International Expert Workshop on the 2010 Biodiversity Indicators and Post-2010 Indicator Development

A workshop convened by the UNEP World Conservation Monitoring Centre (UNEP-WCMC)

In cooperation with the Convention on Biological Diversity (CBD)

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The Ramsar Convention on Wetlands and its indicators of effectiveness

Support for the workshop provided by the following:

The Ramsar Convention on Wetlands and its indicators of effectiveness

1. The Ramsar Convention is the only global Convention focused specifically on wetland biodiversity and ecosystems. "Wetlands" encompass a broader range of ecosystems than is often realised. Some are forested, some are agricultural land, some human-made, and some even underground. Wetlands occur in all biomes and are potentially influenced by all sectoral activities.

2. The Convention on Biological Diversity (CBD) has established Ramsar as its "lead implementation partner" on wetlands; and the two Conventions collaborate through a succession of Joint Work Plans. The CBD Conference of the Parties (COP) has asked Ramsar to explore ways of improving the assessment of inland water ecosystems, to contribute to the implementation and monitoring of targets for the inland waters and marine and coastal programmes of work, and to take the lead in developing harmonised reporting on inland waters biodiversity.

3. The Ramsar COP in 2005 agreed an initial set of eight ecological "outcome-oriented" indicators for assessing the effectiveness of selected aspects of the Convention's implementation. This forms part of a general integrated updating of monitoring, assessment and reporting processes under the Convention.

4. The text of the relevant decision (Resolution IX.1 Annex D) can be found at http://www.ramsar.org/res/key_res_ix_01_annexd_e.htm. The indicator specifications and additional background information are given in COP9 Information paper 18, available at http://www.ramsar.org/cop9/cop9_doc18_e.htm. A list of the indicator titles is given in the table below, cross-referred to global biodiversity indicators.

5. The eight initial indicators were considered to be those that are currently feasible to implement with existing, or readily collectible, data and information. There is always a trade-off between precision and ease of use. It has been shown that much useful information can be generated by qualitative knowledge-based assessments; and the results being collated for the Ramsar indicators are drawing fruitfully *inter alia* on data from Contracting Party national reports to COPs.

6. Some of the indicators are designed to operate at supranational level and to be coordinated internationally, and others are designed for use at site, basin/catchment or national scale. Broad-scale measures may of course rely on local information; and some small-scale measures can be aggregated for analysis at larger scales.

7. The emphasis of these indicators (in contrast to some other Convention evaluation endeavours that have similar aims) is on "science-based" ecological outcomes concerning the state of the wetland environment itself, rather than institutional activities.

8. Furthermore, Ramsar's purpose has been not simply to show the status and trends of wetland variables, but rather to show whether the Ramsar Convention is being effectively implemented - i.e. whether it is making a difference in the way intended. Giving an outcome statement about the status of wetlands might allow a number of reasonable inferences to be drawn about the impact made by Ramsar. The approach being adopted in current work by the Ramsar Scientific & Technical Review Panel (STRP) is to present information first on the "wetland outcome", and then to relate this outcome to a number of "Ramsar inputs" (also referred to as "process indicators" or "co-variates"). Effectiveness concerns the relationship between the inputs and the outcomes.

9. Strictly speaking, indicators of effectiveness of the Convention might best be defined in relation to targets for effectiveness; but since the Ramsar Parties have not so far adopted targets of this kind, for the time being the targets at issue are effectively the objectives of the Convention itself, i.e. to stem the progressive encroachment on and loss of wetlands now and in the future, according to the General Objectives adopted (in the Strategic Plan) for each of Ramsar's three "pillars" (wise use of wetlands; conservation of internationally important sites; and international cooperation).

Synergy between Ramsar indicators, 2010 target measurement and other processes

10. Ramsar indicator information, as well as serving Ramsar-specific needs, is expressly designed to contribute also to the assessment of progress towards targets adopted by the wider international community, such as the Millennium Development Goals and the target of significantly reducing the rate of loss of biodiversity by 2010. Synergy and compatibility between respective streams of work on this is assured in particular through Ramsar-CBD cooperation frameworks and through Ramsar's participation in the GEF-funded 2010 Biodiversity Indicators Partnership (2010 BIP). Where the question being asked in each place is more or less the same, work need only be done once, collaboratively, to serve multiple interests.

Table 1. Ramsar effectiveness indicators; related to CBD inland water programme targets and to CBD global biodiversity indicators (additional non-matching CBD targets and CBD indicators are not shown).

Ramsar - effectiveness indicators: 1st tranche, for initial implementation	**CBD - inland waters programme targets**	**CBD headline indicators**
Indicator A: The overall conservation status of wetlands: **(i)** Status and trends in wetland ecosystem extent **(ii)** Trends in conservation status – qualitative assessment	**Target 5.1** Rate of loss and degradation of inland water ecosystem biological diversity, especially through unsustainable water use, are decreased.	Trends in extent of selected biomes, ecosystems and habitats Connectivity/fragmentation of ecosystems
Indicator B: The status of the ecological character of Ramsar sites **(i)** Trends in the status of Ramsar site ecological character – qualitative assessment	**Target 5.1** Rate of loss and degradation of inland water ecosystem biological diversity, especially through unsustainable water use, are decreased.	
Indicator C: Trends in water quality **(i)** Trends in dissolved nitrate (or nitrogen) concentration **(ii)** Trends in Biological Oxygen Demand (BOD)	**Target 5.1** Rate of loss and degradation of inland water ecosystem biological diversity, especially through unsustainable water use, are decreased. **Target 7.2** Substantially reduce pollution and its impacts on inland water ecosystem biodiversity.	Water Quality
Indicator D: The frequency of threats affecting Ramsar sites **(i)** The frequency of threats affecting Ramsar sites – qualitative assessment	**Target 5.1** Rate of loss and degradation of inland water ecosystem biological diversity, especially through unsustainable water use, are decreased. **Target 7.2** Substantially reduce pollution and its impacts on inland water ecosystem biodiversity.	(Nitrogen Deposition) (Invasive Alien Species)
Indicator E: Wetland sites with successfully implemented conservation or wise use management plans **(i)** Wetland sites with successfully implemented conservation or wise use management plans		Coverage of protected areas (management effectiveness sub-indicator)
Indicator F: Overall population trends of wetland taxa **(i)** Trends in the status of waterbird biogeographic populations	**Target 2.1** Reduce the decline of, maintain or restore populations of species of selected taxonomic groups dependent upon inland water ecosystems	Trends in abundance and distribution of selected species
Indicator G: Changes in threat status of wetland taxa **(i)** trends in the status of globally-threatened wetland-dependent birds; **(ii)** trends in the status of globally-threatened wetland-dependent amphibians	**Target 2.1** Reduce the decline of, maintain or restore populations of species of selected taxonomic groups dependent upon inland water ecosystems	Change in status of threatened species
Indicator H: The proportion of candidate Ramsar sites designated so	**Target 1.2** 275 million hectares of wetlands of particular	Coverage of protected areas

far for wetland types/features **(i)** coverage of the wetland resource by designated Ramsar sites	importance to biodiversity protected, including representation and equitable distribution of areas of different wetland types across the range of biogeographic zones.	
Ramsar - effectiveness indicators: 2nd tranche, for possible future development	**CBD - inland waters programme targets**	**CBD headline indicators**
Indicator I: Coverage of wetland-dependent bird populations by designated Ramsar sites	**Target 2.2** The world's known threatened inland water ecosystem dependent species of plants and animals conserved, with particular attention to migratory, transboundary and endemic species and populations	(Coverage of protected areas)
Indicator J: The economic costs of unwanted floods and droughts		
Indicator K: Trends in water quantity		
Indicator L: Legislative amendments implemented to reflect Ramsar provisions		
Indicator M: Wise use policy		? Proportion of products derived from sustainable sources? ? Health and well being of communities?

11. This benefits in turn from coordination among data-providing activities (including remote sensing/earth observation initiatives, Contracting Party national reports as mentioned above, and others) to design those activities for maximum compatibility with the questions addressed by the Ramsar indicators. Indicator results are then synthesised from several sources.

Progress so far and examples of findings

12. Progress so far in generating results is only partial, but is already ahead of many comparable programmes. In particular, data from Ramsar national reports to COP10 in 2008 have been analysed and are proving to be a rich, even-handed and up to date component of the work. Small expert workshops during 2009 have tested assumptions, plotted the actual comparisons and correlations, explored statistical confidence levels and trialled presentation and reporting methods. Provisional draft findings have been developed within the STRP on indicators A(ii), D(i) and F(i) so far, with others at different stages of completeness. Findings on indicator C are becoming available from work by UNEP-GEMS/Water. Some examples of the types of outputs generated are given below.

Figure 1: Proportions of Ramsar national report responses indicating different degrees of perceived need to address adverse change in wetland ecological character in 2005-2008 compared with 2002-2005. The overall need in the later period was nearly everywhere at least the same, and in a majority of responding countries greater, than in the earlier period - in other words a net deterioration in wetland conservation status.

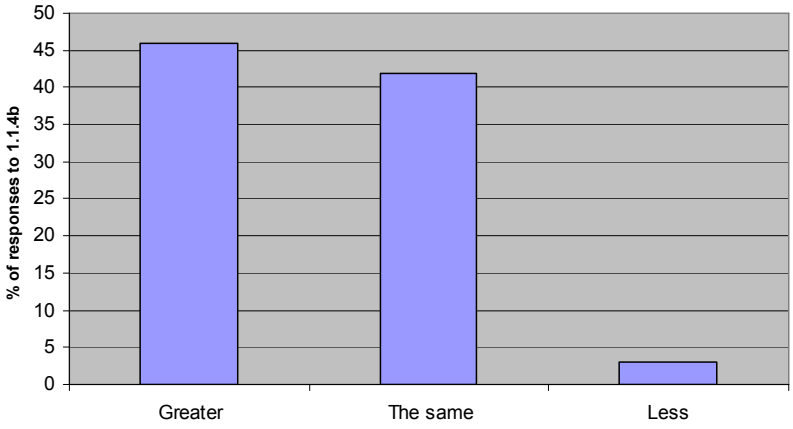


Figure 2: Comparison of wetland status effectiveness index scores for Ramsar Parties respectively with and without a National Wetland Policy or equivalent. Better overall wetland status in a country is seen to be associated with the existence of a National Wetland Policy/equivalent.

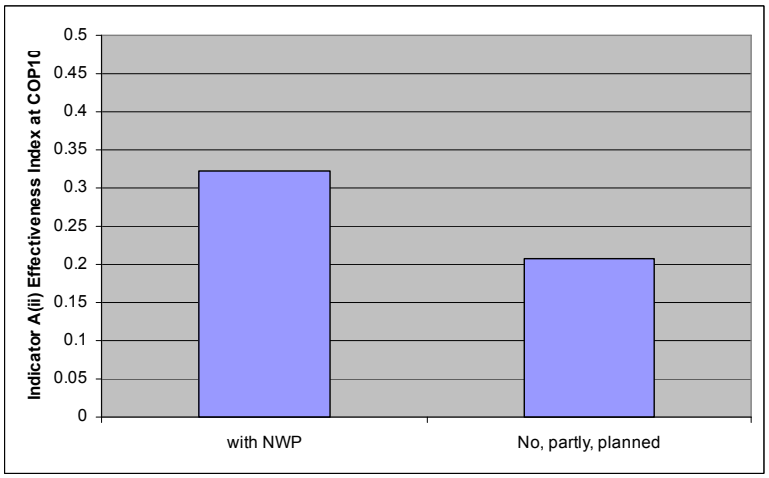


Figure 3: Shorebird population status index results for trend differences between early-mid 1980s and early-mid 1990s (data-point on left) and between early-mid 1990s and early-mid 2000s (data-point on right), compared to the result that would be expected if the 2010 target were being met. (Several "expected" result-lines are shown, representing a selection of different percentage reductions in loss-rate). This shows that the global population status index for shorebirds has declined since the mid-late 1980s; and the latest rate of decline is 2.64 times greater than the previous rate. In respect of the 2010 target, this indicates that not only is the rate of loss of biodiversity in the case of shorebirds not reducing, but on the contrary it has more than doubled over the last 10 years.

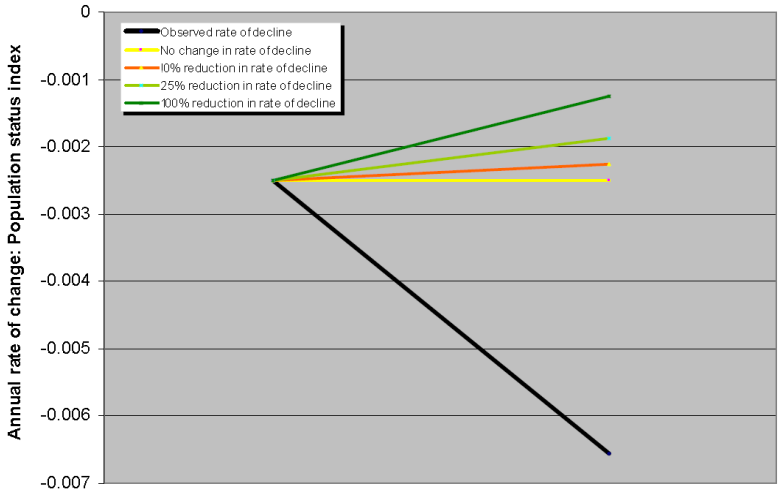


Figure 4: Shorebird population status index scores (for trends from the mid-1990s to mid 2000s), disaggregated by flyway and endemic groupings. A maximum index score of 1 would mean all populations are increasing: since all indices are below 0.5 this means that more populations are stable or decreasing than increasing. Appreciable differences in indexed trends exist between shorebird populations in different geographical areas.

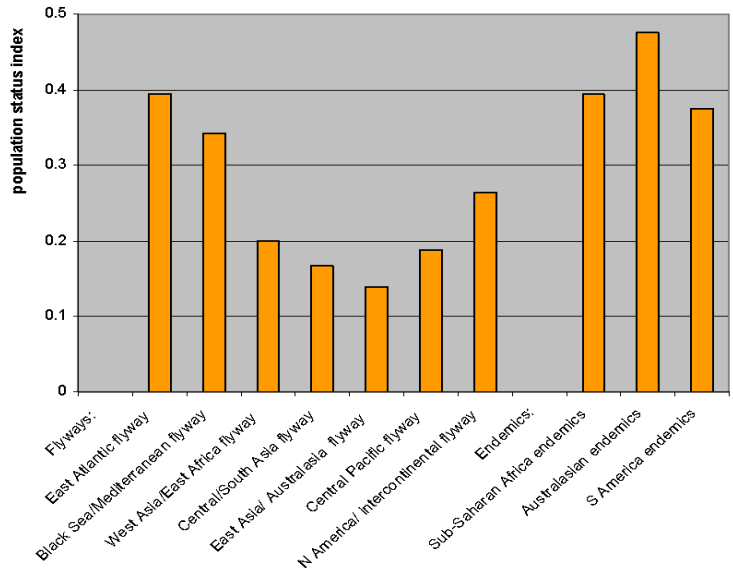
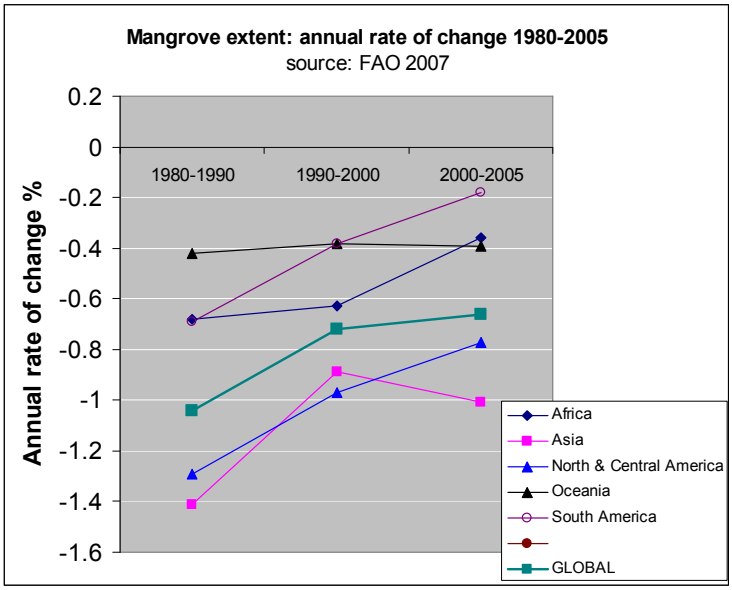


Figure 5: Annual rates of change in regional and global extent of mangroves for three successive time-periods from 1980 to 2005 (derived from FAO 2007). In all regions of the world there is continuing loss of mangrove areas (i.e. all reported rates are negative values), but most regions show a reduced rate of loss in the most recent period (2000-2005) compared with rates in the 1980s and 1990s. The exception is Asia, where the rate of area loss has increased in 2000-2005.



13. Draft findings overall from work so far present a picture of performance outcomes against targets (including the 2010 target) that could be characterised as a combination of "not being achieved", "mixed picture" and "not very easy to say". No indicators are showing outcomes that could be characterised at global level as "clearly being achieved".

Indicator reports, and interpreting results in relation to the 2010 target

14. The wetland status and trends part of this picture is being compiled for CBD purposes into extensive material which will inform the deliberations of SBSTTA at its 14th meeting in May 2010, in preparation for an in-depth review of the programme of work on inland waters biological diversity by CBD COP10 later that year, and associated consideration of achievements against the 2010 target. In line with the approach described in paragraph 8 above, this will form the picture of "wetland outcomes" which will be related separately to "Ramsar inputs", in order to report on the indicators of effectiveness of implementation of the Ramsar Convention. The two Conventions' processes are thus intimately linked and harmonised in this respect.

15. It is critical in interpreting 2010 target results to be clear that a "success" in terms of reducing the rate of decline (which, depending on the mode of presentation, may appear as an "improving trend"), will still relate to a continuing absolute loss of biodiversity, unless the trend has improved to the extent of passing the point where it switches from negative to positive. Summary "storylines" will need to be very clear about what constitutes "good news" or "bad news" in this context.

16. Work relating outcomes to Convention implementation is expected to show that a constant or worsening rate of biodiversity decline is occurring even in some cases where diligent implementation of agreed actions is being undertaken by relevant governments. Again, care in interpretation will be required: this does not necessarily mean that the action was misguided or a waste of effort, since the question may be how much worse the situation would have been without it. In general though, baselines, control situations and hypotheses are all relatively weak areas of indicators in this field. In most cases, all that it is possible to do is to compare "with action" and "without action" outcomes in different places as a surrogate for changes over time; or to compare "before action" and "after action" outcomes in the same place but without being able to keep other variables constant. These are important challenges for future analyses.

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