



POSITION PAPER

INCLUSION OF MSA AND MSA.KM² AS HEADLINE INDICATORS IN THE POST-2020 FRAMEWORK OF THE CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

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PROCESS OVERVIEW

After a first draft released in June 2022, the position paper for the inclusion of MSA and MSA.km² as headline indicators in the post-2020 Global Biodiversity Framework of the Convention on Biological Diversity (CBD) was updated and put under consultation until September 27th, 2022. This is the third and final version of the document, for sharing with CBD negotiators and co-chairs of the open-ended working group ahead of COP15 (Montréal, Canada, December 2022).

If you want to support the position paper, you can become a co-signatory by filling the [dedicated form](#)

In May 2022, Business for Nature updated their position on the Convention on Biological Diversity's (CBD) post-2020 global biodiversity framework, in particular calling Parties at OEWG4 to: "Adopt an ambitious Target 15 that requires business and financial institutions to transform their business practices" and "Adopt a clear, simple and rallying mission to halt and reverse biodiversity loss by 2030 based on the strong consensus expressed by Parties and Observers on this proposed mission at the OEWG3" (Business for Nature 2022). In October 2022, Business for Nature is also launching the COP15 advocacy campaign (#MakeItMandatory) to require all large businesses and financial institutions to assess and disclose their impacts and dependencies on nature by 2030. We support these positions and wishes to contribute to reinforcing the monitoring framework for the post-2020 global biodiversity framework, through suggestions on Goal A and Target 15. Our objective is to contribute to a pragmatic and operational framework, taking into account both scientifically sound metrics and current market practices, so that business and financial institutions can measure progress against the framework's goals and targets, and contribute to their achievement. The Mean Species Abundance (MSA) is identified as a complementary indicator (a.43) for Goal A in the monitoring framework, but is not however identified as a possible headline indicator for Goal A, nor as a possible headline indicator for Target 15 (CBD 2022). We suggest MSA as a headline indicator for Goal A and Target 15, as well as MSA.km² ^{(1) (2)} as a headline indicator for Target 15 and a component indicator for Goal A.

(1) Or km².MSA, which is equivalent

(2) These three aspects are covered by the three milestones of Goal A outlined in the CBD's post-2020 global framework on biodiversity (Secretariat of the UN Convention on Biological Diversity 2021).

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Biodiversity is generally accepted to be divided in three levels: genes, species, and ecosystems⁽²⁾. The MSA metric provides an evaluation of the state of ecosystems compared to their undisturbed state. It is thus complementary to other biodiversity metrics, specifically those that address the species and genetic levels of biodiversity, such as the Red List Index and “the proportion of populations within [umbrella] species with a [genetically] effective population size > 500” both identified as headline indicators in the CBD’s proposed monitoring framework (CBD 2022).

Considering its properties, MSA has much potential as a metric: it is sensitive to change, easy to interpret (0-100 % scale), can be globally assessed based on pressure-impact relationships from the GLOBIO model (Alkemade et al. 2009; Schipper et al. 2020), and is regularly used in scientific studies (Leclere et al. 2018; Leclère et al. 2020; Wilting et al. 2017; Wilting and van Oorschot 2017; Lucas and Wilting 2018) and international outlook studies for the Living Planet Report (Almond, Grooten M, and Petersen 2020), IPBES (Rounsevell 2018; Brondizio et al. 2019) and the CBD (Secretariat of the Convention on Biological Diversity 2020). A first estimate of the global planetary boundary for functional biodiversity has been estimated using MSA: it stands at 72 % (Lucas and Wilting 2018). Using MSA could thus potentially facilitate negotiations by providing an indication of the level to aim for for ecosystems (in a similar fashion to the 1.5°C-2°C for climate). The MSA is also used in several biodiversity impact assessment tools. Examples include the Global Biodiversity Score (GBS) (CDC Biodiversité 2020b), launched in May 2020 by CDC Biodiversité to assess the biodiversity footprint of companies and financial institutions; the Corporate Biodiversity Footprint (CBF) developed by Iceberg Data Lab (IDL) to assess biodiversity footprint of companies and financial institutions; the Biodiversity Impact Metric (BIM) developed by the University of Cambridge Institute for Sustainability Leadership (CISL) to measure the impact of commodity supply chains (University of Cambridge Institute for Sustainability Leadership (CISL) 2020); and the Biodiversity Integrated Assessment and Computation Tool (B-Intact) developed by the Food and Agriculture Organisation of the UN (FAO), to assess the impact on biodiversity of projects in the Agriculture, Forestry and Other Land Use sector (Food and Agriculture Organisation 2021). We thus believe that (global) MSA would be valuable as a headline indicator for Goal A. We suggest as a headline indicator: “Condition in MSA and extent in km² of ecosystems impacted by businesses, split between direct operations, upstream and downstream” for Target 15.

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Indeed, MSA is already identified as a complementary indicator in Appendix 1 (a.43). Since in practice, MSA (in %) is difficult to produce for businesses, we also wish to suggest “Condition-weighted business direct operations, upstream and downstream impacts (MSA.km²)” as a headline indicator for Target 15. This indicator is already available at the country level through GLOBIO-IMAGE produced by the PBL (Netherlands Environmental Assessment Agency), and which is for example used in Global Biodiversity Outlooks (Secretariat of the Convention on Biological Diversity 2020). The indicator is also used by most financial institutions (through the CBF and BIA-GBS databases) assessing their biodiversity footprint and transition risk and by a number of corporates (e.g., through the GBS tool or the CBF). For both MSA and MSA.km², we believe that the values of the indicators should be reported at the ecoregion level and that their use at the ecosystem asset level should be encouraged for business, in line with the Biological Diversity Protocol (Endangered Wildlife Trust 2020)⁽³⁾. Table 1 below compares MSA (average abundances of originally occurring species relative to their abundance in the undisturbed ecosystem (Schipper et al. 2016)) and MSA.km² (integration of MSA over space).

(3) This would allow the distinction of a mosaic landscape which is 50 % intact (100 % MSA) and 50% entirely degraded (0 % MSA) from one which is at 50 % MSA all over. Such a distinction is important as the biodiversity implications of both landscapes are very different.

Table 1. Characteristics of MSA and MSA.km². The characteristics marked with * are cited from Annex 1 of the SBSTTA recommendation 24/2, as criteria “the indicators in the monitoring framework for the post-2020 global biodiversity framework should meet, or be able to meet by 2025” (CBD 2022).

CHARACTERISTICS	MSA	MSA.km ²
Quantitative	Yes	Yes
Used in the CBD’s Global Biodiversity Outlook	Yes	No
Identified in the CBD’s post-2020 framework	Yes ⁽⁴⁾	No
Used by the IPBES	Yes ⁽⁵⁾	No
Comprehensible by non-experts	Yes	Yes
Reflects ecosystem condition	Yes	Yes
Reflects ecosystem extent	No	Yes
Reflects ecological integrity (considers ordinary biodiversity)	Yes	Yes
Can be calculated at multiple scales through cause effect relationships	Yes	Yes
Allows to account for stocks and variation of stocks of remaining biodiversity	Yes	Yes
Used by businesses and financial institutions	No	Yes
*“The data and metadata related to the indicator are publicly available”	Yes	Yes
*“The methodology underpinning the indicator is either published in a peer reviewed academic journal or has gone through a scientific peer review process and has been validated for national use”	Yes	No
*“The data sources and indicators should be compiled and regularly updated with a time lag of less than five years between updates, if possible”	Yes	No
*“There is an existing mechanism for maintaining the indicator methodology and/ or data generation [...] including providing nationally applicable guidance on the use of the indicator”	Yes	No
*“Indicators should be able to detect trends relevant to the components of the goals and targets of the post-2020 global biodiversity framework”	Yes ⁽⁶⁾	Yes
*“When possible, indicators are aligned with existing intergovernmental processes under the United Nations Statistical Commission”	No	No

Appendix 2 provides detailed justification on how MSA and MSA.km² fit the criteria set out in the CBD monitoring framework (those indicated by * in Table 1 above).

This position paper has been drafted by CDC Biodiversité, I Care, and Iceberg Data Lab. For further information, please contact Joshua Berger, Head of Biodiversity Footprint at CDC Biodiversité: joshua.berger@cdc-biodiversite.fr – please see attached appendix 1 for references and comments on other headline indicators suggested for Target 15; appendix 2 for feedback on other indicators considered by the parties for Target 15; appendix 3 for a more detailed assessment of the fitness of MSA and MSA.km² as CBD indicators; appendix 4 for feedback on other indicators considered by the parties for Goal A; and appendix 5 for the definition of the Mean Species Abundance (MSA) metric.

(4) The MSA is identified as a complementary indicator (a.43) for Goal A. It is not yet identified as a possible headline indicator for Goal A, nor as a possible headline indicator for Target 15. (CBD 2022).

(5) For example in (Rounsevell 2018; Brondizio et al. 2019).

(6) See the criteria above on use by IPBES and applicability for the monitoring framework for the post-2020 framework.

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