taskforce on Nature-related Financial Disclosures (TNFD).[50]

Another critical aspect, which is not necessarily appearing at the forefront of the Assessment Report,[51] concerns the role of the Intellectual Property (IP) System as a key factor influencing the development, transfer and/or deployment of conservation and biodiversity-related technologies. An effective innovation ecosystem requires crafting a balanced and enabling IP system as well as developing a good understand of how to harness it domestically, including as a policy tool for public research institutions to turn their IP assets into public goods.[52] This also entails a broader consideration of any IP-related flexibilities for technology acquisition,[53] including for the uptake of conservation technologies, as well as the flexibilities deriving from the principle of territoriality of IP rights (e.g. a patented invention is only protected in those countries where a patent is granted and valid – elsewhere, it can legally and freely be replicated).

On the one hand, some technologies, including modern AI-powered cutting-edge biotechnologies, may be costly[54] and not readily accessible in many ACP countries. On the other, local adaptation of the most relevant "…technologies, innovation co-development, and the support and recognition of locally-invented, endogenous or indigenous peoples' technologies is critical" to address the looming nature and climate crisis.[55] In this regard, working more closely with IP education and training institutions may be necessary for promoting a conducive innovation ecosystem at the national and regional levels, harnessing the tools required to generate and protect the innovations that can ultimately foster sustainable economic growth and employment, and address

[50] The TNFD recommendations and guidance set out to "enable business and finance to integrate nature into decision making, and ultimately support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes." See the TNFD Website: https://tnfd.global/

[51] A likely explanation is that the interviews were mainly conducted with officials from Governments and regional organizations, who are often not directly involved in technology development and transfer activities, as the latter are mostly expected to occur at the level of the university system and with the private sector.

[52] See, for instance, the "CGIAR Principles on the Management of Intellectual Assets", available at: https://www.cgiar.org/how-we-work/accountability/cgiar-intellectual-asset-management/

[53] Carlos M. Correa, "Interpreting the Flexibilities Under the TRIPS Agreement", South Center Research Paper 132, June 2021, available at: https://www.southcentre.int/wp-content/uploads/2021/06/RP-132.pdf

[54] See, for instance, Devin Coldewey, "Seattle biotech hub pursues 'DNA typewriter' tech with $75M from tech billionaires", *TechCrunch*, 7 December 2023, available at: https://techcrunch.com/2023/12/07/seattle-biotech-hub-pursues-dna-typewriter-tech-with-75m-from-tech-billionaires/?utm_source=aitoolreport.beehiiv.com&utm_medium=newsletter&utm_campaign=the-45b-ai-chip-market&guccounter=1

[55] WIPO, *Green Technology Book*, 2nd edition, available at: https://www.wipo.int/green-technology-book-mitigation/en/

the global interconnected challenges of food security, climate change, biodiversity loss and public health. Therefore, it is recommended that the TSC Centres should actively liaise with and seek the involvement of available Intellectual Property Training Institutions (IPTI)[56] and/or Technology and Innovation Support Centers (TISC)[57] in their regional networks, and should consider acquiring and facilitating the provision of IP-related expertise, as needed, on all issues pertaining to their mandate.[58] At the same time, they should contribute to raising awareness and mainstreaming nature and biodiversity considerations into the work of other science, technology and innovation institutions.

Ultimately, the successful uptake of conservation and biodiversity-related technologies hinges prominently on developing a good understanding of the users' needs. Hence, follow-up work to this scoping paper warrants a participatory approach with a broader involvement of academia and the private sector in defining the biodiversity technology needs in the ACP countries. Such work should also focus on diversifying the available sustainable economic development opportunities, while nurturing nature and biodiversity -positive industries beyond agriculture and the sustainable tourism sector. The paper has also illustrated the invaluable role that universities, existing centres of excellence, specialist programmes, and local experts have played to advance science-based and action-oriented sustainable use initiatives and biodiversity conservation in all ACP regions. Therefore, it is recommended that adequate financial resources be called for and leveraged from all sources to strengthen the role of these institutions in enabling the attainment of the Goals and Target of the Global Biodiversity Framework.

Finally, regarding knowledge management, while both discourse and practice have largely focused on developing, coordinating and making interoperable biodiversity databases, strengthening knowledge management under the GBF will require a much more intentional and systematic effort to make better use of relevant institutional learnings emerging from projects and programmes, which should be properly documented, widely shared and leveraged across the ACP countries.

[56] WIPO IPTI Portal, available at: https://www.wipo.int/academy/en/training_institutions.html The IPTI directory is available at: https://www.wipo.int/academy/en/finding-training-institutions.html

[57] WIPO TISC Portal, available at: https://www.wipo.int/tisc/en/ The TISC Directory is available at: https://www.wipo.int/tisc/en/search/search_result.jsp?country_id

[58] Additional Resources on IP and Technology Transfer include the following: WIPO "IP Toolkit for Academic and Research Institutions", available at: https://www.wipo.int/technology-transfer/en/ip-policies.html#toolkit; WIPO "Intellectual Property Policy Template for Universities and Research Institutions", available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.wipo.int%2Fabout-ip%2Fen%2Funiversities_research%2Fdocs%2Fip_toolkit%2Fpolicy_template.docx&wdOrigin=BROWSELINK; WIPO FAQ on "Technology transfer and intellectual property", available at: https://www.wipo.int/technology-transfer/en/faq.html; WIPO GREEN Licensing Checklist, available at: https://www3.wipo.int/wipogreen/docs/en/wipogreen_licensingchecklist_061216.pdf; WIPO "IP Strategy Checklist for SMEs", available at: https://www.wipo.int/sme/en/checklist.html

Annex I – Updated List of relevant regional/sub-regional organizations, institutions, and related TSC programmes and initiatives

Africa:

- African Union Commission (AUC) (ACP MEAs Programme Regional Hub)
- African Union Development Agency
- Central African Forest Commission (COMIFAC) - Working Group on Biodiversity (GTBAC) (Participating ACP countries: AO; BI; CD; CM; CG; GA; GQ; RW; CF; ST; TD)
- Organisation pour la conservation de la faune sauvage en Afrique (OCFSA) (*Plan Stratégique Intérimaire (2019-2022)*) (Participating ACP countries: same as above since OCFSA is established as a COMIFAC Treaty institution)
- East African Community (Participating ACP countries: BI; CD; KE; RW; UG; TZ)
- Economic Community of West African States (ECOWAS) (Participating ACP countries: BJ; BF; CI; GM; GA; GN; GW; LR; ML; NE; NG; SN; SL; TG)
- Common Market for Eastern and Southern Africa (COMESA)
- Intergovernmental Authority on Development (IGAD) (Participating ACP countries: DJ; ER; ET; KE; SO; SD; UG)
- Lake Chad Basin Commission (Participating ACP countries: CM; CF; TD; NE; NG)
- Lake Victoria Basin Commission (Participating ACP countries: KE; UG; TZ; RW; BI)
- Southern African Development Community (SADC) (Regional Biodiversity Strategy – an updated RBS has been developed and is currently in the process of validation) (Participating ACP countries: AO; BW; KM; LS; MG; MW; MU; MZ; NA; SC; ZA; TZ; ZM; ZW)
- West African Economic and Monetary Union (UEMOA) (Participating ACP countries: BJ; BF; CI; ML; NE; SN; TG; GW)
- Western Indian Ocean Marine Science Association (CSP Member) (Participating ACP countries: SO; KE; TZ; MZ; ZA; KM; MG; SC; MU)
- South African National Biodiversity Institute (SANBI) (CSP Member)

Other relevant TSC-related African Programmes and Initiatives:

- Central African Regional Program for the Environment (CARPE)

- Congo Basin Forest Partnership (CBFP)

Caribbean:

- Caribbean Community (CARICOM) Secretariat (ACP MEAs Programme - The Caribbean Hub) (See: *The State of Biodiversity in the Caribbean Community: A Review of Progress Towards the Aichi Biodiversity Targets*)
- Organisation of Eastern Caribbean States (OECS) (Participating ACP countries: AG; DM; GD; KN; LC; VC)
- Association of Caribbean States (ACS) (Participating ACP countries: AG; BB; BS; BZ; CU; DM; DO; GD; GY; HT; JM; KN; LC; SR; TT; VC)
- Inter-American Biodiversity Information Network (IABIN) (Participating ACP countries: AG; BB; BS; BZ; CU; DM; DO; GD; GY; HT; JM; KN; LC; SR; TT; VC)
- Comisión Centroamericana de Ambiente y Desarrollo (CCAD) (Regional Strategy) (Participating ACP country: DO)
- Asociación Latinoamericana de Integración (ALADI) (Participating ACP country: CU)
- MERCOSUR (Regional Strategy) (Associated ACP countries: GY; SR)
- Caribbean Community Climate Change Centre (5Cs) (Well recognized CARICOM institution working on the linkages between climate change and biodiversity)
- Amazon Cooperation Treaty Organization (ACTO) (Participating ACP countries: GY; SR)
- Iwokrama International Centre for Rainforest Conservation and Development (IIC) (based in GU)
- Centre for Study of Biological Diversity (CSBD) (based in GU)
- Caribbean Natural Resource Institute (CANARI) (CSO that works regionally with its main office based in TT)

Pacific:

- South Pacific Regional Environment Programme (SPREP) (ACP MEAs Programme Regional Hub)
- The Pacific Community (SPC) is the principal scientific and technical organisation in the Pacific region (ACP Member Countries: CK; FJ; FM;KI; MH; NR; NU; PW; PG; SB; TO; TV; VN)

Other globally relevant Initiatives and Programmes in ACP Countries:

- The Bio-Bridge Initiative is the UNCBD flagship initiative that promotes and facilitates technical and scientific cooperation through a global helpdesk and its seed funding facility.
- The IUCN BIOPAMA Programme - The Biodiversity and Protected Areas Management (BIOPAMA) Programme assists the African, Caribbean and Pacific countries to address their priorities for improved management and governance of biodiversity and natural resources. BIOPAMA provides a variety of tools, services and funding to conservation actors in ACP countries.
- The FAO International Treaty on Plant Genetic Resources for Food and Agriculture's Benefit-Sharing Fund Projects.
- PANORAMA – Solutions for a Healthy Planet is a partnership initiative to document and promote examples of inspiring, replicable solutions across a range of conservation and sustainable development topics, enabling cross-sectoral learning and inspiration.
- Planetary Health Alliance (PHA) is a consortium of over 350 universities, non-governmental organizations, research institutes, and government entities from around the world committed to understanding and addressing global environmental change and its health impacts.

Annex II – 6NRs: Status of Implementation of ABT 19 associated targets in NBSAPs

Government	ACP Region	Reporting year / Progress	National Target	Aichi Target	Assessment For	Source: Url (if ORT was used) / PDF	Schema
Antigua and Barbuda	Caribbean	2018 - On track to achieve target	Target 19: By 2020 Implementation of a knowledge management system for biodiversity within Antigua and Barbuda	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242649	Progress Assessment
Angola	Africa	2019 – On track to achieve target	By 2020, knowledge, the basis of biodiversity-related to science and technologies, their values, functioning, situation, trends, and the consequences of their loss must be improved, widely shared, transferred and applied	Aichi Target 19	National Target	PDF, pp 60-6	Progress Assessment
Barbados	Caribbean	2019 – Unknown	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, pp 45-46	Progress Assessment
Barbados	Caribbean	2019 – Unknown	TARGET 11: By 2030, document all traditional and scientific knowledge and technology relating to biodiversity so that it is improved, widely shared, transferred and applied. Strategic Objective Target 11: To document and share all traditional and scientific knowledge and technology relating to biodiversity in Barbados.	Aichi Target 19 Prioritised target integrated into the revised NBSAP 2019.	National Target	PDF, pp. 48, 77	Progress Assessment
Burkina Faso	Africa	2019 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=243362	Progress Assessment

Burundi	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 20: D'ici 2015, les connaissances, la base scientifique et les technologies associées à la biodiversité sont améliorées et appliquées	Aichi Target 19	National Target	PDF, pp 69-71	Progress Assessment
Burundi	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 21: D'ici à 2018, les informations sur les connaissances scientifiques et traditionnelles, les innovations, les technologies et les meilleures pratiques sur la biodiversité sont collectées, largement partagées et transférées.	Aichi Target 19	National Target	PDF, pp 71-74	Progress Assessment
Benin	Africa	2019 - No significant change	Objectif stratégique national 15-(OSN15) Améliorer les connaissances, la base de données scientifiques et les technologies associées à la diversité biologique et s'assurer qu'elles soient largement partagées, transférées et appliquées	Aichi Target 19	National Target	PDF, pp 8, 35	Progress Assessment
Bahamas	Caribbean	Not reported	N/A	N/A	N/A	N/A	
Botswana	Africa	2019 - On track to achieve target	By 2025,information and techniques relating to the biodiversity and its value in all Botswna's ecoregions are efficiently documented ,stored, shared, disseminated and used by all sectors and levels of society.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=246424	Progress Assessment
Belize	Caribbean	2019 - Progress towards target but at an insufficient rate	TARGET E2. By 2020, accurate and current data on Belize's natural resources and environmental services informs relevant national development decisions.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=246148	Progress Assessment

Belize	Caribbean	2018 - Progress towards target but at an insufficient rate	TARGET E3. By 2020, Belize's NBSAP is being implemented effectively, monitored and evaluated, and achieving desired outcomes.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=246148	Progress Assessment
Democratic Republic of the Congo	Africa	2019 - On track to achieve target	Objectif national 13 : D'ici à 2020, les connaissances scientifiques sur la biodiversité nationale sont améliorées et appliquées, les connaissances traditionnelles, les innovations et les pratiques traditionnelles des communautés locales et autochtones sont identifiées et valorisées pour la conservation et l'utilisation durable de la diversité biologique.	Aichi Target 19	National Target	PDF, pp 19-20, 370	Progress Assessment
Democratic Republic of the Congo	Africa	2019 - On track to achieve target	Objectif national 14 : Mobiliser les ressources humaines, financières, techniques et technologiques pour mettre en œuvre la Stratégie et le Plan d'Action Nationaux de la Biodiversité (SPANB).	Aichi Target 19	National Target	PDF, pp 20-21, 370	Progress Assessment
Central African Republic	Africa	2019 - Progress towards target but at an insufficient rate	Objectif 19 : D'ici à 2025 au moins, les capacités de toutes les parties prenantes impliquées dans la question de la diversité biologique sont renforcées sur les connaissances, les bases scientifiques et les technologies associées, ses valeurs et les conséquences et causes de son appauvrissement et a amélioré la situation de la biodiversité	Aichi Target 19	National Target	PDF, pp 41	Progress Assessment

Congo	Africa	2018 - No significant change	D'ici 2030, la sécurité des ressources biologiques de la République du Congo est assurée grâce à une meilleure connaissance de leurs composants et une gestion durable qui intègrent le développement des capacités humaines, le développement socio-économique, la redistribution équitable des bénéfices tout en honorant les engagements internationaux.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=255616	Progress Assessment
Côte d'Ivoire	Africa	2019 - On track to achieve target	Objectif 18: D'ici à 2020, les actions de communication, de sensibilisation et d'éducation en faveur de la diversité biologique atteignent 70 % des cibles	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248657	Progress Assessment
Côte d'Ivoire	Africa	2019 - On track to achieve target	Objectif 19: D'ici à 2020 des équipes opérationnelles de chercheurs sont mobilisées pour la diversité biologique	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248656	Progress Assessment
Côte d'Ivoire	Africa	2019 - Progress towards target but at an insufficient rate	Objectif 7: D'ici à 2020, l'état de la diversité génétique est connu et des mesures de conservation durable sont prises	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248652	Progress Assessment
Cook Islands	Pacific	2019 - Unknown	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record/B63E7679-3021-D4C6-9E51-67575CF0AB8E	Progress Assessment
Cameroon	Africa	2018 - Progress towards target but at an	TARGET 19: By 2020, the capacity of key actors should be built and gender mainstreaming carried out for the effective implementation of the biodiversity targets	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242713	Progress Assessment

		insufficient rate					
Cuba	Caribbean	2018 - On track to achieve target	Meta 18: Se ha avanzado, compartido, transferido y aplicado el conocimiento, la base científica y las tecnologías en apoyo al PNDB.	Aichi Target 19	National Target	PDF, pp 46-48, 233-243	Progress Assessment
Cape Verde	Africa	2020 - Unknown	Target 14: By 2025, scientific and empirical knowledge will contribute to the conservation of biodiversity in Cabo Verde.	Aichi Target 19	National Target	PDF, pp 12-13, 45-46	Progress Assessment
Djibuti	Africa	2019 - Unknown	Objectif 19 d'Aichi pour la biodiversité : Partage des informations et des connaissances Objectif IV.1 : Favoriser la logique ascendante et son articulation à la logique descendante Objectif IV.2 : Informer et sensibiliser les parties prenantes impactant la biodiversité Objectif IV.3 : Former les parties prenantes aux questions de biodiversité Objectif IV.4 : Faire levier, déclencher et amplifier (principe de Paréto)	Aichi Target 19	National Target	PDF, pp 11, 26, 127-132	Progress Assessment

Dominica	Caribbean	2019 - Unknown	National biodiversity objective 5: to ensure the equitable and sustainable distribution of social and economic benefits from the use of terrestrial and marine biological resources: NBSAP 2014-2020 Strategy 2: Establish a biodiversity knowledge network and coordinating mechanism with links to the various Ministries and Departments, academic institutions, professional organizations and non-state actors.	Aichi Target 19	National Target	PDF, pp 29-31, 74	Progress Assessment
Dominican Republic	Caribbean	2018 - On track to achieve target	Meta Nacional 19: Para el 2016, se habrá promovido la necesidad de fortalecer las investigaciones científicas y las tecnologías sobre la diversidad biológica a nivel nacional entre los mecanismos financieros disponibles y las instituciones de investigación.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242360	Progress Assessment
Eritrea	Africa	2019 - Unknown	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, p 107	Progress Assessment
Ethiopia	Africa	2019 - On track to achieve target	National Biodiversity Target (NBT) -16 By 2020, knowledge and innovations related to biodiversity values, ecosystem functioning, status and trends, and the consequences of its loss are generated, reviewed, compiled and applied	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=245735	Progress Assessment
Fiji	Pacific	2020 - On track to achieve target	Focal Area 1: Improving Our Knowledge (Ik) - National Target: Fijians are aware of values of biodiversity and traditional knowledge and practice are integrated with the latest scientific knowledge into sustainable biodiversity conservation practices Objective IK1c: Improve science-based knowledge on ecosystem services and biodiversity values	Aichi Target 19	National Target	PDF, pp 15, 19-21	Progress Assessment

Federates states of Micronesia	Pacific	2020 - Progress towards target but at an insufficient rate	Theme 1, Objective 1: Research and Monitoring - To undertake research and resource assessment/evaluation for the identification, documentation and monitoring of the FSM's ecosystems for the implementation of appropriate resource management programs, including conservation and protected areas.	Aichi Target 19	National Target	PDF, pp 11-12, 59-60, 124	Progress Assessment
Gabon	Africa	2019 - Progress towards target but at an insufficient rate	Objectif national 21 : D'ici à 2020, favoriser et soutenir la recherche interdisciplinaire portant sur tous les aspects de la conservation et de l'utilisation de la diversité biologique	Aichi Target 19	National Target	PDF, pp 63, 113-114	Progress Assessment
Gabon	Africa	2020 - On track to achieve target	Objectif national 23 : D'ici à 2020, renforcer la coopération internationale et conclure des alliances stratégiques	Aichi Target 20	National Target	PDF, pp 67, 118-119	Progress Assessment
Gabon	Africa	2021 - Progress towards target but at an insufficient rate	Objectif national 24 : D'ici à 2020, renforcer la base scientifique en vue d'améliorer les connaissances scientifiques et de servir d'outils de prise de décisions relatives à la gestion de la diversité biologique	Aichi Target 19	National Target	PDF, pp 69, 120-121	Progress Assessment
Grenada	Caribbean	Not reported	N/A	N/A	N/A	N/A	
Ghana	Africa	2018 - On track to achieve target	Ghana Target 19 Knowledge on the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied	Aichi Target 19	National Target	PDF, pp 45-46, 129-131, 156	Progress Assessment

Gambia (the)	Africa	2019 - Progress towards target but at an insufficient rate	By 2020, the Nagoya Protocol on Access and Benefits Sharing is in force and operational	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=243084	Progress Assessment
Republic of Guinea	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 19 : De 2011 à 2020, les connaissances, la base scientifique et les technologies associées à la diversité biologique, ses valeurs, son fonctionnement, son état et ses tendances, et les conséquences de son appauvrissement, sont améliorées, largement partagées et transférées, et appliquées	Aichi Target 19	National Target	PDF, pp 20, 85-87, 106	Progress Assessment
Equatorial Guinea	Africa	2019 - On track to achieve target	Meta 13: para 2020, se habrá avanzado en los conocimientos, la base científica y las tecnologías referidas a la biodiversidad, sus valores y funcionamiento, su estado y tendencias y las consecuencias de su pérdida, y tales conocimientos serán ampliamente compartidos, transferidos y aplicados.	Aichi Target 19	National Target	PDF, pp 57-59, 77	Progress Assessment
Guinea-Bissau	Africa	2019 - Progress towards target but at an insufficient rate	Objectif national 19: D'ici 2020, améliorer le partage, le transfert et application des connaissances, des bases scientifiques et des technologies liées à la biodiversité, ses valeurs, son fonctionnement, sa situation, ses tendances et les conséquences de sa perte.	Aichi Target 19	National Target	PDF, pp 16, 102-103, 130	Progress Assessment
Guyana	Caribbean	2019 - Progress towards target but at an insufficient rate	Target 19 By 2016, research interface developed with University of Guyana, Conservation International, and WWF	Aichi Target 19	National Target	https://chm.cbd.int/database/record/CB166661-BB8D-40C0-8619-868EC9E856B4	Progress Assessment

Guyana	Caribbean	2019 - On track to achieve target	Target 26 Clearing House Mechanism fully functional	Aichi Target 19	National Target	https://chm.cbd.int/database/record/CB166661-BB8D-40C0-8619-868EC9E856B4	Progress Assessment
Guyana	Caribbean	2019 - On track to achieve target	Target 27 By 2020, a biodiversity information system established	Aichi Target 19	National Target	https://chm.cbd.int/database/record/CB166661-BB8D-40C0-8619-868EC9E856B4	Progress Assessment
Guyana	Caribbean	2019 - On track to achieve target	Target 28 By 2020, an updated and fully functional National Biodiversity Research Information System (NBRIS)	Aichi Target 19	National Target	https://chm.cbd.int/database/record/CB166661-BB8D-40C0-8619-868EC9E856B4	Progress Assessment
Guyana	Caribbean	2019 - unknown	19. Biodiversity Knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record/CB166661-BB8D-40C0-8619-868EC9E856B4	Progress Assessment
Haiti	Caribbean	2019 – Target not reported	N/A	Aichi Target 19	N/A	PDF, pp xxx, 156.	Progress Assessment
Jamaica	Caribbean	2019 - On track to achieve target	National Target #19 - By 2020, the knowledge, the science base and technologies relating to biodiversity, its values, functioning, status, and trends, the consequences of its loss, are improved, widely shared and transferred and applied.Biodiversity Information for National Development	Aichi Target 19	National Target	PDF, PP 36-37, 89-91	Progress Assessment

Kenya	Africa	2020 - On track to achieve target	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=254708	Progress Assessment
Kiribati	Pacific	2019 - No significant change	Biodiversity information monitoring system established by 2020	Aichi Target 19	National Target	PDF, pp 126	Progress Assessment
Kiribati	Pacific	2019 - Progress towards target but at an insufficient rate	Centralization of all Agriculture and Livestock information and data facility established by 2018.	Aichi Target 19	National Target	PDF, pp 127-128	Progress Assessment
St Kitts and Nevis	Caribbean	2019 - On track to achieve target	National Target 2, By 2020, St. Kitts and Nevis would have completed an evaluation of its biodiversity resources	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=246336	Progress Assessment
St Kitts and Nevis	Caribbean	2019 - On track to achieve target	National Target 1, By 2020, an increased percentage of Kittitians and Nevisians are aware of the values of biodiversity and understand the steps they can take to conserve and use biodiversity sustainably.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=246336	Progress Assessment

St. Lucia	Caribbean	2018 - Progress towards target but at an insufficient rate	Data management systems for biodiversity management are improved, particularly with regard to systems for data gathering and widespread dissemination. The International Platform for Biodiversity and Ecosystem Services (IPBES) is engaged by the country to help monitor and assess the conservation of its biological resources.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=247311	Progress Assessment
St. Lucia	Caribbean	2018 - Progress towards target but at an insufficient rate	The National Clearing-House Mechanism (CHM) is made operational and functional as the means for development of systems for policy, scientific and technological knowledge sharing, transfer, and application for effective management of biodiversity.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=247311	Progress Assessment
St. Lucia	Caribbean	2018 - No significant change	Appropriate systems and measures for the documentation and protection of traditional knowledge, practices and innovations related to biological resources are in place and subject to national legislation for societal use.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=247311	Progress Assessment
Liberia	Africa	2018 - Progress towards target but at an insufficient rate	Target 5.3: By 2025, knowledge, science base and technologies relating to biodiversity and ecosystem management are improved and made relevant to political decision makers.	Aichi Target 19	National Target	PDF, pp.29, 62-63	Progress Assessment

Lesotho	Africa	2019 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge NBSAP Objective: Recognize and protect the value of indigenous knowledge of flora and fauna and its patterns of use for sustainable development, facilitating participation of all relevant parties	Aichi Target 19	Global Target	PDF, pp 38-39, 97-98	Progress Assessment
Comoros	Africa	2018 - No significant change	Objectif E4: D'ici à 2030 le financement des programmes à travers le partenariat est accru et renforcé.	Aichi Target 19	National Target	PDF, pp 22-23, 118	Progress Assessment
Madagascar	Africa	2019 - Progress towards target but at an insufficient rate	Objectif national 19 : Gestion des connaissances sur la biodiversité En 2025, les connaissances et la base de la science relative à la biodiversité, ses valeurs, son fonctionnement et son état sont largement partagées avec les décideurs et appliquées et toutes les tendances et conséquences de sa perte sont atténuées et améliorées	Aichi Target 19	National Target	PDF, pp 58-59, 139-141, 200-203	Progress Assessment
Marshall Islands		2020 - Progress towards target but at an insufficient rate	Theme B: Protection of Marine Biodiversity Goal B-1 - Training and Capacity Building Toward Conserving Our Resources	Aichi Target 19	National Target	PDF, pp 17, 60-62, 82	Progress Assessment

Marshall Islands	Pacific	2020 - Unknown	Theme C: Traditional Culture and Practices Goal C-2 - Institute Learning of the Culture Through the Traditional Way of Passing Knowledge from Elders to the Young, Through Schools, Community Meetings and Workshops	Aichi Target 19	National Target	PDF, pp 22, 64-65, 82	Progress Assessment
Marshall Islands	Pacific	2020 - Unknown	Theme D: People and Biodiversity Goal D-1 - Self-reliance Through Traditional Values and Culture	Aichi Target 19	National Target	PDF, pp 25, 66, 67, 82	Progress Assessment
Marshall Islands	Pacific	2020 - Progress towards target but at an insufficient rate	Theme E: Biotechnology and Biodiversity Goal E-1 - Conservation of Genetic Diversity	Aichi Target 19	National Target	PDF, pp 29, 70-71, 82	Progress Assessment
Marshall Islands	Pacific	2020 - No significant change	Theme E: Biotechnology and Biodiversity Goal E-2 - Protection of Intellectual Property Rights (IPR)	Aichi Target 19	National Target	PDF, pp 29, 71-72, 82	Progress Assessment
Mali	Africa	2018 - No significant change	Objectif 18 : D'ici à 2020, les connaissances scientifiques et les technologies associées à la diversité biologique, ses valeurs, son fonctionnement, son état, ses tendances et les conséquences de son appauvrissement, sont approfondies, largement partagées et transférées.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241976	Progress Assessment

Mali	Africa	2018 - On track to achieve target	Objectif 4 : D'ici à 2020, les acteurs gouvernementaux, la société civile et les entreprises ont pris des mesures pour assurer une production et une consommation durables et ont maintenu les incidences de l'utilisation des ressources naturelles dans des limites écologiques sûres.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241971	Progress Assessment
Mali	Africa	2018 - On track to achieve target	Objectif 16 : D'ici à 2015, la Stratégie Nationale et le plan d'action pour la diversité biologique sont révisés de façon participative et ont commencé à être mise en œuvre.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241968	Progress Assessment
Mali	Africa	2018 - On track to achieve target	Objectif 2 : D'ici à 2018, les valeurs de la diversité biologique sont intégrées dans les plans, stratégies et politiques sectorielles de développement et dans la planification du développement aux niveaux national, régional et local ainsi que dans la stratégie de réduction de la pauvreté.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241966	Progress Assessment
Mali	Africa	2018 - On track to achieve target	Objectif 3 : D'ici à 2020, les incitations négatives, y compris les subventions néfastes pour la diversité biologique, sont réduites progressivement afin d'atteindre un niveau minimum des impacts défavorables et les incitations positives en faveur de la conservation et de l'utilisation durable de la diversité biologique sont identifiées, vulgarisées et appliquées.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241965	Progress Assessment

Mali	Africa	2018 - On track to achieve target	Objectif 9 : D'ici à 2018, les espèces exotiques envahissantes proliférantes sont identifiées et des mesures sont mises en place pour les contrôler ou les éradiquer et les voies d'introduction et de propagation sont mieux gérées afin d'empêcher leur établissement.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241982	Progress Assessment
Mauritania	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 12 : Développer la recherche, l'analyse, le partage et la diffusion des connaissances	Aichi Target 19	National Target	PDF, pp 43, 85	Progress Assessment
Mauritania	Africa	2018 - On track to achieve target	Objectif 13 : Améliorer l'expertise afin de renforcer la capacité	Aichi Target 19	National Target	PDF, pp 43, 85	Progress Assessment
Mauritania	Africa	2018 - No significant change	Objectif 14 : Développer et organiser la prise en compte des enjeux de biodiversité dans toutes les formations	Aichi Target 19	National Target	PDF, pp 43, 86	Progress Assessment
Mauritius	Africa	2020 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=256179	Progress Assessment
Malawi	Africa	2018 - Progress towards target but at an insufficient rate	National Target 1: By 2025, human and institutional capacity for science and technology related to biodiversity is improved	Aichi Target 19	National Target	PDF, pp 33-36, 118-121	Progress Assessment

Mozambique	Africa	2019 - No significant change	Target 19: By 2035, strengthen the capacity of key stakeholders and improve the integration of gender issues, to enable the effective implementation of national targets.	Aichi Target 19	National Target	PDF, 91-92, 118-119	Progress Assessment
Namibia	Africa	2018 Progress towards target but at an insufficient rate	National Target 16: By 2022, knowledge, science base and technologies relating to biodiversity and ecosystem management are improved and made relevant to political decision-maker	Aichi Target 19	National Target	PDF, 20-21, 89-90	Progress Assessment
Niger	Africa	2018 - Progress towards target but at an insufficient rate	Faire face aux effets des changements climatiques.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241187	Progress Assessment
Niger	Africa	2018 - No significant change	Prendre en compte la diversité biologique dans les politiques et stratégies.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241186	Progress Assessment
Niger	Africa	2018 - Progress towards target but at an insufficient rate	Améliorer et développer des outils de gestion des aires protégées	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241185	Progress Assessment
Niger	Africa	2018 - No significant change	Réduire les pollutions diverses.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241184	Progress Assessment
Niger	Africa	2018 - Progress towards target but at an insufficient rate	Conserver et exploiter durablement les écosystèmes, les espèces et les ressources génétiques	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241183	Progress Assessment

Nigeria	Africa	2018 - Unknown	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=241291	Progress Assessment
Nigeria	Africa	2019 - On track to achieve target	National Target 14: By 2020, the capacity of key actors is built and gender mainstreaming carried out for the achievement of Nigeria's biodiversity targets.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=241291	Progress Assessment
Nauru	Pacific	2019 - Unknown	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, pp 33	Progress Assessment
Niue	Pacific	2020 - Unknown	National Target 6: Environmental education and awareness To strengthen environmental education, raise awareness and improve information sharing to enhance the conservation and sustainable use of Niue's biological resources.	Aichi Target 19	National Target	PDF, pp 8-9, 83	Progress Assessment
Palau	Pacific	2019 - Progress towards target but at an insufficient rate	Target 2: Maintain healthy populations of key species and their habitats	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248613	Progress Assessment

Palau	Pacific	2019 - On track to achieve target	Target 4: Integrate biodiversity conservation and ecosystem services into Palau's sustainable development goals	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248613	Progress Assessment
Palau	Pacific	2019 - On track to achieve target	Target 7: Biodiversity conservation and sustainable resource use is integrated into all aspects of government and community planning, development and operations	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248613	Progress Assessment
Papua New Guinea	Pacific	2019 - Progress towards target but at an insufficient rate	Target 19 Sharing information and knowledge	Aichi Target 19	Global Target	PDF, pp 135-140	Progress Assessment
Rwanda	Africa	2020 - Progress towards target but at an insufficient rate	National Target 18: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, applied and reflected in the implementation of the NBSAP.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=252564	Progress Assessment

Solomon Islands	Pacific	2019 - Progress towards target but at an insufficient rate	Target 4: By 2020, researches, encompassing traditional knowledge, science, social science, and economic investigations have been raised, while encouraging the transferring of relevant biodiversity technology such as Geography Information System (GIS), thereby enable Solomon islanders understand and appreciate, biodiversity values, functions, status, threats and the consequences of their loss, and have taken necessary steps to manage and mitigate threats accordingly	Aichi Target 19	National Target	PDF, pp 29-30, 104-105	Progress Assessment
Seychelles	Africa	2018 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, pp 171-173, 189, 253	Progress Assessment
Sudan	Africa	2018 - Progress towards target but at an insufficient rate	Aichi Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242599	Progress Assessment
Sierra Leone	Africa	2020 - On track to achieve target	Strategic Output E2 - Public Participation on Biodiversity Conservation Significantly Improved and Making Positive Impacts	Aichi Target 19	National Target	PDF, pp 25, 53, 104-106	Progress Assessment

Sierra Leone	Africa	2019 - No significant change	Strategic Output E4 - Access to Technology and Handling of Biotechnology is Made Effective and Beneficial to Local Biodiversity Programs	Aichi Target 19	National Target	PDF, pp 28-29, 108-110	Progress Assessment
Senegal	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 8 : Valoriser les biens et services écosystémiques	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242104	Progress Assessment
Senegal	Africa	2018 - On track to achieve target	Objectif 3 : Capitaliser et diffuser les connaissances sur la Biodiversité	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242086	Progress Assessment
Senegal	Africa	2018 - On track to achieve target	Objectif 1. Renforcer la collecte de l'information sur la biodiversité	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242077	Progress Assessment
Senegal	Africa	2018 - On track to achieve target	Objectif.2. Développer la recherche sur la biodiversité	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242055	Progress Assessment
Serbia	Africa	2020 - On track to achieve target	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=254944	Progress Assessment
Somalia	Africa	2019 - Progress towards target but at an insufficient rate	By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=248535	Progress Assessment
Suriname	Caribbean	2018 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=248805	Progress Assessment

São Tomé and Príncipe	Africa	2019 - Progress towards target but at an insufficient rate	Objective 5: The conservation of biodiversity and the use of its resources based on a more vigorous and current Institutional, Legal and Socioeconomic Framework.	Aichi Target 19	National Target	PDF, pp 15-17, 70-73, 83-84	Progress Assessment
Swaziland / Eswatini	Africa	2019 - Progress towards target but at an insufficient rate	Target 19: By 2022, the knowledge, science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied in Eswatini	Aichi Target 19	National Target	PDF, pp 84-86,	Progress Assessment
Tchad	Africa	2018 - Progress towards target but at an insufficient rate	Objectif 19 : D'ici à 2020, les connaissances, la base scientifique et les technologies associées à la diversité biologique, ses valeurs, son fonctionnement, son état et ses tendances, et les conséquences de son appauvrissement, sont améliorées, largement partagées et transférées, et appliquées	Aichi Target 19	National Target	PDF, pp 42-43, 56	Progress Assessment
Togo	Africa	2018 - No significant change	Objectif 9: Développer d'ici à 2018, les connaissances suffisantes sur les espèces exotiques envahissantes en vue de mettre au point des technologies appropriées pour les contrôler	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242635	Progress Assessment
Togo	Africa	2018 - No significant change	Objectif 10: Développer d'ici à 2018 la recherche afin d'améliorer, partager et diffuser les connaissances sur la biodiversité	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242552	Progress Assessment
Togo	Africa	2018 - No significant change	Objectif 19: Développer d'ici à 2020 la prise en compte des enjeux de la biodiversité dans toutes les formations scolaires et universitaires	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242466	Progress Assessment

Timor Leste/East Timor	Pacific	2019 - No significant change	Strategic Action 19. Maintain and put into operation the CHM as the platform for knowledge sharing and networking	Aichi Target 19	National Target	PDF, pp 55, 78	Progress Assessment
Timor Leste/East Timor	Pacific	2019 - On track to achieve target	Strategic Action 17. Enhance technical and managerial capacity of officials and staff on biodiversity conservation and management as laid out in the Strategic Action Plan (SAP) and the Capacity Building Plan on Protected Areas under the PoWPA Project of the MAP	Aichi Target 19	National Target	PDF, pp 54, 78	Progress Assessment
Tonga	Pacific	2020 - Progress towards target but at an insufficient rate	Tonga's NBSAF contributes to ABT 19 through the following national targets: 2.2(1) Capacity building and technological transfer and development [Strengthen the National Capacity to Manage Marine and Coastal Biodiversity] 2.2(2) [Strengthen the capacity of national focal point and operational focal points for implementing multilateral environment agreements.] 2.5 Public awareness and education [Foster Public support for Coastal and Marine Conservation efforts and Sustainable Use] 4.1 Develop a National Biodiversity Database for Tonga that provides a framework to document data and information on species, ecosystems and designated/protected areas, and threats to these species and areas 4.4, Public Awareness and Education 8.1-8.5 Increased national collaboration among sectors for the sustainable use and management of biodiversity in Tonga; Strengthened awareness,	Aichi Target 19	National Target	PDF, pp 150-151	Progress Assessment

			communication and knowledge management for biodiversity; Mainstream biodiversity into cross-sectoral community planning and management				
Trinidad and Tobago	Caribbean	2019 - Progress towards target but at an insufficient rate	19. By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied at key sites.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=247197	Progress Assessment
Tuvalu	Pacific	2019 - On track to achieve target	Target C1.3 Increase number of Tuvaluans trained in environmental science and biodiversity in particular	Aichi Target 19	National Target	PDF, pp 4, 27-28, 76	Progress Assessment
Tuvalu	Pacific	2019 - On track to achieve target	Target C3.2 Review all documentations related to environment in Tuvalu and build baseline data for mainstreaming biodiversity into Tuvalu's overall national policy framework	Aichi Target 19	National Target	PDF, pp 7, 35	Progress Assessment
Tuvalu	Pacific	2019 - On track to achieve target	Target P1.1 Improve knowledge on the impact of climate change and natural disasters on biodiversity	Aichi Target 19	National Target	PDF, pp 10, 41-42	Progress Assessment
Tuvalu	Pacific	2019 - On track to achieve target	Target P1.2 Ensure meteorology and climate change information systems are relevant to biodiversity protection and conservation.	Aichi Target 19	National Target	PDF, pp 10, 41-42	Progress Assessment

Tuvalu	Pacific	2019 - Progress towards target but at an insufficient rate	Target P2.1 Foster and promote the use of traditional knowledge and cultural practices in the conservation and management of biodiversity in Tuvalu	Aichi Target 19	National Target	PDF, pp 11, 44-45	Progress Assessment
Tuvalu	Pacific	2019 - No significant change	Target P8.2 Upgrade capacity, equipment and infrastructure to enforce biosecurity at all points of entry including inter island transportation	Aichi Target 19	National Target	PDF, 18, 64-65	Progress Assessment
United Republic of Tanzania	Africa	2019 - Progress towards target but at an insufficient rate	Target 19: By 2020, significant increase in the contribution of knowledge, technology and scientifically based information generated and shared.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=245977	Progress Assessment
Uganda	Africa	2019 - On track to achieve target	National target 2.1: By 2020, knowledge, research and science base relating to biodiversity has been significantly improved, and relevant technologies have been improved, shared and applied	Aichi Target 19	National Target	PDF, pp 221-222	Progress Assessment
Uganda	Africa	2019 - Progress towards target but at insufficient rate	National target 6.1: By 2018, public awareness, education and participation in biotechnology and biosafety are enhanced	Aichi Target 19	National Target	PDF, pp 231-233	
Uganda	Africa	2019 - Progress towards target but at insufficient rate	National target 6.2: By 2020, national capacity for biotechnology applications and use is adequate	Aichi Target 19	National Target	PDF, pp 233	

Uganda	Africa	2019 - On track to achieve targe	National target 6.3: By 2018, the national biotechnology and biosafety law in place	Aichi Target 19	National Target	PDF, pp 233	
Uganda	Africa	2019 - Unknown	National Target 6.4: By 2018, the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress under the Cartagena Protocol on Biosafety in operation and implemented	Aichi Target 19	National Target	PDF, 51-52, 234	
Uganda	Africa	2019 - Progress towards target but at insufficient rate	National Target 6.5: By 2020, there is widespread application and use of biotechnology and its products for national development	Aichi Target 19	National Target	PDF, pp 52, 234	
Saint Vincent and the Grenadines	Caribbean	2019 - No significant change	19. Biodiversity knowledge	Aichi Target 19	Global Target	https://chm.cbd.int/database/record?documentID=246514	Progress Assessment
Vanuatu	Pacific	2019 - No significant change	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, pp 316-317	Progress Assessment
Samoa	Pacific	2018 - Progress towards target but at an insufficient rate	19. Biodiversity knowledge	Aichi Target 19	Global Target	PDF, pp 54, 114-15	Progress Assessment

South Africa	Africa	2018 - On track to exceed target	200 000 newly collected records added to spatial data sets and 1 million existing records added to data set.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242749	Progress Assessment
South Africa	Africa	2018 - Unknown	Reduction in vacancies in prioritised specialist professional occupations.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242684	Progress Assessment
South Africa	Africa	2018 - On track to achieve target	National Biodiversity Assessment updated every seven years.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242643	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2020, four national maps showing ecosystem distribution developed.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242614	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2019, 6 research programmes aimed at advancing the biodiversity science policy interface have been developed, the Biodiversity Research and Evidence Strategy implemented and monitored and a national IPBES hub established and functional.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242611	Progress Assessment
South Africa	Africa	2018 - On track to achieve target	By 2017, priority gaps in foundational data sets for species identified.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242581	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2016, a functional national record system is in place in 7 provinces.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242579	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2019, 22 biodiversity-related country positions for multilateral agreements approved.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242573	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2025, 70% of major data holders sharing data.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242560	Progress Assessment
South Africa	Africa	2018 - Unknown	Decrease in turnover of key positions in provincial and local government institutions.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242554	Progress Assessment

South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2020, long term data sets available, and a programme for ongoing data collection is implemented.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242551	Progress Assessment
South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2025, information for a total of 40 000 species is compiled, including indigenous knowledge where relevant.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242537	Progress Assessment
South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2016, a single portal exists through which all biodiversity information can be accessed.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242525	Progress Assessment
South Africa	Africa	2018 - Unknown	Mentoring, career pathing and succession planning in place for leadership positions that are critical to the corporate vision and strategy.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242515	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2020, 23 priority occupations identified in the BHCDS included in the Organising Framework for Occupations (OFO).	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242504	Progress Assessment
South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2016, a tracking system for research impact has been established.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242495	Progress Assessment
South Africa	Africa	2018 - On track to achieve target	By 2017, a monitoring and evaluation programme is in place.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242492	Progress Assessment

South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2017, an updated implementation plan for the National Biodiversity Research and Evidence Strategy developed and funded.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242476	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	Co-ordinating system established for foundational data sets.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242473	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2025, spatial biodiversity plans (provincial, biodiversity sector plans, bioregional plans) are updated at least every five to ten years.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242451	Progress Assessment
South Africa	Africa	2018 - Progress towards target but at an insufficient rate	By 2020, all South African higher education institutions have incorporated biodiversity career guidance into student support.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242408	Progress Assessment
South Africa	Africa	2018 - Unknown	By 2020, 74% of specialists, monitors, technicians including Government supply chain and partner organisations are from previously disadvantaged groups.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242402	Progress Assessment
South Africa	Africa	2018 - On track to achieve target	By 2017, ecosystem classifications for four environments completed.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242387	Progress Assessment
South Africa	Africa	2018 - On track to exceed target	By 2025, at least 40% of universities and technology universities incorporate biodiversity, natural resource/social science multi and trans-disciplinary curricula into academic programmes.	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242365	Progress Assessment

Zambia	Africa	2018 - On track to achieve target	By 2020, the knowledge, the science base and technologies, relevant to Biodiversity, its values, functions, status and trends, and consequences of its loss, are improved, distributed and transferred and applied	Aichi Target 19	National Target	https://chm.cbd.int/database/record?documentID=242806	Progress Assessment
Zimbabwe	Africa	2019 - Progress towards target but at an insufficient rate	Target 17: By 2020, science, technology and innovation relating to biodiversity, its values, functioning, status and trends and the consequences of its loss, are strengthened, improved, widely shared, transferred, and applied	Aichi Target 19	National Target	PDF, pp 59-63, 68	Progress Assessment

Annex III – List of ACP Countries and Status of Ratification of the CBD and its Protocols

The ACP group consists of 79 Member States: 48 countries from Sub-Saharan Africa, 16 from the Caribbean and 15 from the Pacific. They are (in order of country code, first row down, then second one, etc.):

Regional Colour Code: Africa; Caribbean; Pacific

Country codes presented in yellow correspond to countries that have submitted their sixth national reports using the online reporting tool. Country codes presented in orange correspond to countries that have not submitted their sixth national reports. Country codes with no colour coding correspond to countries that have submitted their sixth national reports "offline" as PDF (the offline reports can be accessed at https://www.cbd.int/reports/).

Antigua and Barbuda	AG	Republic of Guinea	GN	Rwanda	RW
Angola	AO	Equatorial Guinea	GQ	Solomon Islands	SB
Barbados	BB	Guinea-Bissau	GW	Seychelles	SC
Burkina Faso	BF	Guyana	GY	Sudan	SD
Burundi	BI	Haiti	HT	Sierra Leone	SL
Benin	BJ	Jamaica	JM	Senegal	SN
Bahamas	BS	Kenya	KE	Somalia	SO
Botswana	BW	Kiribati	KI	Suriname	SR
Belize	BZ	St Kitts and Nevis	KN	São Tomé and Príncipe	ST
Democratic Republic of the Congo	CD	St. Lucia	LC	Swaziland/ Eswatini	SZ
Central African Republic	CF	Liberia	LR	Tchad	TD
Congo	CG	Lesotho	LS	Togo	TG
Côte d'Ivoire	CI	Comoros	KM	Timor Leste/East Timor	TL
Cook Islands	CK	Madagascar	MG	Tonga	TO
Cameroon	CM	Marshall Islands	MH	Trinidad and Tobago	TT
Cuba	CU	Mali	ML	Tuvalu	TV
Cape Verde	CV	Mauritania	MR	Tanzania	TZ
Djibouti	DJ	Mauritius	MU	Uganda	UG
Dominica	DM	Malawi	MW	St Vincent and the Grenadines	VC
Dominican Republic	DO	Mozambique	MZ	Vanuatu	VU
Eritrea	ER	Namibia	NA	Samoa	WS
Ethiopia	ET	Niger	NE	South Africa	ZA
Fiji	FJ	Nigeria	NG	Zambia	ZM
Federated States of Micronesia	FM	Nauru	NR	Zimbabwe	ZW
Gabon	GA	Niue	NU		
Grenada	GD	Palau	PW		
Ghana	GH	Papua New Guinea	PG		
Gambia	GM				

African ACP countries

Country	Country code	CBD Party	NP Party	CP Party	6th NR
Angola	AO	Y	Y	Y	Y PDF
Burkina Faso	BF	Y	Y	Y	Y
Burundi	BI	Y	Y	Y	Y PDF
Benin	BJ	Y	Y	Y	Y PDF
Botswana	BW	Y	Y	Y	Y
Democratic Republic of the Congo	CD	Y	Y	Y	Y PDF
Central African Republic	CF	Y	Y	Y	Y PDF
Congo	CG	Y	Y	Y	Y
Côte d'Ivoire	CI	Y	Y	Y	Y
Cameroon	CM	Y	Y	Y	Y
Cape Verde	CV	Y	N	Y	Y PDF
Djibouti	DJ	Y	Y	Y	Y PDF
Eritrea	ER	Y	Y	Y	Y PDF
Ethiopia	ET	Y	Y	Y	Y
Gabon	GA	Y	Y	Y	Y PDF
Ghana	GH	Y	Y	Y	Y PDF
Gambia	GM	Y	Y	Y	Y
Republic of Guinea	GN	Y	Y	Y	Y PDF
Equatorial Guinea	GQ	Y	N	N	Y PDF
Guinea-Bissau	GW	Y	Y	Y	Y PDF
Kenya	KE	Y	Y	Y	Y
Liberia	LR	Y	Y	Y	Y PDF
Lesotho	LS	Y	Y	Y	Y PDF
Comoros	KM	Y	Y	Y	Y PDF
Madagascar	MG	Y	Y	Y	Y PDF
Mali	ML	Y	Y	Y	Y
Mauritania	MR	Y	Y	Y	Y PDF
Mauritius	MU	Y	Y	Y	Y
Malawi	MW	Y	Y	Y	Y PDF
Mozambique	MZ	Y	Y	Y	Y PDF
Namibia	NA	Y	Y	Y	Y PDF
Niger	NE	Y	Y	Y	Y
Nigeria	NG	Y	Y	Y	Y
Rwanda	RW	Y	Y	Y	Y
Seychelles	SC	Y	Y	Y	Y PDF
Sudan	SD	Y	Y	Y	Y
Sierra Leone	SL	Y	Y	Y	Y PDF
Senegal	SN	Y	Y	Y	Y
Somalia	SO	Y	N	Y	Y

African ACP countries – continued

São Tomé and Príncipe	ST	Y	Y	N	Y PDF
Swaziland/ Eswatini	SZ	Y	Y	Y	Y PDF
Tchad	TD	Y	Y	Y	Y PDF
Togo	TG	Y	Y	Y	Y
Tanzania	TZ	Y	Y	Y	Y
Uganda	UG	Y	Y	Y	Y PDF
South Africa	ZA	Y	Y	Y	Y
Zambia	ZM	Y	Y	Y	Y
Zimbabwe	ZW	Y	Y	Y	Y PDF

Caribbean ACP countries

Country	Country code	CBD Party	NP Party	CP Party	6th NR
Antigua and Barbuda	AG	Y	Y	Y	Y
Barbados	BB	Y	N	Y	Y PDF
Bahamas	BS	Y	Y	Y	N
Belize	BZ	Y	N	Y	Y
Cuba	CU	Y	Y	Y	Y PDF
Dominica	DM	Y	N	Y	Y PDF
Dominican Republic	DO	Y	Y	Y	Y
Grenada	GD	Y	N	Y	N
Guyana	GY	Y	Y	Y	Y
Haiti	HT	Y	N	N	Y PDF
Jamaica	JM	Y	N	Y	Y PDF
St Kitts and Nevis	KN	Y	Y	Y	Y
St. Lucia	LC	Y	Y	Y	Y
Suriname	SR	Y	N	Y	Y
Trinidad and Tobago	TT	Y	N	Y	Y
St Vincent and the Grenadines	VC	Y	N	Y	Y

Pacific ACP countries

Country	Country code	CBD Party	NP Party	CP Party	6th NR
Cook Islands	CK	Y	N	Y	Y
Fiji	FJ	Y	Y	Y	Y PDF
Federated States of Micronesia	FM	Y	Y	N	Y PDF
Kiribati	KI	Y	Y	Y	Y PDF
Marshall Islands	MH	Y	Y	Y	Y PDF
Nauru	NR	Y	N	N	Y PDF
Niue	NU	Y	N	Y	Y PDF
Palau	PW	Y	Y	Y	Y
Papua New Guinea	PG	Y	N	Y	Y PDF
Solomon Islands	SB	Y	Y	Y	Y PDF
Timor Leste/East Timor	TL	Y	N	N	Y PDF
Tonga	TO	Y	Y	Y	Y PDF
Tuvalu	TV	Y	Y	N	Y PDF
Vanuatu	VU	Y	Y	Y	Y PDF
Samoa	WS	Y	Y	Y	Y PDF

Annex IV – List of interviewees

Region	Name/ Title	Country/ Institution
Global		
	Mr. Erie Tamale Senior Programme Management Officer Head, CBKM Unit	CBD Secretariat
Africa		
	Mr. Pierre du Plessis	Namibia
	Ms. Kebaabetswe Keoagile ABS NFP	Botswana
	Mr. Datuama Cammue CBD Primary NFP	Liberia
	Dr. David Obura Director, Coastal Oceans Research and Development - Indian Ocean (East Africa)	Kenya
Pacific		
	Mr. Jope Davetanivalu Director of the Environmental Monitoring Governance Programme	South Pacific Regional Environment Programme (SPREP)
	Ms. Anastacia Amoa-Stowers Multilateral Environmental Agreements Coordinator – ACPMEAs3 Project	SPREP
Caribbean		
	Ms. Helena Jeffery Brown Technical Coordinator, Department of Environment	Antigua and Barbuda
	Mr. Jesus Guerra Bell Officer	Cuba
	Ms. Aria St. Louis Ministry of Climate Resilience, the Environment and Renewable Energy, Environment Division	Grenada
	Mrs. Joan John-Norville Programme Director, Biodiversity and Ecosystems Management	Organisation of Eastern Caribbean States (OECS)
	Dr. Patrick Chesney Regional Expert	CARICOM, Guyana
	Ms. Rathna Kewal CBD NFP	Suriname

Annex V – Semi-structured questionnaire template

Questions

Q.1. What are the most important technical and scientific cooperation (TSC) programmes or initiatives that provide support for the implementation of the CBD and its Protocols in your country/region with an emphasis on technology transfer (TT), knowledge management (KM), and/or capacity building and development (CB)?

Q.2. With reference to the TSC programmes and initiatives referred to in the Q.1, what are the main cooperation approaches or modalities that are most successfully applied in your country/region and why? Such cooperation approaches or modalities may include, for example:

- Joint research programmes
- Joint technology development and transfer
- Joint training activities
- Peer-to-peer knowledge transfer
- Partnership and network building
- Exchange of experts
- International study tours
- Other (please specify)

Q.3. Amongst the cooperation approaches or modalities that have been applied in your country/region, what are the ones that have failed to deliver an effective support for the implementation of the CBD and its Protocols (or have had only a limited/insufficient impact on the ground) and why?

Q.4. What are the key challenges and limitations that have affected or are likely to affect future biodiversity-related technical and scientific cooperation programmes and initiatives in your region?

Such challenges may include, for example:

- Inadequate level of funding;
- Lack of mechanism(s) to facilitate regional and/or sub-regional coordination;
- Inadequate identification and prioritization of needs requiring TSC, TT, KM and CB;
- Lack of high-level institutional willingness and support to engage in TSC initiatives;
- Lack of institutional policies to facilitate TSC between countries;
- Bureaucratic hurdles and delays;
- Limited availability of technical resources and expertise in your region and/or in relevant languages;
- Lack of a long-term approach to cooperation, particularly at the regional and/or sub-regional levels;
- Other (please specify)

Q.5. What are the main requisite capacity and institutional needs that must be catered for in your country/region in order to strengthen TSC, TT, KM and CB within and between countries in your region or subregion and/or through triangular cooperation?

Q.6. How do you plan to integrate the TSC related issues in the NBSAPs that are to be updated?

Q.7. Would you set any national / regional targets for TSC in the context of achieving the GBF by 2030? If so, what will be the focus of such target(s)?

Q.8. In your region, which entities or organizations would be best placed as potential candidates to host the institutional mechanism(s) to facilitate and enhance technical and scientific cooperation in support of the post-2020 Global Biodiversity Framework (in accordance with the criteria set out in annex II, paragraph 4 of CBD COP Decision 15/8)?

CRITERIA FOR SELECTING HOST INSTITUTIONS

4. Any organization or institution wishing to host a regional and/or subregional technical and scientific cooperation support centre should have the following:
(a) Demonstrated ability to provide technical advice and support to Parties in planning and implementing country-led projects and/or programmes;
(b) Experience and expertise in the areas of work undertaken by Parties in implementing the Convention on Biological Diversity and its Protocols;
(c) Capacity to mobilize resources for technical scientific cooperation programmes;
(d) Appropriate policies, procedures and other institutional mechanisms and demonstrated ability in place to manage multiple complex projects and programmes;
(e) Appropriate policies and procedures in place to disclose financial information regarding their operations including the sources of financial resources and how they are allocated;
(f) Active networks of collaborators, including institutions working at regional and subregional levels on biodiversity-relevant issues;
(g) Experience of working with biodiversity-related conventions, intergovernmental processes, indigenous peoples and local communities, civil society and other stakeholders;
(h) Experience in engagement in regional and subregional biodiversity-related networks and partnerships;
(i) Demonstrated experience in facilitating technical and scientific cooperation.

Q.9. Within the three mandated focal areas of science, technology and innovation, which specific substantive themes or subject-matter areas should be prioritised for consideration by the proposed network of regional and/or sub-regional TSC support centres in your region?

MAIN FOCAL AREAS

3. Technical and scientific cooperation work in support of the Kunming-Montreal global biodiversity framework could be organized around the following focal areas:
(a) *Science*: Promotion of research cooperation to foster effective generation and use of relevant scientific and analytical information and facilitate science-policy dialogue to support evidence-based policies, actions, tools and mechanisms, based on or informed by the best available science;
(b) *Technology*: technology assessment, development, transfer, promotion, monitoring, governance, and use of technologies, including biotechnology, existing know-how of

relevant sectors and indigenous and traditional technologies and knowledge, subject to free, prior and informed consent, according to national legislation to scale up solutions;
(c) *Innovation:* Promotion of appropriate, supportive and socially responsible innovation, in line with the needs of people and the environment.

Q.10. Among the five specific objectives pertaining to the Mechanism(s) established by CBD COP 15 to strengthen TSC in support of the KM-GBF, which ones would you prioritize for your region/subregion?

The specific objectives are:
(a) To enhance local, national, subregional, regional and international capacities in relation to science, technology and innovation by means of human resource and institutional capacity building and development;
(b) To enable technology assessment and monitoring of appropriate technologies;
(c) To promote and facilitate the development, transfer and use of appropriate technologies, including indigenous and traditional technologies subject to free, prior and informed consent, according to national legislation;
(d) To promote and encourage joint research, cooperation and collaboration in the use of scientific advances and good practices in research;
(e) To promote the development, implementation and scaling up of innovative solutions;
(f) To facilitate access to and exchange of relevant technical and scientific data, information and knowledge.

Q.11. If you could propose and design 2 or 3 concrete pilot activities to be implemented by the proposed regional and/or sub-regional TSC support centres in the next biennium, which activities would you suggest for your region?

Q.12. What are the key stakeholders that should be strategically engaged in the design and implementation of the TSC activities that will be coordinated by the proposed regional and/or sub-regional TSC support centres?

Q.13. How would you suggest to strategically and effectively engage key stakeholders (identified in Q.10 above) in the design and implementation of such pilot activities?

Q.14. What would you recommend in order to ensure that the pilot activities can catalyse a sustained support and/or the necessary engagement to develop a long-term approach for TSC at the regional/subregional levels?

Q.15. What other recommendations would you make to improve and scale-up technical and scientific cooperation programmes and initiatives through the proposed network of regional, and/or sub-regional TSC support centres, to be stablished in accordance with CBD COP Decision 15/8 (para. 25), to support implementation of the post-2020 Global Biodiversity Framework?

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