
Note by the Executive Secretary

I. INTRODUCTION

1. Effective monitoring of the status and trends of biodiversity is necessary to enable Parties, individually, and collectively through the Conference of the Parties, to review the implementation of the Convention, the Strategic Plan for Biodiversity 2011-2020 national biodiversity strategies and action plans and assess progress towards the Aichi Biodiversity Targets and related national targets. Indeed monitoring is an obligation of Parties to the Convention (Article 7(b)) and the global monitoring of biodiversity is identified in the Strategic Plan as one of a number of key elements to ensure its effective implementation – paragraph 25 (a) of the Plan notes that “work is needed to monitor the status and trends of biodiversity, maintain and share data, and develop and use indicators and agreed measures of biodiversity and ecosystem change.”

2. Through decision X/2, the Conference of the Parties urged Parties and other Governments to “monitor and review the implementation of their national biodiversity strategies and action plans in accordance with the Strategic Plan and their national targets making use of the set of indicators developed for the Strategic Plan as a flexible framework and to report to the Conference of the Parties through their fifth and sixth national reports and any other means to be decided by the Conference of the Parties (paragraph 3 (e)).”

3. A number of elements are necessary, at national and global levels, for effective monitoring, in support of review:

   (a) Observations and observation systems, including data collection;

   (b) Systems for the management and exchange of data and information and tools for the interpretation of data and information, including common biodiversity metrics, indicators, and models of biodiversity change, underpinned by biodiversity-relevant research;

   (c) Reporting and assessment of progress at national and global levels.

4. In its decision X/7, the Conference of the Parties welcomed the progress made in biodiversity monitoring and recognized the need to continue strengthening the ability to monitor biodiversity at all
levels, including through further work on indicators, biodiversity monitoring and reporting systems and the capacity to use biodiversity data. The Conference of the Parties agreed to pursue the use of indicators developed for the 2010 biodiversity framework, further developing, adjusting and complementing them as necessary for the new Aichi Biodiversity Targets. To this end, the Conference of the Parties requested the Executive Secretary to convene an Ad Hoc Technical Expert Group (AHTEG) on Indicators for the Strategic Plan for Biodiversity 2011-2020 and provided the terms of reference for the Group.

5. The Conference of the Parties also decided that the fourth edition of the Global Biodiversity Outlook should be prepared to provide a mid-term review of progress towards the Aichi Biodiversity Targets (decision X/2, paragraph 13) and requested the Executive Secretary to prepare a plan for its preparation on the basis of fifth national reports (decision X/10), the use of indicators, and relevant information for consideration by SBSTTA.

6. In accordance with these decisions, the Executive Secretary convened a meeting of the AHTEG on Indicators for the Strategic Plan for Biodiversity 2011-2020 and prepared a plan for the preparation of the fourth edition of the Global Biodiversity Outlook. These matters were considered by the Subsidiary Body on Scientific, Technical and Technological Advice at its fifteenth and sixteenth meetings respectively. The Executive Secretary also prepared a resource manual for the fifth national reports.

7. At its fifteenth meeting, SBSTTA welcomed the work of the AHTEG and took note of an indicative list of indicators organized according to the Aichi Biodiversity Targets, recommended further action for the Conference of the Parties and requested the Executive Secretary to initiate work on a number of tasks (SBSTTA recommendation XV/1).

8. At its sixteenth meeting, SBSTTA took note of the plan for the preparation of the fourth edition of the Global Biodiversity Outlook, requested the Executive Secretary to initiate preparations on the basis of this plan, and to provide a progress report to the eleventh meeting of the Conference of the Parties (SBSTTA recommendation XVI/2).

9. This note provides a progress report on these issues in light of the aforementioned decisions of the tenth meeting of the Conference of the Parties and recommendations from the fifteenth and sixteenth meetings of SBSTTA. It is organized according to the elements identified above (para. 3), addressing in turn: biodiversity observations (Sections II), systems and tools for the management, exchange, and interpretation of data and information, including indicators (Section III), and reporting and assessments, including the Global Biodiversity Outlook (Section IV).

10. The Conference of the Parties is invited to consider this report alongside the draft decisions prepared by SBSTTA in recommendations XV/1 and XVI/2, together with recommendation 7/7 of the Open-ended Working Group on Article 8(j) and Related Provisions.

II. BIODIVERSITY OBSERVATIONS FOR MONITORING THE IMPLEMENTATION OF THE STRATEGIC PLAN

Biodiversity observations for monitoring

11. Biodiversity monitoring depends on the availability of and access to underlying observations at relevant temporal and spatial scales and the ability to develop and apply appropriate models that enable the integration of different data sets and extrapolation between data points.

12. Enhanced capacity to monitor biodiversity adequately at the national level would strengthen the ability of countries to define suitable quantitative biodiversity targets, detect biodiversity change and address undesired trends at an early stage, improve communication of biodiversity issues and thereby increase participation and awareness thus contributing to mainstreaming biodiversity across different parts of society.

13. Biodiversity monitoring requires long-term observations of key aspects of biodiversity in accordance with a defined sampling protocol and typically combines large-scale low-intensity observations with detailed and frequent samples at key sites. Analysis and interpretation of biodiversity
information requires complementary data from other disciplines (demographic, meteorological, hydrological, fire, disease outbreaks, commercial use and offtake etc.). Many countries have only a partial or patchy monitoring system for biodiversity.

14. Biodiversity monitoring implies a long-term commitment, both financial and institutional. It involves the development of a system that enables the early detection of significant biodiversity change at affordable cost. Ideally, the cost of developing and maintaining a monitoring system should be outweighed by the ability to avoid the consequences of undetected and avoidable biodiversity loss.

15. As noted above, the Strategic Plan for Biodiversity 2011-2020 (paragraph 25 (a)) notes the need to monitor the status and trends of biodiversity, maintain and share data, and develop and use indicators and agreed measures of biodiversity and ecosystem change. It is further noted (in footnote 20) that the GEO-Biodiversity Observation Network, with further development and adequate resourcing, could facilitate this, together with Global Biodiversity Information Facility and the Biodiversity Indicators Partnership.

**Progress in biodiversity observations**

16. The Group on Earth Observations Biodiversity Observation Network (GEO-BON)\(^1\) has defined as the primary outcome of its work plan 2012-2015 the development of a global, scientifically-robust framework for observations designed to detect biodiversity change.\(^2\) It is expected that this framework would reconcile the objective of a system designed to provide the observation needs at different spatial levels in a consistent and predicable way with the reality of combining patchy, short-term, project-based observations and medium to long term observation networks and remotely sensed data.

17. While GEO-BON’s objective is to join up existing observation networks and promote linkages and consistency with a primarily global outlook, it has recognized the need to also deliver products and respond to needs at national level. Its regional BONs are likely to play a prominent role in responding to this need. GEO-BON also considers engaging in capacity-building activities and at the subregional level, including by examining the possibility to contribute to subregional capacity-building workshops on national reporting and GBO-4 that are planned by the Secretariat of the Convention on Biological Diversity in 2013.

18. GEO-BON has developed a report on the Adequacy of Biodiversity Observation Systems to Support the CBD 2020 Targets (UNEP/CBD/AHTEG-SP-Ind/1/INF/1);\(^3\)

**Gaps in biodiversity observations**

19. The large majority of field-based biodiversity observations are a result of research projects, inventories or observations by citizen scientists. While these are valuable observations, their primary purpose is generally not to contribute to a monitoring scheme (exceptions include, for example, bird population censuses). Data, where accessible, exist in different formats, and are not generally designed for repeated observations over time that would enable detecting change (exceptions include sites that are part of a Long Term Ecological Research Network).

20. Satellite-based observations relevant to biodiversity are increasingly available at little or no cost but gaps exist with regard to the coverage of receiving stations and to the development of products designed to detect change. The most significant gap is the absence of comparable global land cover products over time.

21. The following steps are needed to address these gaps:

- (b) Science funding bodies to provide resources for strengthening biodiversity observations on a sustained basis;

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(c) Science funding bodies to require that data are made available in a form that is suitable as a contribution to monitoring information;

(d) Science funding bodies to promote scientific work on detecting biodiversity change;

(e) Citizen science networks to design systems so as to contribute to biodiversity monitoring;

(f) National institutions responsible for monitoring wildlife, forests, protected areas etc. to use standard formats and best practice with regard to monitoring and, where appropriate, to share data through suitable interoperability mechanism such as national CHMs;

(g) Support to GEO-BON and other relevant partners in the development and implementation of a global, scientifically-robust framework for observations designed to detect biodiversity change;

(h) Direct support to countries to develop national biodiversity monitoring systems through appropriate arrangements that will provide a platform for coordinating observations, provide assistance and guidance on utilizing observations, develop methods and protocols, and promote ongoing research and development;

(i) Strengthen cooperation with the Group on Earth Observations process with a view to seeking better cooperation with responsible agencies at national level and better integration across the nine societal benefit areas addressed through the Global Earth Observation System of Systems;

(j) Collaborate with the Group on Earth Observation for the provision of timely specifications for observation requirements to space agencies with.

III. SYSTEMS AND TOOLS FOR THE MANAGEMENT, EXCHANGE AND INTERPRETATION OF BIODIVERSITY DATA AND INFORMATION

Progress in developing information management and information products

22. The bioinformatics community came together at the Global Biodiversity Informatics Conference (Copenhagen, Denmark, 2-4 July 2012) hosted by the Global Biodiversity Information Facility. On the basis of the outcomes of this conference members of the community are currently developing a Global Biodiversity Informatics (or Information) Outlook, which responds, inter alia, to the information needs around the Aichi Biodiversity Targets. It is expected that this Outlook will be presented to the eleventh meeting of the Conference of the Parties.

23. Recognizing the need to turn primary observations into information products that can be communicated and that are designed to support decision-making, GEO-BON also has working groups on modelling, interoperability and on indicators, in addition to its thematic working groups. The GEO-BON working group on indicators provides the link from the observations and data to the information products generated by the Biodiversity Indicators Partnership (BIP). It has been established recently to ensure coordination between GEO-BON and BIP and to avoid duplication of efforts.

Gaps in integration of data sets

24. Significant progress has been made in mobilizing and connecting data, particularly with regard to specimen information. However, such information is often not suitable for change detection. Ecological information and data on resource use are generally not accessible.

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4 Such arrangements could be based on the example of the Global Forest Observation Initiative (GFOI) and include the development of a Global Biodiversity Observation Initiative (GBOI) as a contribution of the Group on Earth Observations (GEO) to the Achievement of the Aichi Biodiversity Targets.

5 See http://www.gbic2012.org/ for details
25. The following steps could be taken to address these gaps:  

(a) Encourage the Global Biodiversity Information Facility to facilitate access to sample-based data, including ecological data sets and presence-absence data;

(b) Encourage the Global Biodiversity Information Facility to address the need for assessing biodiversity variation through space and time;

(c) Facilitate access to and use of data held by publishers and other commercial entities.

Progress in indicators development and use

26. Under the Convention, a significant amount of guidance relevant to indicators has been developed over the years, including documents on designing national-level monitoring programmes and indicators (UNEP/CBD/SBSTTA/9/10) and on indicators for assessing progress towards, and communicating, the 2010 target at the global level (UNEP/CBD/SBSTTA/10/9).

27. Since the tenth meeting of the Conference of the Parties, the CBD indicator framework has been adjusted to support the Strategic Plan for Biodiversity 2011-2020. In its recommendation XV/1, SBSTTA noted the indicative list of indicators proposed by the Ad Hoc Technical Expert Group on Indicators for the Strategic Plan for Biodiversity 2011-2020 and prepared a draft decision for consideration by the Conference of the Parties.

28. The full report of the Ad Hoc Technical Expert Group on Indicators for the Strategic Plan for Biodiversity 2011-2020 is available (UNEP/CBD/AHTEG-SP-Ind/1/3), as well as guidance prepared on National Indicators, Monitoring and Reporting for Global Biodiversity Targets (UNEP/CBD/AHTEG-SP-Ind/1/INF/2).

29. In addition, the Biodiversity Indicators Partnership has developed technical guidance on each of the indicators that is ready for use, and offers a range of guidance materials related to national level monitoring.

30. To enhance national capacities for biodiversity monitoring, the Biodiversity Indicators Partnership, through UNEP-WCMC and in collaboration with the Secretariat of the Convention, is holding a series of subregional capacity-building workshops on indicators in the context of updating national biodiversity strategies and action plans. The following workshops have been or will have been held before the eleventh meeting of the Conference of the Parties:

(a) Southeast Asia Capacity-building Workshop on Indicators as part of NBSAP updating (24-28 March 2012, Tam Dao, Viet Nam);

(b) Eastern Africa Capacity-building Workshop on Information Use and Indicators in Updating NBSAPs (27-29 September 2011, Entebbe, Uganda);

(c) South Asia Capacity-building Workshop on Indicators as part of NBSAP updating (16-19 July 2012, Colombo, Sri Lanka).

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6 A more detailed analysis is contained in the note on A review of barriers to the sharing of biodiversity data and information, with recommendations for eliminating them (UNEP/CBD/WG-RI/4/INF/13).

7 http://www.cbd.int/doc/meetings/sbstta/sbstta-09/official/sbstta-09-10-09.en.doc

8 http://www.cbd.int/doc/meetings/sbstta/sbstta-10/official/sbstta-10-09-09.en.doc


11 Accessible from http://www.bipindicators.net/indicators

12 Accessible from http://www.bipnational.net/

13 See report at http://www.cbd.int/doc/?meeting=WSIND-NBSAP-SASIA-01

14 See report at http://www.cbd.int/doc/?meeting=WSIND-NBSAP-EAFR-01

15 Report under preparation.
(d) South America Capacity-building Workshop on Indicators as part of NBSAP updating (6-10 August 2012, Lima, Peru).

31. A round of follow-up workshops is planned in 2013. In addition, the BIP is establishing a helpdesk function to respond directly to technical requests from countries and has supported national efforts to establish monitoring systems and develop indicators (for example, upon request from the Ministry of Environment of Peru).

32. These capacity-building activities are designed to facilitate countries taking a practical and pragmatic, and where needed step-wise, approach to monitoring as well as to promote coherence of approaches, including through access to global data sets and methodologies. The BIP has developed a dedicated national biodiversity indicators portal.

33. Furthermore SBSTTA, in its recommendation XV/1, called for proposals on a limited number of simple, easily applicable and cost-effective indicators that can potentially be implemented by all Parties. The Executive Secretary has convened an electronic discussion forum to develop such proposals for consideration by a meeting of SBSTTA prior to the twelfth meeting of the Conference of the Parties.

34. The BIP, established in 2006 in response to the need to assess progress towards the achievement of the 2010 Biodiversity Target, is currently expanding its focus and membership to respond to all 20 Aichi Biodiversity Targets. It is also reviewing its structure to facilitate broad participation. Its current activities focus on capacity-building and enhanced communication.

35. Among the activities to enhance communication about indicators is the further development of the BIP website, including the interactive indicators search facility which maps operational indicators against the Aichi Targets and provides the full technical description for each indicator.

36. Another communication tool will be the Aichi Passport, a small pocket guide on trends towards each of the Aichi Biodiversity Targets, which is expected to be launched at the eleventh meeting of the Conference of the Parties with regular updates to be produced thereafter.

**Gaps in indicator development and uses**

37. Currently seven of the 20 Aichi Biodiversity Targets have no indicator that is ready for use and for another four targets only one indicator has so far been developed. There is therefore an urgent need for the identification or development of suitable indicators to monitor all aspects of the Strategic Plan for Biodiversity 2011-2020.

38. The following steps could be taken to address these gaps:

(a) Examine existing indicators from other processes for their relevance to the Aichi Biodiversity Targets;

(b) Encourage organization and networks with relevant data and approaches to join the Biodiversity Indicators Partnership;

(c) Encourage donors to fund the development of indicators with a priority on targets for which no indicators yet exist.

**Research and modelling**

39. The Technical report prepared for GBO-3 provided suggestions for the way forward for biodiversity models and scenarios. The main conclusions in this regard were:

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16 Report under preparation
17 http://www.bipnational.net/
18 http://www.bipindicators.net/
19 See http://www.bipindicators.net/indicators
(a) Models of the future of biodiversity and ecosystem services contribute to our scientific understanding;

(b) Models need to incorporate multiple drivers affecting biodiversity and ecosystem services and integrate interactions between realms;

(c) Ideally models of biodiversity and ecosystem services should incorporate dynamics and be process-based instead of the currently available static, pattern-matching models;

(d) Models should include interactions and feedbacks that link biodiversity, ecosystem functioning, ecosystem services and socio-economic processes;

(e) Models of biodiversity and ecosystem services must be evaluated using a standard set of indicators to assess the validity and limitations of the projections;

(f) Scenarios can inform the definition of post-2010 targets, both globally and regionally;

(g) IPBES could provide the stimulus for the major effort needed to evaluate and improve models.

40. DIVERSITAS, the international programme for biodiversity science, recently published its new vision for biodiversity science 2011-2020, developed in the context of the Strategic Plan for Biodiversity 2011-2020.\(^1\)

41. In its recommendation XVI/8, SBSTTA invited Parties, other Governments and relevant organizations, including organizations responsible for funding and conducting research activities, to support work, *inter alia*, on modelling and observations to address gaps in knowledge and information on the linkages between biodiversity and climate change.

**Scientific and technical cooperation**

42. The Working Group on review of Implementation, in recommendation 4/1, called for (i) the development of a coherent, consistent and coordinated approach to technical and scientific cooperation, (ii) the establishment of a capacity-building network of national and regional centres of excellence on biodiversity to support the implementation of the Strategic Plan for Biodiversity 2011-2020, and for (iii) the sharing of information through national clearing-house mechanisms or other relevant mechanisms on results from monitoring of progress towards the Aichi Biodiversity Targets should be implemented to, *inter alia*, provide the fullest possible support to countries to enhance their ability for monitoring implementation of their national biodiversity strategies and action plans and their national targets set in accordance with the Strategic Plan for Biodiversity 2011-2020 and to report on progress through the national report and other means.

**IV. BIODIVERSITY REPORTING AND ASSESSMENTS**

**Steps towards data-based and online reporting**

43. The guidelines and format for the fifth national report were agreed through decision X/10 and the Conference of the Parties decided that the fifth national report will use a narrative format where appropriate, combined with use of suggested tools, including tables, charts and questionnaires for statistical analysis, and that the format for the fifth and sixth national reports should be consistent to allow for long-term tracking of progress towards the Aichi Biodiversity Targets.

44. A resource manual for the fifth national report is also available in languages.\(^2\) To ensure that countries are able to submit their reports before the deadline of 31 March 2014, the Secretariat envisages support to developing countries, particularly the least developed countries and small islands developing States, in the preparation of the fifth national report, through a series of sub-regional workshops. The

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\(^2\) http://www.cbd.int/nr5/
workshops will also discuss the information needs for GBO-4 and opportunities for submitting supplementary material and case studies for possible use in GBO-4, consistent with SBSTTA recommendation XVI/2.

45. In addition to the national reports, the Secretariat is currently developing a tool for online reporting and analysis of national qualitative self-assessments of progress towards the national targets defined under the Aichi Biodiversity Targets. It is expected that a pilot system will be presented at the eleventh meeting of the Conference of the Parties.

**Progress towards achievement of the Targets – the fourth edition of the Global Biodiversity Outlook**

46. As requested by the Conference of the Parties, the Executive Secretary prepared a plan for the preparation of the fourth edition of the Global Biodiversity Outlook (GBO-4) (UNEP/CBD/SBSTTA/16/3). In its recommendation XVI/2, the Subsidiary Body on Scientific, Technical and Technological Advice took note of the plan and requested the Secretariat to initiate preparations on the basis of this plan and to provide a progress report to the eleventh meeting of the Conference of the Parties, as well as to the SBSTTA Bureau.

47. SBSTTA emphasizes that:

(a) GBO-4 should provide a mid-term assessment of progress towards the Aichi Biodiversity Targets;

(b) GBO-4 should address:

(i) The possible policy responses that could be effective in contributing to the achievement of the Aichi Biodiversity Targets;

(ii) The level of progress towards the Aichi Biodiversity Targets (considering both national commitments, plans and targets adopted by Parties; and the level of implementation on the ground);

(iii) How achievement of the Aichi Biodiversity Targets would contribute to the 2050 vision of the Strategic Plan for Biodiversity 2011-2020;

(iv) How progress towards the Aichi Biodiversity Targets contributes to the Millennium Development Goals and their 2015 targets;

(c) GBO-4 should be easy to understand and accessible to a variety of different audiences and will consist of several products, to be released at key events starting with the twelfth meeting of the Conference of the Parties; the content will draw on available information from a range of sources, including available information provided by Parties.

48. While the third edition of Global Biodiversity Outlook provided the rationale for the scope of the Strategic Plan for Biodiversity 2011-2020, the fourth edition should provide the information necessary to enable a meaningful analysis of progress in its implementation around the middle of the decade. This analysis should draw on data and information provided by countries as well as regional and global data sets. It should present an assessment of progress in achieving each of the Aichi Biodiversity Targets at the global level but should also facilitate regional analyses and national decision-making.

49. In order for the Conference of the Parties to be able to consider the messages of GBO-4 and to take meaningful action based on them at a time that enables the Conference of the Parties and Parties to make adjustments well ahead of 2020, this mid-term assessment of progress towards the Aichi Biodiversity Targets will need to be made available at the twelfth meeting of the Conference of the Parties in 2014. Therefore SBSTTA recommends that the Conference of the Parties should stress the importance of the timely submission of fifth national reports and should urge Parties to make information for inclusion in GBO-4 available early.
Progress in preparing GBO-4

Advisory group

50. In recommendation XVI/2 the Subsidiary Body on Scientific, Technical and Technological Advice requested the Executive Secretary to establish, in accordance with the guidance on the composition of expert groups contained in the consolidated modus operandi of SBSTTA (decision VIII/10, annex III), an advisory group for the fourth edition of the Global Biodiversity Outlook, in order to provide guidance of the preparation process of GBO-4 at the earliest possible time, and to review and provide advice on data and methodology standards, development plans and outputs, quality assurance and the inclusion of case-studies. In response to this recommendation a notification was issued (SCBD/STTM/DC/RH/79819) inviting Parties, relevant organizations and indigenous and local communities to nominate an expert who could contribute to the work of the GBO-4 advisory group. The Executive Secretary, in consultation with the SBSTTA Bureau, selected advisory group members from the nominations received based on expertise, regional and gender balance, taking into account the modus operandi for SBSTTA and relevant guidance in recommendation XVI/2. The first meeting of the advisory group is planned to take place just prior to the eleventh meeting of the Conference of the Parties. It is anticipated that a summary report of the advisory group meeting will be made available for the information of participants in the eleventh meeting of the Conference of the Parties.

Scenario study

51. The evaluation of the third edition of the Global Biodiversity Outlook found the scenario information on tipping points to be important in supporting the main conclusions of the report. Building from this, scenario information will also be included in GBO-4. A call for proposals on a consultancy for the preparation of a scenario study on future implementation needs for the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets was issued. A consortium composed of DIVERSITAS, UNEP-WCMC, PBL-Netherlands and the University of British Colombia Fisheries Centre was awarded the consultancy.23

Funding

52. In recommendation XVI/2 the SBSTTA recommended that the Conference of the Parties urge Parties and invite other Governments and donors to make timely financial contributions for the preparation and production of the fourth edition of the Global Biodiversity Outlook and its ancillary products, including translations in all United Nations languages, in accordance with the work plan and budget estimates for its preparation. To date financial resources have been received from the European Union and Switzerland.

Website

53. A website with information on the fourth edition of the Global Biodiversity Outlook has been prepared (www.cbd.int/gbo4). The website contains up to date information on, among other things, the production plan and resource requirements for the report. It also has links to relevant documentation. Further information, including updates on progress, will be made available on the website as it becomes available.

23 The proposal is accessible from www.cbd.int/gbo4.