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Advice on how best to measure progress on strategic objectives 1, 2 and 3 of The Strategy

The development and implementation of impact indicators relating to the measurement of strategic objectives 1, 2 and 3 of The Strategy

Report on the scientific peer review for the refinement of the set of impact indicators on strategic objectives 1, 2 and 3

Note by the secretariat

Summary

This document is a summary of the input received from a global public consultation, representing the fourth and final iteration in the participatory scientific peer-review process as requested by the Conference of the Parties (COP) in decision 17/COP.9. It is part of the process by which the Committee on Science and Technology (CST) was requested to develop proposals, for consideration at COP 11, for the refinement of the provisionally accepted set of impact indicators, attached to decision 17/COP.9, that are being developed to measure progress on strategic objectives 1, 2 and 3 of the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018) (The Strategy). A total of 43 technical experts reviewed the first draft of the white paper resulting from the participatory scientific peer-review process. The white paper had been presented at the second special session of the CST (CST S-2) in document ICCD/CST(S-2)/INF.1, summarized for consideration by the COP in document ICCD/CST(S-2)/9, and made available for comment through an e-forum facilitated by the UNCCD secretariat. The comments received contributed to the report on the refinement of the set of impact indicators contained in document ICCD/COP(10)/CST/2) and the final version of the white paper.

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I. Introduction

A. Background

1. This document is a summary of the input received from a global public consultation, representing the fourth and final iteration in the participatory scientific peer-review process, as requested by the Conference of the Parties (COP) in decision 17/COP.9. It is part of the process by which the Committee on Science and Technology (CST) was requested to develop proposals, for consideration at COP 11, for the refinement of the provisionally accepted set of impact indicators, attached to decision 17/COP.9, that are being developed to measure progress on strategic objectives 1, 2 and 3 of the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018) (The Strategy).
2. The participatory scientific peer-review process is described in document ICCD/COP(10)/CST/2. That document also takes into consideration the contributions received during the global public consultation, which are summarized in this document.
3. The global public consultation period began in February 2011 during the Second Special Session of the CST (CST S-2) and closed in May 2011. Contributions were solicited through the UNCCD website, and through electronic communication networks commonly used by the scientific and technical community. In addition, attendees at CST S-2 were invited to participate during and after CST S-2, as were all those who had contributed to earlier phases of the participatory scientific review.
4. The focus of the public consultation was on the first draft of the white paper resulting from the participatory peer-review process, entitled “Scientific review of the UNCCD provisionally accepted set of impact indicators to measure the implementation of strategic objectives 1, 2 and 3”,¹ on a detailed report on the white paper presented at CST S-2 in document ICCD/CST(S-2)/INF.1, and on a compilation of ideas, suggestions and proposals offered by various delegations during CST S-2, summarized for consideration by the COP in document ICCD/CST(S-2)/9.
5. Comments were contributed directly and through an online discussion via an e-forum facilitated by the UNCCD secretariat,² to further fine-tune the first draft of the white paper.
6. A total of 43 technical experts contributed ideas during this period, bringing the total number of technical experts worldwide who have participated in the scientific peer-review process to 104.

B. Focus of this document

7. The global public consultation resulted in two general categories of contributions from technical experts:

¹ The full first draft of the white paper, with annexes, is contained in: Orr, BJ. 2011. *Scientific review of the UNCCD provisionally accepted set of impact indicators to measure the implementation of strategic objectives 1, 2 and 3*. White Paper, Version 1, 4 February 2011. Consultancy report for the CST of the UNCCD. 145 pp. <http://www.unccd.int/science/docs/Microsoft%20Word%20-%20White%20paper_Scientific%20review%20set%20of%20indicators_Ver1_31011%E2%80%A6.pdf>.

² <<http://eforum.unccd>>.

(a) Discussion on the major themes identified and elaborated during previous iterations of the participatory scientific peer-review process, that are captured in detail in the final version of the white paper and, where applicable, are summarized in document ICCD/COP(10)/CST/2;

(b) Introduction of themes that received little or no attention by technical experts in previous iterations of the white paper, that are captured in this document and in the final version of the white paper and, where applicable, are summarized in document ICCD/COP(10)/CST/2.

8. As such, the focus of this document is to summarize the outcomes of the discussion on the major themes identified and elaborated in previous iterations of the white paper, while making reference to documents where the details of all contributed perspectives are captured. In addition, this document provides more detail on themes that were newly introduced during the public consultation period, or received limited attention in past iterations of the white paper.

II. Major themes further elaborated

A. Conceptual framework

9. All the reviewers underscored prior recommendations to the UNCCD that it is essential to have a scientific framework to support the organization, use and communication of the set of indicators.

10. They also strongly endorsed the proposal that the conceptual framework be regularly re-evaluated for appropriateness as monitoring and evaluation efforts mature, for its usefulness in decision-making, and because needs may change and scientific tools may improve.

11. The majority of reviewers supported, with some revisions, the amended Driving Force–Pressure–State–Impact–Response (DPSIR) framework, integrated with ecosystem services introduced in the white paper and contained in document ICCD/COP(10)/CST/2, as an initial conceptual framework which could be adapted or changed in the future.

12. Significant contributions to the potential evolution of the proposed framework were made, including:

(a) Advances on how the proposed framework integrates DPSIR and the provision of ecosystem services that were developed by the United Nations University, Institute for Water, Environment and Health (UNU-INWEH)/Global Environment Facility (GEF) KM: Land Initiative (KM:Land), as a basis for the monitoring and assessment of the global impacts of sustainable land management (SLM) interventions;³

(b) An objective-driven approach proposed by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) to enhance the potential that the framework(s) employed will ultimately address not only scientific needs, but also the goals of the Convention, by interpreting the conceptual framework as a

³ Schuster B, D Niemeijer, R Thomas, Z Adeel, B Adhikari and C King. In Press. Integrated indicators to measure benefits from Sustainable Land Management at different scales. *Land Degradation & Development*.

representation of the main components of a system, or issues of interest, and their inter-relationships;⁴

(c) A participatory approach towards enhancing the logical framework in order to move beyond linear and casual relationships towards network or system analysis, where the contributing factors and relationships are identified by a combination of all stakeholders;⁵

(d) A complex adaptive systems paradigm increasingly being used in the study of socio-ecological systems that is based on gauging the capacity of a system to respond to disturbances and reorganize, while undergoing change, so as to preserve its critical functions, structure and feedbacks that safeguard adaptive capacity and do not foreclose future development options;⁶

(e) A more in-depth assessment of the interrelationships among the indicators; this would be possible through an approach called casual network analysis (resembling a process-based simulation model flowchart used in environmental systems analysis to depict interconnections between components and processes), which would enhance the potential that the indicator set would be employed and reported upon in an integrated manner.⁷

13. These suggestions provide insight on how the conceptual framework may evolve in tandem with the process of testing and refining the indicator set, so that the indicators and their metrics better reflect the objectives of the Convention, the underlying complex and often non-linear relationships among desertification/land degradation and drought (DLDD) system elements and their mode of change, and the invaluable knowledge local experts can provide.

B. Refinement of the indicator set hierarchy

14. One of the critical needs identified through the scientific peer review was how the underlying logic (and in some cases, language) of the indicator set hierarchy needed to be fine-tuned in order to maximize the potential for the indicator set to meet the strategic objectives of the UNCCD.

15. These proposed changes and the reasoning behind them are described in document ICCD/CST(S-2)/INF.1.⁸ The elements that were emphasized by technical experts during the public consultation period as essential to the refinement of the impact indicator set included:

(a) Refining the *structure* of the indicator set hierarchy making it possible to distinguish *what* to measure (general indicators) and *how* it/they should be measured (metrics/proxies):

⁴ Bubb P, V Kapos, M Parry, A Rosser, J Scharlemann, J Smith and D Stanwell-Smith. Personal communication. "High level" representations of an objective-driven conceptual framework. Cambridge, UK. United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC).

⁵ Abraham E, E Montaña and I Torres. 2006. Procedimiento y marco metodológico para la obtención de indicadores de desertificación en forma participativa. In: Abraham E and G Beekman (Eds.) Indicadores de la desertificación para América del Sur, Mendoza, BID-IICA: 37–64.

⁶ Briassoulis H. 2005. Policy integration for complex environmental problems: the example of Mediterranean desertification. Hants (UK): Ashgate.

⁷ Niemeijer D and RS de Groot. 2008. Framing environmental indicators: moving from causal chains to causal networks. *Environment, Development and Sustainability* 10:89–106.

⁸ See also footnote 1.

- I. Strategic objectives
 - a. Core indicators
 - i. General indicators
 - 1. Metrics/proxies;

(b) Enhancing the links between the strategic objectives and core indicators;

(c) Clarifying the role of indicators supporting the assessment of impact in the overall set, such as drivers;

(d) Adopting a “readiness scheme” (green = ready for testing, yellow = requires fine tuning, red = requires further development) to ensure a place for indicators that are currently challenging to measure, but are viewed as essential to monitoring impact.

16. These proposed enhancements to the indicator set hierarchy were viewed as pragmatic for indicator set refinement in order to ensure the potential for the longer term evolution of the indicator set as monitoring and evaluation efforts mature, needs change, and scientific tools improve.

C. Comments on specific indicators and metrics

17. In previous iterations of the scientific peer-review process, candidate metrics/proxies were proposed for each of the provisional indicator categories from two major parallel indicator development activities conducted by scientists working with the Land Degradation Assessment in Drylands (LADA)/World Overview of Conservation Approaches and Technologies (WOCAT) and the UNU-INWEH/GEF KM: Land Initiative (KM:Land), and one each contributed by the World Meteorological Organization (WMO) and the Convention on Biological Diversity (CBD).

18. Their development efforts over the past few years have involved considerable input and documentation from the scientific community. In particular, taken together, the KM:Land Initiative, LADA–WOCAT, WMO and CBD contributed 22 metrics/proxies for indicators under development.

19. Consistent technical descriptions, including relationships to UNCCD strategic objectives, purpose, description, source, spatial and temporal refinement, and noted strengths and weaknesses, were developed for each proposed metric/proxy (ICCD/CST(S-2)/INF.1 and ICCD/COP(10)/CST/2).⁹

20. Refinements to these technical descriptions and enhancements (and in some cases, alternatives) to measurement methodologies were contributed. These have been added to the final version of the white paper and shared with those participating in the pilot tracking exercise (ICCD/COP(10)/CST/INF.2).

D. Affected areas

21. The mapping and monitoring of the spatial extent of land degradation and desertification is necessary to understand the phenomenon and to elaborate sustainable national strategy and programmes to combat it and to mitigate its impact. Article 16 of the Convention specifically calls for the country Parties “...to integrate and coordinate the collection, analysis and exchange of relevant short term and long term data and information to ensure systematic observation of land degradation *in affected areas*” [emphasis added].

⁹ See also footnote 1.

Affected areas are not, however, fixed in place and time; it is arguable that all areas are potentially ‘affected’ areas, especially under conditions of climatic change (regardless of origin).

22. Based on the findings of the scientific peer-review process, the need to clarify the term “in affected areas”, specifically where it is used in the definition of the core and provisional indicators, was emphasized. It was recommended that all the proposed indicators should be measured in affected country Parties and that the operational use of the term “in affected areas” should be refined through input from the scientific community and used to interpret the impact indicator measurements. In this approach the related but different challenges of defining, measuring and monitoring the indicators and of defining and delineating affected areas would be distinct and therefore more operationally viable. The need for further work on meeting this challenge in an operational way in collaboration with the scientific community was emphasized.

23. The proposed solution of eliminating the term “in affected areas” from the definition of the core and general indicators, in conjunction with the recommendation that the context of application of the indicators should be operationally defined and clarified as a separate but parallel task, was endorsed in the previous iteration of the scientific peer review (ICCD/CST(S-2)/INF.1). (An operational approach to this with respect to reporting templates is proposed in document ICCD/COP(10)/CST/3.)

24. The next step recommended by reviewers was developing a harmonized approach to identifying affected areas and creating a basic map to which the impact indicators can then be referred. At the global level, the most affected and most vulnerable ecosystems and populations can be derived from a global assessment such as Global Land Degradation Information System (GLADIS).¹⁰ National and subnational level methodologies are being employed by the country Parties, but are not necessarily comparable.

25. Addressing this need is a component of the pilot tracking exercise that began shortly after CST S-2. One of the goals of the pilot tracking exercise is to provide valuable insights towards the development of a harmonized methodology for operationally delineating affected areas for use at national and subnational levels.

E. Capacity

26. It is important that the realities of indicator development, monitoring and reporting be fully acknowledged, including the variability among the country Parties in current capacity and resources. Indicator development is an evolutionary process at the global, national and local levels that requires guidance on alternative approaches that may be adopted and mechanisms to encourage horizontal and inter-agency collaboration and data sharing.

27. National needs of this kind can be addressed in part through capacity-building efforts, as well as by ensuring that the processes and products desired realistically reflect the challenges faced. The scientific peer-review process produced a number of proposals that, if taken together, make the monitoring and assessment of the impacts of the Convention more feasible across the varying levels of capacity among the country Parties.

28. Pursuing harmonization of monitoring and reporting can help address variability in capacity. Harmonization means to make comparable the same variable measured in

¹⁰ <http://www.fao.org/nr/lada/index.php?option=com_content&view=article&id=175&lang=en&Itemid=126>.

different ways. Standardization means to agree on and use only one single common methodology for the same variable or indicator. The causes and consequences of dryland degradation have multiple characteristics and vary in space and time. Hence, indicator and methodology selection, monitoring and reporting all need to accommodate these particularities while following coherent principles and criteria, including their scientific support in peer reviewed journals.

29. It is quite challenging, and in some cases impossible, to define the contribution of DLDD to some indicators (such as gross national product); in other cases, however, the degree of sensitivity to DLDD may improve as the capacity to define and delineate affected areas improves and the spatial resolution of corresponding indicator data sets is enhanced. This must be considered to ensure a place for essential indicators which, given improvements in knowledge and methodologies, may in future be measured with adequate sensitivity to DLDD.

30. By implementing a readiness scheme, a place can be ensured for indicators that currently cannot easily be measured with adequate sensitivity to DLDD, a particular concern for socio-economic factors and the impacts on human well-being.

31. The pilot testing exercise can provide insight on capacity challenges, resulting in practical recommendations for monitoring and reporting (ICCD/COP(10)/CST/INF.2).

F. National relevance and interests

32. Desertification is a global problem that is manifested locally. Mitigation efforts, even those associated with global or national initiatives, ultimately involve local decisions and actions designed to improve conditions. Moreover, the causes and consequences of desertification vary considerably between and within countries. For global monitoring to be effective and useful within country Parties, the national and even subnational relevance of the information provided from the indicator set is paramount.

33. The Convention has a major emphasis on participation,¹¹ and as a result, many of the documents focused on monitoring and assessment call for local, regional and national contributions to the process of selecting appropriate indicators for impact monitoring.¹² More than 40 per cent of the comments and questions received from delegates during CST S-2 in response to the presentation on the refinement of the impact indicators focused on how the approach would capture “the voice of the farmer”.

34. This suggests that efforts to monitor the impacts of the Convention across the country Parties in a unified way must include *both* a minimum set of indicators and metrics *and* a mechanism for the global system to account for local/subnational/national realities that may involve indicators not listed in the minimum set.

35. On a regional and national basis, there has been past success in linking local participatory processes to the combat of desertification in ways that ensure local relevance to national and regional assessments.^{13,14} In addition, several initiatives have created

¹¹ Poulsen L and M Lo, 2006. Promoting good governance through the implementation of the UNCCD. Chapter 8 in: Johnson PM, K Mayrand and M Paquin, (Eds.). *Governing global desertification. Linking environmental degradation, poverty and participation*. Aldershot, UK: Ashgate.

¹² Stringer LC, MS Reed, A Dougill, M Seely and M Rokitzki. 2007. Implementing The UNCCD: participatory challenges. *Natural Resources Forum* 31: 198–211.

¹³ See footnote 5.

¹⁴ Seely M and P Moser. 2004. Connecting community action and science to combat desertification: evaluation of a process. *Environmental Monitoring and Assessment* 99: 33–55.

frameworks for linking local participatory assessments to national and global efforts in support of the mission of the Convention^{15,16} involving multiple actors appropriate to the different scales (local to international), working in a contributive way (bottom-up rather than dictated top-down).¹⁷

II. Additional important themes explored

A. Gender dimension

36. The 20th preambular paragraph of the Convention recognizes “the important role played by women in regions affected by desertification and/or drought, particularly in rural areas of developing countries, and the importance of ensuring the full participation of both men and women at all levels in programmes to combat desertification and mitigate the effects of drought.” The importance of gender mainstreaming in environmental and poverty eradication policies has also been recognized in a wide range of global agreements relevant to the UNCCD.

37. It is therefore important to include a gender perspective in the indicators for strategic objective 1 (“To improve the living conditions of affected populations”). This can be done, in part, by adjusting the names of the indicators and metrics (e.g. Proportion of the population [*of men and women*] living above the relative poverty line). It can also be done by ensuring that these indicators are selected, in part, on the basis of their sensitivity to the gender dimension

38. Unfortunately, previous iterations of the peer-review process did not endorse the only indicator among those under consideration that encompasses the gender perspective in its design. The human development index (HDI), one of the originally suggested provisional indicators, was not endorsed as an indicator or metric. It was determined to be redundant because it overlaps the other specific indicators proposed in relation to livelihood (indicators I–IV). And because of its complexity (it involves multiple underlying measures in its calculation), the concern of its sensitivity to DLDD was raised.

39. However, HDI is the sole indicator in the provisional set recommended to the UNCCD that encompasses a gender perspective. Analysis of HDI data has shown that because of the differences in the distribution of achievements between women and men, countries may lose 17–85 per cent of HDI achievement in developing countries severely affected by desertification.¹⁸

40. A third approach to addressing the gender dimension would be to build gender disaggregation into data collection, analysis and reporting approaches, for all indicators where that is possible. This would ensure assessment of the contributive differences in the distribution of achievements between women and men on DLDD.

¹⁵ Oba G, E Sjaastad and HG Roba. 2008. Framework for participatory assessments and implementation of global environmental conventions at the community level. *Land Degradation & Development* 19: 65–76.

¹⁶ Whitfield S, S Bautista, BJ Orr, HJ Geist and VR Vallejo. In Press. Prevention and restoration actions to combat desertification (PRACTICE): An integrated assessment. *EcoHealth*.

¹⁷ Soberon JM and JK Sarukhan. 2010. A new mechanism for science-policy transfer and biodiversity governance? *Environmental Conservation*. 36(4): 265–267.

¹⁸ United Nations Development Programme. 2005. *Human Development Report 2005. International cooperation and crossroads: Aid, trade and security in an unequal world*. HDR2005. New York: UNDP. <http://hdr.undp.org/en/media/HDR05_complete.pdf>.

41. For example, including gender disaggregated data for the rural poverty indicator will ensure the capacity to monitor, evaluate and report changes in gender roles in dryland areas. Poverty is a root cause, and at the same time a consequence, of land degradation and desertification. Globally, women are the majority of world's poor – they account for 70 per cent of those who live on less than one dollar a day. Women own less than 10 per cent of the land worldwide. In most of the developing countries DLDD impacts men and women differently, mainly due to unequal access to land, water, credit, extension services and technology. DLDD impacts may cause young men (15–40 years old) to migrate, leaving women behind to manage the drylands, collect firewood, fetch water, and take care of children and the elderly.¹⁹

42. Gathering gender disaggregated data will account for these differences of distribution and ensure that the income of both men and women is impacted by actions taken to combat desertification. Even if a rural population shows an overall decrease in poverty, there is a possibility that one gender group will stay behind and dominate among the rural poor disproportionately. Without gender disaggregated data it is impossible to determine this distinction, resulting in incomplete or even misleading information.

B. Addressing variation across boundaries

43. It is envisioned the generation of indicator data will involve maps, as inputs to analysis, or as outputs, or as both. However, there has been almost no discussion about the need for, and appropriate methods to address, cross-boundary data harmonization.

44. Spatial data harmonization issues can occur within a country and between countries. In some areas within a country the compilation of maps shows abrupt (and unexpected) boundaries between parts within the map, which are commonly referred to as “edge” faults. They occur where two source maps abut. The reason may be that the authors mapped adjoining areas at different scales resulting in maps having different levels of detail, or that the authors differed in their methods or interpretations.

45. Most technical experts supporting the production of such maps within a country have established protocols to address these challenges. However, such protocols are less likely to be in place across jurisdictions, particularly between countries. Therefore, addressing cross-boundary data harmonization is something that will eventually need to be addressed as countries begin reporting on the impact indicators.

C. Indicator set analysis, integration and interpretation

46. The primary emphasis of the participatory scientific peer-review process has been on the refinement of the impact indicator set. However, while providing input on the refinement process, many technical experts asked a form of the following question: “Technically speaking, how (by what methods, and by whom) will the national information reported to the UNCCD be analysed, integrated, and interpreted?”

47. Several scientific and technical concerns were raised.

(a) It is anticipated that indicator data will be collected, analysed and reported initially on an indicator-by-indicator basis. However, the greatest value of a harmonized indicator set will be derived from the interrelationships among the indicators. A harmonized

¹⁹ See also footnote 18.

approach, ideally with input from the scientific community, will need to be developed to maximize this potential;

(b) Both prior to integration across indicators in the set and after, interpretation of the results will inevitably involve some technical and scientific challenges that will probably require some input from individual country Parties. This challenge needs to be considered when developing a harmonized integration approach;

(c) Integrated impact indicator data offer the opportunity to produce regional and global baseline assessments and outlooks, with the potential of informing policy and science. An approach needs to be developed to maximize this potential.

48. The reviewers encouraged the development of a scientifically based approach for integrating, analysing and interpreting impact indicator information, so that the overall set of impact indicators has the potential to generate nationally relevant information that can be harmonized and then used to produce regional and global baseline assessments.
