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FURTHER INFORMATION ON THE POTENTIAL CONTRIBUTION OF REDD+ TO THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020

Note by the Executive Secretary

I.   INTRODUCTION

1.   In decision X/33, paragraph 9(h), the Executive Secretary was requested to identify, in consultation with Parties and organizations, possible indicators and mechanisms, to assess the contributions of REDD+ to achieving the objectives of the Convention of Biological Diversity, and to monitor the impacts on biodiversity. In decision XI/19 paragraphs 6 and 7, the Conference of the Parties urged Parties, other Governments and relevant organizations to implement relevant provisions and decisions of the Convention of Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), notably reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+)[1] in a mutually supportive way. Subsequently, in paragraph 18 of that same decision, the Executive Secretary was requested to further develop advice on issues included in decision X/33, paragraph 9(h), based on further views from Parties and in collaboration with the Collaborative Partnership on Forests, and to report to the twentieth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 20), prior to the thirteenth meeting of the Conference of the Parties.

2.   At the twelfth meeting of the Conference of the Parties, in 2014, Parties welcomed information provided by the Secretariat relevant to the application of safeguards for biodiversity in the context of REDD+. Decision XII/20 welcomed the Warsaw Framework for REDD+,[2] and the guidance on the implementation of REDD+ activities that it provides, while also noting existing alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests,[3] in accordance with decisions of UNFCCC. Parties were also encouraged to make use of information generated in the context of the Warsaw Framework for

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[*] UNEP/CBD/SBSTTA/20/1/Rev.1.

[1] Used as shorthand to refer to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

[2] UNFCCC decisions 9/CP.19, 10/CP.19, 11/CP.19, 12/CP.19, 13/CP.19, 14/CP.19 and 15/CP.19. For more information, see FCCC/CP/2013/10, para. 44.

[3] Paragraph 8 of UNFCCC decision 9/CP.19. For more information, see FCCC/CP/2013/10/Add.1.

REDD+, and alternative policy approaches for results-based finance, to enhance progress in the achievement of the Aichi Biodiversity Targets. In this regard, decision XII/20, paragraph 7(e) requested the Executive Secretary to compile information on experiences, lessons learned and best practices on the contribution of the activities referred to in paragraph 70 of decision 1/CP.16 of the Conference of the Parties to UNFCCC towards achieving the objectives of CBD and the Strategic Plan for Biodiversity 2011–2020, to share this information accordingly and to submit a progress report by SBSTTA 20. Considerations on this matter are also presented in this report in the light of the most recent guidance on REDD+ provided by UNFCCC COP 21, held in Paris, in December 2015.

3.   To this end, the Executive Secretary invited Parties and relevant organizations through notification 2015-018 to provide information pursuant to decision X/33, paragraph 9(h), decision XI/19, paragraph 18, and decision XII/20, para 7(e). As of June 2015, the Secretariat received submissions from 13 Parties and 10 organizations. The present document summarizes relevant submissions and draws on scientific studies and other literature to inform on the potential of indicators and monitoring mechanisms, the considerations to be made in their selection, and to showcase best practice cases. The report also draws on section III of document UNEP/CBD/SBSTTA/16/8, of which much content remains relevant.

4.   The report presents background information in section II, in the form of a synthesis of UNFCCC decisions on REDD+, including most recent developments at COP 21, an overview of recent forest-related commitments and an introduction to the potential contribution or impacts of REDD+ to the Strategic Plan for Biodiversity (hereinafter 'Strategic Plan'). Section III summarizes submissions received from parties and organizations on the role of biodiversity indicators and related information. In section IV, the report highlights best practices, experiences and lessons learned, drawing on Parties' submissions and other sources of information. Section V provides further advice on the role of biodiversity indicators and related information, drawing, among other sources, on recent work of the CBD AHTEG. Conclusions are proposed in section VI to inform future work in this area.

II.   BACKGROUND

1.   Summary of decisions on REDD+ under UNFCCC

5.   In Decision 1/CP.16, the UNFCCC encouraged parties to undertake mitigation actions in the forest sector through the following activities, commonly known as REDD+: (a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forests; (e) Enhancement of forest carbon stocks. In recognition of the social and environmental risks and benefits that REDD+ may entail, parties agreed on a set of seven social and environmental safeguards that should be "promoted and supported" while implementing REDD+ activities[4] (the 'Cancun safeguards'). Parties are also required to develop a system to provide information on how all the Cancun safeguards are being "addressed and respected". This requirement is one of the four elements that all countries wishing to receive results-based payments for REDD+ must have in place, alongside a National Strategy or Action Plan (NS/AP); a National Forest Reference Emission Level (FREL) and/or Forest Reference Level (FRL) and; a National Forest Monitoring System (NFMS).[5]

6.   The Warsaw Framework also requires that countries submit a summary of information on how all of the Cancun safeguards are being addressed and respected throughout REDD+ implementation. This is required before results-based payments can be made. Summaries should be submitted with national communications (every four years), directly to the UNFCCC REDD+ web platform on a voluntary basis (whenever desired), and commencing upon implementation of REDD+ actions.

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[4] Decision 1/CP.16, Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, UN Doc. FCCC/CP/2010/7/Add.1, 15 March 2011, at paragraph 70.

[5] Decision 12/CP.17, Guidance on Systems for Providing Information on how Safeguards Are Addressed and Respected and Modalities Relating to Forest Reference Emission Levels and Forest Reference Levels as Referred to in Decision 1/CP.16, UN Doc. FCCC/CP/2011/9/Add.2, 15 March 2012.

7.   REDD+ countries are now at various stages of their preparation to implement the REDD+ safeguards, as documented in a recent review by the UN-REDD Programme.[6] Fewer countries have started addressing the requirement to develop a Safeguards information system (SIS) and "provide information on how the safeguards are addressed and respected[7]". However, current progress suggests that some are in the process of developing indicators for measuring the environmental and social impacts of REDD+, including on biodiversity.

8.   At COP 21 in Paris, REDD+ was officially recognized as one of the ways in which Parties may contribute to limit the concentration of greenhouse gases in the atmosphere and to reach the objective of keeping global warming under $2^{o}C$ and pursuing efforts to limit it to $1.5^{o}C$.[8] Two more decisions pertaining to REDD+ were also adopted: the first one states that when "providing information on how the safeguards are being addressed and respected", Parties are "strongly encouraged" to provide "information on which activity or activities the information on safeguards applies to" and "information on how each of the safeguards has been addressed and respected, in accordance with national circumstances", in their summaries of information.[9] This clarifies that the specific aspects covered by Safeguards a), e), c) and d), which are of particular relevance to the objectives of the CBD, should ideally be specifically addressed in the Parties' Summaries of information.

9.   Under the second, the COP reaffirmed the importance of non-carbon benefits that may result from the implementation of REDD and recognized that ""developing country Parties seeking support for the integration of non-carbon benefits into [REDD+], with a view to contributing to the long-term sustainability of those activities, may provide information addressing, inter alia, the nature, scale and importance of the non-carbon benefits."[10] The Paris Agreement, in its article encouraging Parties to "implement and support REDD+", also reaffirms "the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches." Indicators or assessments related to biodiversity and ecosystem services are likely to be needed if Parties wish to measure the "nature, scale and importance of the non-carbon benefits" that they are invited to share on the web platform of UNFCCC and to communicate "for consideration by interested Parties and relevant financing entities".

10.   Both decisions note the important contribution to biodiversity from REDD+ activities. They also indicate that with regard to the provision of information on how safeguards are addressed and respected, there will be no further guidance from the UNFCCC COP and that, with regard to the methodological issues related to non-carbon benefits, work on this matter has been concluded.

2.   Forest-related commitments

11.   A number of formal and informal commitments related to forest have recently been announced at global fora, underlining the political attention that forests are receiving for the crucial role they play at the nexus of climate change mitigation and adaptation, and the conservation and sustainable use of biodiversity.

12.   Prior to, or during, UNFCCC COP 21, a total of 109 countries (counting the EU as one), including 94 developing countries, made statements regarding their willingness to reduce emissions from deforestation and forest degradation, or to enhance forest carbon stocks. This includes forest-related mitigation in their INDCs and Nationally Appropriate Mitigation Actions submitted to the

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[6] UN-REDD Programme Technical Resource Series 2: *Country Approaches to REDD+ Safeguards: A Global Review of Initial Experiences and Emerging Lessons.* Available at : http://bit.ly/1ZYhuZO

[7] UNFCCC Decision 12/CP.17 FCCC/CP/2011/9/Add.2

[8] Decision 1/CP.21 Adoption of the Paris Agreement - FCCC/CP/2015/10/Add.1

[9] Decision 17/CP.21 Further guidance on ensuring transparency, consistency, comprehensiveness and effectiveness when informing on how all the safeguards […] are being addressed and respected" - FCCC/CP/2015/10/Add.3

[10] Decision 18/CP.21 Methodological issues related to non-carbon benefits r resulting from the implementation of [REDD+] -FCCC/CP/2015/10/Add.3

UNFCCC, bilateral agreements on forest-related mitigation, proposals to the Carbon Fund, and commitments to both the New York Declaration on Forests and the Bonn Challenge.

13.   Of the 79 developing countries that submitted their INDC by 1 October 2015 and included forest-related contributions, the majority aim to undertake actions to reduce forest-related emissions and to enhance forest carbon stocks. Fifteen Annex I countries included forest-related contributions in their INDC of which eight specify these activities, that include reducing forest-related emissions, enhancing forest carbon stock or both. Many of these countries have included a quantitative measure of the area intended for restoration/ afforestation/reforestation, amounting to a total of over 141 million hectares (ha).[11]

14.   African countries also came together during the COP to launch the African Resilient Landscapes Initiative (ARLI), a voluntary initiative to promote integrated landscape management with the goal of adapting to and mitigating climate change, and to pledge to restore 100 million hectares of forest by 2030 under the African Forest Landscape Restoration Initiative (AFR100). This follows other voluntary initiatives, such as the 20x20 Initiative, launched at COP 20 in Lima, which seeks to bring 20 million hectares of degraded land in Latin America and the Caribbean into restoration by 2020. These initiatives support previous voluntary commitments under the Bonn Challenge, a global movement to restore 150 million hectares of land around the world by 2020, and the New York Declaration on Forests that builds on and extends the Bonn Challenge to 350 million hectares by 2030.[12]

15.   A "Leaders' Statement on Forests and Climate Change" was also issued in Paris, with participating leaders committing to "intensifying efforts to protect forests, to significantly restore degraded forest, peat and agricultural lands, and to promote low carbon rural development", including through REDD+ programs. Leaders from developing and developed countries also launched specific voluntary partnerships to help reduce deforestation. For instance, Brazil and Norway extended to 2020 their partnership to reduce deforestation in the Amazon Forest and Norway committed new financial support. Norway, Germany and the UK also indicated a target of US$5 billion in financial support for REDD+ programs from 2015 to 2020.

3.   Contribution of REDD+ to the Strategic Plan for Biodiversity

16.   REDD+ and other forest-related efforts, if appropriately implemented could present an opportunity for biodiversity and therefore for assisting to achieve the Aichi Targets: the reduction of deforestation and degradation could slow habitat loss and/or fragmentation (Aichi Target 5), including habitat of endangered species (Aichi Target 12), and preserve ecosystem services from forest (Aichi Target 14). The enhancement of carbon stocks could be done through reforestation of previously degraded land (Aichi Target 15), and the conservation of carbon stocks through the improved effectiveness of protected areas (Aichi Target 11). A full list of these linkages and opportunities for synergies can be found in Annex I.

17.   In turn, biodiversity conservation may contribute to REDD+ objectives. Highly diverse forests are likely to be more resilient, including to climate change itself,[13] thereby diminishing the risk of reversals of emission reductions achieved through REDD+. Recent research continues to reaffirm the importance of animals in ecosystems and that extirpation of fauna from forests may lead to changes in forest structure and composition, due to the crucial roles played by fauna in seed dispersal

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[11] – Further information can be found in UNEP (2015). *The Emissions Gap Report 2015* – Chapter 6: Mitigation potential from forest related activities and incentives for enhanced action in developing countries accessible at http://uneplive.unep.org/media/docs/theme/13/EGR_2015_301115_lores.pdf

[12] New pledges made during the COP under AFR100, Initiative 20x20 and the Bonn Challenge amounted to an additional 15 million hectares above and beyond those included in any national statements. Asia Pulp and Paper also made a pledge of 1 million hectares, the first private-sector led contribution to the Bonn Challenge. See https://unredd.wordpress.com/2016/01/18/outlook-for-forest-landscape-restoration-in-low-emissions-future/

[13] Thompson ID, Mackey B, McNulty S Mosseler, A. (2009) *Forest resilience biodiversity and climate change: a synthesis of the biodiversity/resilience/stability relationship in forest ecosystems.* CBD Technical Series no 43

of certain tree species, pollination of many plant species, and the role of predators and herbivores in ecosystem functions. The loss of these ecological functions could lead to an overall decrease in the forest's carbon density. Actions to address the unsustainable hunting of wildlife and reverse habitat loss could therefore contribute to the preservation of forest carbon stocks.[14]

18.   Furthermore, in the identification of possible Policies and Measures (PAMs) for REDD+, countries are often couching such actions within the broader framework of sustainable development and transformations to a Green Economy, which align with the Strategic Plan. For example, a number of countries, as part of their REDD+ actions are valuing forest ecosystem services and integrating forests into natural capital accounting.

19.   REDD+ could also bear social and environmental risks, such as the displacement of deforestation to areas not targeted by REDD+ activities (leakage), including into non-forest ecosystems, and negative impacts resulting from agricultural intensification that seek to increase production while sparing forest land. In the context of enhancement of forest carbon stocks, risks on biodiversity could result from increasing growth of low-diversity monoculture plantations replacing diverse natural ecosystems and the afforestation of valuable non-forest ecosystems.[15] It is in recognition of these risks and benefits that parties to the UNFCCC agreed on a set of seven REDD+ safeguards.

20.   Safeguard e) in particular emphasizes the importance of the conservation of biodiversity, the non-conversion of natural forests and the enhancement of ecosystem services and other social and environmental benefits.[16] The consideration of biodiversity under safeguard (e) can be seen to give a mandate for integrating compliance with the CBD into REDD+ implementation, especially if read in conjunction with safeguard (a), which asks that "[REDD+] actions complement or are consistent with the objectives of … relevant international conventions and agreements".[17]

21.   Safeguards c) and d) on the respect for the knowledge and rights of indigenous peoples and members of local communities and their full and effective participation are also relevant in particular to Aichi Targets 14 and 18 of the Strategic Plan. A more detailed description of the potential linkages between the Aichi Targets and REDD+ activities, guidance and safeguards can be found in Annex I.

22.   REDD+ may also contribute to the provision of relevant information for the measurement of progress on the Strategic Plan. Information on deforestation and degradation of forest ecosystems, as well as on restoration, reforestation and forest conservation actions generated through the FRL and NFMS could overlap with indicators to measure progress on a number of Aichi Targets. The establishment of a FRL will typically involve the collection of historical data on forest cover which may help providing baseline data relevant for Target 5 and 15, with the NFMS allowing for an assessment of where efforts deployed to reach these targets are successful.

III.   OVERVIEW OF SUBMISSIONS

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[14] Carlos A. Peresa et al., Dispersal limitation induces long-term biomass collapse in overhunted Amazonian forests, *PNAS*, in press, www.pnas.org/cgi/doi/10.1073/pnas.1516525113

[15] Miles L, Trumper K, Osti M, Munroe R, Santamaria C (2013) *REDD+ and the 2020 Aichi Biodiversity targets: Promoting synergies in international forest conservation efforts*. UNREDD Policy Brief #05

[16] "[REDD+] actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions ... are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits". A detailed analysis of safeguard e) can be found in Bodin, B., Väänänen, E., Van Asselt, H. (2015) Putting REDD+ Environmental Safeguards into Practice: Recommendations for Effective and Country-specific Implementation. *Carbon and Climate Law Review*, Vol. 2, p. 168 http://cclr.lexxion.eu/article/CCLR/2015/2/9

[17] This view is supported by the example of Brazil's summary of information to the UNFCC on how it addresses and respects the safeguards, which mentions with regard to safeguard e) that "Currently, Brazil has specific legal instruments for biodiversity, such as the National Biodiversity Policy, which implements part of the Convention on Biological Diversity (CBD)" and that "Reports made under the CBD, such as the Global Biodiversity Outlook, shine a light on the general state of global and Brazilian biodiversity".

23.   The Executive Secretary issued notification 2015-018 (Ref.: SCBD/SAM/DC/SK/AC/84328, 17 February 2015), inviting Governments and relevant organizations to submit views, *inter alia*, on possible indicators to assess the contribution of REDD+ to the CBD and on potential mechanisms to monitor impacts on biodiversity from these activities and other ecosystem-based approaches for climate change mitigation. Thirteen submissions have been received on the topic in response to this notification: eight from parties (Australia, Canada, India, Mexico, Switzerland, Ecuador, Japan and the European Union) and five from organizations (UNEP, the World Wildlife Fund, the Indian Council of Forestry Research and Education, the Indigenous Peoples' International Centre for Policy Research and Education 'Tebtebba', and INTACT).

24.   A strong point that emerges from submissions is that there is a trade-off between which indicator captures the most relevant information for REDD+ versus what is realistically feasible to measure for parties. Submissions hence suggest that future discussion must not only focus on which monitoring mechanisms are needed for desired indicators but also which indicators would be most practical in implementation given existing sources of information and expertise. Thus, the submission from the WWF highlighted a number of general criteria that Parties should consider in the choice of indicators: 1) Has well established links to biodiversity objectives; 2) Is easy to interpret; 3) Has a logical link to management interventions; 4) Is measurable (quantitative); 5) Cost effective (e.g., is linked to data already being collected under REDD+, is readily available, or is relatively easy to produce); 6) Is defined in terms of frequency of collection; 7) Is appropriate (provides the right information).

25.   In the interest of practicality and cost-efficiency, submissions from Switzerland, Australia and Canada also suggested that indicators should be linked as closely as possible to existing requirements for monitoring and reporting under REDD+ and other international and national commitments. Submissions from Canada and Australia refer in particular to indicators developed under the Montreal Process and other forest processes, which may be relevant for assessing the contribution of REDD+ activities of forests to the objectives of the CBD, and more specifically with regard to activities for the sustainable management of forests. Annex II provides a list of relevant existing forest processes and indicators frameworks and discusses their relevance.

26.   Switzerland also emphasized that a regional focus and coordinated effort in forest monitoring have particular advantages that complement national programs. Among these are the fact that monitoring can easily extend beyond national borders, the fact that forests, ethnic groups, and forest product movements are not limited by national borders, and resource conflicts often occur across borders. Further, forest monitoring can take advantage of combined financial and technical resources through regional efforts, including using the leadership and capacity of stronger countries in south-south cooperation. Switzerland also noted the success of regional collaboration on forest monitoring in certain regions, illustrated by the development of regional competence centers such as the Observatory for Central African Forests, which serves as a hub for and information and methodologies in the COMIFAC region and could be replicated in West Africa.[18]

27.   The UNEP submission notes that whilst biodiversity indicators may prove useful in detecting trends, whether positive or negative, in some of the elements on which REDD+ may have an impact, they will not establish a causality between this trend and REDD+ activities. In order to link the policies and measures implemented for REDD-plus, to a particular impact – positive or negative – on biodiversity, more than one source would need to be consulted. Specific indicators that build on several existing mechanisms have been proposed by UNEP and WWF, separately and can be found in Annex III.

28.   UNEP further notes that parties retain the choice to select their own approach for the type for information collected in the National Forest Monitoring Systems for REDD+, and that assessment for drivers of deforestation and forest degradation and the development of Reference Emission Levels are

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[18] Whilst greater comparability is desirable, it is important to note that nationally-specific approaches are key to ensure that monitoring mechanisms are relevant in the national context that they are applied, which may be more appropriate in the case of the relative concept of natural forests (for more details see Bodin et al. above note 18)

dependent on country circumstances and preferences. Likewise, indicators developed at the national scale to measure progress under a country's NBSAP may vary. This heterogeneity makes it difficult to draw general conclusions on how these existing sources of information can be easily combined to build relevant indicators. Examples of regional efforts in the collection, collation and dissemination of forest-related information, such as those presented by Switzerland in its submission may contribute to streamline these processes and foster exchanges of national experiences.

29.   Several submissions stress that the transition from indicators to practical monitoring mechanisms is often difficult in contexts of limited capacity and resources available. In line with the framework for integrating biodiversity concerns into national REDD+ programmes presented in UNEP/CBD/ SBSTTA/16/INF/22[19], submissions highlight that a tiered approach model may help overcome these challenges of capacity and data availability.

30.   In this model, coarse-scale and often readily available data can be employed to track changes in forest cover area and type is coupled with globally available biodiversity distribution and response data (Tier 1). This first assessment is focused on highlighting possible threats to biodiversity as a consequence of REDD+ activities (e.g. an increase in the clearance or degradation of rare forest types that are low in carbon but ecologically distinct – a headline concern of the environmental safeguards in the Cancun Agreements). Submissions have highlighted that a number of secondary data sources exist for that purpose, including global datasets and freely available online data lists presented in Annex IV. In Tier 2, these coarse, global datasets are replaced with national-level information and further assessments are conducted, regarding for example landscape structure and forest degradation. (See for example indicators suggested by the WWF in Annex III). In Tier 3, new biodiversity data would be collected in a sample of priority REDD+ sites to verify information from previous tiers. This ground data can be collected with different techniques (such as direct observation, camera trapping or acoustic monitoring) and by different actors, including experts and members of local communities. A recent publication provides recommendations for relevant monitoring methods[20].

31.   Submissions also suggest that indigenous and local communities could be helpful actors in monitoring trends in biodiversity, complementary to remote-sensing data sources. Moreover, ground-based information on forest dwelling communities, ownership and user rights of forests are of primary importance for determining the effectiveness of Safeguards c) and d). Participatory monitoring approaches, however, should go beyond simply inviting forest communities to answer questions posed by external surveyors. Instead, initiatives can be designed by, or collaboratively with, the communities themselves, enabling them to participate in deciding what information to gather and how to report it, so they can reflect on observations that are relevant to them.

32.   Submissions pertaining to experiences, lessons learned and best practices on the contribution of these activities towards achieving the objectives of the Convention and the Strategic Plan for Biodiversity 2011-2020 are summarized in section IV

IV.   BEST PRACTICES, EXPERIENCES AND LESSONS LEARNED

33.   Few examples of large-scale REDD+ implementation on the ground exist that may be assessed to determine their contribution to the objectives of the CBD. The success of Brazil in reducing deforestation in recent years, however, presents a clear case of positive impact on the implementation of the objectives of the CBD in the country (See Box 1).

34.   The support provided by the UN-REDD Programme on safeguards and multiple benefits in several countries provides examples of how biodiversity objectives can be taken into account at the planning stage through a range of spatial analyses that can inform the choice and location of REDD+ actions as part of country approaches to safeguards, as well as during national and subnational

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[19] Based on Gardner, T. et al. A framework for integrating biodiversity concerns into national REDD+ programmes. *Biological Conservation*. http://dx.doi.org/10.1016/j. biocon.2011.11.018

[20] Latham, J.E., Trivedi, M., Amin, R., D'Arcy, L. (2014) *A Sourcebook of Biodiversity Monitoring for REDD+*. Zoological Society of London, United Kingdom. http://www.zsl.org/sites/default/files/media/2014-10/ZSL_GIZ_REDD_Sourcebook_2014_0.pdf

planning processes for REDD+. Approaches, such as spatial analyses, benefit and risk assessments, among others, can inform choice, design and location of REDD+ actions.[21]

35.   With regard to synergies in the provision of information for CBD and REDD+ objectives, an example can be found in Brazil's Summary of information on how the Cancun safeguards were addressed and respected, which contains data that would be relevant to report progress on Targets 5 and 11 of the Strategic Plan on Biodiversity (see Box 2).

Box 1. Case Study – Brazilian efforts to reduce deforestation (PPCDAm) and the Amazon Fund

Since 2005, Brazil implemented the Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm, in Portuguese), a series of public policies from various sectors, including the creation of new protected areas, which enabled an 80% reduction of deforestation in the Amazon compared to 2004 levels.

Brazil created the Amazon Fund to raise resources to finance forest conservation initiatives, including through results-based payments for emission reductions from avoided deforestation. The main objective of the Amazon Fund is to provide support to projects to prevent, monitor and combat deforestation, as well as for the conservation and sustainable use of forests in the Amazon Biome. Activities related to the preservation and sustainable use of biodiversity are eligible for funding. Therefore, beyond synergies between actions to reduce deforestation and degradation and Target 5 and 11, the capitalization and disbursement of the fund, whereby results-based payments for REDD+ are reinvested in actions to conserve biodiversity and promote the sustainable use of its components, stand as an example of how REDD+ can contribute to Target 20.

Source: Website of the Brazilian Ministry of Environment (MMA) - http://redd.mma.gov.br/ and of the Amazon Fund - http://www.amazonfund.gov.br/

Box 2. Provision of relevant data for the monitoring of progress under Targets 5 and 11 in Brazil's summary of information.

In its summary of information Brazil provided a narrative assessment of how each safeguard was addressed and respected throughout the implementation of actions to reduce emissions from deforestation in the Amazon biome between 2006 and 2010.

With regard to Safeguard e) this narrative assessment links the effectiveness of such Safeguard to progress in national policies implementing CBD objectives. It also presents data showing that throughout PPCDAm's implementation, 50 million hectares of Protected Areas were created. The summary further mentions that following the trend of the Amazon biome, deforestation in Protected Areas has significantly reduced in the past decade. These data could fit under the indicator "trends in areas of forests in protected areas", which was one of the indicators proposed by SBSTTA/16/8 in relation to measuring the contribution of REDD+ to Targets 5 and 11.

Source: Summary of information on how the Cancun safeguards were addressed and respected by Brazil throughout the implementation of actions to reduce emissions from deforestation in the Amazon biome between 2006 and 2010 Brasilia, DF May 2015.
http://redd.unfccc.int/files/brazil_safeguards_summary_final20150508.pdf

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36.   Indigenous and local communities could be cost-effective actors in monitoring trends in biodiversity. This view is supported by the CBD AHTEG, which took note in UNEP/CBD/SBSTTA/19/INF/5 of the role of IPLCs in validating data products derived from remote sensing and other sources. Community-based forest monitoring can also help assess the effectiveness of Cancun safeguards c) and d) in particular, by revealing whether indigenous peoples and members

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[21] See the UN-REDD Programme's Multiple Benefits Country Resources hub
http://www.unredd.net/index.php?option=com_content&view=article&id=2328&Itemid=787 and Safeguards Knowledge page http://www.unredd.net/index.php?option=com_unsubjects&view=unsubject&id=1&Itemid=491

of local communities believe that their knowledge and rights are being respected in the context of REDD+ activities, whether they are being consulted, and whether they are finding it possible or desirable to participate in these activities. Such information could be complemented by data provided by countries in their CBD National Reports to advance actions aligned to meet Aichi Target 18, and the verse. The Forest COMPASS website brings together case studies, resources and analysis on community-based forest monitoring in tropical countries, revealing why community-collected data is essential for ensuring more efficient, effective and equitable forest initiatives, including international agendas such as the CBD, UNFCCC REDD+ and FLEGT (see Box 3 below).

37.   Furthermore, UNEP/CBD/SBSTTA/19/5 noted that significant advances in the science and innovations of data management and analysis create new opportunities for the development of indicators, including model-based approaches to reduce bias and the use of scenarios to develop projections. The REDD-PAC project, by generating spatially-explicit projections of future land-use change under a variety of scenarios of REDD+ implementation, provides an example of how modelling can be used to assess the potential impacts of REDD+ on biodiversity, with a view to informing the choice and location of REDD+ actions (see Box 4).

38.   Finally, with regard to planted forests in the context of the REDD+ activity 'enhancement of carbon stocks', a review of best practices to ensure that these efforts contribute to the conservation of biodiversity and ecosystem services was recently conducted [22]. The main recommendations from this review can be found in Annex V.

Box 3. Case Study: GCP Forest COMPASS' Initiative on the value of community-based forest monitoring

In Brazil, where Acre State is implementing REDD+ at the subnational level, people from communities in the Chico Mendes Extractive Reserve have access to information and local understanding of REDD+ related policies, which is one of the components of the Cancun safeguards. Another project, also in the State of Acre, supported by WWF, involves community management groups in monitoring the population dynamics of the Arapaima fish and the impact of Arapaima harvesting on other fish species and ecosystems. Arapaima (Arapaima gigas, known in Brazil as pirarucu) is an important fish for both economic and environmental reasons: it is commercially valuable across in the Amazon basin and plays a key role in ecosystem regulation.

Data from this monitoring initiative could feed into indicators on the sustainable use of biodiversity at the national or global level. It could also allow for the detection of trends in the population dynamics of the Arapaima which, analysed in combination with REDD+ data, could help determine whether REDD+ activities implemented in Acre are having positive or negative impacts on this key species for the local economy and the ecosystem as a whole. This could include links to indicators about traditional knowledge, for example the quality and quantity of natural resources and biodiversity that is used for traditional purposes such as cultural ceremonies.

More case studies can be found at: http://forestcompass.org/case-studies

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Box 4. REDD-PAC: Modelling Land Use Change in Brazil: 2000–2050 and in Central Africa: 2000-2030

The REDD-PAC project aims at modelling future land-use change under different scenarios, including scenarios of REDD+ implementation. The results of the model can help assess the impact that various options for REDD+ implementation might have on other policy objectives, including CBD objectives. The project was undertaken in two major forest regions: Brazil and the Congo Basin, based on regional adaptations of the global economic model GLOBIOM (developed by IIASA), which produces spatially explicit projections of land use based on the demand from different sectors (agriculture, forestry and bioenergy), trade flows and national policies. Using a methodology developed by UNEP-WCMC and based on IUCN species range data and other biodiversity-related spatial data, the results of the model

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[22] Thompson et al. (2014) Biodiversity and ecosystem services: lessons from nature to improve management of planted forests for REDD-plus, *Biodiversity and Conservation* September 2014, Volume 23, Issue 10, pp 2613-2635 , DOI 10.1007/s10531-014-0736-0

were processed to identify how species of concern in an area would be impacted based on future land use change patterns in different scenarios.

In Brazil, the analysis revealed that individual species are affected differently by land use change that is projected to result from various scenarios of implementation of Brazil's new Forest Code. Projections showed that out of 311 threatened species assessed, 20 species would lose over 25% of their potential habitat by 2050 in the business-as-usual scenario. Enforcing the Forest Code reduces this number to 6 species. The main areas under threat of conversion in scenarios of enforcement of the Forest Code are the dry forests of the Caatinga, projected to lose 11 Mha from 2010 to 2050, and some areas of the Cerrado, a woody savannah ecosystem. Scenario analysis thus provides not only an examination of the direct influence of a given policy on deforestation rates in the targeted biomes, and agricultural production, but also impacts on other biomes, thus allowing flexibility of policy to avoid eventual leakages across biomes and the consequent impacts on biodiversity.

In the Congo Basin, the management of Forest Concessions (FC) and Protected Areas (PA), as well as increasing agricultural yields, are potentially important options for achieving REDD+ objectives. There, the REDD-PAC project has assessed the potential impacts of changes in effectiveness of FCs and PAs, and of increases in agricultural yields, in preventing land use change. The results suggest that both PAs and FCs may play an important part in conserving forest cover and associated species habitat. Results indicate that increasing agricultural yields on existing croplands may also decrease the need for further deforestation and its impact on species, depending on how it is implemented.

Source: REDD-PAC project - http://www.redd-pac.org/new_page.php?contents=papers.csv

V. TOOLS AVAILABLE TO SUPPORT CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY THROUGH THE IMPLEMENTATION OF REDD+

39.   The linkages between, on the one hand, the global objectives of climate change mitigation and adaptation and, on the other hand, the global objectives of the conservation and sustainable use of biodiversity, are reflected at the national level by linkages between parties' NBSAPs and REDD+ Strategies. This potential for National Level Synergies was described in detail in the note prepared by the Executive Secretary, UNEP/CBD/COP/12/INF/15 of 25 September 2014.

40.   UNEP/CBD/SBSTTA/16/8 also procured general advice on the application of relevant REDD+ safeguards for biodiversity, and on possible indicators and potential mechanisms to assess impacts of REDD+ measures on biodiversity. Further, UNEP/CBD/SBSTTA/18/13 identified a number of procedural elements and tools and measures to support the application of REDD+ safeguards related to biodiversity, as well as elements which could support the implementation of social safeguards for indigenous and local communities. It also noted that the protected areas gap analyses under the Convention completed by over 20 developing countries, many of which are also planning to implement REDD+, can also provide useful underlying spatial data.

41.   Ensuring that the objectives of the CBD are supported by the implementation of REDD+ will require being able to assess this contribution or, conversely, any potential negative impacts that REDD+ could have on biodiversity. Being able to measure this contribution or impact will be essential to addressing and respecting Cancun Safeguard a) on complementarity and consistency with relevant international conventions and agreements and e) on consistency with the conservation of biological diversity, ecosystem services and other social and environmental benefits of forests. Information from such assessments at regular intervals could also form the basis of an adaptive management of REDD+ implementation that seeks to enhance this contribution to the objectives of the CBD and avoid or reduce any negative impacts on biodiversity. In view of a feasible and cost-effective assessment, Parties may wish to make use of existing indicator frameworks and processes, including those developed under the Convention on Biological Diversity and by Parties in their preparation for REDD-plus. Different examples are presented below.

Information from REDD-plus processes

42.   Several elements of the Warsaw Framework for REDD-plus may provide relevant information for an assessment of the contribution of REDD-plus to the objectives of the Convention on Biological Diversity. National strategies or action plans may contain information on the nature and location of REDD-plus actions which, combined with trends in biodiversity indicators, could help to detect positive or negative impacts of REDD-plus on national biodiversity objectives.[23]

43.   Data from national forest monitoring systems,[24] especially if spatially explicit and if it distinguishes from different forest types, may also be combined with spatially explicit biodiversity data to determine if reductions in forest cover loss and degradation and, an increase in forest restoration, are occurring in areas of importance for biodiversity at national or global scale. Further, data from Safeguards information systems and contained in Parties' Summaries of information on how safeguards are addressed and respected, especially in relation to Safeguards c), d) and e), may be relevant for such an assessment. UNFCCC guidance suggests that monitoring systems and safeguard information systems 'build upon existing systems, as appropriate'[25]. This may include systems to monitor progress on National Biodiversity Strategies and Action Plans (NBSAPs), or information from other forest-related processes.

Voluntary guidelines on national forest monitoring[26]

44.   To address forest monitoring needs, the Food and Agriculture Organization of the United Nations (FAO) has been supporting countries in the design and implementation of national forest inventories and information systems for many years. During the 21st session of the Committee on Forestry member countries recommended that FAO continue to support countries' efforts to strengthen national forest information systems. The Committee on Forestry requested FAO to "*work in close collaboration with member countries and relevant organizations to prepare a set of voluntary guidelines on national forest monitoring, which takes into account the requirements for REDD-plus reporting and is in line with the principles and goals of the Forest Instrument*"[27]. The aim of the voluntary guidelines is to compile good practice principles, guidelines and selected methodologies and tools, and to present a general framework and set of decision support tools for planning and implementing a multi-purpose national forest monitoring system.

45.   The voluntary guidelines are divided into three main sections, of which sections I and II include a background and fourteen principles[28]. Several of these principles relate to biodiversity and

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[23] Where trends in biodiversity indicators and presence of REDD+ actions overlap, further assessments will be needed to determine whether these trends are attributable to REDD+.

[24] In accordance with UNFCCC decision 11/CP.19, national forest monitoring systems, as referred to in Decision 1/CP.16 paragraph 71, should provide data and information that are transparent, consistent over time, suitable for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of REDD-plus activities, and build upon existing systems, while being flexible and allowing for improvement.

[25] UNFCCC Decision 11/CP.19; UNFCCC Decision 12/CP.17 FCCC/CP/2011/9/Add.2

[26] National forest monitoring is defined as a comprehensive process that includes the collection, analysis and dissemination of forest-related data and the derivation of information and knowledge at regular intervals to allow monitoring of changes over time, and which focuses on national level data and information on forests and trees outside forests, their condition, values and uses. The relevant, timely and reliable information obtained supports forest-related decision making at national and sub-national levels.

[27] FAO. 2012. Report of the Committee of Forestry. 21st Session: COFO 2012/REP paragraph 50, page 7. Rome, Italy. Available at: http://www.fao.org/docrep/meeting/026/me988e.pdf

[28] The 14 principles include: country ownership and responsibility; legal basis; national forest monitoring needs - a landscape view; national forest monitoring should be institutionalized; research infrastructure and capacity building should be taken in consideration; it needs to be a participatory discussion process among national stakeholders on the scope and objectives of forest monitoring; national forest monitoring must satisfy national level information needs; there should be integration of and consistency with existing information sources; a flexible approach in order to integrate emerging issues and allow for periodic revisions; national forest monitoring should follow a multi-purpose approach; the feasibility including cost-efficiency should be taken in consideration; it should include a well-defined data and information sharing policy; has credibility through transparency and quality; and promote collaboration at international level.

will require further consultation on possible observation and estimation techniques to ensure that features of relevance to the objectives of the CBD and to the Cancun Safeguards, such as "*forest biodiversity*" and "*naturalness of forests*" are treated as core data needs shared by several interested stakeholders.

46.   As national inventories are unlikely to be conducted at a periodicity that allows for a quick detection of the potential impacts of REDD-plus on biodiversity, they may aim to consider the combined use of remote sensing data sources that provide faster and more cost-effective wall-to-wall information on changes in forest cover.[29] In addition, given the multi-purpose focus of these monitoring systems it will be important to understand how information and knowledge generated by these systems will feed into and support the monitoring and assessment of national and international forest-related targets, like the Aichi Biodiversity Targets. This will require inter-sectoral communication and coordination, and may support the feasibility and cost-efficiency of national forest monitoring efforts. The latter is particularly important should the development of the monitoring system design succeed in integrating objectives from various forest policy agendas (climate, biodiversity, forestry), and in raising corresponding co-funding.

47.   Section III of the voluntary guidelines, which contains detailed guidance and technical recommendations for specific topics, is currently being finalized by FAO in collaboration with international experts. The potential for using the guidelines to assess the impacts and contributions of REDD-plus activities to forest biodiversity considerations will require further examination.

Global Forest Resources Assessment

48.   The Global Forest Resources Assessments of the Food and Agriculture Organization of the United Nations (FAO) are produced usually every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The assessments are based primarily on Country Reports prepared by National Correspondents. These data are often complemented by global remote sensing information and may be derived by countries themselves through remote sensing.

49.   Countries report information relevant to a number of variables called for in UNFCCC decision 11/CP.19 including *inter alia* forest-area changes and forest carbon stock. Countries also provide information on forest area within protected areas and forest area designated for the conservation of biodiversity. The voluntary guidelines mentioned above build on the experience and lessons learned of the Global Forest Resources Assessments.

50.   However, the information reported to FAO is nationally aggregated and does not differentiate forest areas targeted by REDD-plus actions from any other forest areas. Also the information related to biodiversity in the Forest Resources Assessments does not enable an assessment of how the biodiversity-related Cancun safeguards are being addressed and respected throughout the implementation of REDD-plus activities.

Regional criteria and indicator processes for sustainable forest management

51.   Criteria and indicators can be useful tools to define, assess and monitor periodic progress towards sustainable forest management in a given country or in a specified forest area, over a period of time. They measure and help monitor the status and changes of forests in quantitative, qualitative and descriptive terms that reflect forest values as seen by those who define each criterion.[30]

52.   Regional processes and guidelines[31] for sustainable forest management, such as the ITTO Process, Montreal Process, and Forest Europe, have established regional and/or coordinated national

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[29] Furthermore, while forest inventories might be sufficient for reporting on change in forest area and carbon stocks, the experience of Brazil shows that a remote-sensing based, high frequency monitoring of forest cover change can be a complementary tool for the implementation of REDD-plus actions related to the enforcement of forest legislation.

[30] FAO.2008. http://www.faco.org/forestry/ci@45047/en/

[31] A number of guidelines are available to assist Parties in applying sustainable forest management, such as the ITTO Guidelines for the Sustainable Management of Tropical Forests, and others developed by the ITTO Process, the Montreal Process and Forest Europe, which are three of nine regional criteria and indicator forest processes.

reporting mechanisms on the status and progress towards sustainable forest management, based on criteria and indicators. Since most national and forest management unit criteria and indicators sets include a number of quantifiable indicators relevant to forest carbon accounting (e.g. forest area and type, growing stock, age structure, annual removals, annual harvest, and forest carbon pools, storage and fluxes), these could provide a useful reference for assessing the forest elements of the Aichi Biodiversity Targets in the context of REDD-plus, especially in relation to activities for the sustainable management of forests.

53.   Submissions from Parties referred, in particular, to indicators developed under the Montreal Process, which may be relevant for assessing the contribution of REDD-plus activities to the objectives of the CBD. The advantages of coordinated regional efforts on criteria and indicators for forest monitoring were also underlined.

54.   Challenges, however, remain to fully ensure the sustainable management of forests, at the forest management unit and country level, and to measure impacts over time, rather than the process in itself, in order to ensure a comprehensive assessment of the contribution of this possible form of REDD-plus implementation to biodiversity conservation. Further details of existing indicator frameworks that could also help in assessing the contribution of REDD-plus to the objectives of the CBD are presented in an information note (UNEP/CBD/SBSTTA/20/INF/XX).

Forest certification schemes

55.   Forest certification is another instrument which can help countries and private companies to assess the maintenance and conservation of biological diversity within the scope of REDD-plus activities for the sustainable management of forests. As these schemes are exclusively concerned with the forest management unit level, they play an important role in setting operational standards to assess forest management against performance standards. Certification could act as an incentive to render forests into a state closer to their potential natural vegetation, for example by setting conditions for increasing the tree diversity and promoting mixed stands, improving the protection of threatened species and reducing chemical use in forest management.

56.   Certification schemes have expanded in the past years, in response to market demands for sustainably and legally harvested products. While trends show an expected rise toward certification in the future, its relevance to measure impacts and contributions of REDD-plus to biodiversity as a whole may be low, since most tropical forest management units and forests may remain uncertified due to the high costs associated with certification. The need for strong operational and management standards, as well as governance structures and systems to ensure that such standards are applied can be additional cost limitations.

Indicators for the Strategic Plan for Biodiversity 2011-2020

57.   Data collected for indicators proposed in UNEP/CBD/SBSTTA/20/13 may be relevant in so far as they can be disaggregated to produce national-level data. The updated list of indicators for the Strategic Plan for Biodiversity includes a consideration of whether these indicators lend themselves to downscaling, which could help countries determine their potential relevance for use at the national scale for both REDD-plus and biodiversity objectives.

58.   A description of how some of the indicators for the Strategic Plan for Biodiversity, once disaggregated at the national level, may (i) help determine the positive contributions or negative impacts of REDD-plus to biodiversity, (ii) contribute to REDD-plus safeguard information needs, and on the converse (iii) how information from a countries' REDD-plus process could potentially contribute data for a particular Aichi Biodiversity Target indicator, has been prepared by the Executive Secretary and can be found in an information note (UNEP/CBD/SBSTTA/20/INF/X#). This description is non-exhaustive and is meant to illustrate the potential connections between data collected through the REDD-plus processes and a countries' national biodiversity strategy and action plan (NBSAP).

59.   More generally, UNEP-WCMC and a wide range of partners, through the Biodiversity Indicators Partnership and the NBSAP Forum, provide support to a number of countries in developing nationally appropriate indicators to assess progress towards the Aichi Biodiversity Targets.[32]

Other indicators and monitoring processes

60.   Global Forest Watch (GFW) is an interactive online forest monitoring and alert system which uses a range of remote-sensing and other sources of spatial data to provide information about the status of forest landscapes worldwide, including near-real-time alerts showing suspected locations of recent tree cover loss. Global Forest Watch is free and accessible through a simple web interface where a number of forest-related spatial datasets can be consulted. Users can also create custom maps, analyze forest trends, subscribe to alerts, or download data for a given area or the entire world.

61.   A number of biodiversity-related layers can be overlaid on the forest loss and gain data, such as the location of protected areas, biodiversity hotspots, endemic bird areas, alliance for zero extinction sites and tiger conservation landscapes. In combination with information on the nature and location of REDD- plus actions, this tool could help conduct rapid assessments of how REDD-plus is contributing to slowing the loss of habitat in protected areas and areas of importance for biodiversity, or restoring forest cover in these areas. In particular, the role of remote-sensing data could complement national forest monitoring systems with a recurrent wall-to-wall assessment at high frequency of measurement at relatively lower costs. It could also allow for a quick detection of potential impacts, ensuring an adaptive management response to REDD+ actions.

62.   Parties may also refer to a number of freely available tools, such as the Guidelines for Free, Prior and Informed Consent developed by the World Wildlife Fund,[33] those developed by the UN-REDD Programme[34], the Sourcebook for Biodiversity Monitoring for REDD+[35] and the Multiple Benefits Toolbox[36] developed by the UNEP World Conservation Monitoring Centre (UNEP-WCMC), More generally, UNEP, through the Biodiversity Indicators Partnership and the NBSAP Forum, and in collaboration with a wide range of partners, provides support to a number of countries in developing nationally appropriate indicators to assess progress towards the Aichi Biodiversity Targets.[37] Guidance on Social and Biodiversity Assessment for REDD+ implementation at the project scale is also available and may provide relevant information for national-scale implementation.[38]

63.   The UN-REDD Programme has also developed a number of knowledge products and tools that countries can draw on when developing their approaches to REDD+ safeguards, including a generic country approach[39] that outlines the main steps that countries may wish to consider when deciding on how to meet the safeguards requirements of the UNFCCC. This generic country approach comprises three core elements: identification of relevant policies, laws and regulations (PLRs), definition of institutional arrangements and setting up of information systems and sources. The UN-REDD Programme's Benefits and Risks Tool (BeRT)[40] was developed to assist with the gap analysis of PLRs and sets out key questions for identifying relevant topics that may need to be covered by PLRs across the full scope of the Cancun safeguards. The Programme also issued a technical resource

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[32] see http://www.bipindicators.net/nationalindicatordevelopment

[33] http://awsassets.panda.org/downloads/fpic_working_paper_01_10_14_small.pdf.

[34] http://www.un-redd.org/Launch_of_FPIC_Guidlines/tabid/105976/

[35] See above note 20

[36] The Multiple Benefits Toolbox has been developed for REDD+ multiple benefits analyses and provides information on the spatial relationship between carbon and other ecosystem services. See http://www.unredd.net/index.php?option=com_content&view=article&id=2289&Itemid=802

[37] see http://www.bipindicators.net/nationalindicatordevelopment

[38] Pitman, N. (2011), *Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects* available at http://www.forest-trends.org/publication_details.php?publicationID=2998

[39] See Annex III of UN-REDD Programme Technical Resource Document No. 2 - *Country Approaches to REDD+ Safeguards: a Global Review of Initial Experiences and Emerging Lessons* http://bit.ly/1ZYhuZO

[40] http://www.un-redd.org/multiple_benefits/sepc_bert/tabid/991/default.aspx

document for the development of Safeguards information systems, [41] as well as a global review of country approaches to safeguards, with country written case study annexes.'[42]

64.   Finally, parties may also wish to consult CBD Technical Series 59: REDD-plus and Biodiversity[43], as well as CBD Technical Series 72: Earth Observation for Biodiversity Monitoring: A review of current approaches and future opportunities for tracking progress towards the Aichi Biodiversity Targets[44]

VI.   ROLE OF BIODIVERSITY INDICATORS TO MEASURE THE CONTRIBUTION OF REDD+ TO THE OBJECTIVES OF THE CBD

65.   Biodiversity-related information generated for the purposes of implementing and reporting to the CBD can help countries to demonstrate that steps are taken to ensure that the Cancun safeguards remain addressed and respected throughout REDD+ implementation, including in the initial stages of planning and prioritizing of REDD+ actions.

66.   Being able to demonstrate that safeguards are addressed and respected could help secure forward funding for REDD+ activities. However, the monitoring of biodiversity safeguards is not meant to be limited to a compliance exercise. The integration of biodiversity considerations at the planning stage has the potential to deliver significant and cost-effective benefits for biodiversity, while assessment work is essential for verifying that plans have been appropriately implemented, and to provide much needed new information for the refinement of future planning processes. Finally, the demonstration that REDD+ generates multiple environmental and social benefits beyond carbon could garner support for REDD+ implementation from national and local stakeholders. Respecting the Cancun safeguards on the rights, knowledge, and participation of Indigenous Peoples and Local Communities is also likely to ensure the long-term acceptability of national REDD+ programs.

67.   REDD+ is implemented at the national or sub-national scale, through the development of REDD+ Strategies or Action Plans that identify potential Policies and Measures that, when implemented would address the specific drivers of deforestation and forest degradation at play in a given national context. While the Strategic Plan on Biodiversity contains global targets, it is also implemented at the national level through Parties' NBSAPs. Determining the contribution or impact of REDD+ to the Strategic Plan is therefore a question that can be answered primarily at the national scale, through the assessment of the contribution or impact of nationally-specific REDD+ activities in the context of nationally-specific biodiversity objectives and priorities. Nevertheless, the question of whether national-scale assessments may be aggregated to provide relevant information at the global scale is also addressed at the end of this section.

1.   Application of biodiversity indicators and information in the planning and prioritization of REDD+ actions

68.   UNEP/CBD/COP/12/INF/15 highlighted the importance of joint planning under CBD and UNFCCC policy processes and provided a review of current guidance and national efforts. The main conclusions were that the way specific REDD+ actions are planned and implemented will determine the extent of synergies with CBD objectives, and that efficient communication and coordination is key between the individuals and organizations making decisions on planning and implementing REDD+ and NBSAPs, and related processes, at different levels.

69.   Depending on how they are implemented, actions undertaken primarily to pursue REDD+ objectives may contribute to CBD-related ones. For example, agroforestry, implemented to reduce pressure on forests by increasing agricultural productivity as well as tree cover in the agricultural

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[41] UN-REDD Programme Technical Resource Series 1 - *REDD+ Safeguards information systems Practical Design Considerations*, available at http://bit.ly/1KGkbNQ

[42] See above note 6 and 28

[43] https://www.cbd.int/doc/publications/cbd-ts-59-en.pdf

[44] https://www.cbd.int/doc/publications/cbd-ts-72-en.pdf

landscape, could assist with managing areas of agriculture sustainably, in a manner that conserves biodiversity (Aichi Biodiversity Target 7), contributes to reducing conversion of natural habitat (Aichi Biodiversity Target 5), and increases connectivity between natural and modified areas of forest (related to Aichi Biodiversity Target 11). In this example, biodiversity information such as the location of wildlife corridors in the agricultural landscape and the species that use these can be used to inform the support given to agroforestry in order to maximize the contribution that it makes to biodiversity objectives. Using this information, agroforestry actions undertaken for REDD+ can be planned to help restore connectivity in the landscape, with consideration of local wildlife in the choice of tree species. A list of example REDD+ actions and how they may be designed to contribute to Aichi Targets can be found in annex VI.

70.   Institutional communication and collaboration among national and subnational actors is likely to be a crucial step to enhance these synergies, through the development of agreements for collaboration and data-sharing, including with research institutions or non-governmental actors. Furthermore, ensuring that common methodologies are applied to activities such as the evaluation of ecosystem services or defining and mapping forests can ensure a common knowledge base for decision-making. For example, in implementing their NBSAPs and reporting to the CBD, parties may collect information on priority biodiversity areas and areas of high species richness. In setting up their FREL and NFMS for REDD+, parties may collect information on areas of high biomass carbon density under pressure from deforestation. Simple spatial analysis tools can be used to combine this information and highlight areas where reducing deforestation would also reduce the loss of important habitat. Prioritizing actions to address the drivers of deforestation in these areas would then increase the contribution of REDD+ to Aichi Target 5. Several examples of how spatial analysis can support the planning of a range of REDD+ actions in ways that support biodiversity objectives and the application of Cancun safeguards can be found on the UN-REDD Programme's Multiple Benefits Country Resources Hub[45], as well as in reports of the REDD-PAC Project.[46]

71.   Exchange of information between governmental actors in charge of REDD+ and CBD processes in particular is likely to be crucial to enhance synergies, promote coherence and reduce conflicts. This mutually supportive relationship could continue beyond planning and implementation, into the measurement of progress under these interconnected policy objectives.

2.   Application of biodiversity indicators to measure the contribution of REDD+ to CBD objectives at the national scale

72.   For the purpose of assessing how safeguards a), e), c) and d) are addressed and respected, data collection and analyses will likely be coordinated by the institutions in charge of REDD+, possibly with inputs from conservation agencies and/or site-level REDD+ project implementers. However, in some cases, conservation agencies in charge of the implementation of a Parties' NBSAP may be in a position to take the lead on compiling the necessary data inputs.

73.   The exchange of information could go both ways, from REDD+ institutions to institutions in charge of the implementation the NBSAP or vice-versa, as both processes are likely to generate information that could be used by the other. The pace of progress of each process at the national level is therefore likely to be what determines how relevant institutions under each process are able to support each other. In the interest of cost-effectiveness, parties may also wish to develop information systems that can serve multiple purposes under both policy objectives. Mexico's national biodiversity monitoring system, for example, contemplates the components of the Monitoring, Report, and Verification System that will be established as part of its National REDD+ Strategy (see Box 5).

74.   In some countries, national-scale, government-led REDD+ implementation may be complemented or rely on project or jurisdictional scale REDD+ initiatives. In many cases, REDD+ efforts at these smaller scales are already underway, and biodiversity-related information may exist

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[45] See the UN-REDD Programme's Multiple Benefits Country Resources hub
http://www.unredd.net/index.php?option=com_content&view=article&id=2328&Itemid=787
[46] http://www.redd-pac.org/new_page.php?contents=papers.csv

that could provide useful lessons learned and could be aggregated into the national REDD+ program and other biodiversity monitoring efforts.

75.   REDD+ Countries' SIS will likely be the main source of information used in the preparation of the Summary of information to the UNFCCC on how safeguards are addressed and respected. Although this is not a requirement, several SIS under development are structured around Principles, Criteria and Indicators. Alternatively, indicators could be used more simply to help organize and present quantitative or qualitative safeguards information in a transparent and consistent manner. Recalling UNFCCC guidance that SIS should 'build upon existing systems, as appropriate', practical SIS design considerations, offered by the UN-REDD Programme, note that safeguard indicators may be based on relevant pre-existing indicators associated with existing information systems and sources, in order to avoid additional costs".[47] The development of an SIS in Malaysia provides an example of the use of pre-existing indicators, as well as a potential example of the inclusion of indicators related to their NBSAP (see Box 6).

76.   In countries where indicators are used to track progress on the objectives of the NBSAP, the data collected under these indicators could provide crucial baseline information on the state of some of the elements with which safeguards are concerned, prior to the start of REDD+ implementation. This potential is however limited by the fact that current practice, as per the fifth National Reports, shows that few countries consistently make use of indicators.[48] REDD+-preparedness activities however typically involve assessments of the ecological, economic and social value of forests that may contribute to the knowledge base required for such baselines.[49]

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77.   Box 5 - Building a National Biodiversity Monitoring System in Mexico

78.   Mexico has developed a High Resolution System for Biodiversity Monitoring (SAR-MOD in its Spanish acronym). The SAR-MOD is a standardized, long-term monitoring method that intends to estimate ecosystem´s integrity, by measuring the structure, composition, and function of ecosystems in 33 Protected Areas and their buffer zones.

79.   Data obtained from SAR-MOD will be analyzed with complementary data from a Climate Information Platform which will monitor real time climatic variables in Protected Areas, as well as a platform for estimating changes in the extension of forests through remote sensing. This system contemplates the components of the Monitoring, Report, and Verification System that Mexico will put in place to operate the activities in its REDD+ Strategy. The initiative could therefore be a potential source of information to assess national progress towards elements of Aichi Biodiversity Targets 5,7,11 and 15, as well as on forest cover and associated emissions.

Source: Mexico's submission

Box 6. Common indicators for the SIS and measurement of progress of national biodiversity targets in Malaysia

In Malaysia, the approach to structuring information contained within the SIS is envisaged to have three main components: (1) narrative descriptions of the interpretation of each Cancun Safeguard in accordance with national circumstances; (2) progress against a framework of principles, criteria and indicators (PCIs), based on the existing Malaysian Timber Certification Scheme (MTCS), for subnational information on environmental and social safeguard processes and outcomes, coupled with national-level information on policy implementation; (3) feedback from the public to foster transparency and more reliable information.

Malaysia is also considering to incorporate the relevant Aichi Targets from the Strategic Plan for

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[47] UN-REDD Programme, above note 31

[48] UNEP/CBD/SBSTTA/19/5 - Some National Reports have referred to, and made use of, comprehensive sets of indicators, however most have used them in a less systematic way. Further, even those reports that have made extensive use of indicators often have gaps where certain targets or elements of targets do not have indicators

[49] In addition to the support provided by the UN-REDD Programme to assess the multiple benefits of REDD+, a number of countries have conducted assessments of the economic value of forests. See for example http://www.un-redd.org/Newsletter34/Kenya_Report_Economy/tabid/106735/Default.aspx

Biodiversity 2011–2020 into their safeguards information structure. Periodic reviews of the PCIs, engaging civil society and grassroots stakeholders, have already taken place. The PCIs of the existing SFM certification scheme are expected to be revised again in 2017 to be more REDD+-relevant.

Source: UN-REDD Technical Resource Series 1: REDD+ Safeguards information systems: Practical Design Considerations

80.   Where countries have yet to develop indicators under either process, data collected under indicators proposed on the basis of the work of the Ad hoc Technical Expert Group (AHTEG) on Indicators for the Strategic Plan for Biodiversity 2011-2020 (UNEP/CBD/SBSTTA/20/13) may be relevant in so far as they can be disaggregated to produce national-level data. The latest assessment of the updated list of indicators for the Strategic Plan on Biodiversity includes a consideration of whether such indicators lend themselves to downscaling, which could help Parties determine their potential relevance for use at the national scale for both REDD+ and CBD purposes. A list of how some of these indicators, once disaggregated at the national level, may (i) help determine the contribution or negative impacts of REDD+ to biodiversity, (ii) contribute to REDD+ information needs and, (iii) how information collected through REDD+ processes may contribute to the provision of relevant data for this indicator, can be found in Annex VII. This list is non-exhaustive and has been provided as a matter of illustration rather than for the negotiation of a definite subset of indicators.

81.   In line with the tiered approach discussed in Section III, a proposal could be to select a subset of biodiversity indicators that are most likely to be affected by the REDD+ activities implemented and, only in cases where significant trends in these indicators are noted, conduct further analysis to determine whether REDD+ could be responsible, using the national Forest Reference Level as a point of comparison of how this variable may have changed in the absence of REDD+ activities.

82.   National institutions in charge of REDD+ planning and implementation should therefore keep a detailed record of the set of REDD+ actions that are planned and implemented, where, how, and for what purpose. This would be key to ensure that the right information can be readily exchanged with national institutions in charge of implementing CBD objectives in cases where negative trends have been detected and further analysis is required to determine whether REDD+ implementation could be responsible.

83.   Since the use of indicators is not a requirement for an SIS, REDD+ countries could provide information on how they develop, address and respect their safeguards in other ways, such as narrative descriptions of how each of the safeguard is addressed and respected, based on studies or assessments of the country's relevant policies, laws and regulations and their implementation and enforcement.[50] In these cases, synergies could still exist with similar narrative forms of assessment of progress under a Parties' NBSAP.

84.   Finally, information from SIS and Summaries of information could also be analysed regularly by institutions in charge of implementing CBD objectives in collaboration with those in charge of REDD+ implementation, to assess how REDD+ activities might be affecting progress on NBSAPs and for continuous revisions of National Strategies and Action Plans to enhance its potential to ensure long term emission reductions from the forest sector. Information from this type of review would be of relevance to the monitoring of progress under the Strategic Plan on Biodiversity and could be included in Parties' 6th National Reports to the CBD.

3.   Application of biodiversity indicators to measure the contribution of REDD+ to CBD objectives at the global scale

85.   No single global or regional mechanism exists at present, or is likely to become available, that could comprehensively monitor and assess the contributions of REDD+ to achieving the objectives of the Convention on Biological Diversity. However, UNEP/CBD/SBSTTA/16/8 noted that certain

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[50] UN-REDD Programme, above note 31

mechanisms could provide useful information to achieving CBD objectives, including for example, the Global Forest Resources Assessment (FRA) of the FAO[51] and its remote sensing survey (2011)[52], as well as national reporting to the Rio conventions.

86.   In the absence of specific global indicators on the contribution of REDD+ to biodiversity, trends (positive or negative) in a subset of relevant global indicators for the monitoring of progress under the Strategic Plan on Biodiversity, such as those recommended by UNEP/CBD/SBSTTA/16/8[53], could warrant further analysis to determine if they are attributable to REDD+, subject to the availability of relevant datasets with global coverage.

87.   In its proposed list of indicators for the measurement of progress under the Strategic Plan on Biodiversity, the CBD AHTEG notes that datasets or mechanisms now exist that may provide global-scale information relevant for these indicators, such as the Global Forest Change dataset.[54] Whilst data from such sources can be easily computed to ascertain global trends in forest cover loss and gain, their application to measure aggregated REDD+ results is however limited by national variations in the methodology for calculating future reference levels of forest cover loss, variations in national definitions of forest, natural forest, and deforestation and degradation.

88.   The REDD+ Information Hub of the UNFCCC is to publish information on REDD+ results and associated results-based payments[55]. This information will be specific to each country's particular REDD+ context, however there is no indication that it will be aggregated. A collation of these results could provide relevant data under these global indicators for the contribution of REDD+ to the objectives of the CBD, in particular if the information is available in a spatially explicit form.

89.   With regard to information provided by Parties in their Summaries of information, there is currently no intention expressed by the UNFCCC secretariat to collate and analyze to detect any potential cumulative impacts that REDD+ may have. In time, such a review of Summaries of information, focusing on the effectiveness of Safeguards e), c) and d) could help provide insight into how REDD+ implementation may be affecting progress under the Strategic Plan on Biodiversity at the global level.

VII.   CONCLUSIONS

90.   The conservation and restoration of forest ecosystems is a critical element at the nexus of global objectives for the protection and sustainable use of biodiversity, as well as the mitigation of, and adaptation to, climate change. REDD+, if implemented in ways that address and respect the Cancun safeguards, could present an opportunity for biodiversity and synergies with the Strategic Plan.

91.   In the Paris Climate Change Agreement, REDD-plus was officially recognized as one of the ways in which Parties may contribute to limit the concentration of greenhouse gases in the atmosphere and to reach the objective of keeping global warming under 2 degrees Celsius and pursuing efforts to limit it to 1.5 degrees Celsius. Actions to conserve and enhance forests as sinks of greenhouse gases are noted in Article 5 of the Paris Agreement. Two more decisions pertaining to REDD-plus were adopted at COP21, relating to provisions of information on how the Cancun safeguards are being addressed and respected, and to the importance of non-carbon benefits that may result from the implementation of REDD-plus. Indicators or assessments related to biodiversity and ecosystem services are likely to be needed if Parties wish to measure the *"nature, scale and importance of the*

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[51] http://www.fao.org/3/a-au190e.pdf

[52] http://www.fao.org/forestry/fra/remotesensingsurvey/en/

[53] Those indicators are: trends in extent of primary forests and other forest types, including forests managed by local communities; trends in forest fragmentation; trends in areas of forests in protected areas; trends in abundance of key species; and trends in relevant processes, policies and plans that consider biodiversity and indigenous and local community concerns.

[54] Hansen, M. *et al.* 2013. High-Resolution Global Maps of 21st-Century Forest Cover Change. *Science* 342 (15 November): 850–53. Data available on-line from: http://earthenginepartners.appspot.com/science-2013-global-forest.

[55] UNFCCC Decision 9/CP.19

non-carbon benefits" that they are invited to share on the web platform of the UNFCCC and to communicate *"for consideration by interested Parties and relevant financing entities"*.

92.   Examples of how REDD+ can support the objectives of the Strategic Plan exist both at the planning and implementation stages of REDD+. Assessing the current contribution from REDD-plus to the objectives of the Convention on Biological Diversity is difficult given the few examples of large-scale REDD-plus implementation on the ground. However, the case of Brazil in reducing deforestation provides an example of a positive contribution towards the implementation of the objectives of the Convention on Biological Diversity.

93.   In addition to the potential direct contribution of REDD+ to the Strategic Plan, several elements of the Warsaw Framework which need to be in place in order to receive results-based payments, may contribute to the measurement of progress under Parties NBSAPs. Information on deforestation and degradation of forest ecosystems, as well as on restoration, reforestation and forest conservation actions, generated through the Forest Reference Level and NFMS, could overlap with indicators to measure progress against Targets 5, 7, 11 and 15 and be used in Parties' 6th national reports to the CBD. REDD+ related information may also cover actions that are intended to address the drivers of deforestation such as incentive measures, or land tenure reforms, some of which may be relevant to Parties' NBSAPs.

94.   Conversely, assessments and indicators developed to monitor progress under a Parties' NBSAP, in combination with other data on REDD+ actions and forest reference levels, could help provide information on how certain safeguards are addressed and respected, in particular safeguards a), e), c) and d). However, this capacity is currently constrained by the limited use of indicators by Parties to report progress on the implementation of the Strategic Plan on Biodiversity.

95.   Institutions in charge of implementing the CBD objectives could take advantage of this opportunity to mainstream biodiversity into forest and climate policies and strive to establish clearly how biodiversity objectives are translated in the national context through their NBSAP, across other relevant sectors, and how progress on these objectives will be measured.

96.   The SIS and Summaries of information could also be analyzed regularly by institutions in charge of implementing CBD objectives in collaboration with those in charge of REDD+ implementation, to assess how REDD+ activities might be impacting progress on NBSAPs and for continuous revisions of REDD+ Strategies and Action Plans to enhance synergies and reduce conflicts.

97.   The identification of specific indicators to assess the contribution of REDD+ to CBD objectives should take into account considerations of financial feasibility and availability and accessibility of data. Indicators and monitoring mechanisms should be developed without precluding or overburdening REDD+ activities and Parties. A tiered approach is recommended to help overcome these challenges of capacity and data availability, starting with simple analyses of globally available datasets, complemented where possible with national data and ground based data collection. A number of freely available tools described in this report are available to support Parties in using biodiversity information and indicators throughout their REDD+ process, from the planning of actions to the gathering of information on how safeguards are addressed and respected.

98.   Indigenous Peoples and local communities could be effective actors in assisting to monitor trends in biodiversity on the ground, offering a useful complement to remote sensing data and particular insight of relevance to the provision of information on how safeguards c) and d) are addressed and respected.

99.   In the interest of practicality and cost-efficiency, such indicators should be linked as closely as possible to existing requirements for monitoring and reporting under REDD+ and other international and national commitments. Indicators developed under a number of forest-related processes are particularly relevant for REDD+ activities for the sustainable management of forests.

100.   Specifically, to address forest monitoring needs, FAO has been requested to work in close collaboration with member countries and relevant organizations to prepare a set of voluntary

guidelines on national forest monitoring, which takes into account the requirements for REDD-plus reporting. Of the fourteen principles developed, there are several that address biodiversity issues. Given the multi-purpose focus of forest monitoring systems it is important to understand how the information and knowledge generated by forest monitoring systems will feed into and support the monitoring and assessment of national and international forest-related targets, including relevant Aichi Biodiversity Targets. The potential for these guidelines to assess the impacts and contributions of REDD-plus activities to forest biodiversity considerations will need further examination.

101.   Data from remote-sensing sources can usefully complement ground-based national forest inventories with a recurrent wall-to-wall assessment at high frequency of measurement, at relatively low costs. It could also allow for a quick detection of potential impacts, ensuring an adaptive management response to REDD+ actions. The experience of Brazil shows that a remote-sensing based, high frequency monitoring of forest cover change can be a crucial component for the implementation of REDD-plus actions related to the enforcement of forest legislation.

102.   Indicators developed by the CBD AHTEG for measuring progress under the Strategic Plan on Biodiversity that lend themselves to disaggregation at the national level may provide relevant data for assessing the state of some elements of Safeguard e), and elicit further analyses to determine whether any trends detected are due to REDD+.

103.   Whilst existing biodiversity indicators and monitoring processes may prove useful in detecting trends, whether positive or negative, in some of the elements on which REDD+ may have an impact, they will not establish a causality between this trend and REDD+ activities. Further research is needed in this area, which could build on reviews of Summaries of information on how safeguards are being addressed and respected. Summaries are provided on the REDD+ Information Hub.

104.   Gathering information prior to the start of REDD+ activities, and information on what REDD+ actions are implemented, will be crucial to ensure that baseline information is available to determine trends in biodiversity indicators that could warrant further analysis to determine if REDD+ may be responsible.

105.   Other possibilities for assessing impacts and contributions include the use of models to generate spatially-explicit projections of future land-use change under a variety of scenarios of REDD-plus implementation. The results from model projections realized in Brazil and the Congo Basin help to identify how ecosystems and species of concern in a specific area would be impacted based on future land use change patterns based on different scenarios.

106.   Integrating biodiversity considerations into REDD-plus planning and monitoring systems has the potential to deliver significant benefits including cost-effectiveness. Moreover, monitoring and assessing impacts on biodiversity could help the REDD-plus planning process to integrate emerging issues, as they may occur, ensuring an adaptive management approach.

107.   Finally, the demonstration that REDD-plus can generate multiple environmental and social benefits beyond carbon could garner broader support for REDD-plus processes and raise corresponding co-funding. Respecting the Cancun safeguards on the rights, knowledge, and participation of Indigenous Peoples and Local Communities is also likely to ensure the long-term acceptability of national REDD-plus programmes.

108.   Further capacity-building and support for all phases of REDD-plus, through guidelines and initiatives such as those developed by FAO, the UN-REDD Programme, UNEP-WCMC, FCPF, GEF, SCBD, as well as by existing regional criteria and indicator processes, and other relevant organizations, are required to continue to promote country efforts to integrate biodiversity considerations into national REDD-plus strategies or action plans, national forest monitoring systems, as well as Safeguards information systems.

VIII.   ANNEXES

1.   *Linkages between the Aichi Biodiversity Targets and REDD+ activities, guidance and safeguards*

X indicates the clearest and most straightforward links

p represents where there are potential overlaps, but they will depend on the methods of implementation

		Reducing deforestation and forest degradation	Sustainable management of forests	Conservation of forest carbon stocks	Enhancement of forest carbon stocks (including afforestation and restoration)
Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	**Target 2** By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	p	p	p	p
Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use	**Target 5** By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	**X**	p	p	
	Target 7 By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.		**X**		
	Target 9 By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	p	p		p
Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	**Target 11** By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	p	p	**X**	p
	Target 12 By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	p	p	p	p
Strategic Goal D: Enhance the benefits to all from biodiversity and	**Target 14** By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the	p	p	p	p

ecosystem services	needs of women, indigenous and local communities, and the poor and vulnerable.				
	Target 15 By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	p		X	X
Strategic Goal: Enhance implementation through participatory planning, knowledge management and capacity-building	**Target 18:** By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	X	X	X	X

2. *Existing indicator frameworks that could support the development of indicators to measure the contribution of REDD+ to the objectives of the CBD*

Forest processes

- Montreal Process[56]
  - o Each of the seven Montreal Process criteria is characterized by a set of quantitative and qualitative indicators[57]. When combined, the Montreal Process provide a common framework for member countries to describe, monitor, assess, and report on national forest trends and progress toward sustainable forest management.
  - o One such criterion is Conservation of Biological Diversity, providing relevant indicators that could be utilized in selection of indicators for an assessment of REDD+ impacts on biodiversity such as "Area and percent of forest by forest ecosystem type, successional stage, age class, and forest ownership or tenure" (1.1.a), "Fragmentation of forests" (1.1.c) or "Number of native forest-associated species" (1.2.a).
  - o The criterion "Conservation and maintenance of soil and water resources" may also be relevant, with indicators such as "Area or percent of forest with significant soil degradation" (Montreal Process 4.2b).
- ITTO Criteria and Indicators (C&I) for the Sustainable Management of Forests including reporting format.[58]
  - o The Revised ITTO Criteria and Indicators Criterion 5 focuses on biodiversity and provides various indicators that measure ecosystem diversity, species diversity, genetic diversity and procedures for biodiversity and conservation in production forests- all of which can be relevant indicators for an assessment of REDD+ impacts on biodiversity.
- Forest Europe
  - o The Forest Europe Sustainable Forest Management (SFM) criteria describe aspects critical to sustainable forest management in Europe that can be evaluated through a set of quantitative indicators.
  - o One of the six Pan-European criteria is C4, the maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems.
- Joint statement by the Montreal Process, International Tropical Timber Organization (ITTO), Forest Europe (FE) and UN Food and Agriculture Organization[59]. This joint statement asserts that a mix of relevant indicators derived from the Montreal Process, ITTO and FE can be used to assess the performance of REDD+ in contributing to the objectives of the CBD. Sample indicators presented in relation REDD+ Safeguard e) to maintain and enhance biodiversity and ecosystem services include:
  - o Area and percent of forest whose designation or land management focus is the protection of soil and water resources
  - o Extent and percentage of total forest area managed exclusively for the protection of soil and water
  - o Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions

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[56]'Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests' Report available at: http://www.montrealprocess.org/documents/publications/techreports/2009p_2.pdf

[57]'Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests' Report Available at: http://www.montrealprocess.org/documents/publications/techreports/2009p_2.pdf

[58] 'Revised ITTO criteria and indicators for sustainable management of tropical forests including reporting format' Available at: http://www.itto.int/policypapers_guidelines/

[59] 'Working together to get forest measurement right: a solution for REDD+' Available at: http://www.itto.int/technical_report/

Other frameworks:

REDD+ Social and Environmental Standards (REDD+ SES)

- REDD+ SES is an initiative designed to support effective implementation and credible reporting on social and environmental performance of government-led REDD+ programs and related low-emissions land use.
- The REDD+ SES biodiversity section includes the following (each with a respective set of indicators): Biodiversity potentially affected by REDD+ activities identified; net positive biodiversity impacts; offsite biodiversity impacts; transparent biodiversity impact monitoring; and continued adaptation of REDD+ programs.

Additional indicator frameworks are outlined in CBD/SBSTTA/16/8, based on previous submissions by parties and relevant organizations (UNEP/CBD/SBSTTA/16/INF/19), results from workshops, and a former consultancy report (UNEP/CBD/SBSTTA/16/INF/21).

3.   *Possible indicators to specifically assess the contribution of REDD+ to achieve the objectives of the Convention on Biological Diversity*

UNEP's Submission

- Data on changes in overall forest area and/or condition, both in absolute terms and against business-as-usual without REDD+ (from carbon MRV and REL), in combination with data collected for national biodiversity indicators such as:
  - changes in area covered by forest and non-forest ecosystem types,
  - trends in the conservation status and populations of threatened forest-dependent species and species depending on non-forest ecosystems,

  Or in combination with data collected in a National Forest Monitoring System, such as:
  - trends in tree species diversity,
  - trends in the distribution of different forest types,
  - trends in the abundance of species providing non-timber forest products.

  Example of a possible indicator description: Correlation between change in forest area / condition as a result of REDD+ as reported to UNFCCC, and trends in the status of threatened forest-dependent species

- Data on the overall area that specific types of REDD+ policies and measures apply to (from government records or REDD+ project registries where available), in combination with information on how safeguards related to biodiversity are implemented in the country (from SIS)

  Examples of possible indicator description: Area covered by forest restoration projects that will apply environmental safeguards. Area where forest certification has been supported by REDD+, using certification standards that comply with environmental safeguards.

- Data on changes in the spatial distribution of forest area and/or condition, both in absolute terms and against business-as-usual without REDD+ (from carbon MRV and REL, where such information is provided in spatially explicit form), in combination with data on priority areas for biodiversity in forest and non-forest ecosystems

  Example of a possible indicator description: Net forest area retained or restored in priority areas for forest biodiversity as a result of REDD+.

- Data on (non-)conversion of natural forest in areas where REDD+ activities are implemented, both in absolute terms and against business-as-usual without REDD+ (data on conversion from SIS, if such data is included there, and data on business-as-usual from carbon MRV and REL, if such information is provided in spatially explicit form)

Example of a possible indicator description: Net area of natural forest protected as a result of REDD+.

- Data on trends in biodiversity or habitat quality that can be collected at site level in areas where project-based REDD+ activities are implemented, as part of or in synergy with information collection for forest management or carbon measuring purposes (availability of such data may depend on national requirements for project implementation)
Example of a possible indicator description: Percentage of the area where site-level REDD+ activities are implemented from which positive trends in biodiversity are reported.

WWF's submission

23 landscape indicators and metrics to monitor biodiversity under REDD+ are proposed with associated metrics, organized into 4 broad categories. Please visit http://bit.ly/ProposedIndicators to see the full list. "Objective" refers to the landscape pattern or process and desired direction of change; "Landscape Pattern or Process (1)" is a short-hand description of the "Objective"; "Landscape Pattern or Process (2)" is a subcategory of the primary Landscape Pattern or Process; "Indicator" is an attribute that when measured periodically, indicates a trend in the Landscape Pattern or Process; "Justification" is the reason for including the indicator; "Metric or Method" describes a method of measurement of the indicator; "Metric details" describes more about how the metric is calculated; an "Alternate/Additional Metric(s)" may also be proposed to represent roughly the same landscape component; "Data Required" is a general description of the type of data necessary to produce the metric; "Decision Rules" are decisions that scientists may be confronted with when building the indicator; "Options/Preprocessing" describes technical steps necessary to prepare data; "Good response" and "Bad response" columns provide guidance on what a good or bad (for biodiversity) indicator trend may look like; the "Indicator Type" refers to whether it is a state, pressure, or response variable; and "References" provide justification, counterevidence and/or information on how the indicator should be interpreted.

4. *Existing projects and processes that can provide information relevant to the contribution, and impact, of REDD+ activities to biodiversity.*

Relevant projects and processes include:

- The Land Degradation Assessment in Drylands project (LADA), supported by FAO, UNEP and GEF;
- The PROMEBIO (Programa Estratégio Regional de Monitoreo y Evaluación de la Biodiversidad) regional monitoring in Central America, and the Central African Forest Observatory[60];
- Information on meeting the indicators under the principles and criteria of the Roundtable on Sustainable Palm Oil;
- The BioTrade Impact Assessment System (BT IAS) of UNCTAD under its Bio Trade Initiative;
- Key national, regional and global biodiversity datasets, including those under the Biodiversity Indicators Partnership, IUCN Red Lists, Living Planet Index (LPI), Wildlife Picture Index (WPI) ;
- Map of Life (MOL);
- The Google Earth Engine[61];
- The Group on Earth Observations and its Biodiversity Observation Network
- The Global Forest Observation Initiative;
- Intact Forest Landscapes[62];

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[60] Listed here as examples of regional forest monitoring efforts, see http://observatoire-comifac.net/?l=en

[61] Several forest-related maps are available at http://earthengine.google.org/

- High Conservation Values assessments[63]
- WRI- Global Forest Watch
- The Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD),and
- The Global Land Cover Facility (GLCF).
- WRI-GFW and forest biodiversity index

5. ***Examples of practices to use in plantations and planted forests that will enhance the ecosystem services and for planted forest results in increased carbon storage)[64]***

Ecosystem service	Fastwood exotic	Semi-natural planted or assisted natural
Production	Increase species mix; encourage understory	Improve soils using multi-species; plant close to natural forest; use reduced impact logging
Pest control	Plant close to natural forest; enhance landscape connectivity	Plan to maintain predator habitat; allow dead wood to stand; avoid congener proximity
Nutrient cycling and decomposition	Leave residual deadwood and encourage litter accumulation	Leave residual deadwood and encourage litter accumulation; inoculate soils as required; plant near natural forest
Seed dispersal	N/A	Plant close to natural forest; consider habitat availability for seed dispersing species
Pollination	N/A	Plant close to natural forest; foster habitats for local pollinators
Water quality and quantity	Reduce use of species with high water demand; reduce spacing; leave and accumulate litter and branches; use mixed species; use 2 or 3 pass harvesting	Use selection harvesting and reduced impact logging; increase litter quality; avoid riparian zones
Resilience	N/A	Base harvesting plan on natural ecosystem dynamics; improve habitats for top predators; plan for stand and landscape heterogeneity; understand and avoid thresholds

N/A not applicable: plantations are planted and so require no seed dispersal or pollination, and as they are logged and replanted, they have no resilience

6. ***Types of REDD+ actions and how they may be designed to contribute to CBD objectives***

Types of actions	Contribution to achieving REDD+ objectives	Contribution to achieving NBSAP objectives
Improving agricultural practices		
Sustainable agricultural intensification	Demand for agricultural products can be met on a smaller area of land, thus reducing pressure for conversion of forests, and potentially decreasing a driver of land-use change.	Can serve as a strategy for managing areas of agriculture sustainably in a manner which conserves biodiversity (in line with Aichi Biodiversity Target 7) and could reduce conversion of natural habitat (Aichi Biodiversity Target 5); however, intensive farming often

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[62] http://www.intactforests.org/

[63] https://www.hcvnetwork.org/

[64] Thompson et al. (2014) Biodiversity and ecosystem services: lessons from nature to improve management of planted forests for REDD-plus, Biodiversity and Conservation September 2014, Volume 23, Issue 10, pp 2613-2635
, DOI 10.1007/s10531-014-0736-0

Types of actions	Contribution to achieving REDD+ objectives	Contribution to achieving NBSAP objectives
		requires more irrigation, fertilizers and pesticides, which can have negative impacts on biodiversity and ecosystems downstream.
Agroforestry	Could reduce pressure on forests by increasing agricultural productivity as well as tree cover in the agricultural landscape.	Could assist with managing areas of agriculture sustainably, in a manner which conserves biodiversity (Aichi Biodiversity Target 7), reducing conversion of natural habitat (Aichi Biodiversity Target 5), and creating connectivity between natural and modified areas of forest (related to Aichi Biodiversity Target 11).
Protection measures		
Creating or expanding protected areas with strict levels of protection (IUCN categories I-IV)	Creating or expanding forest areas which strongly limit human activity may help to protect and maintain biomass carbon stocks; however, adequate measures should be in place to ensure that deforestation pressure is not displaced to other forest areas, or non-forest areas that are of biodiversity importance.	Strictly protected areas play an important role in the conservation of biodiversity, in line with Aichi Biodiversity Target 11 (protected areas increased and improved) and creating connectivity between natural and modified areas of forest (related to Aichi Biodiversity Target 11). Expanding protected areas also links with Aichi Biodiversity Target 15.
Reducing impacts of extractive use		
Reduced impact logging	Reduced impact logging techniques, such as reducing harvest intensity, careful management of access and removal routes and well-planned directional felling can reduce carbon emissions from logging.	Selectively logged forests provide habitats for forest species, and in many cases are able to retain biodiversity even after severe and repeated logging. Ultimately, how the forest is managed under reduced impact logging will determine biodiversity impacts. Reduced impact logging has the potential to contribute to Aichi Biodiversity Target 7 (sustainable agriculture, aquaculture and forestry), and is also in line with Target 12 (extinction prevention).
Restoration / reforestation / afforestation		
Assisted natural regeneration	Tree and seed planting can assist with expanding and re-establishing forest cover in deforested or degraded forest areas, enhancing carbon stocks.	Natural regeneration can be an important contribution to achieving Aichi Biodiversity Target 15 (and support more biodiversity than in areas reforested with non-native species).
Afforestation / reforestation for wood & fibre production	Can potentially increase carbon stocks. Providing alternative wood and fibre supplies can reduce pressure for deforestation in other areas.	Afforestation might be a risk for biodiversity in the case of planting monocultures, particularly if the previously non-forested area was important for biodiversity. Providing alternative wood and fibre supplies can reduce the pressure on natural forests and contribute to Aichi Biodiversity Target 5.

Types of actions	Contribution to achieving REDD+ objectives	Contribution to achieving NBSAP objectives
Landscape-level planning		
Identifying species and areas that need effective protection urgently	Could reduce deforestation in critical areas and ensure the maintenance of remaining carbon stocks and conservation of the ecosystem services provided by these areas.	Conservation of targeted species at the landscape level can lead to reducing conversion to natural habitat (Aichi Biodiversity Target 5), expanding protected areas (Target 11) and reducing extinction (Target 12).

7. *Indicative list proposed by the AHTEG, of selected relevant indicators to monitor progress on the Strategic Plan for Biodiversity, with a description of cases where (i) they may help determine the contribution or negative impacts of REDD+ to biodiversity, (ii) they may contribute to REDD+ information needs and, (iii) Information collected through REDD+ processes may contribute to the provision of relevant data for this indicator*

NB: These indicators were developed for monitoring progress on the Strategic Plan at the global level, but some of them lend themselves to disaggregation at the national level. This annex only discusses selected indicators that can be used at the national scale and present linkages with REDD+.

Aichi Biodiversity Target	Generic Indicator	Specific Indicator	Suggested Source	(i) Indicator can help determine the contribution or negative impacts of REDD+ to biodiversity (ii) Data collected to inform this indicator may be useful for REDD+ information needs *(iii) Information collected through REDD+ processes may contribute to the provision of relevant data for this indicator*
Target 5 - By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	Trends in extent of forest	Trends in forest extent (tree cover)	Global Forest Change dataset	<u>Where countries may not have a REDD+-specific National Forest Monitoring System and Reference Level in place yet the Global Forest Change dataset proposed for this indicator could provide useful information for a rapid assessment of current forest cover and historical rates of deforestation. This global indicator can be easily disaggregated at the national scale, however it should be noted that the setting up of a national reference level and NFMS usually involves the comparison of several sources of data (remotely sensed and ground-based) and decisions on a number of critical elements such as the definition of forest and the methodology for the calculation of the reference level.</u> *Conversely, information contained in REDD+ countries' Forest Reference Levels and National Forest Monitoring Systems on forest cover loss could be aggregated to provide information of relevance for this indicator. The aggregation of such data at the global level might present issues of comparability due to national differences in baseline period for the establishment of the reference level and national definitions of forest, deforestation and degradation, notwithstanding the fact that the information will be available only for countries where REDD+ is implemented. Nevertheless, parties are encouraged to use such information as generated through REDD+ processes, to report on progress under Target 5 in their 6th national reports to the CBD.* The difference between the Reference Level projection and the forest loss or degradation measured through the NFMS, in combination with information on areas of natural forests, provides a first assessment of the contribution of REDD+ to Target 5. Further analysis may be required to account for background trends in the drivers of deforestation and degradation and ascertain the attribution of a reduction in the rate of loss of forest natural habitats to the REDD+ activities implemented.

Aichi Biodiversity Target	Generic Indicator	Specific Indicator	Suggested Source	(i) Indicator can help determine the contribution or negative impacts of REDD+ to biodiversity (ii) Data collected to inform this indicator may be useful for REDD+ information needs *(iii) Information collected through REDD+ processes may contribute to the provision of relevant data for this indicator*
	Trends in extinction risk and populations of habitat specialist species in each major habitat type	Red List index (forest specialists)	IUCN & BirdLife International	REDD+ may reduce the extent of forest cover loss and forest degradation, thereby reducing the loss and degradation of habitat of forest specialist species. However, in cases where the provisions of safeguard e) are not addressed and respected, the conversion of natural forests to plantations could cause a loss of habitats for these species. Trends detected in the extinction risk and populations of forest specialists from the Red List Index could be an indication that REDD+ is having an impact, positive or negative, on this component of biodiversity. In order to determine if that impact is attributable to the REDD+ activities implemented, spatially explicit information on species ranges of forest specialists could be combined with data on changes in the spatial distribution of forest area and/or condition, both in absolute terms and against business-as-usual without REDD+ (from carbon MRV and REL, where such information is provided in spatially explicit form), to analyse whether areas of forest loss and/or degradation avoided, or areas of natural forest conversion, coincide with areas of potential occurrence of species. Ideally, the results of this analysis would feed back into the forward planning of REDD+ activities, thereby demonstrating how Safeguard e) is addressed. Such analysis can also be conducted at the planning stage prior to the start of REDD+ implementation in order to prevent any negative impacts and enhance the potential contribution of REDD+ to the reduction of the loss of natural habitats. A number of REDD+ countries have conducted such assessments with support from the UN-REDD Programme, applying a range of GIS analysis on spatially explicit data from the Red List of Species (link). This type of data can also be used in model-based approaches that develop projections of the potential impact of various scenarios, including scenarios of REDD+ implementation (see Box 6 and www.redd-pac.org).

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Target 7 - By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Trends in extinction risk and populations of agro-ecosystem associated species	Wild Bird Index for farmland birds / Living Planet Index (farmland specialists)	BirdLife International /EBCCC	Many countries intending to implement REDD+ have made agricultural intensification a cornerstone of their REDD+ strategies/Action plans. Whilst agricultural intensification may, in certain conditions, reduce the need for agricultural expansion and therefore forest conversion, the transition from traditional, low-intensity agricultural practices to more intense systems may cause a reduction in the extent of traditional and semi-natural agro-ecosystems that support certain species. Trends in a disaggregation of this indicator at the national scale, where they are detected, should elicit further analysis in combination with the type and location of REDD+ activities, to determine if they may be attributable to REDD+.
	Trends in proportion of area of forest production under sustainable practices	Proportion of area of forest production under FSC and PEFC certification	FSC/ PEFC	One of the five REDD+ activities is the sustainable management forest. As a result, some REDD+ countries may choose to incentivize sustainable practices in production forests as part of their National REDD+ Strategy/Action Plan. *Such actions would likely involve the collection of data on the area of production forest under such practices, which may contribute to the assessment of progress under Target 7 and could be used for reporting on progress under this target in these countries' 6th national reports to the CBD.* Conversely, information collected through this indicator and disaggregated at the national scale on the proportion of area of forest production under specific sustainable practices required for FSC and PEFC certification could be used for the establishment of Forest Reference Levels and Forest Reference Emission Levels, as well as for the planning of REDD+ activities for the sustainable management of forests.

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Target 8 - By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity	Trends in nutrient levels	Trends in global surplus of nitrogen	PBL	Many countries intending to implement REDD+ have made agricultural intensification a cornerstone of their REDD+ strategies/Action plans. Whilst agricultural intensification may, in certain conditions, reduce the need for agricultural expansion and therefore forest conversion, the transition from traditional, low-intensity agricultural practices to more intense practices, including through the use of fertilizers, may cause pollution from excess nutrients. Trends in the surplus of nitrogen disaggregated at the national scale, where they are detected, should elicit further analysis in combination with the type and location of REDD+ activities, to determine if they may be attributable to REDD+.
Target 11 - By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	Trends in area of terrestrial and inland water areas conserved	Percentage of terrestrial and inland water areas covered by protected areas	WDPA	The percentage of terrestrial areas covered by protected areas in REDD+ countries may increase if one of the policies they implement for the reduction of deforestation, forest degradation and the conservation of carbon stocks is the creation of new protected areas or extension of existing ones. Information on where such REDD+ actions are planned and implemented is necessary in order to determine the contribution that REDD+ is making to a positive trend in this indicator. Information from the country's Forest Reference Level may also help ascertain that the contribution of REDD+ is additional to previously existing policies.
	Trends in areas of particular importance for biodiversity conserved	Protected area coverage of Key Biodiversity Areas (including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites)	BirdLife International /IUCN /AZE	Information on key biodiversity areas and areas of importance for biodiversity collected for the purpose of informing these indicators and disaggregated at the national scale can be combined with data on changes in the spatial distribution of forest area and/or condition, both in absolute terms and against business-as-usual without REDD+ (from carbon MRV and REL, where such information is provided in spatially explicit form). This would provide an indication of the contribution of REDD+ to biodiversity through the net forest area retained or restored in priority areas for forest biodiversity as a result of REDD+. Ideally, the results of this analysis would feed back into the forward planning of REDD+ activities, thereby demonstrating how Safeguard e) is addressed. Such analysis can also be conducted at the planning stage prior to the start of REDD+ implementation in order to prevent any negative impacts and enhance the potential contribution of REDD+ to the reduction of the loss areas of particular importance to biodiversity. A number of REDD+ countries have conducted such assessments with support from the UN-REDD Programme, applying a range of GIS analysis on spatially explicit data on protected areas, KBAs and areas of biodiversity importance (link). Such data has also be used in model-based approaches that develop projections of the potential impact of

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		Protected Area Overlays with Biodiversity	UNEP-WCMC/ BirdLife International /IUCN /AZE	various scenarios, including scenarios of REDD+ implementation (see Box 6 and www.redd-pac.org).
Target 12: By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	Trends in extinction risk and populations of species	Red List Index (proposed indicator for SDG target 15.5)	IUCN/ BirdLife International	A similar analysis to the one proposed above for forest specialist species could be conducted for Red List species for which a change (positive or negative) in their conservation status as per the Red List categories has been detected at the national scale, in order to determine if it may be attributable to REDD+. This analysis should not be limited to forest specialist species that have experienced a change in their Red List conservation status, but also extend to non-forest species who may be negatively impacted as a result of a displacement of pressures from forest to non-forest ecosystems. Here again, such analysis should ideally feedback in to the forward planning of REDD+ actions and may inform initial planning through spatial analysis and modelling of scenarios of REDD+ implementation. For an example of such analysis, including on the potential negative impacts of displacement of pressures into non-forest ecosystems, see the analysis presented in Box 6 as part of the REDD-PAC project in Brazil.

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Target 14 - By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	Trends in safeguarded ecosystems that provide essential services	Wetland extent	UNEP-WCMC	REDD+ implementation may cause the displacement of pressures once exerted on forest ecosystems into other ecosystems. Negative trends in the extent of wetlands, with the exclusion of forest wetland areas, could help detect such impacts. REDD+ implementation may also contribute to observed positive trends in the extent of forest wetland areas. Further analysis would be required to determine if these trends are attributable to REDD+ activities, drawing on data on changes in the spatial distribution of forest area and/or condition, both in absolute terms and against business-as-usual without REDD+ (from carbon MRV and REL, where such information is provided in spatially explicit form), to analyse whether areas of forest loss and/or degradation avoided coincide with wetland areas. Further analyses of whether the drivers of forest loss and or degradation have been addressed or may have merely displaced to non-forest areas would be required to establish a negative impact of REDD+ activities on wetlands or other non-forest ecosystems. Such analyses would be useful for the provision of information under Safeguard f).
	Trends in extinction risk and populations of species that provide essential services	Living Planet Index (utilized species)	WWF/ZSL	Trends observed in a subset of the living planet index focusing on the status of utilized species may elicit further analyses to determine if REDD+ implementation may be responsible. A breakdown of the index between forest specialist utilized species and other utilized species will be helpful to detect whether REDD+ may be causing a reduction in the loss of forest habitats that support such species, a conversion of natural forest that support such species, or a conversion of non-forest habitats that support such species, as a result of the displacement of pressures.
Target 15 - By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including	Trends in carbon stocks within ecosystems	Trends in forest carbon stocks	FAO/GFW	*The establishment of Forest Reference Levels and Forest Reference Emission Levels will require the collection and analysis of data on forest carbon stocks, emissions and absorptions that could help establish a baseline for the measurement of progress under this target prior to 2011. The further Measurement, Reporting and Verification of forest carbon stocks, emissions and absorptions in order to obtain results-based payments could help monitoring trends in progress towards this target. Countries that have already produced this information as part of their REDD+ process are encouraged to use it to report on Target 15 in their 6th national reports to the CBD.*

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restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.		Trends in carbon sequestration rate or avoided emissions	*N/A*	The difference between the Forest Reference Emission Level projection and the forest emissions measured through the NFMS provides a first assessment of the contribution of REDD+ to Target 15. Further analysis may be required to account for background trends in the drivers of deforestation and degradation and ascertain the attribution of observed trends in forest carbon stocks to the REDD+ activities implemented.
Target 18 - By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels	Trends in land-use change and land tenure in the traditional territories of indigenous and local communities	a) Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population), by sex; and (b) Share of women among owners or rights-bearers of agricultural land", by type of tenure (proposed indicator for SDG target 5.a)	*N/A*	*REDD+ implementation could affect the rights of indigenous peoples and/or local communities to access resources or use land in forest areas (regardless of whether Indigenous Peoples possess the legal titles to such areas). It may affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources. Both outcomes would represent a failure to address and respect Cancun Safeguard c).* *The establishment of Forest Reference levels and the planning of REDD+ activities as part of a REDD+ National Strategy/Action Plan may involve the collection of data on land tenure and trends in land-use change, including in the traditional territories of indigenous and local communities. REDD+ countries' Safeguards information systems Information are likely to collect data on the trends in tenure security, including in the traditional territories of indigenous and local communities, in order to provide information on how safeguard c) is addressed and respected. Countries that have already produced this information as part of their REDD+ process are encouraged to use it to report on Target 18 in their 6th national reports to the CBD.*

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