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CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY

Tenth meeting
Nagoya, 18-29 October 2010
Item 4.9 of the provisional agenda*

THE CITY BIODIVERSITY INDEX

Note by the Executive Secretary

BACKGROUND

1. At the ninth meeting of the Conference of Parties to the Convention on Biological Diversity (CBD) held in May 2008 in Bonn, Germany, the Parties adopted for the first time ever a decision on cities and biodiversity, [Decision IX/28](#). The decision encourages Parties to the Convention to recognise the role of cities in national strategies and plans, and invites Parties to support and assist cities in implementing the Convention at the local level. In this context, the Minister for National Development of Singapore, Mr. Mah Bow Tan proposed the development of a CBD-led “city biodiversity index” that will assist cities in the benchmarking of our biodiversity conservation efforts over time, at the high level segment of the ninth meeting of the Conference of Parties in Bonn, on 27 May 2008.
2. The annexed document has been prepared by the Government of Singapore and is being submitted in the form and language in which it was received by the Secretariat of the Convention.

* UNEP/CBD/COP/10/1

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*Annex***I. THE CITY BIODIVERSITY INDEX – AN EVALUATION TOOLS FOR CITIES**

1. At the ninth meeting of the Conference of the Parties, the Minister for National Development of Singapore, Mr. Mah Bow Tan proposed the development of a CBD-led “city biodiversity index” that will assist cities in the benchmarking of our biodiversity conservation efforts over time, at the high level segment of the ninth meeting of the Conference of Parties in Bonn, on 27 May 2008. Following up on Minister Mah’s proposal, the First Expert Workshop on the Development of the City Biodiversity Index took place from 10-12 February 2009 at the Singapore Botanic Gardens.

II. FIRST EXPERT WORKSHOP ON THE DEVELOPMENT OF THE CITY BIODIVERSITY INDEX, 10-12 FEBRUARY 2009, SINGAPORE

2. The workshop was organized by the Secretariat of the Convention on Biological Diversity (SCBD) and the National Parks Board of Singapore (NParks), in consultation with the Global Partnership on Cities and Biodiversity (GPCB). The key objectives of the workshop were to develop the City Biodiversity Index (CBI) to:

- (a) Serve as a self-assessment tool;
- (b) Assist national Governments and local authorities in benchmarking conservation efforts in the urban context at the city level;
- (c) Help evaluate progress in reducing the rate of biodiversity loss in urban ecosystems;
- (d) Help measure the ecological footprint of cities;
- (e) Serve as material for the development of guidelines for the preparation of a cities and biodiversity plan of action for the achievement of the three objectives of the Convention; and
- (f) Make cities aware of important gaps in information about their biodiversity.

3. A total of seventeen technical experts on biodiversity indicators as well as city executives and city representatives responsible for implementation and/or management of biodiversity and urban projects and programmes attended the workshop. These included four city and city state governments (Curitiba, Montreal, Nagoya, and Singapore), experts from the London School of Economics, Stockholm Resilience Centre, Institute of Housing and Environment (Germany), National University of Singapore, the International Union for Conservation of Nature (IUCN), ICLEI – Local Governments for Sustainability’s Local Action for Biodiversity (LAB) Initiative and the East Asian Seas Partnership Council. Mr. Oliver Hillel, Programme Officer for Sustainable Use, Tourism and Island Biodiversity (CBD) attended the workshop.

4. The experts deliberated on the format and agreed that the index comprised of three components:

- (a) Native biodiversity in the city,
- (b) Ecosystem services provided by biodiversity in the city, and
- (c) Governance and management of biodiversity in the city.

5. The experts discussed in-depth each of the components and proposed 26 indicators.¹ The participating cities of Curitiba, Montreal, Nagoya and Singapore agreed to test the applicability of the index. The representative from ICLEI-Local Governments for Sustainability LAB Initiative agreed to encourage the 21 LAB pioneer cities to test the index; and the representative from IUCN agreed to explore the use of the index in the IUCN Countdown 2010 project on European Capitals of Nature and Biodiversity - Award for Cities and Municipalities in Europe respectively.

6. Participants charted the CBI roadmap leading to the tenth Conference of Parties to the Convention on Biological Diversity in October 2010, which included key forums and events for cities and local authorities. The roadmap included the conduct of a Second Expert Workshop on the Development of CBI in the second quarter of 2010. The report of the First Expert Workshop on the Development of CBI can be found at (<http://www.cbd.int/doc/?meeting=EWDCBI-01>).

Draft User's Manual for the CBI (November 2009 version)

7. A technical task force comprising Dr. Nancy Holman (London School of Economics), Mr. Peter Werner (Institute of Housing and Environment, Darmstadt, Germany), Professor Thomas Elmqvist (Stockholm Resilience Centre), Mr. Andre Mader (ICLEI-Local Governments for Sustainability LAB Initiative), Ms. Elisa Calcaterra (IUCN), Mr. Oliver Hillel (SCBD) and Dr. Lena Chan (NParks), was delegated to prepare the User's Manual for the CBI. The draft User's Manual for the CBI was made available through the CBD website in November 2009 (<http://cdn.www.cbd.int/doc/groups/cities/user-manual-singapore-index-2009-11-21-en.pdf>). Cities were invited to test-bed the index and provide their comments to Dr. Lena Chan of Singapore.

8. The User's Manual for CBI, noted that CBI comprises two parts: (i) profile of the city, where the city will provide some background information; and (ii) indicators to be evaluated by the city. In Part II of CBI, explanation and guidelines are provided on the 25 indicators, which include:

- (a) The rationale for selection of the indicator;
- (b) How to calculate the indicator;
- (c) Where to get data for the calculations; and
- (d) Basis for the scoring.

9. The 25 indicators are as follows:

- (i) *Native biodiversity in the city*
 - (1) Percentage of natural/semi-natural areas
 - (2) Diversity of ecosystems
 - (3) Fragmentation measures
 - (4) Native biodiversity in built-up areas (bird species)
 - (5) to (9) Number of native species
 - (10) Percentage of protected areas
 - (11) Proportion of invasive alien species (as opposed to native species)
- (ii) *Ecosystem services provided by native biodiversity in the city*
 - (12) Freshwater services
 - (13) Carbon storage
 - (14) to (16) Recreation and educational services

¹ As two of the indicators were very similar, one of them was removed during the preparation of the User's Manual for CBI, resulting in a total of 25 indicators in the November 2009 version of the User's Manual.

- (iii) *Governance and Management of Native Biodiversity in the City*
- (17) Budget allocated to biodiversity projects
 - (18) Number of biodiversity projects and programmes organized by the city annually
 - (19) Rules, regulations and policy – existence of local biodiversity strategy and action plan
 - (20) and (21) Institutional capacity
 - (22) and (23) Participation and Partnership
 - (24) and (25) Education and Awareness

10. Three methods of scoring were proposed. The first method, which involves quantitative scores, has been developed in greater detail and is currently the basis for scoring the index. A maximum score of four is allocated for each indicator, and with 25 indicators, the maximum score of the CBI is 100. The two other methods are comparing with the baseline of 100, and the traffic system, which also require some quantitative measurement for their scoring.

III. SECOND EXPERT WORKSHOP ON THE DEVELOPMENT OF THE CITY BIODIVERSITY INDEX, 1-3 JULY 2010, SINGAPORE

11. The Second Expert Workshop on the Development of the City Biodiversity Index held from 1 to 3 July 2010 in Singapore was co-organized by the Secretariat of the Convention on Biological Diversity and NParks in close consultation with GPCB. Since the first expert workshop, the City Biodiversity Index was presented at various forums, including the Urban Nature Forum (14-18 June 2009), Second Curitiba Meeting on Cities and Biodiversity (6-7 January 2010), ASEAN Workshop on the CBI (27-29 April 2010) and URBIO2010 (Urban Biodiversity and Design Conference, 18-22 May 2010).

12. The objectives of the workshop were to:

- (a) Review comments by cities which have test-bedded the index;
- (b) Refine the indicators of CBI; and
- (c) Finalize the User's Manual for CBI.

13. A total of thirty-two technical experts on urban biodiversity conservation and planning as well as city representatives responsible for implementation and/or management of biodiversity, and urban projects and programmes attended the workshop. This included the members of the task force and representatives from seven cities (Brussels Capital Region, Curitiba, Edmonton, Montreal, Nagoya, Singapore and Waitakere City).

14. At the time of the workshop, the following thirty-four cities were in the various stages of test-bedding (please note that the country is indicated first, followed by the city):

Cities which have test-bedded and provided their preliminary scores* for CBI	Cities which have agreed and are in various stages of test-bedding
1. Brazil: Curitiba	1. Australia: Joondalup
2. Belgium: Brussels Capital Region	2. Cambodia: Phnom Penh
3. Canada: Edmonton	3. Cambodia: Siem Reap
4. Estonia: Tallinn	4. Canada: Montreal
5. France: Montpellier	5. European cities participating in the European Capitals of Biodiversity Competition (from five countries – France, Germany, Hungary, Spain and Slovakia)
6. Germany: Frankfurt	6. France: Paris
7. Indonesia: Bandung	
8. Japan: Nagoya	
9. New Zealand: Waitakere City	

10. Singapore	7. Indonesia: Padang
11. Thailand: Bangkok	8. Indonesia: Pekanbaru
12. Thailand: Chiang Mai	9. Lao PDR: Vientiane
13. Thailand: Krabi	10. Lao PDR: Xayaboury
14. Thailand: Phuket	11. Malaysia: Sibu
15. United Kingdom: London	12. Malaysia: Kuantan
	13. Philippines: Iloilo City
* Some of the cities did not score on all the indicators due to lack of information	14. Philippines: Puerto Princesa City
	15. Philippines: Quezon City
	16. USA: Montpelier
	17. USA: Kings County
	18. Viet Nam: Danang
	19. Viet Nam: Hanoi

15. The test-bedding experience of Brussels Capital Region, Curitiba, Edmonton, Montreal, Nagoya, Singapore, Waitakere City and ASEAN cities were presented. The presentations highlighted both common and specific challenges that cities faced in testing the index. The common concerns include the need for more clarity by providing definitions and clear explanations to guide users in testing the indicators; the need to adjust the threshold and scoring range for some of the indicators; and the lack of data availability, accessibility and reliability to score some of the indicators.

Key issues discussed

16. It was recognized that cities in the temperate region have inherently a lower diversity than cities in the tropical region. Similarly, it was more likely that more mature cities have a lower diversity than newer cities due to a longer history of human intervention. The size of the cities too is an important factor in determining the biodiversity richness of the city. To ensure fairness and reduce bias, a number of amendments were recommended. First, it was agreed that the total number of ecosystems and total number of specific species be listed in Part I of CBI, which is the Profile of the City. The net change in species over time, where 2010 is set as the baseline year, has been identified as an indicator to replace the total number of species. Second, statistical analysis based on the data from cities would be carried out. For the statistical analysis to be reliable, data input would be required from at least 20 cities. For a 1-4-point scoring range for each indicator, the mean from the data given by the cities will be calculated and be used as the reference for “2 points” score.

17. The validity of a single score based on the summation of the scores of a diverse range of indicators was raised. It was generally agreed that the single score and a traffic light system of scoring might be used to facilitate communication of CBI to the public. However, it was agreed that the scores should not be used as a comparative tool among cities, but rather as a means for the city itself to evaluate progress.

18. In terms of considering the ecological footprint of the city, it was noted that there are other indices that cover this aspect and as such CBI focuses on biodiversity related parameters within the city. On extinction of species, it was accepted that in the context of a city, such extinction had taken place, and it was not productive to dwell on this issue. Instead positive steps need to be taken to encourage restoration, rehabilitation and reintroduction of ecosystems and species. As such, all the indicators, where relevant, have been revised to reflect this approach.

19. There were feedback that insufficient attention was given to biodiversity in built-up areas, considering most cities comprise mainly of built-up areas and semi-natural and cultural landscapes. The CBI currently has an indicator on native biodiversity found in built-up areas. It is envisaged that positive

indicators, which aim to increase biodiversity through restoration, rehabilitation and reintroduction, will be developed to address this aspect.

User's Manual for CBI (August 2010)

20. The revised User's Manual for CBI will be made available at (<http://www.cbd.int/authorities/gettinginvolved/cbi.shtml>). The amended CBI now consists of 23 indicators. Indicator 2 on the Diversity of Ecosystems was deleted as the information is now provided in Part I of CBI: Profile of the City. Indicator 14 on number of visits/ person/ year has also been deleted as many participants expressed difficulties in obtaining accurate data. For a number of the indicators, the range of scores have not been provided as it will depend on the data provided a sufficient number of cities before statistical analyses are conducted to provide more appropriate range of scores.

21. Participants noted that cities would be encouraged to test-bed the amended CBI before the tenth meeting of the Conference of Parties to the Convention on Biological Diversity; and the need to engage a broader range of stakeholders to support the testing of CBI. The report of the Second Expert Workshop on the Development of the City Biodiversity Index will be made available at (<http://www.cbd.int/doc/?meeting=EWDCBI-02>).

IV. CBI AND THE PROPOSED DRAFT PLAN OF ACTION ON CITIES, LOCAL AUTHORITIES AND BIODIVERSITY, 2011-2020

22. GPCB and a number of CBD Parties propose to complement COP decision IX/28 with a broader Plan of Action on Cities, Local Authorities and Biodiversity to be considered by Parties at COP-10 under Agenda Item 4.9 on Cooperation with other conventions and international organizations and initiatives, engagement of stakeholders, including business and biodiversity, cities and biodiversity and South/South cooperation.

23. The proposed plan will provide suggestions to Parties on how to mobilize and coordinate local actions on biodiversity, to promote implementation of the Convention on Biological Diversity at the local level, and to bring national strategies and plans into the urban context. CBI is recognized as one of the monitoring tools for cities to utilize in evaluating their biodiversity conservation efforts.

24. Although CBI was originally designed as a self-assessment tool, many other applications of CBI have emerged. First, the indicators can act as guidelines on how to conserve and enhance biodiversity in cities. Secondly, the data collected for the calculation of the indicators form the essential biodiversity database for the conservation and enhancement of biodiversity. Thirdly, the indicators can also be used for the master planning of new cities. Fourthly, CBI could be used as the biodiversity component for other environmental indices. Fifthly, when the scores of the different components are calculated, they allow decision-makers to prioritise on areas of weakness. Sixthly, as the scores are quantitative, CBI can be converted into economic value for biodiversity and ecosystem services.
