IPBES Global Assessment – Implications for development of a new strategic plan on biodiversity and revised targets[1]

This background document presents an extract of information from IPBES Global assessment report on biodiversity and ecosystem services, in particular, from chapter 3 on assessing progress towards meeting major international objectives related to nature and nature's contributions to people. The present document has been developed as a background document for participants at the ninth Trondheim Conference on Biodiversity, and it is for information only.

The Strategic Plan on Biodiversity 2011-2020, adopted under the Convention on Biological Diversity (CBD), proposed ambitious biodiversity-related targets to be achieved by 2020 (CBD 2010a). Here we discuss implications for any follow up to the plan (proposed by CBD 2016a) such as a revised version with new or revised targets. We based this on considerations from the challenge of assessing progress towards the existing Aichi targets (section 3.2 above), as well as towards the Sustainable Development Goals (SDGs) (section 3.3) and the goals of other Conventions related to nature and nature's contributions to people (section 3.4), and secondly based on the considerations of the progress achieved or lack thereof (drawing on these three sections plus the cross-cutting synthesis in section 3.5 and discussion of reasons for variation in progress in section 3.6). Additional considerations when setting revised targets include the need for suitable language and wording to engage stakeholders and inspire action, socio-economic transformations for sustainable consumption, transformative changes and governance (see below and Chapter 6), and to illustrate the importance of tackling a particular issue in order to address biodiversity loss. However, these aspects have been rarely addressed in the literature to date. Finally, it may not be possible for a particular future target to take full account of all the points below, but their consideration across the whole suite of targets will hopefully strengthen any future version of the strategic plan.

Future targets with clear, unambiguous, simple language, and quantitative elements are likely to be more effective. Some of the existing Aichi Targets are difficult to interpret because they have ambiguous wording, undefined terms that are open to alternative interpretations, unquantified elements with unclear definitions of the desired end-point, unnecessary complexities, and redundant clauses (Butchart et al. 2016, CBD 2018c). Of the 20 Aichi Targets, 70% lack quantifiable elements (i.e., there is no clear threshold to be met for the target to be achieved) and 30% are overly complex or contain redundancies (Butchart et al. 2016). For example, Target 7 calls for areas under agriculture, aquaculture and forestry to be 'managed sustainably', without providing any quantification in relation to sustainability. This makes it more challenging to determine the necessary actions to achieve them, to coordinate these across Parties, and to assess progress towards achieving them (Stafford-Smith 2014, Maxwell et al. 2015, Butchart et al. 2016, CBD 2018c), although vague wording may make it easier to achieve consensus in some contexts (Maxwell et al. 2015). Using simple succinct language in targets, and providing explanations, definitions and caveats in background documents, guidance, and preambular text, would be beneficial (Butchart et al. 2016, CBD 2018c). Quantification, however, will be only helpful if it focuses on the most appropriate metrics (see below in relation to protected area coverage).

[1] See Chapter 3, Section 3.7 in IPBES. 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science- Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES Secretariat, Bonn, Germany.

Future targets that more explicitly account for aspects of nature or NCP relevant to good quality of life will be more effective at tracking the consequences of declines in nature and NCP for wellbeing, as well as better able to support future assessments of implications for SDG achievement. The assessment of SDG targets concluded that while nature and NCP were known to be important for goals related to education, equity, gender equality, and peace; a current lack of targets capturing these aspects of nature made an assessment of implications for these SDGs not currently possible. Clearer formulation of targets which capture the contributions of nature to these important development goals, will not only support improved assessments, but also foster new knowledge and evidence of these complex linkages. Similarly, the assessment of SDGs 1, 2, 3 on poverty, hunger and health respectively was limited to a few targets capturing the contributions of nature to these goals, however a wider set of contributions is known to exist but not currently assessed due to this gap.

Future targets may be more effective if they take greater account of socioeconomic and cultural contexts. Targets focused on equity, rights, or policy reform for better governance and sustainable economies (see section 6.4) appear to have resulted in fewer actions than other targets, mainly because of a lack of fit within existing institutional commitments (Hangerman and Pelai (2016), and perhaps because they are more difficult to achieve. Increasing consideration of values, drivers, and methods of valuation in the context of policies and decision-making when setting targets may also help to reduce lack of political cooperation, inadequate economic incentives, haphazard application of policies and measures, and inadequate involvement of civil society (Meine 2013, Hangerman and Pelai 2016, Ehara et al. 2018). For example, it has been argued that there is a need for frameworks and tools for understanding and acting upon the linkages between human rights, good governance and biodiversity (Ituarte-Lima et al. 2018). Targets may be easier to interpret if they are more explicit about the socioeconomic and cultural contexts that determine the pathways through which the outcome should be achieved, to avoid undesirable socioeconomic consequences (e.g. protected area expansion or establishment taking into account the impacts on IPLCs; Agrawal and Redford 2009) or negative impacts on different cultures.

Future target setting will be more inclusive if it integrates insights from the conservation science community, social scientists, IPLCs, indigenous and local knowledge, and other stakeholders. For example, conservation scientists can help to establish ecologically sensible protected area targets and to identify clear and comparable performance metrics of ecological effectiveness (Watson et al., 2016). However, to take into account governance issues and trade-offs between ecological, economic, and social goals, inputs and perspectives from social scientists, indigenous and local knowledge, and non-academic stakeholders from all regions are also needed (Bennett et al., 2015; Larigauderie et al., 2012; Martin-Lopez and Montes, 2015; Balvanera et al., 2016). Socioeconomic and cultural contexts are often not considered when targets or indicators are proposed. In particular, Hangerman & Pelai (2016) suggested that targets focused on equity, rights, or policy reform were associated with fewer actions mainly because of lack of fit within existing institutional commitments rather than because of a lack of effective target design. It is important to consider epistemological and ethical pluralism (instead of the predominant ethical monism of Western cultures) when discussing values, consumption patterns, and alternative economic models in the context of policies, decision making and target setting (see section 6.4 of Chapter 6).

Finally, it has been suggested that a future version of the strategic plan could consider highlighting fewer and more focused headline targets (including those focused explicitly on retention of biodiversity; Maron et al. 2018), alongside specific subsidiary targets capturing other elements. Such headline targets might highlight a set of specific actions for conservation of nature and NCP, e.g. ambitious, specific, quantified targets to reduce deforestation and wetland degradation, increase the

sustainability of fisheries, minimize agricultural expansion, manage invasive alien species, increase the extent and effectiveness of protected areas (and their coverage of important sites for biodiversity), address ocean acidification, promote the recovery of threatened species, and increase financing, underpinned by more specific subsidiary targets covering other aspects of the existing Aichi Targets (Butchart et al. 2016, Maron et al. 2018). An alternative approach would be to retain and update all Aichi Targets, but focus on a subset such as those listed above for communications and publicity.

The failure to achieve some targets or particular elements of targets, alongside success in achieving other elements, also has implications for a new version of the strategic plan. Thus, targets that have not been achieved may require increased effort and/or new tactics, while the elements of targets that have been successfully achieved may require increased ambition and/or monitoring to detect and avoid potential regression. In this sense, time-bound targets could be considered as milestones in a process, rather than as final objectives. CBD (2018c) suggested that future targets should be ambitious but realistic, recognising that ambition without realism can undermine confidence in the ability to deliver on targets, but equally that ambition also promotes and drives progress.

Future protected area targets that focus on enhancing coverage of important locations for biodiversity and strengthening management effectiveness may be more effective than simply setting a specific percentage of the terrestrial and marine environments to be conserved. In implementing Aichi Target 11, most focus has been on achieving the target percentages of terrestrial and marine area to be covered by protected areas (Thomas et al. 2014, Tittensor et al. 2014, McOwen et al. 2016, Spalding et al. 2016, Barnes 2015, Barnes et al. 2018), at least partly owing to lack of explicit guidance on other aspects specified in target, for example on how to measure ecological representation, how to conserve through effective and equitable management, or how to define 'other effective area-based conservation measures' (OECMs). In particular, a focus on the area percentage may have distracted from the need to locate protected areas to cover effectively 'areas of particular importance for biodiversity' such as Key Biodiversity Areas (Butchart et al. 2012, 2014, Tittensor et al. 2014, Juffe-Bignoli et al. 2014, 2016, Spalding et al. 2016, Edgar et al. 2008), and to ensure that they are effectively managed (Clark et al. 2013, Barnes et al. 2015, Coad et al. 2015, Juffe-Bignoli et al. 2014, 2016b, Watson et al. 2016, Spalding et al. 2016, Barnes et al. 2018). While there have been calls for substantially higher area-based targets, tripling the current protected area network to cover 50% of the terrestrial surface (Noss et al. 2012, Wuerthner et al. 2015, Wilson 2016, Dinerstein et al. 2017, Baillie and Zhang 2018), these have also been criticized as being unfeasible and counter-effective in particular because they fail to consider the social impacts and the need to sustain protected areas socially and politically (Büscher et al. 2017). They may also deliver perverse outcomes (Jones and De Santo 2016, Barnes et al. 2018), and if protected area expansion is concentrated in areas with low human influence, it is unlikely to conserve species diversity sufficiently (Pimm et al. 2018) or contribute to effective conservation outcomes (Magris and Pressey 2018). While some efforts have been taken to operationalize other aspects of Target 11 (e.g., Faith et al. 2001, MacKinnon et al. 2015), any future protected area target may be more effective if it is structured to reduce the risk that areas with limited conservation value are protected at the expense of areas of biodiversity importance. In consequence, more effective nature conservation may be delivered by shifting the focus from efforts to achieve a pre-determined areal extent to efforts that achieve a specified biodiversity outcome (Barnes et al. 2018). This would require monitoring biodiversity outcomes and realistic targets and indicators taking account of financial and data constraints (Barnes et al. 2018). Alongside this, the terrestrial network of protected areas and OECMs will need to be substantially strengthened in order to conserve the most important sites for biodiversity while achieving ecological representation, improved effectiveness, better integration into the wider landscape and seascape, etc. (Butchart et al. 2015).

Future targets for marine protected areas may deliver better biodiversity benefits if they focus on management effectiveness in particular. Protection of marine areas is generally weak, even in wealthier nations (Shugart-Schmidt et al. 2015, Boonzaier and Pauly 2016), with many marine protected areas being poorly enforced and ineffectively managed (Shugart-Schmidt et al. 2015). Management effectiveness may be enhanced through greater involvement of local stakeholders such as IPLCs (e.g. through the Locally Managed Marine Areas network; http://lmmanetwork.org/) and greater focus on key drivers such as pollution and unsustainable fisheries (see Chapter 6). Increased consideration of the connectivity of marine protected areas is also needed (Toonen et al. 2013, Lagabrielle et al. 2014). In areas beyond national jurisdiction, future targets would focus on creating internationally recognized marine protected areas (Rochette et al. 2014). As in the terrestrial realm, a substantial scaling up of efforts, will be necessary to protect biodiversity, preserve ecosystem services, and achieve socioeconomic aims (O'Leary et al. 2016). **Future protected area targets may be more effective if they also explicitly address freshwater ecosystems and their processes, integrating nature and people**, considering also the threats impacting them, and the actions needed to sustain them, including management strategies that consider connectivity, contextual vulnerability, and human and technical capacity (Juffe-Bignoli et al. 2016b).

A greater focus on protected area governance is important, including the implementation of participatory policies, improving institutional and community organization capacity, and consideration of self-regulatory management practices based on indigenous and local knowledge (Ramirez, 2016). Potential actions in this direction include: knowledge and capacity building, valuation, improving policy frameworks, strengthening partnerships across sectors and engaging IPLCs (Dudley et al. 2016). Progress to date also suggests that understanding the expectations of all stakeholders can facilitate progress towards targets, and that equity issues between stakeholders can be explicitly considered (Hill et al., 2016). For example, for protected areas, participatory area management and spatial and temporal zoning can help to distribute benefits and costs equitably between stakeholders (Hill et al., 2016).

The implementation of future targets on conservation of species and sites could be more efficient through effective prioritization. Formal priorization methods (which involve setting explicit objectives and incorporating the costs of actions, their probability of success, and the size of budget) allow cost-efficient implementation of actions to achieve targets (Visconti et al., 2015). For example, in the EU, focusing restoration efforts on habitats with unfavorable conservation status (as reported under the Habitats Directive) may provide the largest benefit for species and the delivery of NCP (Egoh et al. 2014). Many countries face the challenge of prioritizing with little capacity for biodiversity conservation and poor baseline data on most biological groups, requiring the development of better strategies for prioritizing based on changes in ecological, social and economic criteria (McGeoch et al. 2016) at the global, regional and local levels.

A new framework for biodiversity will be less effective if it does not explicitly address the implications of climate change for nature conservation. For example, many species, key biodiversity areas and protected areas will require adaptation plans to be developed and implemented, with actions coordinated across species' distributions and coherent strategies implemented across protected area and site networks (Hole et al. 2009). Potential unintended consequences of climate change mitigation efforts that may have negative impacts on biodiversity (e.g. displacement of food crop cultivation into natural areas as a consequence of biofuel expansion, or mortality of birds and bats from inappropriately sited wind-energy developments; Oorschot et al. 2010, Schuster et al. 2015, Küppel et al. 2017), need to be minimized. At the same time, the role of healthy ecosystems in helping

people (particularly IPLCs) adapt to climate change ('ecosystem-based adaptation'; Munang et al. 2013), can be integrated into planning and policies.

Future targets may be more effective if they consider the availability of existing indicators and the feasibility of developing new ones. Close to the end of the period for achieving the Aichi Targets, some of them (Targets 15 and 18) still lack functional quantitative indicators entirely, while others lack indicators covering particular elements of the targets (Table 3.3; Tittensor et al. 2014, McOwen et al. 2016). In some cases, the paucity of indicators is because the targets are not particularly 'SMART' (specific, measurable, ambitious, realistic, and time-bound; Perrings et al. 2010; CBD 2018c). In a recent review, targets that scored higher on these characteristics were associated with greater progress (CBD 2018c). In some cases, although indicators may exist, their sufficiency and suitability for tracking progress are considered inadequate (Tittensor et al. 2014, Butchart et al. 2016, McOwen et al. 2016), e.g. owing to limited spatial, temporal or taxonomic coverage (Tittensor et al. 2014) and/or their alignment with the text of the target (Tittensor et al. 2014, McOwen et al. 2016). While existing or potential indicator availability is only one consideration when setting targets, without appropriate indicators, it is much more challenging to determine if progress has been made or if targets have been met (Tittensor et al. 2014, McOwen et al. 2016, Butchart et al. 2016, CBD 2018c).

Given the importance of adequate information and indicators for biodiversity based on robust datasets (Geijzendorffer et al., 2016), **sustained and augmented investment is needed to maintain, expand and improve knowledge products that underpin multiple indicators**, such as the *World Database on Protected Areas* (IUCN and UNEP-WCMC 2017), the *World Database of Key Biodiversity Areas* (BirdLife International 2016b), IUCN Red Lists of threatened species and ecosystems (Juffe-Bignoli et al., 2016a, Brooks et al., 2015, Thomas et al., 2014) and the *Global Biodiversity Information Facility* (Jetz et al. 2012), alongside strengthened regional and global coordination and cooperation for data sharing and reporting (Knowles et al., 2015) and the development of new indicators to address key gaps.

A new version of the strategic plan is likely to be more effective if it gives greater emphasis to the trade-offs and synergies between targets. Efforts to achieve one particular target can contribute to achieving others (synergies) but may reduce the extent to which a different target may be achieved (trade-offs). For example, under Aichi Target 11, expansion of terrestrial protected area coverage could also contribute to reducing the loss of natural habitats (Target 5), reducing extinctions (Target 12), and maintaining carbon stocks (Target 15) (Di Marco et al., 2016b), but might have unintended consequences on good quality of life if people are displaced from new protected areas (Targets 14 and 18), especially if attention is not paid to the elements of the target relating to equitable management and integration into wider landscapes and seascapes. Similarly, different SDGs may have synergistic interactions or competing demands and critical trade-offs. Identifying these is an essential precursor to developing pathways for integrated and socially just governance processes (Mueller et al., 2015). For example, progressive changes in human consumption may improve biodiversity outcomes even in the absence of additional protection (Visconti et al. 2015). It will also be important to consider trade-offs related to the distribution of limited resources between multiple targets (i.e., expanding the use of natural resources to achieve economic development goals (Brunnschweiler 2008). Identifying and securing synergies between targets, and minimizing trade-offs, would maintain options for co-benefits before they are reduced by increasing human impacts (Di Marco et al., 2016b). Evaluation of trade-offs is likely to vary depending on the criteria used, including in relation to social equity, models of economic growth, justice and fairness as well as biodiversity conservation (see Chapter 6).

Trade-offs related to the distribution of limited resources between multiple targets is also an important point to be considered. Currently, most nations around the world are expanding the use of

natural resources to achieve liberal economic development goals (Brunnschweiler 2008; but see section 6.4, Chapter 6). Consequently, rates of anthropogenic habitat conversion are rising in conjunction with biodiversity loss (Bianchi & Haig 2013, Dirzo et al. 2014, Hansen et al. 2013, Watson et al. 2016), while financial resources for conservation are limited, requiring effective prioritisation of resources for actions addressing different and multiple targets (e.g. Venter et al. 2014, Polak et al. 2016). Finally, trade-offs may occur between different goals across spatial scales (i.e., the effects of the trade-off are felt locally or at a distant location) and temporal scales (i.e., the effects take place relatively rapidly or slowly) and these could also be considered and made explicit (Rodríguez et al. 2006, McShane et al. 2011, Green et al. 2018, Chapter 6).

Given that at least a quarter of the global land area is traditionally owned, managed, used or occupied by indigenous peoples - an area that intersects with c.40% of all terrestrial protected areas and ecologically intact landscapes (Garnett et al. 2018), a revised strategic plan on biodiversity may be strengthened by taking account explicitly of the contribution of IPLCs to achieving and monitoring biodiversity goals and targets at local and national scales. This can be facilitated by the recognition of land tenure, access and resource rights in accordance with national legislation, the application of free, prior and informed consent, and improved collaboration, fair and equitable sharing of benefits arising from the use, and co-management arrangements with local communities (e.g., appropriate recognition of Indigenous and Community Conserved Areas etc.), and recognizing the need to disaggregate indicators to quantify the contributions and impacts on IPLCs (Bennett et al. 2015, Hagerman and Pelai 2016). Related to this, 'other effective area-based conservation measures' (as referred to in Aichi Target 12) have been argued to be essential for meeting more ambitious targets for conserving biodiversity in future (Dudley et al. 2018).

Maron et al (2018) argue that future targets need to be explicit about the state of nature that meeting them is intended to achieve, noting that unquantified or rate-based targets can lead to unanticipated and undesirable outcomes. They propose the development of a series of area-based, quality-specific 'retention' targets to ensure adequate provision of key ecosystem services as well as biodiversity conservation.

Finally, Mace et al. (2018) suggested that tracking progress towards future biodiversity targets should focus on three aspects: near-future losses of species (i.e. extinctions, e.g. using the Red List Index), trends in the abundance of wild species (e.g. using population-level indicators such as the Living Planet Index) and changes in terrestrial biotic integrity (e.g. using the Biodiversity Intactness Index), although improved representativeness, integration and data coverage are needed for indicators for all three aspects.