18th MEETING OF THE SCIENTIFIC COUNCIL
Bonn, Germany, 1-3 July 2014
Agenda Item 3.2

INDICATIVE STRATEGIC PLAN INDICATORS

Summary:

At their Second Meeting in November 2013, Working Group members identified the critical role to be played by the Scientific Council in providing technical guidance on indicators for the new Strategic Plan for Migratory Species 2015-2023 (SPMS).

The attached paper presents brief explanatory text and a table listing suggested indicators for the new SPMS.

The paper was emailed to all Scientific Councillors and placed on the Council's on-line workspace, with comments requested by 30 May 2014 in time to be compiled prior to the Council's 18th meeting.

In particular, input was sought on the feasibility and suitability of the indicators for tracking progress toward the Plan's goals and targets. Councillors' comments on the consistency and compatibility of the proposed Strategic Plan indicators with existing indicator processes were also sought.

Further work in due course will be required to elaborate the necessary detail of indicator metrics, templates, sources of data, methods of reporting (including links to CMS Party national reports) and other aspects.

INDICATIVE STRATEGIC PLAN INDICATORS

(Prepared by the Consultant to the Strategic Plan Working Group)

1.   See the attached document, which was emailed to Scientific Councillors on 31 March 2014, and subsequently placed on Council's on line workspace.

***Action requested:*__

The Scientific Council is invited to:

(a)   Provide any comments on the proposed indicative Strategic Plan indicators.

ANNEX

Developing the Strategic Plan for Migratory Species 2015-2023

Indicative Strategic Plan Indicators

Summary paper for consultation among CMS Scientific Councillors and others,
March 2014

STATUS OF THIS PAPER

This paper is a revised and updated version of Document 6 which was tabled for the Strategic Plan Working Group's meeting in November 2013. It has been realigned with the revision of the 2nd draft of the new Plan.

Presented below is a short explanatory text and a table listing the suggested indicators for the new Strategic Plan. Following further consultations and refinement as necessary during 2014, this text and table could be incorporated into Annex B of the Plan or produced separately to be read alongside it.

Input from the CMS Scientific Council and others in the meantime will continue to verify the appropriateness of the indicators proposed, in terms of their feasibility and their suitability for underpinning the goals and targets in the Strategic Plan.

The Working Group may later also wish to advise further on presentation options for this material, and on what need there may be for similar work on indicators to address the sub-targets associated with the Plan [Document… INF].

Further work in due course will be required to elaborate the necessary detail of indicator metrics, templates, sources of data, methods of reporting (including links to Convention Party national reports) and other aspects.

Consultation with other stakeholders will be an important part of these processes. This will include the Biodiversity Indicators Partnership, with whom collaboration may be envisaged in particular on the development of a migratory species "cut" of existing indicators.

DRAFT TEXT FOR USE WITH THE EVENTUAL STRATEGIC PLAN

Background

A suite of "headline" indicators used to track progress towards the achievement of the goals and targets is a central part of monitoring and evaluation of the SPMS. An analysis of the approach to indicators in the CMS Strategic Plan 2006-2014 provided an important starting-point for this element of the SPMS 2015-2023.

The selection of appropriate indicators is not only a matter of identifying issues on which data can be generated. It also involves careful thought as to the ability to generate adequate "storylines" on the success or otherwise of the SPMS in securing genuinely strategic outcomes and real impacts for migratory species, rather than just indicators of process implementation.

Given that the SPMS is building on the Aichi Targets in the Strategic Plan for Biodiversity, indicators already defined in support of the latter provide much of the basis for the proposed SPMS measures. Accordingly, a primary source of SPMS headline indicators is the suite of indicators defined in 2011 by an Ad Hoc Technical

Expert Group (AHTEG) convened under the Convention on Biological Diversity (CBD), and reflected subsequently in the annex to CBD COP Decision XI/3 (October 2012). The AHTEG developed 12 headline indicator titles, each of which typically relates to several Aichi Targets. At a more specific level, the AHTEG developed 97 operational indicators, for each of which a "most relevant Aichi Target" was identified. In tandem with this process, the global Biodiversity Indicators Partnership (BIP) has classified its indicator list against the Aichi Targets. At the time of adoption of this Plan there were [29] BIP indicators.

Two of the targets in the SPMS (target 3 on governance; target 9 on the migratory systems approach) have no direct Aichi equivalents; and some other issues go a little beyond existing biodiversity indicator regimes, such as ecological networks and factors affecting the migration process. Otherwise there has been no strong need to define new indicator topics, and the indicators listed below (to be elaborated in more detail in the Companion Volume[1]) are based on relating the AHTEG operational indicators and the BIP indicators to each of the targets in the SPMS, according to their links to relevant Aichi targets. Nonetheless, further work is needed to identify and define a "migratory species cut" of the relevant existing or already-proposed biodiversity indicators.

Indicator Table

The table below relates the AHTEG operational indicators and the BIP indicators to each of the SPMS targets, based on their links to relevant Aichi targets. In the case of SPMS targets 3 and 9 (which have no corresponding Aichi targets), the identification of potential indicators in the AHTEG and BIP lists is not derived from the cross-matching done by those sources but instead is a judgement applied here by the CMS consultant[2]. The AHTEG's judgement as to the operational readiness of each of the indicators in its list is indicated by a three-category coding system (see key at the head of the table).

Drawing on this analysis, the table offers a suggested framework of priority "headline" indicators that could be used (following some further development, in most cases) to track progress towards achievement of the targets in the SPMS. Comments are given on the state of development of the corresponding AHTEG and BIP indicators, and on the likely nature of adaptation work required.

At its 17th meeting in October 2013, the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) considered an agenda item on "the adequacy of observations, and of data systems, for monitoring the biodiversity attributes addressed in the Aichi biodiversity targets and the use and development of indicators for the targets". Four background documents provided commentaries on the availability of information to support the indicators identified for each target, and these have informed the feasibility judgements made in proposing indicators for the SPMS. The meeting adopted Recommendation XVII/1 on "Scientific and technical needs related to the implementation of the Strategic Plan for Biodiversity 2011-2020", which includes a number of steps to continue the work of the AHTEG and collaboration with BIP, and in due course to fill the gaps in coverage of indicators for all 20 Aichi Targets.

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1 The Strategic Plan Working Group recognizes the need for a Strategic Plan relevant to practitioners as well as to politicians and decision-makers and envisages recommending that the Plan's implementation could be supported through future development of a technical Companion Volume on Implementation.

2 Dave Pritchard

Developing the Strategic Plan for Migratory Species 2015-2023

Possible indicators for the Strategic Plan for Migratory Species

(Key to CBD AHTEG indicators readiness: A = priority and ready for use globally, B = priority to be developed at global level, C = for consideration at sub-global level).

Targets in 2nd draft Strategic Plan for MS, February 2014	Possible indicators
Target 1: People are aware of the multiple values of migratory species and their habitats and migratory systems, and the steps they can take to conserve them and ensure the sustainability of any use. Links to Aichi Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	• **Trends in awareness and attitudes to migratory species.** *Comment:* This cannot be derived from current Biodiversity Barometer data, which is based on testing awareness of the definition of the word biodiversity. Development of a new indicator would therefore be required. Some items labelled as "indicators" are given in the CMS Outreach and Communication Plan 2012-14 - these are not very suitable for the Strategic Plan target; but development of a SP indicator should probably take place in conjunction with any post-2014 rolling-forward of the O&C Plan. ***CBD AHTEG operational indicators:*** • Trends in awareness and attitudes to biodiversity (C) • Trends in public engagement with biodiversity (C) • Trends in communication programmes and actions promoting social corporate responsibility (C) ***BIP indicators:*** • Biodiversity Barometer
Target 2: Multiple values of migratory species and their habitats have been integrated into international, national,	• **Trends in integration of migratory species values in national and sectoral policies.**

and local development and poverty reduction strategies and planning processes, and are being incorporated into national accounting, as appropriate, and reporting systems. Links to Aichi 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.	*Comment:* The CMS National Report Format currently asks whether the conservation of migratory species features in national or regional policies/plans, and an indicator might be developed from that foundation. Addressing migratory species through NBSAPs, which is effectively a sub-indicator of this indicator, is also specifically covered in the Report Format but belongs instead under target 13 below. Similar sub-indicators could perhaps however be considered here, e.g. for PRSPs and other globally standardized policy instruments of relevance. **CBD AHTEG operational indicators:** • Trends in number of countries incorporating natural resource, biodiversity, and ecosystem service values into national accounting systems (B) • Trends in number of countries that have assessed values of biodiversity, in accordance with the Convention (C) • Trends in guidelines and applications of economic appraisal tools (C) • Trends in integration of biodiversity and ecosystem service values into integrated in sectoral and development policies (C) • Trends in policies considering biodiversity and ecosystem service in environmental impact assessment and strategic environmental assessment (C) **BIP indicators:** (None)
Target 3: National, regional, and international governance arrangements and agreements affecting migratory species and their migratory systems have improved significantly, making relevant policy, legislative and implementation processes more coherent, accountable, transparent, participatory, equitable and inclusive.	• **(Governance-related indicator on CMS implementation).** *Comment:* The exact scope of this indicator remains to be elaborated, and depends on the extent to which it proves possible to develop a governance-related performance effectiveness indicator linked specifically to implementation of the CMS (being the most relevant governance framework). There would be complexities in establishing benchmarks for matters which are for national political discretion. Using established international standards on e.g. conflict resolution or access & benefit sharing would be unlikely at present to allow disaggregation of migratory species-related aspects.

(No link to Aichi Targets)	The most promising prospect may lie with the existing encouragement for CMS Parties to establish and operate national liaison systems or committees (target 4.5 in the existing CMS Strategic Plan). The Convention's National Report Format asks a question on this, but at present it is simply a yes/no question as to the existence of such a system or committee. ***CBD AHTEG operational indicators:*** • Trends in policies considering biodiversity and ecosystem services in environmental impact assessment and strategic environmental assessment (C) • Trends in number of countries incorporating natural resource, biodiversity, and ecosystem service values into national accounting systems (B) • Trends in extent to which biodiversity and ecosystem service values are incorporated into organizational accounting and reporting (B) • Trends in protected area condition and/or management effectiveness including more equitable management (A) (decision X/31) • Trends in natural resource conflicts (C) ***BIP indicators:*** • Ratification status of the Nagoya Protocol
Target 4: Incentives, including subsidies, harmful to migratory species, and/or their habitats are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation of migratory species and their habitats are developed and applied, consistent with engagements under the CMS and other relevant international obligations and commitments.	• **(None).** *Comment:* No specific indicator is proposed (unless perhaps there are proxy indicators for discrete taxa that could be used). The migratory species conservation community will want to pay attention to information reported on incentives and biodiversity in general under the two relevant indicators defined by the CBD AHTEG; but it is difficult to see how the data could be meaningfully disaggregated to tell a story that is specific to migratory species. Occasional case studies might be able to do so, but probably not a globally-applicable, regularly-reported indicator.

Links to Aichi Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.	***CBD AHTEG operational indicators:*** • Trends in the number and value of incentives, including subsidies, harmful to biodiversity, removed, reformed or phased out (B) • Trends in identification, assessment and establishment and strengthening of incentives that reward positive contribution to biodiversity and ecosystem services and penalize adverse impacts (C) ***BIP indicators:*** (None)
Target 5: Governments, key sectors and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption, keeping the impacts of natural resource use on migratory species well within safe ecological limits to promote the favourable conservation status of migratory species and maintain the quality, integrity, resilience, and connectivity of their habitats and migratory routes. Links to Aichi Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have	• **Status of migratory species in trade.** • **Wild Commodities Index for migratory animals.** *Comment:* These two indicators are proposed as migratory species "cuts" of the corresponding BIP indicators (the first of which is said to be ready for use, the second one only newly developed). As well as generating stories about the species concerned, comparisons will be possible between the migratory species sub-set and the trends for all species. These indicators address exploitation of migratory animals themselves, and thus do not really speak to the sense in which the target addresses impacts on such species from exploitation of *other* resources (that dimension may have to be caught instead by proxies defined under other targets). Nonetheless they may offer useful data on more direct exploitation (and are relevant to cooperation between CMS and CITES). NB the "footprint" indicators listed against this target below are ecosystem-based and do not lend themselves to separating out any specific migratory species storylines.

implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits. Links to Aichi Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	***CBD AHTEG operational indicators:*** • Trends in Ecological Footprint and/or related concepts (A) (decision VII/30 and VIII/15) • Trends in population and extinction risk of utilized species, including species in trade (A) (also used by CITES) • Trends in extent to which biodiversity and ecosystem service values are incorporated into organizational accounting and reporting (B) • Ecological limits assessed in terms of sustainable production and consumption (C) • Trends in biodiversity of cities (C) (decision X/22) • Trends in population of forest and agriculture dependent species in production systems (B) • Trends in production per input (B) • Trends in area of forest, agricultural and aquaculture ecosystems under sustainable management (B) (decision VII/30 and VIII/15) • Trends in proportion of products derived from sustainable sources (C) (decision VII/30 and VIII/15) ***BIP indicators:*** • Ecological Footprint • Status of species in trade • Wild Commodities Index • Area of forest under sustainable management: certification • Area of agricultural ecosystems under sustainable management
Target 6: Fisheries and hunting have no significant direct or indirect adverse impacts on migratory species, their habitats or their migration routes, and impacts of fisheries and hunting are within safe ecological limits. Links to Aichi Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and	• **Proportion of migratory fish stocks in safe biological limits.** *Comment:* This indicator is proposed as a migratory species "cut" of the corresponding BIP indicator, which is said (by both BIP and AHTEG) to be ready for use. Monitoring of other aspects of this target, including hunting impacts, may be picked up through indicators defined for targets 5, 7 and 8.

harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	***CBD AHTEG operational indicators:*** • Trends in extinction risk of target and bycatch aquatic species (A) • Trends in population of target and bycatch aquatic species (A) • Trends in proportion of utilized stocks outside safe biological limits (A) (MDG indicator 7.4) • Trends in proportion of depleted target and bycatch species with recovery plans (B) • Trends in area, frequency, and/or intensity of destructive fishing practices (C) • Trends in catch per unit effort (C) • Trends in fishing effort capacity (C) ***BIP indicators:*** • Wild Commodities Index • Red List Index • Living Planet Index • Wild Bird Index • Marine Trophic Index • Proportion of fish stocks in safe biological limits • Number of MSC certified fisheries
Target 7: Multiple anthropogenic pressures have been brought to levels that are not detrimental to the conservation of migratory species or to the functioning, integrity, ecological connectivity and resilience of their habitats. Links to Aichi 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 threats to migratory species.** *Comment:* This indicator requires development, but doing so should be a priority, and while the question is complex, it should be possible to generate at least some useful data on a regular basis. Isolating migratory species threats from existing monitoring systems could be complex, and monitoring trends in e.g. distribution of "obstacles to migration" may not necessarily be usable proxies for actual impact, so those angles are problematic. CMS National Reports however generate information on threats specifically relating to migrants, and although the information is rough and anecdotal, it may provide a pragmatic entry-point. Several sub-indicators could be envisaged. (Extinction risk here is regarded as a state indicator rather than a pressure indicator, so is better considered under target 8).

Links to Aichi 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. Links to Aichi target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	***CBD AHTEG operational indicators:*** • Trends in incidence of hypoxic zones and algal blooms (A) • Trends in water quality in aquatic ecosystems (A) (decision VII/30 and VIII/15) • Impact of pollution on extinction risk trends (B) • Trends in pollution deposition rate (B) (decision VII/30 and VIII/15) • Trends in sediment transfer rates (B) • Trend in emission to the environment of pollutants relevant for biodiversity (C) • Trend in levels of contaminants in wildlife (C) • Trends in ozone levels in natural ecosystems (C) • Trends in proportion of wastewater discharged after treatment (C) • Trends in UV-radiation levels (C) • Trends in nitrogen footprint of consumption activities (C) • Trends in the impact of invasive alien species on extinction risk trends (A) • Trends in the economic impacts of selected invasive alien species (B) • Trends in number of invasive alien species (B) (decision VII/30 and VIII/15) • Trends in policy responses, legislation and management plans to control and prevent spread of invasive alien species (B) • Trends in incidence of wildlife diseases caused by invasive alien species (C) • Trends in invasive alien species pathways management (C) • Extinction risk trends of coral and reef fish (A) • Trends in climate change impacts on extinction risk (B) • Trends in coral reef condition (B) • Trends in extent, and rate of shifts of boundaries, of vulnerable ecosystems (B) • Trends in climatic impacts on community composition (C) • Trends in climatic impacts on population trends (C) ***BIP indicators:*** • Water Quality Index for Biodiversity • Nitrogen deposition

	• Loss of reactive nitrogen to the environment • Trends in invasive alien species • Red List Index • Ocean Health Index • Cumulative human impacts on marine ecosystems
Target 8: The conservation status of threatened migratory species has considerably improved throughout their range. Links to Aichi 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.	• **Red List Index for migratory species.** • **Living Planet Index for migratory species.** • **Wild Bird Index for migratory birds.** • **Trends in distribution of migratory species.** *Comment* The first three indicators proposed here are seemingly feasible sub-sets of existing indicators currently in operation. Reporting should be designed so as to relate specifically (where appropriate) to the CMS Appendices. The fourth proposed indicator is based on a CBD "priority to be developed", and addresses the key element of favourable status for migrants which relates to maintenance of range. Graduated measurement of this for most species will be difficult; but a crude index to begin with could be built on a basis of changes in the regularly-maintained CMS lists of Range States for Annex-listed species (unlikely to show any but the most drastic and time-lagged changes; but the method could be adapted for use for example at the level of sub-national administrative regions). ***CBD AHTEG operational indicators:*** • Extinction risk trends of habitat dependent species in each major habitat type (A) • Trends in abundance of selected species (A) (decision VII/30 and VIII/15) (UNCCD indicator) • Trends in extinction risk of species (A) (decision VII/30 and VIII/15) (MDG indicator 7.7) (also used by CMS) • Trends in distribution of selected species (B) (decision VII/30 and VIII/15) (also used by UNCCD) ***BIP indicators:*** • Red List Index • Living Planet Index

	• Wild Bird Index • Wildlife Picture Index
Target 9: International action and cooperation between States for the conservation and effective management of migratory species fully reflects a migratory systems approach, in which all States sharing responsibility for the species concerned engage in such actions in a concerted way. (No link to Aichi Targets)	• **(Indicator based on range-related coverage of migratory species agreements and other concerted actions between States)** *Comment* This indicator requires development. A large component of it (though no necessarily all) could begin from existing information on the ratification status of CMS Family Agreements and formal Concerted and Cooperative Actions in the framework of the CMS. To operationalize the indicator for this target however will require the additional step of relating this information to data on species ranges, since the purpose is to show completeness of international participation in respect of each of the species concerned. Much range data is already collated under CMS auspices at the level of Range State lists, which should make this possible. *CBD AHTEG operational indicators:* • Trends in representative coverage of protected areas and other area based approaches, including sites of particular importance for biodiversity, and of terrestrial, marine and inland water systems (A) (decision VII/30 and VIII/15) • Trends in extent of marine protected areas, coverage of key biodiversity areas and management effectiveness (A) • Trends in the connectivity of protected and other area based approaches integrated into land and seascapes (B) (decision VII/30 and VIII/15) *BIP indicators:* (None)
Target 10: All key habitats and sites for migratory species are identified and included in area-based conservation measures so as to maintain their quality,	• **Trends in conservation status, including connectivity, of identified habitats of key importance for migratory species.** • **Coverage of key habitats for migratory species in protected areas.**

| integrity, resilience and functioning in accordance with the implementation of Aichi Target 11.

Links to Aichi 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.

Links to Aichi 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. | • **Management effectiveness of areas protected specifically for migratory species.**

Comment:
The first of these three indicators will require development. Its feasibility poses challenges, such as devising a valid method for systematically identifying habitats with this specific relevance, deciding how to measure changes in connectivity, and relating this meaningfully to impacts on migratory species.
Indicators of fragmentation of forests and rivers are already under discussion in a wider biodiversity context, but translating these into effects on migration is difficult.
The migratory species conservation community will want to pay attention to information reported on more general indicators of particular habitat types and ecosystem trends which are associated with the corresponding Aichi Target, but there appears to be no good rationale upon which to propose a "cut" of any of those which could isolate migratory species factors.

Concerning the second and third issues listed above, it may be possible to develop some kind of indicators as sub-sets of the corresponding three more generic BIP indicators, which are all classed as ready for use (with the "coverage" and "overlays" BIP indicators both contributing to the first of the two MS proposals above). Isolating the components that relate specifically to migratory species however will require work, and is likely to be challenging.
Further elaboration of an approach to this also depends on addressing issues relating to absent or uncertain baselines for the quantitative elements of the corresponding Aichi target, and for the totality for sites regarded as critically important for migratory species.

CBD AHTEG operational indicators:
• Trends in extent of selected biomes, ecosystems and habitats (A) (decision VII/30 and VIII/15)
• Population trends of habitat dependent species in each major habitat type (A)
• Trends in proportion of degraded/threatened habitats (B)
• Trends in fragmentation of natural habitats (B) (decision VII/30 and VIII/15)
• Trends in condition and vulnerability of ecosystems (C)
• Trends in the proportion of natural habitats converted (C)
• Trends in primary productivity (C)
• Trends in proportion of land affected by desertification (C) (also used by UNCCD) |

	• Status and trends in extent and condition of habitats that provide carbon storage (A) • Population trends of forest-dependent species in forests under restoration (C) • Trends in extent of marine protected areas, coverage of key biodiversity areas and management effectiveness (A) • Trends in protected area condition and/or management effectiveness including more equitable management (A) (decision X/31) • Trends in representative coverage of protected areas and other area based approaches, including sites of particular importance for biodiversity, and of terrestrial, marine and inland water systems (A) (decision VII/30 and VIII/15) • Trends in the connectivity of protected and other area based approaches integrated into land and seascapes (B) (decision VII/30 and VIII/15) • Trends in the delivery of ecosystem services and equitable benefits from protected areas (C) ***BIP indicators:*** • Red List Index • Extent of forests & forest types • Extent of marine habitats • Living Planet Index • Wild Bird Index • Area of forest under sustainable management: degradation & deforestation • Forest fragmentation • River fragmentation & flow regulation • Wildlife Picture Index • Management effectiveness of protected areas • Coverage of protected areas • Protected area overlays with biodiversity
Target 11: Migratory species and their habitats which provide important ecosystem services are maintained at or restored to favourable conservation	 **• Trends in delivery of ecosystem services directly dependent on migratory species.** *Comment:*

status, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable. Links to Aichi 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. Link to Aichi Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, thereby contributing to climate change mitigation and adaptation and to combating desertification.	The proposed indicator is a composite of the most relevant components of the CBD and BIP indicators which are matched to the Aichi target that corresponds to this proposed migratory species target, and which include some that are ready for use and some that are in development. Work would be required to define relevant selected services, to isolate and specify cause-effect dependence on named migratory species, and to devise parameters for measurement that are linked to this dependence and do not simply repeat the species-status assessments which are already the subject of target 8 above. The proposal addresses this by aiming to measure benefits that are derived by people rather than the status of the species, although this extrapolates slightly beyond the strict scope of the target (which goes only as far as securing the *potential for benefit*). ***CBD AHTEG operational indicators:*** • Trends in benefits that humans derive from selected ecosystem services (A) • Trends in proportion of the population using improved water services (A) (MDG indicator 7.8 and 7.9) • Trends in proportion of total freshwater resources used (A) (MDG indicator 7.5) • Population trends and extinction risk trends of species that provide ecosystem services (A) • Trends in delivery of multiple ecosystem services (B) • Trends in economic and non-economic values value of selected ecosystem services (B) • Trends in health and wellbeing of communities who depend directly on local ecosystem goods and services (B) (decision VII/30 and VIII/15) • Trends in human and economic losses due to water or natural resource related disasters (B) • Trends in nutritional contribution of biodiversity: Food composition (B) (decision VII/30 and VIII/15) • Trends in area of degraded ecosystems restored or being restored B) • Trends in incidence of emerging zoonotic diseases (C) • Trends in inclusive wealth (C) • Trends in nutritional contribution of biodiversity: Food consumption (C) (decision VII/30 and VIII/15) • Trends in prevalence of underweight children under-five years of age (C) (MDG indicator 1.8) • Trends in natural resource conflicts (C) • Trends in the condition of selected ecosystem services (C) • Trends in biocapacity (C)

	• Status and trends in extent and condition of habitats that provide carbon storage (A) • Population trends of forest-dependent species in forests under restoration (C) ***BIP indicators:*** • Red List Index • Biodiversity for food & medicine • Health & wellbeing of communities directly dependent on ecosystem goods & services • Nutrition indicators for biodiversity
Target 12: The genetic diversity of wild populations of migratory species is safeguarded, and strategies have been developed and implemented for minimizing genetic erosion. Links to Aichi Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	• **Trends in genetic diversity of selected species.** *Comment:* Methods for defining, measuring and monitoring genetic diversity in this context, as well as deciding which species should/could feasibly be the subject of this indicator, will need to be worked out. ***CBD AHTEG operational indicators:*** • Trends in genetic diversity of cultivated plants, and farmed and domesticated animals and their wild relatives (B) (decision VII/30 and VIII/15) • Trends in number of effective policy mechanisms implemented to reduce genetic erosion and safeguard genetic diversity related to plant and animal genetic resources (B) • Trends in genetic diversity of selected species (C) ***BIP indicators:*** • Ex-situ crop collections • Genetic diversity of terrestrial domesticated animals
Target 13: Priorities for effective management and conservation of migratory species and migratory systems have been included in the development and implementation of national biodiversity strategies and action plans,	• **Trends in integration of migratory species concerns in National Biodiversity Strategies and Action Plans.** *Comment:* Target 13 is effectively a sub-target of target 2 above, and the indicator would therefore operate as a sub-indicator of the indicator proposed there.

where relevant, with reference to regional CMS agreements and action plans and their regional implementation bodies. Links to Aichi Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	The CMS National Report Format currently asks whether migratory species are addressed by each country's NBSAP, and an indicator might be developed from that foundation. ***CBD AHTEG operational indicators:*** • Trends in implementation of National Biodiversity Strategies and Action Plans, including development, comprehensiveness, adoption and implementation (B) ***BIP indicators:*** • Status of NBSAPs
Target 14: The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of migratory species, their habitats and migratory systems, and their customary sustainable use of biological resources, are respected, subject to national legislation and relevant international obligations, with the full and effective participation of indigenous and local communities, thereby contributing to the favourable conservation status of migratory species and the ecological connectivity and resilience of their habitats.	• **Trends in the degree to which traditional knowledge and practices are respected through: full integration, participation and safeguards in national implementation of the Strategic Plan for Migratory Species.** *Comment:* This indicator is modelled on one of the CBD AHTEG proposals for the corresponding Aichi Target (listed as a "priority for development"), but here referring to the Migratory Species Plan rather than the Biodiversity Plan. The "knowledge and practices" at issue would similarly need to be more specific to migratory species matters. The most pragmatic way to develop this indicator might be to add a question to the CMS National Report Format (accepting that this method will give an incomplete picture, given that the target applies equally to non-CMS Party countries). ***CBD AHTEG operational indicators:*** • Trends in land-use change and land tenure in the traditional territories of indigenous and local communities (B) (decision X/43)

Links to Aichi 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 the practice of traditional occupations (B) (decision X/43) • Trends in degree to which traditional knowledge and practices are respected through: full integration, participation and safeguards in national implementation of the Strategic Plan (B) • Trends of linguistic diversity and numbers of speakers of indigenous languages (B) (decision VII/30 and VIII/15) **BIP indicators:** • Status and trends of linguistic diversity and numbers of speakers of indigenous languages • Index of Linguistic Diversity • Vitality Index of Traditional Environmental Knowledge (VITEK)
Target 15: The science base, information, awareness, understanding and technologies relating to migratory species, their habitats and migratory systems, their value, functioning, status and trends, and the consequences of their loss, are improved, widely shared and transferred, and effectively applied. Links to Aichi Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and	• **Number of validated publications on migratory species conservation actively disseminated for policy-relevant use.** *Comment:* This indicator requires development. The proposed indicator combines two ideas, namely scientific quality and effective application; but splitting them would be undesirable, since scientific quality by itself will not speak to achievement of the target. A number of methodological challenges will need to be surmounted in order to make this indicator operationally credible. The relevant CBD AHTEG and BIP indicators (not yet in use) refer more specifically to sub-global assessments and species inventories - both of these are included in the interpretation of "publications" here, but the indicator here should probably not be so narrowly prescribed as the AHTEG/BIP ones are. The relevant CBD AHTEG and BIP indicators address the "quality" dimension only in terms of comprehensiveness and policy-relevance - it is suggested here instead that reference to policy-relevance and "validation" provides a more appropriate yardstick for quality.

transferred, and applied.	***CBD AHTEG operational indicators:*** • Trends in coverage of comprehensive policy-relevant sub-global assessments including related capacity building and knowledge transfer, plus trends in uptake into policy (B) • Number of maintained species inventories being used to implement the Convention (C) ***BIP indicators:*** • Number of maintained species inventories being used to implement the CBD
Target 16: The mobilization of adequate resources from all sources to effectively implement the Strategic Plan for Migratory Species has increased substantially. Links to Aichi Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. Links to the CBD Resource Mobilization Strategy (COP9/11§7) and the resource mobilization target (COPXI/4): "Double total biodiversity-related international financial	• **Aggregated international flows of funding, per annum, for achieving the goals of the Strategic Plan for Migratory Species.** • **Amount of domestic financial support provided, per annum, to support those domestic activities which are intended to achieve the goals of the Strategic Plan for Migratory Species.** *Comment:* These indicators are based on elements of the indicators defined for the CBD Resource Mobilization Strategy (indicators listed as "priorities for development"). Methodological challenges for developing them for application to the Migratory Species Plan will be considerable however, not least the separating-out of migratory species-specific amounts of funding, and the establishment of baseline figures for 2015. Smaller sub-sets of each issue might more feasibly be addressed, but identification of these will require further work. ***CBD AHTEG operational indicators:*** • Indicators agreed in decision X/3 (B) ***BIP indicators:*** • Official development assistance in support of the Convention

resource flows to developing countries, in particular least developed countries and small island developing States, as well as countries with economies in transition, by 2015 and at least maintaining this level until 2020, in accordance with Article 20 of the Convention, to contribute to the achievement of the Convention's three objectives, including through a country-driven prioritization of biodiversity within development plans in recipient countries, using the preliminary baseline referred to in paragraph 6".	

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