



The UNCCD Impact Indicators Pilot Tracking Exercise: Results and Conclusions

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1 Executive Summary

This report presents results and conclusions from a Pilot exercise undertaken to assess the experience of affected country Parties to the United Nations Convention to Combat Desertification (UNCCD) with reporting on impact indicators under the Convention's Performance Review and Assessment of the Implementation System (PRAIS). The experiences and recommendations presented in this report should be used to guide the 2012–2013 reporting and review process.

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) was commissioned to provide technical support and backstopping for this Pilot, under the leadership of the UNCCD Secretariat and with guidance from the UNCCD's CST Bureau.

The Pilot took place between July and October 2011, with participation from the following countries: Algeria, Argentina, Armenia, China, Colombia, Mexico, Portugal, Senegal, Spain, South Africa and Tunisia. It involved a series of multi-national and national activities which aimed to produce evidence, examples and recommendations on national reporting against the impact indicators.

The Pilot aimed to review the UNCCD's impact indicators which have been developed in line with the Convention's 10-year Strategic Plan and its newly adopted results-based management approach which is now used to monitor and assess implementation of the Convention in addressing sustainable land and ecosystem management, poverty reduction and delivering global environmental benefits.

The Pilot produced evidence, examples and recommendations on the feasibility of the use of the impact indicators for national reporting by:

- Assessing the availability of relevant data for the proposed indicators and their metrics/proxies in the countries participating in the Pilot;
- Assessing existing and proposed methodologies for the collection and analysis of relevant data for the proposed indicators and their metrics/proxies in the countries participating in the Pilot;
- Considering the feasibility of aggregation of the results from the proposed indicators and their metrics/proxies in the countries participating in the Pilot to the global level;
- Ascertaining the capacity gaps that need to be addressed; and
- Identifying what institutional arrangements already exist and/or would be necessary at national level for successful compilation, validation and reporting of indicators.

The results of this work will contribute to the refinement of the eleven proposed impact indicators in the lead up to next reporting cycle and will be submitted to assist with the development of a White Paper on the impact indicators.

The report draws from four sources of information and analysis:

- Analysis of the completed indicator reporting templates supplied by participating countries.
- Analysis of e-SMART indicator assessments supplied by participating countries.
- Analysis of national pilot study reports following a provided template.

- Knowledge and experience of UNEP-WCMC staff involved in facilitating the Pilot study, which is also reflected in the multi-national workshop outcomes and reports, and documentation of discussions held during the course of the exercise.

Four criteria were developed and applied to assess reporting by Parties on the UNCCD Impact Indicators:

1. **Evidence of reporting** – assessed whether a Party had reported on the indicator or not;
2. **Link to indicator purpose** – assessed the link between the metric reported and the purpose of the indicator;
3. **Link to national priorities** – assessed the link between the metric and its relevance to **national priorities**; and
4. **Time series** – assessed the use and availability of time series data.

The priority was given to assess the viability of the two impact indicators which are mandatory for reporting in 2012-2013 (i.e. Indicator III “Proportion of the population in affected areas living above the poverty line” and Indicator IX “Land cover status”). The other indicators and their metrics/proxies were also assessed on the basis of existing data and capacities in the countries participating in the Pilot.

Based on the criteria listed above, the results of the Pilot suggest that the level of successful reporting was high for the two mandatory indicators (Indicator III and Indicator IX), and the non-mandatory Indicator VI ‘land degradation’. This suggests that Parties participating in the Pilot study have the technical capacity and data to report to these indicators.

A slightly lower but nevertheless satisfactory level of successful reporting was found for Indicator II ‘land use’, Indicator IV ‘food’, Indicator VIII ‘drought index’ and Indicator XI ‘SLM’. This level of reporting suggests that Parties have the potential to report against these indicators but that they could be further refined in light of the difficulties raised by some countries.

The low level of successful reporting by Parties on Indicator V ‘soil capacity’, Indicator VII ‘biodiversity’ and Indicator X ‘carbon’, suggests that these three indicators in their current form are problematic and may not be suitable unless substantially revised. Specific problems that would need to be addressed included (a) lack of biodiversity and carbon data, (b) problematic methodologies for assessing carbon and (c) unclear definitions.

Overall, **the indicators as a set were considered generally effective in assessing progress of the Convention in addressing DLDD and relevant to national priorities. Similarly, during the conclusion workshop, Parties were very positive about their capacity to report on the indicators.** This was confirmed by the results which, based on the criteria, **indicate the level of reporting for most indicators was satisfactory or higher.**

However, when assessing the indicators individually, doubts and problems were raised by the Pilot countries as to their effectiveness and relevance. In addition, during the Pilot, not all Parties reported on

all indicators (primarily those that were non-mandatory). The exact reasons for the low level of reporting by some Parties on some indicators remain insufficiently understood.

The results of the Pilot have led to the following recommendations:

- **Allow flexibility in reporting on non-mandatory indicators**
 - The results suggest that some Parties are unable to report on some indicators and therefore either chose not to report, or provide data that does not match the specified metric. An option to address this could be to allow Parties to report on an alternative metric if they are unable to report on the standard metric. In this case where Parties choose to report on the alternative metric, they would be required to clearly demonstrate how it relates to the purpose of the indicator and also outline the exact reasons for choosing to report on an alternative metric.
- **Improve understanding of indicators as a set**
 - The results suggest that logical and functional linkages between indicators may not exist or are not well understood by Parties. This is an area that could therefore be improved.
- **Improve understanding and application of definition of affected areas**
 - The results suggest that in general, the Pilot countries lack data that are spatially explicit to affected areas, i.e. if the data cover affected areas, they also include adjacent areas, which cannot be easily differentiated. Further, definitions for affected areas vary across Parties, possibly reflecting differences in national circumstances/priorities and in the interpretation of what is considered an affected area. It is recommended that (a) the usefulness of rural areas, as a proxy for affected areas, is further investigated; and (b) Parties are requested to specify definitions for affected areas during the second leg of the fourth reporting and review process.
- **Improve guidance available to assist Parties with reporting**
 - Further technical assistance could be provided to Parties to strengthen their capacity to report against the impact indicators. Actions that could be considered include:
 - strengthening the institutional arrangements of the Regional Reference Centres;
 - promoting the Reference Centre 'Training-of-trainers model';
 - providing detailed manuals and web-based training modules;
 - raising awareness among national focal points of available information;
 - involving science and technology correspondents (STC) in cross-disciplinary communication;
 - promoting cross-disciplinary collaborations on DLDD, interdisciplinary events and documents outlining the interdisciplinary aspects of DLDD and implications for UNCCD; and
 - making a dedicated helpdesk available throughout the reporting period which could also promote the cooperation between Parties and global indicator partners.

- **Undertake further research relating to reporting patterns**
 - As the Pilot considered only a small number of countries and not all countries provided full reports, these results should be seen as indicative rather than conclusive and it is recommended that a more detailed analysis of reporting patterns during the second leg of the fourth reporting and review process is undertaken to verify these conclusions.
 - Further studies to understand the complexities of the underlying drivers of the low levels of reporting on individual indicators could also be useful to identify and assess the reasons for both non- or poor-reporting rates.

2 Acknowledgements

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4 Background

The UNCCD's 10-year Strategic Plan, with its set of strategic and operational objectives and related impact and performance indicators, aims at enhancing the implementation of the Convention by adopting a results-based management approach. [The Performance Review and Assessment of the Implementation System \(PRAIS\)](#) has laid the foundations for the Convention's new monitoring and assessment process. The UNCCD has provisionally adopted eleven impact indicators to review the effectiveness of the Convention in addressing sustainable land and ecosystem management, poverty reduction and global environmental benefits.

As part of the UNCCD's iterative scientific process refining the eleven proposed impact indicators, a piloting exercise (the Pilot) took place between July and October 2011. The Pilot aimed to inform the process of refinement of the UNCCD impact indicators and to allow Parties, the UNCCD Committee of Science and Technology (CST) and the UNCCD Secretariat to gain experience with their successful use in preparation for the UNCCD's next reporting and review process, expected to take place in 2012-2013. For further information on the Pilot, please see <http://impact-pilot.unccd.int/> and <http://www.unccd.int/cop/officialdocs/cop10/pdf/cstinf2eng.pdf>

The [UNEP World Conservation Monitoring Centre \(UNEP-WCMC\)](#) was commissioned to provide technical support and backstopping for this effort, under the leadership of the UNCCD and with guidance from the UNCCD's CST Bureau.

The countries participating in the Pilot were: Algeria, Argentina, Armenia, China, Colombia, Mexico, Portugal, Senegal, Spain, South Africa and Tunisia. The Pilot involved a series of multi-national and national activities. It was launched at a multi-national inception workshop on 11-13 July in Mexico City, hosted by the Economic Commission for Latin America and the Caribbean (ECLAC) (see also the workshop [report](#)). The pilot concluded with a workshop on 06-07 October 2011 (see the [workshop report](#)) and a [side event](#) entitled "Iterative improvement through national pilots: The UNCCD impact indicators piloting exercises" at the [10th UNCCD COP in Changwon, Republic of Korea](#).

The Pilot aimed to produce evidence, examples and recommendations on the national production and reporting of the impact indicators. The priority was given to the two impact indicators mandatory for reporting in 2012-2013 (i.e. Indicator III "Proportion of the population in affected areas living above the poverty line" and Indicator IX "Land cover status"), whilst the other indicators and their metrics/proxies were also assessed on the basis of existing data and capacities in the countries participating in the Pilot. The Pilot covered both the technical and scientific aspects of this work and the organisational or capacity aspects of producing the indicators. Particular objectives of the Pilot include:

- Assess the availability of relevant data for the proposed indicators and their metrics/proxies in the countries participating in the Pilot.
- Assess existing and proposed methodologies for the collection and analysis of relevant data for the proposed indicators and their metrics/proxies in the countries participating in the Pilot.
- Consider the feasibility of aggregation of the results from the proposed indicators and their metrics/proxies in the countries participating in the Pilot to the global level.

- Ascertain the capacity gaps that need to be addressed.
- Identify what institutional arrangements already exist and/or would be necessary at national level for successful compilation, validation and reporting of indicators.
- Contribute to the refinement of the set of impact indicators.

As part of the iterative UNCCD process, the Pilot incorporated and addressed where possible the findings of the on-going scientific peer review and refinement process of the impact indicators. In turn, the lessons learnt from the testing process will feed into the scientific debate in a learning loop to facilitate the further refinement of the indicator set. This will include submission of the results of the Pilot to the process of producing a White Paper on the UNCCD impact indicators.

4.1 Activities

During the piloting, the following activities were undertaken:

- Facilitation of Multi-national Workshops:
 - Facilitation of the Multi-national Inception Workshop.
 - Facilitation of the Multi-national Conclusions Workshop.
- Support to national piloting activities:
 - Preparation of draft reporting templates, guidelines and glossary for national testing¹.
 - Facilitation of the provision of technical support to Pilot countries and guidance on the production and analysis of the indicators, especially seeking to build a community of practice with international experts and the indicator originators, and enabling peer-to-peer support and knowledge building.
 - Monitoring the implementation of national piloting activities.
 - Preparation of a template for the national reports and recommendations for the CST.
- Support to the reporting and dissemination of information on the Pilot:
 - Establishment of a multi-national Pilot support website (<http://impact-pilot.unccd.int/>).
 - Compilation and analyses of information contained in Pilot country reports as well as of conclusions of the Multi-national Conclusions Workshop, including lessons learned, global technical guidance and recommendations.
 - Coordination with the authors of the White Paper ([Orr, B. J. 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. UNCCD Secretariat, Bonn, Germany.](#)) on provisional impact indicators so that the results of the Pilot are included in the next version of the White Paper.
 - Finalisation of a progress report for COP 10 (see <http://www.unccd.int/cop/officialdocs/cop10/pdf/cstinf2eng.pdf>).
 - Support the presentation of Pilot results at COP 10 at a side event entitled “Iterative improvement through national pilots: The UNCCD impact indicators piloting exercises”.
- Delivery of this final report.

¹ In particular, detailed reporting templates and guidance for the metrics associated with the subset of two mandatory impact indicators were prepared and presented at COP 10 as contained in document [ICCD/COP\(10\)/CST/3](#) and [ICCD/COP\(10\)/CST/INF.6](#), respectively. The terms and definitions related to the subset of impact indicators were included in document [ICCD/COP\(10\)/INF.9](#). These reporting tools will be revised for use in the second leg of the fourth reporting and review process based on the conclusions and recommendations of the Pilot. The reporting template developed for national testing also provided an opportunity for countries to report additional information on the remaining nine voluntary indicators. Guidance on the recommended metrics identified during the scientific review process as a possible basis for harmonized reporting by affected country parties was also prepared.

4.2 Participating countries

The number of participating countries was contingent on the financial resources available for this work.

4.2.1 Selection process for funded countries

At its meeting on 18–19 November 2010 ([UNCCD Secretariat 2010](#)), the CST Bureau was informed that, due to limited resources, the Secretariat could provide assistance to only four eligible affected country Parties, one each per Regional Annex with the exception of Annex IV. The Bureau agreed that the identification of pilot countries should be done by regional groups rather than the Bureau itself.

The identification of pilot countries was discussed at the Regional Meetings preparatory to the second special session of the CST (CST S-2). A set of selection criteria (see Section 10.1) was put forward to facilitate the consultation at the regional level and the identification of the Pilot countries. Based on the deliberations of the regional meetings, two pilot countries were identified: China from UNCCD Annex II and Armenia from UNCCD Annex V. Based on the expressions of interest received at the regional meetings, a list of countries interested in participating in the pilot exercise was prepared for UNCCD Annexes I and III.

At its meeting on 19 February 2011 ([UNCCD Secretariat 2011](#)), the CST Bureau agreed to select the remaining pilot countries using electronic communications.

In order to support the CST Bureau in identifying the pilot countries, the Secretariat collated preliminary information on the countries interested in participating in the pilot exercise, including (a) the existence of a national monitoring system fully or partially covering desertification/land degradation and drought (DLDD); (b) the use of impact indicators and their level of implementation; (c) levels of capacity and experience with impact indicator processes; and (d) existing institutional arrangements for indicator reporting. The information was extracted from reports submitted to the “Performance Review and Assessment of Implementation System” (PRAIS) in 2010, and from two questionnaires on the set of impact indicators submitted to all country Parties in 2009 ([Berry et al. 2009](#)). Based on this information and the proposed selection criteria the CST Bureau agreed through electronic communications to select Senegal (UNCCD Annex I) and Colombia (UNCCD Annex III) as additional pilot countries.

The selected countries received a grant of EUR 10,000, intended as a modest contribution to national Pilot expenses, such as communications, travel, meetings and external assistance (consultancy). Additional funding was provided for each selected country to have three national representatives attend the two multi-national Pilot workshops.

In addition to the countries identified at the regional meetings and by the CST Bureau to receive financial support to participate in the pilot, two countries participated with the support of the Land Degradation Assessment in Drylands (LADA) project and five countries volunteered to be part of the exercise using their own resources (Table 1).

Table 1 Pilot countries participating in the Pilot study, sources of support and whether a final report was submitted.

<i>Country</i>	<i>Notes</i>	<i>Submitted report</i>
Algeria	Algeria took part in the pilot using its own resources	No
Argentina	Argentina took part in the pilot using its own resources	No
Armenia	Armenia took part in the pilot as representative of UNCCD Annex V : the Regional Implementation Annex for Central and Eastern Europe	Yes
China	China took part in the pilot as representative of UNCCD Annex II : the Regional Implementation Annex for Asia. It is also a LADA country	Yes
Colombia	Colombia took part in the pilot as representative of UNCCD Annex III : the Regional implementation Annex for Latin American and the Caribbean	Yes
Mexico	Mexico took part in the pilot using its own resources	No
Portugal	Portugal took part in the pilot using its own resources	Yes (jointly with Spain)
Senegal	Senegal took part in the pilot as representative of UNCCD Annex I : the Regional Implementation Annex for Africa. It is also a LADA country	Yes
Spain	Spain took part in the pilot using its own resources	Yes (jointly with Portugal)
South Africa	South Africa took part in the pilot with support from the LADA project	Yes
Tunisia	Tunisia took part in the pilot with support from the LADA project	Yes

5 Objectives of the final report

This report summarises findings and provides targeted recommendations on:

- The effectiveness of the indicators for assessing the impact of the Convention and supporting its implementation.
- The existence and accessibility of data at the national level.
- The appropriateness, ease of use and feasibility of the methods for calculating the indicators.
- Capacity needs and gaps.
- Institutional arrangements and needs for producing and reporting the indicators.
- Recommendations to the UNCCD Secretariat for their planning of subsequent reporting cycles.

The report draws from four sources of information and analysis, of which details are provided in the annexes listed:

- Analysis of the completed indicator reporting templates supplied by participating countries.
- Analysis of e-SMART indicator assessments supplied by participating countries.
- Analysis of national pilot study reports following a provided template.
- Knowledge and experience of UNEP-WCMC staff involved in facilitating the Pilot study, which is also reflected in the multi-national workshop outcomes and reports, and documentation of discussions held during the course of the exercise.

6 Findings

6.1 Summary of the results reported by participating countries

6.1.1 Methods used to assess reporting on UNCCD Impact Indicators

To assess the reporting by Parties on the UNCCD Impact Indicators four criteria were developed and applied (Table 2). The first criteria was a basic assessment of whether a Party had reported on the indicator or not (**Reporting**). The second criteria assessed the link between the metric reported and the purpose of the indicator (**Link to indicator purpose**), as outlined in Table 3. This was important as some metrics reported were different from the officially proposed metrics. For the purpose of this Pilot study, this was deemed acceptable, as long as the new metric was relevant to the purpose of the proposed indicator. Recognising that not all metrics and indeed indicators may be of relevance to national priorities, the third criteria aimed to merit new metrics that were not directly linked to the purpose of the proposed indicator but instead were clearly **linked to national priorities**. While every effort was made to ensure that the assessment of the link to indicator purpose and national priorities was as objective as possible (both criteria were independently assessed by two people and the consensus decision reported), it remains a subjective assessment (for details see Section 10.3). Most indicators aim to assess changes over time, requiring **time series** data for their successful evaluation. To assess the availability of time series data, the final criterion therefore distinguishes between baseline (single year data) and time series (multiple year data) data being available and reported.

The four criteria were integrated in an assessment framework comprising five levels (Table 2) indicating successively improved compliance with the proposed reporting standard. A Party that achieves level 'yellow' for a given indicator, is considered to have provided the minimum amount of information and therefore reported successfully on the indicator.

Table 2 Assessment criteria and colour coding used to rank the level of performance in indicator reporting

		Reporting	Link to indicator purpose	Link to national priorities	Time series available
1	Nothing reported	No	--	--	--
2	Reported but (a) not relevant to indicator purpose, and (b) no clear link to national priorities	Yes	No	No	--
3	Reported and either (a) relevant to indicator purpose, or (b) clear link to national priorities established	Yes	Yes/No	Yes/No	--
4	Baseline established (turns to green if no time series required)	Yes	Yes	Yes	No
5	Time series reported on proposed indicator and clear link to national priorities established	yes	Yes	Yes	Yes

Table 3 Purpose of proposed UNCCD Impact Indicators (following reporting guidelines). Naming of indicators follows [ICCD/COP\(10\)/CST/2](#).

Name of the indicator	Purpose
I Water availability per capita	To monitor trends in water availability and the accessibility of safe drinking water. To measure the impact of DLDD, and mitigation efforts, on water resources. To assess efforts towards removing/preventing pollution of water, and enhancing access to safe drinking water.
II Change in land use	Highlight changes in the productive or protective uses of the land resource over time and highlight unsustainable land use
III Proportion of the population living above the relative poverty line	To measure levels of poverty and monitor progress towards reducing the number of people living in poverty. The indicator acts as a proxy for human well-being.
IV Food consumption per capita	To assess and monitor the level of under-nutrition within DLDD intervention areas.
V Capacity of soils to sustain agro-pastoral use	To monitor the status of soil health and to encourage stakeholders to assess the health of soils and increase the awareness of the need to improve soils.
VI Degree of land degradation	To measure the extent and severity of land degradation at the national level. To measure the implementation and progress of agreements and programmes to address causes of land degradation and to reclaim degraded lands.
VII Plant and animal biodiversity	To determine a baseline against which changes in natural ecosystems and biodiversity induced by land use pressures can be assessed. To measure population trends and use them as an indicator for monitoring overall environmental sustainability. To monitor, in particular, changes in agricultural diversity that act as a measure of changes in ecosystem function in relation to food production and may restrict the ability of farmers in dry lands to adapt to environmental change. To demonstrate the impact of DLDD interventions on maintaining or enhancing the diversity of crops and livestock in agricultural systems within an intervention area.
VIII Drought index	To measure drought as a climatic driving force of DLDD. To monitor the climatic conditions affecting water availability, provide early warnings of drought, and assess drought severity. To evaluate actions to reduce dryland degradation.
IX Land cover status	To monitor land degradation in terms of long-term loss of ecosystem primary productivity, taking into account the effects of rainfall on NPP.
X Carbon stocks above and below ground	To monitor changes in above and below ground stocks as a global benefit.
XI Land under Sustainable Land Management (SLM)	To monitor the impact of using SLM practices on reducing land degradation, rehabilitating degraded areas and ensuring the optimal use of land resources for the benefit of present and future generations. To act as a surrogate for a) <u>global benefits</u> (climate regulation and carbon sequestration); b) <u>vegetation cover and composition</u> which are globally important for biodiversity; c) <u>water retention and the regional hydrologic balance</u> . To assess progress towards harmonising conflicting goals of production and environmental protection.

Feasibility of reporting

The level of reporting was high and most Pilot countries reported on the majority of indicators with an average of 8 out of 11 indicators reported by Parties (range: 4-11 indicators reported) (Table 4).

Most indicator reports obtained or surpassed the minimum level of reporting (yellow code), whereby the reported metric established either a link to the proposed indicator purpose or to national priorities. Across indicators, the level of successful reporting varied between 29% and 86% of Parties. A high level of successful reporting (71-86% of Parties) was recorded for the two mandatory indicators (Indicator III 'poverty' and Indicator IX 'land cover'), and the non-mandatory Indicator VI 'land degradation'. A slightly lower level of successful reporting (57% of Parties) was recorded for Indicator I 'water', Indicator II 'land use', Indicator IV 'food' and Indicator VIII 'drought index'. The minimum level of reporting was achieved by less than half the Parties for Indicators V 'soil capacity', Indicator VII 'biodiversity', Indicator X 'carbon' and Indicator XI 'SLM'. The latter four indicators should therefore be considered as problematic.

When interpreting these findings, it is important to consider that South Africa's report was based on LADA methodologies and data and therefore focused on biophysical indicators rather than on socio-economic indicators. It is expected that South Africa will be able to report on socio-economic indicators, such as Indicator III 'poverty' and Indicator IV 'food' during subsequent reporting cycles.

Furthermore, Spain and Portugal chose to report on only three indicators, since the remaining were deemed less relevant for a developed affected country and/or the data were not readily available. Their joint report did not follow the suggested template, making it difficult to assess their report. However, for the indicators on which Spain reported, the information provided is both spatially explicit and based on long-term data. While the metrics definitions may vary from the officially proposed metrics, they are nevertheless closely aligned, suggesting that Spain/Portugal are in a position to report satisfactorily on the three indicators.

Table 4 Summary results of assessment of reporting by Parties on the UNCCD Impact Indicators (the two mandatory indicators are highlighted); the colours and numbers refer to the ranking of Table 2.

Name of the indicator	China	Armenia	Colombia	Senegal	South Africa	Spain / Portugal	Tunisia	Mean	% Parties with ≥ minimum reporting
I Water availability per capita	5	1	5	3	2	1	5	3.1	57%
II Change in land use	3	1	4	4	2	3	2	2.7	57%
III Proportion of the population living above the relative poverty line	5	5	5	4	1	1	5	3.7	71%
IV Food consumption per capita	3	1	3	4	1	1	3	2.3	57%
V Capacity of soils to sustain agro-pastoral use	3	1	2	3	2	1	1	1.9	29%
VI Degree of land degradation	5	1	4	3	3	3	5	3.4	86%
VII Plant and animal biodiversity	3	3	2	4	2	1	2	2.4	43%
VIII Drought index	5	1	5	3	1	1	5	3.0	57%
IX Land cover status	5	5	5	5	2	1	5	4.0	71%
X Carbon stocks above and below ground	5	1	2	3	1	1	2	2.1	29%
XI Land under Sustainable Land Management (SLM)	2	3	2	5	2	3	2	2.7	43%

6.1.2 e-SMART assessment of the proposed UNCCD Impact Indicators

This is a complementary analysis tool to the report template and the narrative questionnaire. As a specific contribution to the scientific refinement exercise, the participating countries were requested to complete the e-SMART form, which had also been used by the scientific and technical experts in the global consultations to refine the provisional set of performance indicators (described in detail in [ICCD/CRIC\(8\)/5/Add.2](#)). The e-SMART criteria are:

- **economic**: Data and information are available at a reasonable cost – affordable – no inefficient and expensive means of verification required – facilitates reporting every two years.
- **Specific**: Clearly and directly relating to the outcome – described without ambiguities - common understanding of the indicator.
- **Measurable**: Preferably quantifiable – simple units – common understanding of how to measure the indicator.
- **Achievable**: Data and information can practically be collected – compliance with the capacities of focal points.
- **Relevant**: Providing information that is relevant (useful) to the process and its stakeholders.
- **Time-bound**: Time-referenced - reflects changes.

Parties were asked to rank each indicator on a scale from 1 (poor) to 5 (best) for a total of five criteria and twelve sub-criteria to assess the impact indicators. The e-SMART survey was intended to provide an objective assessment of the proposed indicators by Parties. To ensure that e-SMARTs were only included from Parties that managed to fully report on an indicator, only Parties receiving a blue or green status were included. Unfortunately, this strict method resulted in e-SMART assessments being available for only eight metrics covering seven out of eleven indicators (including one indicator with two metrics). It should be noted that since only three Parties filled in the e-SMART form, the conclusiveness of the analysis is limited. Furthermore, Indicator III ‘food’, Indicator V ‘soil capacity’, Indicator VI ‘land degradation’ and Indicator VII ‘biodiversity’ are not included because none of the Parties that achieved a high level of reporting standard (blue or green) filled in the e-SMART form.

Overall, all eight metrics were ranked high across all assessment criteria (score range: 3.5 – 4.3, see Table 5). The two mandatory indicators were ranked consistently high and very high, suggesting that they are both relevant and feasible, with the latter being supported by the high quality of reporting observed on the template reporting. The highest ranks were recorded for Indicator VIII ‘drought’ (metric: Standardized Precipitation Index (SPI)), Indicator IX ‘land cover’, Indicator XI ‘SLM’, Indicator III ‘poverty’, Indicator X ‘carbon’ and Indicator I ‘water’. However, it should be noted that in the case of Indicator X ‘carbon’ and Indicator XI ‘SLM’, the assessment is based on only one country, questioning its conclusiveness. In conclusion, the small number of valid e-SMART assessments hampers the analysis, however, at least for the two mandatory indicators, the e-SMART assessments, suggests that these are feasible to report on.

Table 5 Summary results of the e-SMART assessment of the proposed UNCCD Impact Indicators (the two mandator indicators are highlighted)

		Indicator I, Metric: 'Water availability & use' (China)	Indicator I, Metric: 'Access to safe water' (Armenia / Colombia)	Indicator II 'Land use' (Colombia)	Indicator III 'Poverty' (Armenia, China, Colombia)	Indicator VIII 'SPI' (China, Colombia)	Indicator IX 'Land cover' (Armenia, China, Colombia)	Indicator X 'Carbon ' (China)	Indicator XI 'SLM' (Armenia)	Mean per criteria across indicator
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	4	2	2	4	4.5	5	4	5	3.8
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	4	2	2	4	5	5	4	3	3.6
	Can policymakers easily understand the indicator?	5	3	4	4.7	5	5	5	3	4.3
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	3	3.5	1	4.3	5	4.7	4	4	3.7
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	5	2.5	1	4.3	4.5	5	4	4	3.8
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	4	4	2	3.3	4.5	4	4	5	3.9
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	4	4	3	3.7	5	4.3	3	5	4.0
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?5	2	2	1	3.3	4	3.7	4	5	3.1
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	3	3.5	4	3	5	4.3	5	5	4.1
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	4	3.5	4	4	4.5	4.3	2	5	3.9
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	3	3	2	4.3	5	4.7	2	4	3.5
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	1	3	5	3.7	5	4.3	2	4	3.5
Mean per indicator across criteria		3.5	3.0	2.6	3.9	4.8	4.5	3.6	4.3	

6.2 Analysis of findings and lessons learnt from the Pilot tracking exercise

The analysis of ‘findings and lessons learnt’ is based on qualitative reports in which Parties answered predefined questions. These reports were submitted by Armenia, China, Colombia, Senegal and Spain (Tunisia did not submit their lessons reports). The level of reporting was high, however not all countries answered all questions, e.g. the question assessing the “institutional arrangements and needs for producing and reporting the indicators” was only answered by three countries. Further, not all Parties followed the suggested reporting format, which made it necessary to collate information from various sources, including national reports, e-SMARTs and indicator reporting templates, for this analysis.

6.2.1 Effectiveness of the indicators for assessing progress against the Strategy and the impacts of the Convention

Question: Overall, does the proposed set of UNCCD indicators provide sufficient information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?

Question: Is the set of indicators effective in providing relevant information on progress made by UNCCD stakeholders in achieving the strategic objectives 1, 2 and 3 of the 10-year Strategy?

Overall, the Pilot countries indicated that the proposed set of UNCCD Impact Indicators provides sufficient information about both the changes in primary processes related to DLDD and the progress made by UNCCD stakeholders in achieving the strategic objectives 1, 2 and 3 of the 10-year Strategy. Parties stated that the set of indicators covers ecological and socio-economic issues that are either directly or indirectly related to both DLDD and the implementation of the Strategy. They also highlighted that “the set of indicators shows changes in the status, condition and trends of DLDD as well as the impacts of efforts to combat DLDD”. One party indicated that the proposed indicators “go a long way in providing information on the status, condition and trends in desertification and the impact and effectiveness of responses to DLDD”.

However, despite the positive comment on the indicators set in general, doubts were raised about the effectiveness of individual indicators. Particularly, the non-biophysical indicators: Indicator I ‘water’ and Indicator IV ‘food consumption’ were considered complex and requiring a careful interpretation as they may not be directly linked to DLDD but instead be influenced by other factors, such as national policies, condition of natural resources, local living standards, consumption patterns and lifestyle choices.

Parties also noted that “some voluntary indicators and their definitions are not clear”, and that “not all the indicators are relevant to their national context and circumstances vis-a-vis DLDD issues”. The perceived low relevance of an indicator within a national context may provide a disincentive to reporting or result in data not being available, due to the absence of a national monitoring system. Some Parties mentioned that generating data required for reporting on some indicators requires new data collections and/or adjustments to existing monitoring systems at the national level.

An important point highlighted was that for both the understanding of changes in primary processes and implementation of the convention, it is crucial to assess the linkages between biophysical and social

systems in areas affected by DLDD. It is through an assessment of the linkages that cause-effect relationships are identified and national policies can target the root problems of desertification.

A different criticism raised was that the relevance of indicators for evaluating the implementation of the Convention may differ between developed and developing affected countries. While indicators such as Indicator III ‘poverty’, Indicator I ‘water’ and Indicator IV ‘food consumption’, may be relevant for developing affected countries, they were considered of little relevance within the context of a developed affected country. Metrics suggested to be useful for developed affected countries are detailed in Table 6.

Table 6 Indicator and metrics of different relevance to developed affected countries

Very relevant	Less relevant
<p>Indicator I ‘water’</p> <ul style="list-style-type: none"> • water resources management indicators <p>Indicator VI ‘land degradation’</p> <ul style="list-style-type: none"> • Area at risk of desertification, • Soil losses by sheet erosion and rill <p>Indicator XI ‘SLM’</p> <ul style="list-style-type: none"> • Area of afforestation • Forest area managed (with plans or forest management projects) • Size of Protected Natural Areas • Organic farming • Number of organic livestock farm • Use of fertilisers and pesticides • Evolution of the efficiency of irrigation systems • Area under agri-environmental measures • Number of farms qualifying for environmental compliance requirements of the European Common Agricultural Policy • Surface applied in conservation agriculture techniques 	<p>Indicator III ‘poverty’</p> <ul style="list-style-type: none"> • poverty risk rate • rate of persistent poverty <p>Indicator IV ‘food’ (Proportion of children (< 5 years) suffering from chronic malnutrition in rural areas)</p> <p>Indicator VIII ‘drought’ (Standardized Precipitation Index)</p> <p>Indicator V ‘soil’ (ability of soils to maintain agricultural and pastoral)</p> <p>Indicator VII ‘biodiversity’ (abundance and conservation status of terrestrial flora and fauna)</p>

Question: Considered as a set, are the definitions and conceptual frameworks behind the indicators appropriate and well understood? Is the set of indicators capable of reflecting changes in the system over time and space?

The analysis suggests that pilot countries viewed the indicators as a set only to a limited extent. Instead Parties considered each indicator individually, confirming the impression gained during the conclusion workshop in Korea (see [workshop report](#)).

Overall, the pilot countries reported that the definitions and conceptual frameworks behind the indicators are appropriate and well understood. They also remarked that the set of indicators is capable of reflecting changes in the system over time and space. This conclusion is supported for seven of the eight metrics, for which e-SMART assessments are available (Table 7).

However, some countries felt that there is need for more clarity regarding definitions of some of the indicators, calculation methods, and data requirements among other things.

Table 7 e-SMART assessment: are the indicators well-understood and appropriate for its monitoring purpose

		Indicator I, Metric: 'Water availability & use' (China)	Indicator I, Metric: 'Access to safe water' (Armenia / Colombia)	Indicator II 'Land use' (Colombia)	Indicator III 'Poverty' (Armenia, China, Colombia)	Indicator VIII 'SPI' (China, Colombia)	Indicator IX 'Land cover' (Armenia, China, Colombia)	Indicator X 'Carbon' (China)	Indicator XI 'SLM' (Armenia)	Mean per criteria across indicator
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	3	3.5	1	4.3	5	4.7	4	4	3.7
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	5	2.5	1	4.3	4.5	5	4	4	3.8

Question: Have you identified any gap in the coverage of the set of indicators? If yes, are there additional indicators that you would like to put forward both as an alternative or as a complement to the minimum set of preliminarily identified UNCCD Indicators.

Parties generally did not describe the indicators as set and therefore did not identify gaps within the set. Parties suggested alternative metrics but these suggestions were more influenced by data availability and national priorities rather than an assessment of gaps within the set. All pilot countries suggested that at least one indicator should be changed and argued that changing the indicator would increase its relevance to national priorities, increase data availability, and improve ease of calculating the indicator. Hence, Parties suggested adjustments more for practical reasons than to close a gap within the set of indicators. To give an example, one party suggested that the Indicator VII 'biodiversity' should be replaced with a new indicator '*plant biodiversity*' (the rationale being that data are available and changes in quantity and types of plants species are closely related to DLDD). Further examples of new/adjusted metrics proposed by Parties are listed in Table 8. See also the Appendix for officially proposed metrics and additional metrics used by Parties.

Table 8 Suggested alternative or additional indicators and metrics

Indicator	Metric/Units proposed by the UNCCD	Additional metrics suggested by Parties
III Proportion of the population living above the relative poverty line	Rural Poverty Rate	Poverty risk rate
		Rate of persistent poverty
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	Per capita grain consumption
VII Plant and animal biodiversity	Soil biodiversity	Soil mesofauna
		Changes in quantity and type of plants species
IX Land cover status	Land Productivity/Production	Presence of invasive alien species
		average income from agricultural production/ha
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Land under sustainable irrigation/drainage
		Land under special protection
		Area of afforestation
		Forest area managed with management plan or part of a forest management project
		Size of protected natural areas
		Area under organic farming
		Number of organic livestock farms
		Use of fertiliser and pesticides
		Evolution of the efficiency of irrigation systems
		Area under agri-environmental measures
		Number of farms qualifying for environmental compliance requirements of the European Common Agricultural Policy
Surface applied in conservation agriculture techniques		

Question: Does the set of indicators allow drawing policy implications and can policymakers easily understand it?

Overall, the pilot countries felt that the set of indicators was useful in informing policy and could be easily understood by policy makers. This was confirmed by the e-SMART assessment (Table 9). However, three pilot countries noted that it is difficult for some policy makers to understand some indicators and that these will need to be defined, interpreted and communicated to them in a simplified manner. Another pilot country remarked that only indicators that have a clear link to an issue of national interest (e.g. economic growth, health, community welfare) are likely to be easily understood by policy makers. Further guidance was requested on criteria for sustainable land use and it was suggested that the criteria should take into consideration different land use systems (e.g. forest, farmland, grassland and the irrigation system/water resources).

Table 9 e-SMART assessment: relevance of UNCCD Impact Indicators

		Indicator I, Metric: 'Water availability & use' (China)	Indicator I, Metric: 'Access to safe water' (Armenia / Colombia)	Indicator II 'Land use' (Colombia)	Indicator III 'Poverty' (Armenia, China, Colombia)	Indicator VIII 'SPI' (China, Colombia)	Indicator IX 'Land cover' (Armenia, China, Colombia)	Indicator X 'Carbon' (China)	Indicator XI 'SLM' (Armenia)	Mean per criteria across indicator
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	4	2	2	4	4.5	5	4	5	3.8
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	4	2	2	4	5	5	4	3	3.6
	Can policymakers easily understand the indicator?	5	3	4	4.7	5	5	5	3	4.3

6.2.2 Relevance of the set of indicators at national level and extent of national benefits

Question: Overall, is the set of tested indicators relevant and suitable for monitoring the implementation of the convention at the national level, including monitoring of the National Action Programme (NAP)?

The qualitative responses included in the reports gave a mixed impression of the relevance and suitability of the set of indicators. In particular, there was a mismatch between comments relating to the 'set', which was considered relevant and suitable, and individual indicators, some of which were considered less relevant and suitable. Parties highlighted the following indicators as closely related to DLDD: Indicator VI 'land degradation', Indicator VIII 'drought', Indicator IX 'land cover', Indicator III 'poverty', Indicator VII 'biodiversity', Indicator X 'carbon', Indicator I 'food'.

In contrast, some pilot countries felt that some indicators were less relevant to national circumstances and as a result they suggested additional and alternative indicators that are more relevant to the national context. All pilot countries noted that for some indicators, national reporting cycles are incongruous to the UNCCD reporting cycle, and monitoring and reporting requirements.

Comparison of the qualitative information with results from the e-SMART (Table 10) is somewhat difficult, since e-SMART assessments are not available for all indicators/metrics. For indicators with existing e-SMARTs, the suitability and relevance of indicators was considered high and they were easily understood by policy makers. Two indicators with low rating were Indicator I 'water' and Indicator II 'land use'.

In conclusion, the assessment provided a mixed message, suggesting that some indicators are more suitable and relevant than others.

Table 10 Assessing the relevance of the indicator set using e-SMART

		Indicator I, Metric: 'Water availability & use' (China)	Indicator I, Metric: 'Access to safe water' (Armenia / Colombia)	Indicator II 'Land use' (Colombia)	Indicator III 'Poverty' (Armenia, China, Colombia)	Indicator VIII 'SPI' (China, Colombia)	Indicator IX 'Land cover' (Armenia, China, Colombia)	Indicator X 'Carbon ' (China)	Indicator XI 'SLM' (Armenia)	Mean per criteria across indicator
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	4	2	2	4	4.5	5	4	5	3.8
	It the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	4	2	2	4	5	5	4	3	3.6
	Can policymakers easily understand the indicator?	5	3	4	4.7	5	5	5	3	4.3

Question: Some of the recommendations coming out of CST-S2 explicitly address the wide range of variability in local capacity for monitoring and reporting. For example, focusing on data harmonisation (making datasets comparable among Parties) before standardisation (a single common methodology) would provide Parties flexibility in measurement appropriate to current capacity. What other suggestions do you have to make monitoring and reporting more feasible in your country?

The monitoring process of bio-physical indicators could be improved by introducing **remote sensing** technology in countries where this is not yet available. For other indicators, such as above-ground biomass and below-ground biomass, it is necessary to **improve the guidelines** for their calculation. **Incentives** for research and projects on UNCCD impact indicators of the UNCCD could help improving the quality and quantity of data available. It was highlighted that the costs of monitoring the UNCCD Impact Indicators are affordable because national monitoring systems are already in place and funds are available. Without this, significant investment would be required.

One pilot country mentioned the need to **harmonise** data from various sources. However, it is important to note that the relevance of indicators may vary across scales, e.g. national versus local, and may require adaptation of metrics and indicator purpose depending on the scale at which it is reported.

6.2.3 Definition of Affected Areas

Three Parties provided information on the criteria and methods used to define affected areas in the respective countries (Table 11).

Table 11 Criteria and methods used by pilot countries to define 'affected areas'

Armenia	
Criteria	Areas at risk of desertification include: slopes where landslide may occur, river basins with mudflow risk, forests with high level of illegal logging, grasslands suffering from overgrazing, area prone to erosion, and disturbed lands.
Method	Mapping of areas with these characteristics enables the production of a map with areas subject to desertification.
China	
Criteria	Areas affected by desertification are defined according to UNCCD criteria: desertification refers to land degradation of arid, semi-arid and sub-humid areas as a result of various factors including climate changes and artificial activities. Desertification occurs in regions (the affected areas) with aridity index 0.05-0.65 and can be divided into arid area (0.05-0.20), semi- arid areas (0.20-0.50) and sub-humid areas (0.50-0.65).
Method	Monitoring carried out for the basics such as desertification type, scope and degree for land degradation.
Colombia	
Criteria	Areas affected by desertification are defined on the basis of biotic factors, i.e. areas where the dominant species has morpho-physiological characteristics adapted to drought. UNESCO (1993) established, based on the relationship P/ETP2, that the areas located between 0.03 and 0.20 are arid, from 0.20 to 0.50 are semi-arid and between 0.50 and 0.75 are woodlands. For its part, the United Nations Convention to Combat Desertification and Drought dry areas classified taking into account the aridity index $P / PET = 0.05$ to 0.65 .
Method	Mapping

6.2.4 Measurability, ease of use and feasibility of the methods for calculating the indicators

It is difficult to assess the measurability, ease of use and feasibility of the methods for calculating the set of indicators as a whole, because feasibility is likely to vary among indicators and it is not always clear whether a certain level of reporting standard was due to the feasibility of reporting on the indicator (e.g. data availability) or more strongly related to national priorities, e.g. Parties reporting on a metric which could not be directly linked to the purpose of the proposed metrics.

Notwithstanding the difficulties in clearly attributing reporting levels to feasibility, Parties highlighted problems due to data gaps and/or national reporting cycles that are not compatible with UNCCD data requirements. Pilot countries noted that some indicators, e.g. GLADIS “Soil Health Status”, are not sensitive enough to change within reporting cycles and therefore should be reported less frequently.

Another pilot country noted that even though the IPCC has provided good guidelines for calculating above-ground biomass and below-ground biomass indicators, the processes and methods of calculation remain complicated. Currently pilot countries who reported on this indicator only provided carbon stocks in forest biomass.

Parties providing e-SMART assessments (Table 12) agreed on a high level of measurability of most indicators for which data are available. The Indicator II ‘land use’ may be problematic in terms of measurability, but requires further investigation, since only one country provided its assessment.

Finally, it should be noted that some Parties did not report on some indicators at all, suggesting that some indicators may not be feasible to report on for some Parties (see Table 4). It is recommended that the reasons for non- or poor-reporting on individual indicators should be further assessed during subsequent reporting cycles.

Table 12 e-SMART assessment of the measurability of UNCCD Impact Indicators

		Water avail. & use (China)	Access to safe water (Armenia/ Colombia)	Land use (Colombia)	Poverty (Armenia, China, Colombia)	SPI (China, Colombia)	Land cover (Armenia, China, Colombia)	Carbon (China)	SLM (Armenia)	Mean per criteria across indicator
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	4	4	2	3.3	4.5	4	4	5	3.9
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	4	4	3	3.7	5	4.3	3	5	4.0

6.2.5 Institutional arrangements and needs for producing and reporting the indicators

This section outlines common themes in the national reporting process identified from national reports and recommendation by the Parties on institutional needs.

Parties highlighted the importance of effective **coordination** during the national reporting process. Examples of dedicated coordination entities, include the “Coordination Committee to combat desertification” in Armenia and the “Secretariat of China National Committee for Implementation of the UNCCD” in China. Both agencies include a wide **range of representatives** (12 ministries in Armenia) and are supported by a range of institutions. In the case of China, these institutions included the China Desertification Monitoring Center and participation of the Ministry of Water Resources, Ministry of Agriculture, the China Meteorological Administration, Ministry of Environmental Protection, Ministry of Land Resources and National Statistic Bureau. Each institution designated one project liaison officer with related experts. Across Parties, the high level of cross-ministerial participation was rated as important to a successful national reporting process.

Each pilot country conducted a **national inception workshop**, which was organised by the national coordination unit. During the initial workshop experts for producing the indicator data were identified, data availability was assessed, as well as a **common understanding** of the indicators and UNCCD 10-year strategy and the strategic objectives ensured among the participants. **Working groups** responsible for the indicator reporting were formed during the workshop and provided with the required resources (e.g. contracts may have to be signed and data access agreements negotiated).

Towards the end of the reporting period, Parties organised a **final national workshop** to review the results and communicate the results and findings of the assessment to national stakeholders.

Specific recommendations made by the Parties in this regard were:

- Form working groups to produce the indicators.
- Form committees comprising all relevant government departments and other institutions.
- Share and seek technical expertise across departments.
- Involve a wide range of relevant stakeholders.
- Additional funding is required for field research, equipment and human resources.
- Reporting period should be more than three months.
- UNCCD’s Committee on Science and Technology, UNEP, FAO and UNEP-WCMC should establish an advisory committee for the assessment of UNCCD Impact Indicators. This committee should include national experts.
- Develop and implement an electronic data communication platform for promoting e-communications.
- Conduct periodic indicator assessment workshops.
- Provide capacity building and strengthening for countries with identified needs.

6.2.6 Capacity needs and gaps for implementation of the UNCCD Impact Indicators

All pilot countries pointed to capacity constraints and capacity needs/gaps for which they identified suitable strategies (Table 13).

Table 13 Capacity needs/gaps and solutions proposed by Parties

Capacity constraints, and capacity needs/gaps	Proposed solutions and recommendations
<ul style="list-style-type: none"> Lack of coordination among relevant national agencies and other stakeholders on issues related to land degradation and drought mitigation. Absence of specialised institutions to work on UNCCD impact indicators. 	<ul style="list-style-type: none"> Establishment of working groups of national experts on monitoring, assessment and indicators on biophysical and socio-economic aspects.
<ul style="list-style-type: none"> Lack of data and absence of relevant monitoring and assessment systems. 	<ul style="list-style-type: none"> Allocation of adequate resources (financial and human) and equipment for monitoring, assessment and reporting on the UNCCD impact indicators. Establish data sharing mechanisms across relevant departments, institutions and organisations
<ul style="list-style-type: none"> Fragmented data housed in different institutions and shortage of data sharing mechanisms. 	<ul style="list-style-type: none"> Introduce some flexibility in the use of additional or alternative relevant metrics that can be reported on at the national level Foster and strengthen inter-departmental work on DLDD
<ul style="list-style-type: none"> Lack of trained staff dedicated to development and reporting on the UNCCD impacts indicators. Lack of funding for staff and equipment. 	<ul style="list-style-type: none"> Support research and capacity building/strengthening for the implementation of the UNCCD indicators.
<ul style="list-style-type: none"> Lack of awareness amongst decision makers on the importance of establishing a monitoring system to support the implementation of the UNCCD strategy and national action plans. Lack of awareness on the importance of the UNCCD impact indicators at national and regional level. 	<ul style="list-style-type: none"> Raising awareness on the importance of DLDD at national and regional level.
<ul style="list-style-type: none"> Lack of economic incentives for research related to desertification and land degradation. Lack of prioritisation of land degradation in national bodies 	<ul style="list-style-type: none"> None suggested

6.2.7 Suitability of and improvements to the templates, guidelines and glossary

Pilot countries found the templates, guidelines and glossary useful, clearly structured and comprehensive for the implementation of the Pilot exercise. A general comment asked for reporting material and guidelines to be translated in all UN languages.

6.2.7.1 Detailed comments on reporting templates and guidelines:

- Land Productivity: add additional metric (income/ha).
- Land Productivity: the following needs clarification ‘#= number of species, % = major crop as percentage of total production’
- Land cover: annual changes of some indicators are insignificant. For example, the land cover monitoring and assessment if carried out every year is not cost effective.

- Land production and land cover: Templates and guidelines should comply with the monitoring methods of the indicator. For example, the land production and land cover by remote sensing monitoring should not adopt the same templates as of statistical survey methods for population proportion over the poverty line.
- Regarding the monitoring time and space scales, it is necessary to differentiate the monitoring intervals (1 year, 5 years or 10 years) and special scales (national, provincial, city levels) for each indicator in accordance with indicator properties, data availability, responsiveness of indicator.
- Provide option for including additional images, such as maps and graphs.
- Comment from UNEP-WCMC: given the opportunities of online reporting and direct transfer of the data into a database, it is suggested changing the reporting approach from qualitative reporting towards a reporting whereby Parties are presented with predefined answers to choose from. It is hoped that this more streamlined approach will facilitate the analysis of the national reports obtained during subsequent national reporting cycles and enable a more efficient assessment of progress made against strategic objectives. Furthermore, it is suggested to include specific questions to assess the quality of the data. This could be done by identifying key quality aspects of methods used to produce certain indicators, and integrated these in the template to enable an efficient analysis of data quality.

6.2.7.2 *Technical Guide on the impact indicators of the UNCCD*

- The templates for land productivity and land cover should be different in order to take account of the different methods, e.g. remote sensing and field surveys, used to calculate the indicator.
- Provide clear and unambiguous understanding of terms amongst Parties to improve consistency in reporting.

6.2.7.3 *Glossary*

Parties suggested that some terms should be added to the glossary, e.g. land productivity, rural poverty rate. It was also suggested that each glossary item is accompanied by a brief explanation to avoid discrepancies. In addition to the existing guidelines, it would be useful to include a generic example template.

6.2.8 *Adequacy and effectiveness of the technical support received during the piloting*

Overall, pilot countries indicated that they were satisfied with the technical support provided during the Pilot exercise. The majority of pilot countries stated that the multi-national indicator launch workshop which provided the countries with guidance and help in developing impact indicator assessments was a very useful starting point. Some Parties suggested that the UNCCD should support and organise similar workshops at regional level for 2012. The online document sharing facility (Basecamp) was considered very useful and it was recommended that a similar platform should be utilised during subsequent reporting cycles.

Several Parties indicated that the pilot exercise made them realise their strengths and weaknesses regarding national capacity for assessing and reporting on the 11 impact indicators. They noted that support from UNCCD, UNEP-WCMC and other members of the pilot exercise were helpful. Other Parties noted that the experiences from the pilot exercise will inform future development of the monitoring and

reporting process in general. All pilot countries mentioned that there is a need to carry out further research on the set of indicators as well as to improve monitoring systems.

7 Pilot countries identified 'key messages' and 'lesson learnt'

Pilot countries participating in the Pilot study conclusion workshop in Changwon, Republic of Korea, identified key messages and lessons learnt during the pilot study reporting process (see [Schulte-Herbrüggen et al. 2011](#)). These messages and lessons should be seen in addition to the analysis of national reports presented here.

Key messages

- Reporting on UNCCD Impact Indicators contributes to an improved understanding of the Land Degradation process.
- The UNCCD Impact Indicators can help to identify priority areas of intervention.
- The Pilot Exercise has raised awareness of data availability and accessibility.
- Data and capacity for reporting the UNCCD Impact Indicators exist, but improvements are needed.
- Harmonisation of data and reporting standards, nationally and internationally, should be encouraged where appropriate and feasible.
- Data access can be improved through promoting cooperation between Conventions, Ministries and Institutions.
- The COP should encourage government institutional and financial commitment to facilitate data sharing, analysis and reporting.

Main lessons learnt

- The UNCCD Impact Indicator set is widely applicable, even when using alternative metrics.
- Reporting the majority of the UNCCD Impact Indicators was feasible using available data sets; however issues of data availability and accessibility exist.
- The Pilot Exercise has initiated communication between Pilot Countries and collaboration within countries.
- Appropriate and commonly understood terminology is essential to facilitate communication between scientists and policy-makers.
- It is helpful to utilise sub-optimal (e.g. older) available data sets if that is the only option.
- Some Pilot countries found that national data collated for reporting to other Rio Conventions were challenging to access.
- Sub-national data required for assessing affected areas are limited.
- Some Pilot Countries found the UNCCD Impact Indicators had varying relevance at national and sub-national scales.
- Regional training would improve indicator production and reporting capacity.
- Reporting tools need to be improved, refined and verified in all U.N. languages.
- A minimum of six months is required for reporting, to have sufficient time to initially secure data access.
- Cross-disciplinary (natural and social scientists, statisticians, economists) communication is important to build capacity.

8 Conclusions and Recommendations

Indicator reporting

The level of successful reporting was high for the two mandatory indicators (Indicator III 'poverty' and Indicator IX 'land cover'), and the non-mandatory indicators Indicator I 'water' and Indicator VI 'land degradation'. This suggests that Parties participating in the Pilot study have the technical capacity and data to report to these indicators.

A slightly lower but nevertheless satisfactory level of successful reporting was found for Indicator II 'land use', Indicator IV 'food', Indicator VIII 'drought index' and Indicator XI 'SLM'. This level of reporting suggests that Parties have the potential to report against these indicators but that they could be further refined in light of the difficulties raised by some countries.

The low level of successful reporting by Parties on Indicator V 'soil capacity', Indicator VII 'biodiversity' and Indicator X 'carbon', suggests that these three indicators in their current form are problematic and may not be suitable unless substantially revised. Specific problems that would need to be addressed included (a) lack of biodiversity and carbon data, (b) problematic methodologies for assessing carbon and (c) unclear definitions.

Considering the small sample size of this Pilot study, these results should be seen as indicative rather than conclusive and it is recommended that a more detailed analysis of reporting patterns during the second leg of the fourth reporting and review process is undertaken to verify these conclusions. It should be noted that the assessment approach chosen for this analysis resulted in at times ambiguous outcomes and it is suggested that the assessment process is simplified and integrated into national reporting templates.

Effectiveness, relevance and feasibility of reporting on the indicators

Overall, the set of indicators was considered effective in assessing progress of the Convention in addressing DLDD and relevant to national priorities. Similarly, Parties were very positive about their capacity and the feasibility to report on the indicators during the conclusion workshop and this was confirmed by the relatively high level of successful reporting on most indicators.

However, at the level of individual indicators, doubts and problems were raised regarding their effectiveness, relevance or feasibility of reporting. In this respect it is important to note that not all Parties reported on all indicators. The exact reasons for the low level of reporting by some Parties on some indicators remain insufficiently understood. For example, it is questionable whether non-reporting can entirely be attributed to a lack of capacity and lack of perceived relevance of the indicators to national circumstances. This was strongly demonstrated by the example in the joint report provided by Spain and Portugal, who chose not to report on a number of indicators, because the indicators and underlying processes were not considered relevant to the Party's socio-economic situation. Further, some Parties reported on alternative metrics and it remains unclear whether the decision was made due

to the lack of data required to report on the proposed indicator, a lack of understanding of the indicator, or by how the indicators effectiveness and/or relevance was perceived.

Realising the importance and complexities of understanding the underlying drivers of low level of successful indicator reporting, it is recommended that a concise effort is made to assess these relationships further during the second leg of the fourth reporting cycle. Ideally, the reasons for both non- or poor-reporting on individual indicators should be assessed.

Flexibility on non-mandatory indicators

The assessment of drivers of reporting performance could be facilitated by allowing flexibility in the reporting on non-mandatory indicators. In contrast to mandatory indicators (consistently high level of successful reporting) the level of reporting on the non-mandatory indicators varied and requires further attention. One option to achieve this would be to suggest a metric for each non-mandatory indicator but allow Parties to report on an alternative metric, provided that the latter is clearly linked to the purpose of the indicator (this may require further clarification on the indicator purposes). In cases where Parties choose to report on an alternate metric, they would be requested to clearly demonstrate how it relates to the purpose of the indicator and also outline the exact reasons for choosing to report on an alternative metric. Providing the option for such alternative that incorporates clear justification could be a valuable tool to help refine the proposed set of indicators in the future.

Indicator as a set

Parties stated that the set of indicators was effective in assessing progress of the Convention, however, discussions at workshops highlighted that the indicators are not consequently used and understood as a set, instead Parties view and consider them indicator by indicator, suggesting that logical and functional linkages between indicators may not exist or have not been internalised by Parties yet. Recognising the importance of utilising the indicators as a set, it is suggested that the understanding of the indicators as a set should be promoted. The logical and functional linkages between indicators, and the advantages for national management of using the indicators as a set should be elaborated and communicated effectively to Parties. Ideally, this would be accompanied by further improvements to the conceptual framework ([ICCD/COP\(10\)/CST/2](#)).

Affected areas

In general, the Pilot countries lack data that are spatially explicit to affected areas, i.e. if the data cover affected areas, they also include adjacent areas, which cannot be easily differentiated. Further, definitions for affected areas vary across Parties, possibly reflecting differences in national circumstances/priorities and in the interpretation of what is considered an affected area. This suggests that obtaining comparable data for affected areas in different countries may be challenging. It is recommended that (a) the usefulness of rural areas, as a proxy for affected areas, is further investigated; and (b) Parties are requested to specify definitions for affected areas during the second leg of the fourth reporting and review process. Analysis of these definitions should be used to inform the debate and facilitate the identification of a common definition and interpretation of affected areas.

Capacity and guidance

Parties clearly stated that capacity for reporting on the UNCCD Impact Indicators exists but improvements are needed. It is suggested that capacity building activities are conducted at the regional level, ideally by strengthening the institutional arrangements of the Regional Reference Centres (requires promotion of the Reference Centre 'Training-of-trainers model'. This should be complemented by detailed manuals and web-based training modules.

Priority should be given to ensure that national focal points are aware of this and science and technology correspondents (STC) to be closely involved in cross-disciplinary communication. To promote cross-disciplinary collaborations on DLDD, interdisciplinary events should be organised and documents produced outlining the interdisciplinary aspects of DLDD and implications for UNCCD.

The availability of a helpdesk during the pilot study reporting process was considered important to the successful outcome of the Pilot and it is recommended that a dedicated helpdesk be made available throughout the subsequent reporting period. The helpdesk should also be tasked to promote the cooperation between Parties and global indicator partners.

8.1 Implications of introducing impact indicators into UNCCD's PRAIS system

8.1.1 Reporting systems and tool: templates, guidelines and PRAIS portal

Improved reporting systems and tools would facilitate the reporting process and benefit reporting quality.

Lessons from experience	Implication for PRAIS in 2012
Templates were complex even for the countries with substantial capacity (e.g. Land Degradation Assessment in Drylands [LADA] project supported. See www.fao.org/nr/lada/).	Simplify templates and guidelines where possible and appropriate. Focus on questions crucial to assessing implementation of the Strategy and helping Parties to develop 'storylines'.
Parties reported on indicators using maps and did not always tabulate data. This hampers comparison of trends across years.	All data should be reported in table format and maps included as additional references.
Figures and maps were not accompanied by explanations.	Require Parties to explain what is shown in figures and outline the significance to national priorities.
Appropriate and commonly understood terminology is essential to facilitate communication between scientists and policy-makers.	Glossary should be revised, promoted as main reference document for terminology and placed prominently on website. Importance of glossary needs to be highlighted to Parties.
Reporting tools need to be available in all UN languages.	Ensure that templates and guidance are available in time and in all UN languages.
National reports included maps that would be additional documents during the online	Provide option for uploading electronic files for each question that a Party may want to provide, e.g.

report.	electronic maps.
Lack of harmonisation of information management and reporting processes across Conventions and national institutions was considered unpractical and inefficient.	Harmonisation of data and reporting standards, nationally and internationally, as well as cross-referencing to similar information requests from other Conventions should be encouraged where appropriate and feasible.

8.1.2 Data access and availability

Data for reporting exist, but negotiating access may be problematic and Parties should be made aware of potential difficulties in obtaining access and encouraged to initiate access negotiations as early as possible.

Lessons from experience	Implication for PRAIS in 2012
Negotiating data access between departments at national level is time consuming	COP decision: at least 6 months required for reporting
Some Pilot countries found that national data collated for reporting to other Rio Conventions, especially CBD, were challenging to access.	Highlight potential difficulties in obtaining data to national focal points and encourage early negotiations for data access. Further support on data and knowledge management harmonisation for all the Rio and biodiversity-related Conventions
Sub-national data required for assessing affected areas are limited.	Request parties to demonstrate that data are explicit to affected areas. Where this is not the case, request information on relevance of reported data. Engage with Civil Society Organisations (CSO) to obtain additional data.
Data access can be improved through promoting cooperation between Conventions, Ministries and Institutions.	Provide general guidance to focal points that includes such key lessons learnt.

8.1.3 Analysis (including aggregation) of reports

The analysis of national reports is hampered by inconsistent reporting. Guidelines for Parties should be improved and data verification by the Secretariat initiated to obtain more consistent results.

Lessons from experience	Implication for PRAIS in 2012
Parties reported on non-proposed metrics without providing clear reasoning for their decision.	Assessing the feasibility of reporting on proposed impact indicators is challenging. Inconsistent reporting hampers the ability to reliably aggregate data at e.g. regional levels.
Data describing a spatial pattern were	Despite Parties reporting on indicator, it may not be

submitted as maps rather than tables.	possible to utilise information for aggregation. Guidelines should be explicit about the answer format required and data verification by the Secretariat should aim to obtain quantitative data.
Qualitative answers can be unfocused, making their interpretation ambiguous.	Revise the requests for qualitative information in reports. Provide clear guidance where feasible and appropriate.

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10 Appendix

10.1 Appendix: Selection criteria

The following selection criteria have been put forward for consideration by the CST Bureau. It is to be noted that the CST Bureau has not yet thoroughly revised these criteria and that the CST Bureau might decide to apply them for the final selection of the pilot countries, if needed. Therefore, the same criteria could be used to facilitate the consultation at the regional level and possibly the identification of the pilot countries.

- a) **Geographical balance**: This is a well established criterion within the framework of the UNCCD. All Regional Implementation Annexes will be represented in the Pilot. This will result in a minimum of 5 countries in the Pilot. Additional countries from one or more of the Regional Implementation Annexes may be brought into the pilot provided that sufficient financial resources are available. However, the available financial resources do not permit the inclusion of representation of all the diversity of countries and DLDD issues within each Region.

Criteria for the further selection of countries are:

- b) **Representation of different levels of capacity and experience with Land and SLM indicators processes**: UNCCD implementation faces different bottlenecks and constraints. Testing the indicators only in countries that have high levels of capacity and extensive experience in indicators processes may result in biased results. The selected Pilot countries need to be representative of different levels of capacity and different level of experience with Land and SLM indicators. However, only countries with at least a basic capacity to test the majority indicators within the timeframe of the Pilot can be included.
- c) **Sufficient institutional arrangements to start the Pilot in May 2011 and complete it in September 2011**: Due to the time constraint of reporting for COP10 in October 2011, it is necessary to have a rapid and focused technical Pilot process. Demonstration of the necessary government and institutional support and arrangements to quickly organise the testing and reporting of the indicators will be required.
- d) **Knowledge of PRAIS and submission of a 2010 report within the fourth reporting and review process to the UNCCD**: Only countries that have successfully submitted their 2010 report to the Convention shall be eligible to participate in the Pilot. This is to ensure that only countries with a track record of meeting the reporting requirements of the Convention are taken into consideration. Secondly, given the limited timeframe for the exercise, it can be reasonably assumed that previous exposure of national stakeholders to the UNCCD Reporting Process, the PRAIS monitoring system and its on-line reporting module will facilitate achievement of the objectives of the Pilot.
- e) **Evidence of national coordination mechanisms for environmental information management, monitoring and reporting**: Given the broad scope of the set of indicators to be tested, the

existence of environmental information coordination mechanisms is advantageous (such as a national Environmental Information System, national MEA coordination committees, Rio Conventions joint planning/programming or operational mechanisms for joint implementation, experience in piloting of integrated reporting).

- f) **Availability of national level co-financing**: Given that the pilot will be undertaken with limited financial resources, additional national level co-financing (governments, donors, UN agencies) may be considered as advantageous.

- g) **Language requirements**: subject to the criteria of balanced geographical representation and in line with the principle of cost-effectiveness, this criterion will be considered, to enhance the efficacy of such an intense and time-constrained project. Operating in two or at maximum three of the UN languages would contribute to reducing translation costs, facilitating coordination of a global initiative and promoting exchange of information amongst participating countries.

10.2 Appendix: Additional metrics used by Parties during the Pilot study

Table 14 UNCCD impact indicators, the officially proposed metrics and additional metrics used by Parties

Name of the indicator	Officially proposed metric	Additional metrics reported by Pilot countries
I Water availability per capita	Water availability and use (% of available water used by humans)	-Local water resources amount/ local population = local per capita water resource -Geographical distribution of areas with declining of water quality (South Africa) - Ratio of number of people able to source water and total number of people in localities (Senegal) - Average share of water available per capita use (m ³ /year/inhabitant) (Tunisia)
	Percentage of rural population with access to (safe) drinking water	--
II Change in land use	Land use (% change in land uses over time)	-Land use intensity change tendency for different land use types (ha per category of 'intensity of change tendency' for each land use type) -geographical distribution changes in area of land use types (South Africa) -% of farm land and forest lost to other land use forms per region (Spain)
III Proportion of the population living above the relative poverty line	Proportion of population in affected areas living above the poverty line	-Proportion of population in affected areas living <u>below</u> the poverty line (Armenia) - Average intake of calories (Kcalories) and adequacy ratio (average intake/average requirement) (Tunisia)
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas (% of underweight children)	-Grain production per capita (China) -% of children that are part of weight/development control programme (Colombia) -% of children in rural areas who are 1) Undernourished as measured by underweight, 2) Malnourished as measured by stunting, 3) Undernourished as measured by wasting (Senegal)
V Capacity of soils to sustain agro-pastoral use	GLADIS "Soil Health Status"	-GLADIS soil health indicator -geographical distribution of soil health degradation status (South Africa) - Carrying capacity of of rangelands through the estimation of net primary production per year and estimates of crop yields (Senegal) -geographical distribution of levels of soil degradation (Spain)
VI Degree of land degradation	Level of land degradation (via ecosystem-services provision capacity)	-geographical distribution of different levels of land degradation (South Africa) -geographical distribution of different types of land degradation, degree of degradation and degradation by erosion (Tunisia)
	Level of land degradation	-Area affected by degrees of desertification in 2004 / 2009 -% of degraded land 1) extent of damage in proportion to production systems, 2) extent of damage in proportion to size of country, and 3) relative extent of damage in agricultural production systems (Senegal) -geographical distribution of land with different risks of land degradation (Spain) -geographical distribution of levels of land degradation risk (Spain)
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area (Endangered spp per area)	- Number of species present in taxonomic groups and categories of biodiversity - Change in distribution of indicative plant species - geographical distribution of negative effects of soil/plant degradation processes (South Africa)

Name of the indicator	Officially proposed metric	Additional metrics reported by Pilot countries
	Number of crop and animal species in agricultural use	-Estimated number of major species of domestic animals (Senegal) -National livestock numbers (Senegal) - Numbers of 'Plant genetic resources'. Estimates of numbers of species per group (fruit, cereal, pulses, vegetable, forage) (Tunisia)
	Living Planet Index (LPI)	
	Wild Bird Index (WBI)	
	Soil biodiversity	
VIII Drought index	Trends in seasonal precipitation	
	Standardized Precipitation Index (SPI)	-National Standardised Precipitation Index Distribution -geographical distribution of bioclimatic zones according to aridity index (Mean annual rainfall/Potential evapo-transpiration) (Tunisia)
IX Land cover status	Area per land cover type	Area per land cover type
	Land productivity (NDVI or NPP or RUE /region)	Tons/ha/land cover type National agricultural production (tons/ha)
X Carbon stocks above and below ground	Above ground organic carbon stocks (tons/ha)	-tons/ha - Carbon stocks in living forest biomass (millions of tonnes) (Senegal) -geographical distribution of forest use forms
	Below ground organic carbon stocks	tons/ha
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM) (Extent of SLM coverage in country)	-Extent of SLM coverage in one province (China) -Lands under sustainable irrigation/drainage (ha) (Armenia) -% of land protected (Spain) -Land under special protection (ha) (Armenia) -geographical distribution of effectiveness of SLM technologies (South Africa) - geographical distribution of areas with adequate / under / over use of land (Colombia)

10.3 Appendix: Assessment of national indicator reporting

10.3.1 Armenia

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	No	--	% of available water used by humans					
	Percentage of rural population with access to (safe) drinking water	No	--	--					
II Change in land use	Land use	No	--	% change in land uses over time					
III Proportion of the population living above the relative poverty line		Yes	Proportion of population in affected areas living below the poverty line	Proportion of population in affected areas living above the poverty line	Yes	Yes	Yes/no (Two years available only)	No	The indicator is insensitive to DLDD mitigation because it is influenced by other human well-being indicators
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	No	--	% of underweight children					
V Capacity of soils to sustain agro-pastoral use	GLADIS "Soil Health Status"	No	--	GLADIS soil health indicator					
VI Degree of land degradation	Level of land degradation (via	No	--	--					

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
	ecosystem-services provision capacity)								
	Level of land degradation	No	--	No guidelines available					
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area	Yes	Change in distribution of indicative plant species (two example species)	Endangered species per area	Uncertain	Yes	Yes	No	Metric is more relevant to 'level of land degradation' but not biodiversity. [Party states "species are adapted to ecological conditions, as these change (land desertifies), species distribution change"
	Number of crop and animal species in agricultural use	No	--	--					
	Living Planet Index (LPI)	No	--	--					
	Wild Bird Index (WBI)	No	--	--					
	Soil biodiversity	Yes	None	Soil mesofauna	No	No	No	No	Mention existing data but conclude that "it is impossible to show results, because data were collected till 2004, and then all these works stopped. Absence of data in time period 2005-2011 doesn't allow analysing change and trends in mesofauna composition"

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
VIII Drought index	Trends in seasonal precipitation	No	--	--					
	Standardized Precipitation Index (SPI)	No	--	Standardised Precipitation Index					
IX Land cover status (p 16)	Land cover	Yes	Area per land cover type	Area per land cover type	Yes	No	Yes (but not required)	No	
	Land productivity	Yes	Tons/ha/land cover type	NDVI or NPP or RUE /region	Yes	Yes	Yes (but not required)	No	
X Carbon stocks above and below ground	Above ground organic carbon stocks	No	--	--		--	--	--	
	Below ground organic carbon stocks	No	--	--		--	--	--	
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	Lands under sustainable irrigation/drainage	Land under SLM in ha	Uncertain	Yes	Yes (but not required)	No	Provide data on land under irrigation but do not state whether this is sustainable
	Lands under the special protected natural areas	YES	Land under special protection (ha)	NEW METRIC	No	Yes	Yes	No	SLM refers to sustainable use and not protection from any use

10.3.2 China

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	Yes	Local water resources amount/ local population = local per capita water resource	% of available water used by humans	Yes	Yes	Yes	No	
	Percentage of rural population with access to (safe) drinking water	No	--	--	--	--	--	--	
II Change in land use	Land use	Yes	Land use intensity change tendency for different land use types (ha per category of 'intensity of change tendency' for each land use type)	% change in land uses over time	Uncertain	Yes	Yes/no – Compared data from 2000 and 2008.	No	Used LADA data
III Proportion of the population living above the relative poverty line		Yes	Proportion of population in affected areas living <u>below</u> the poverty line	Proportion of population in affected areas living above the poverty line	Yes	Yes	Yes	Yes	
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	Yes	Grain production per capita	% of underweight children	No	Yes	Yes	No	Relationship between grain production and undernourishment among children is not clearly established
V Capacity of soils to	GLADIS "Soil Health Status"	Yes	GLADIS soil health indicator	GLADIS soil health	Yes	No	No	No	

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
sustain agro-pastoral use				indicator					
VI Degree of land degradation	Level of land degradation (via ecosystem-services provision capacity)	No	--	--					
	Level of land degradation	Yes	Area affected by degrees of desertification in 2004 / 2009	No guidelines available	Yes	Yes	Yes	Yes	
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area	Yes	Number of species present in taxonomic groups and categories of biodiversity	Endangered species per area	No	Yes	No	No	May qualify as a baseline but lack of spatial and temporal questions usefulness
	Number of crop and animal species in agricultural use	No							
	Living Planet Index (LPI)	No							
	Wild Bird Index (WBI)	No							
	Soil biodiversity	No							
VIII Drought index	Trends in seasonal precipitation	No							
	Standardized Precipitation	Yes	National Standardised	Standardised Precipitation	Yes	Yes	Yes	Yes	

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
	Index (SPI)		Precipitation Index Distribution	Index					
IX Land cover status	Land cover	Yes	Area per land cover type	Area per land cover type	Yes	Yes	Yes	Yes	Data availability uncertain, possibly not available for > 50% of country
	Land productivity	No	--	--					
X Carbon stocks above and below ground	Above ground organic carbon stocks	Yes (above and below merged)	tons/ha	tons/ha	Yes	Yes	No	No	
	Below ground organic carbon stocks	--	tons/ha						Did not use below ground carbon stocks template
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	Extent of SLM coverage in one province	Extent of SLM coverage in country	No (no indicator interpretation provided)	No (no link described)	Uncertain	No	Used LADA data

10.3.3 Colombia

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	No	--	% of available water used by humans					
	Percentage of rural population with access to (safe) drinking water	Yes	% population	--	Yes	Yes	Yes	No	
II Change in land use	Land use	Yes	Map of land use	% change in land uses over time	Yes	Yes	No	No	No data available on longitudinal land use change but this acts as baseline
III Proportion of the population living above the relative poverty line		Yes	Proportion of population in affected areas living above the poverty line	Proportion of population in affected areas living above the poverty line	Yes	Yes	Yes	Yes	
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	Yes	% of children that are part of weight/development control programme	% of underweight children	No	Yes	Yes	No	Possibly misunderstood the indicator
V Capacity of soils to sustain agro-pastoral use	GLADIS "Soil Health Status"	Yes	Land use (% of total land)	GLADIS soil health indicator	No	No	No	No	Area used for different land use forms is not directly related to soil health
VI Degree of land degradation	Level of land degradation (via ecosystem-services provision capacity)	No		--					

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
	Level of land degradation	Yes	maps	No guidelines available	Yes	Yes	No	No	Maps on desertification, erosion, salinisation
VII Plant and animal biodiversity	New Metric	Yes	Not clear	--	No	No	No	No	State they report on alpha diversity and functional groups but no data or map provided or explained. Include link to website that may hold data but not clear
	Number and share of crop and animal varieties that are endangered per area	No	--	Endangered species per area					
	Number of crop and animal species in agricultural use	No	--	--					
	Living Planet Index (LPI)	No	--	--					
	Wild Bird Index (WBI)	No	--	--					
	Soil biodiversity	No	--	Soil mesofauna					
VIII Drought index	Trends in seasonal precipitation	No		--					See below
	Standardized Precipitation Index (SPI)	Yes		Standardised Precipitation Index	Yes	Yes	Yes	No	Used monthly precipitation data, could have assessed seasonal changes
IX Land cover	Land cover	Yes	Area per land	Area per land	Yes	Yes	No	No	

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
status			cover type	cover type					
	Land productivity	Yes	National agricultural production (tons/ha)	NDVI or NPP or RUE /region	Yes	Yes	Yes	No	
X Carbon stocks above and below ground	Above ground organic carbon stocks	Yes	Map of forest use cover	--	No	Yes	No	No	Link between forest use above/below ground carbon stock is unclear
	Below ground organic carbon stocks	No	--	--					
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	Map: areas with adequate, under and over use of land	Land under SLM in ha	Uncertain	No	No	No	It is not clear if overuse and underuse directly relate to sustainable use of e.g. soil. Also forest area is shown as 'natural forest' assumed to be SLM but logging may not be sustainable

10.3.4 Senegal

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	Yes	Ratio of number of people able to source water (given by summing EPEs of sources in area, and according to criteria of reasonable access) and total number of people in localities	% of available water used by humans	Uncertain	Yes	No	Uncertain – state “the majority of the national territory is affected”	EPE – Equivalent point of water distribution. An approximation of how many people a particular water source can sustain. Different EPE’s for different water sources.
	Percentage of rural population with access to (safe) drinking water	Yes			Yes/No - Partially	Yes	No	Uncertain	EPE used to report on both indicators
II Change in land use	Land use	Yes	% change in land uses over time	% change in land uses over time	Yes	Yes	Yes/No – 1975 & 2000 only	Uncertain	
III Proportion of the population living above the relative poverty line		Yes	Proportion of the population living above the relative poverty line	Proportion of population in affected areas living above the poverty line	Yes	Yes	Yes/No - 2005 & 2009 only	Uncertain	
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	Yes	% of children in rural areas who are 1) Undernourished as measured by underweight, 2) Malnourished as measured by stunting, 3) Undernourished	% of underweight children	Yes	Yes	No	Yes	

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
			as measured by wasting						
V Capacity of soils to sustain agro-pastoral use	GLADIS "Soil Health Status"	Yes	Carrying capacity of rangelands (Graph of biomass vs NDVI)	GLADIS soil health indicator	Yes	No	No	Uncertain	
VI Degree of land degradation	Level of land degradation	Yes	% of degraded land: 1) Extent of damage in proportion to production systems; 2) Extent of damage in proportion to size of country; 3) Relative extent of damage in agricultural production systems	--	Yes	No	No	Uncertain	
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area (NEW METRIC)	Yes	Estimate of number of threatened plant and animal species	Endangered species per area	Yes	Uncertain	No	Uncertain	
	Number of crop and animal species in agricultural use	Yes	- Estimated number of major species of domestic animals - National livestock numbers	--	Yes	Uncertain	Yes (for livestock numbers)	Uncertain	
	Living Planet Index (LPI)	No	--	--					
	Wild Bird	No	--	--					

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
	Index (WBI)								
	Soil biodiversity	No		Soil mesofauna					
VIII Drought index	Trends in seasonal precipitation	No	--	--					
	Standardized Precipitation Index (SPI)	Yes	--	Standardised Precipitation Index	Yes	No	Yes	Uncertain	
IX Land cover status	Land cover	Yes	Area per land cover type	Area per land cover type	Yes	Yes	Yes/No (1975 & 2000)	Uncertain	
	Land productivity	Yes	NDVI – T/Ha	NDVI	Yes	Yes	Yes/No (2008 & 2009)	Uncertain	
X Carbon stocks above and below ground	Above ground organic carbon stocks	Yes	Carbon stocks in living forest biomass (millions of tonnes)	Carbon stocks in tonnes/hectare	Yes	No	Yes	Uncertain	
	Below ground organic carbon stocks	No	--	--					
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	% of land under SLM	Land under SLM in ha	Yes	Yes	Yes	Uncertain	

10.3.5 South Africa

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	Yes	Map: decline of water quality	% of available water used by humans	Yes/No indirectly	No	No	No	Possibly data unavailable for large part of the country
	Percentage of rural population with access to (safe) drinking water	No	--	--					
II Change in land use	Land use	Yes	Map: Trend in the area of land use types	% change in land uses over time	Uncertain	No	No	No	
III Proportion of the population living above the relative poverty line		No	--	Proportion of population in affected areas living above the poverty line					
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	No	--	% of underweight children					
V Capacity of soils to sustain agro-pastoral use	GLADIS "Soil Health Status"	Yes	Map: Soil health degradation status	GLADIS soil health indicator	Uncertain	No	No	No	LADA/WOCAT National Assessment
VI Degree of land degradation	Level of land degradation	Yes	Map: degree/severity of land degradation	--	Yes	No	No	No	LADA/WOCAT National Assessment
VII Plant and animal biodiversity	Number and share of crop and animal varieties that	Yes	Map: negative effect of soil/plant degradation	Endangered species per area	No	No	No	No	No clear relationship between reported metrics and purpose of proposed metric

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
	are endangered per area (NEW METRICS)		processes						
	Number of crop and animal species in agricultural use	No	--	--					
	Living Planet Index (LPI)	No	--	--					
	Wild Bird Index (WBI)	No	--	--					
	Soil biodiversity	No		Soil mesofauna					
VIII Drought index	Trends in seasonal precipitation	No	--	--					
	Standardised Precipitation Index (SPI)	No	--	Standardised Precipitation Index					
IX Land cover status	Land cover	Yes	No data provided	Area per land cover type	No	No	No	No	
	Land productivity	No		NDVI or NPP or RUE /region					
X Carbon stocks above and below ground	Above ground organic carbon stocks	No	--	--					
	Below ground organic carbon stocks	No	--	--					
XI Land under Sustainable Land Management	Land under Sustainable Land Management	Yes	Map: effectiveness of SLM technologies	Land under SLM in ha	Uncertain	No	No	No	The higher the CI score, the more SLM measures in place and the more

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
(SLM)	(SLM)								effective the SLM interventions but does not state whether land management is actually sustainable

10.3.6 Spain/Portugal

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	No	--	% of available water used by humans					
	Percentage of rural population with access to (safe) drinking water	No	--	--					
II Change in land use	Land use	Yes	Total area and % area of farmland and forest replaced by different land use forms	% change in land uses over time	Yes	No	Yes/no (2000 & 2006)	Yes – data are spatially explicit (at regional level)	Did not use reporting template and did not provide all requested information
III Proportion of the population living above the relative poverty line		No	--	Proportion of population in affected areas living above the poverty line					
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	No	--	% of underweight children					
V Capacity of soils to sustain agro-pastoral use	GLADIS “Soil Health Status”	No		GLADIS soil health indicator					Data could be derived from existing surveys in the short/medium term
VI Degree of land degradation	Level of land degradation	Yes	Level of desertification risk	--	Yes	No	Not reported (uncertain)	Yes – data are spatially	Did not use reporting template and did not provide all requested

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
								explicit	information
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area	No	--	Endangered species per area					Biodiversity data are available but not reported here since relationships between the state of biodiversity of flora and fauna with desertification processes has not been established
	Number of crop and animal species in agricultural use	No	--	--					
	Living Planet Index (LPI)	No	--	--					
	Wild Bird Index (WBI)	No	--	--					
	Soil biodiversity	No	--	Soil mesofauna					
VIII Drought index	Trends in seasonal precipitation	No	--	--					
	Standardised Precipitation Index (SPI)	No	--	Standardised Precipitation Index					SPI information exists at the national level. Not useful for assessing impact of Convention, since it is an indicator of meteorological drought.
IX Land cover status	Land cover	No	--	Area per land cover type					
	Land productivity	No	--	NDVI					
X Carbon	Above ground	No	--	Carbon stocks in					Information is now

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
stocks above and below ground	organic carbon stocks			tonnes/hectare					available for the calculation of the carbon stored in living tree biomass, both above and below ground
	Below ground organic carbon stocks	No	--	--					
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	Protected areas (ha, % of total), forest (ha), sustainably managed forest (ha)	Land under SLM in ha	Yes/no (only one aspect of land use considered)	No	No	No	Did not use reporting template and did not provide all requested information

10.3.7 Tunisia

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
I Water availability per capita	Water availability and use	Yes	Average share of water available per capita use (m ³ /year/inhabitant)	% of available water used by humans	Yes	Yes	No	Uncertain – state “the majority of the national territory is affected”	Also reported pressure on water resources: Exploitation rate of surface water and groundwater
	Percentage of rural population with access to (safe) drinking water	No							
II Change in land use	Land use	Yes	Map of land use	% change in land uses over time	Yes/No	No	No	Uncertain	
III Proportion of the population living above the relative poverty line		Yes		Proportion of population in affected areas living above the poverty line	Yes	Yes	Yes	Yes	Also reported on average annual expenditure per person
IV Food consumption per capita	Proportion of chronically undernourished children under the age of 5 in rural areas	Yes	Average intake of calories (Kcalories) <i>[unclear if per person, per day]</i> and adequacy ratio (average intake/average requirement)	% of underweight children	Yes/No	No	Yes	Uncertain	
V Capacity of	GLADIS “Soil	No		GLADIS soil					

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
soils to sustain agro-pastoral use	Health Status"			health indicator					
VI Degree of land degradation	Level of land degradation	Yes	Maps – Types of degradation, degree of degradation and degradation by erosion	--	Yes	Yes	No	Yes – Data spatially explicit	Used LADA-WOCAT data
VII Plant and animal biodiversity	Number and share of crop and animal varieties that are endangered per area	No		Endangered species per area					
	Number of crop and animal species in agricultural use	Yes	Numbers of 'Plant genetic resources'. Estimates of numbers of species per arbitrary group – fruit, cereal, pulses, vegetable, forage, condiment	--	Yes/No – Only info for plants	Uncertain	No	No	
	Living Planet Index (LPI)	No	--	--					
	Wild Bird Index (WBI)	No	--	--					
	Soil biodiversity	No		Soil mesofauna					
VIII Drought index	Trends in seasonal precipitation	No	--	--					
	Standardized Precipitation Index (SPI)	Yes	Map with bioclimatic zoning according to	Standardised Precipitation Index	Yes	Yes	No	Yes – Data spatially	

Name of the indicator	Metric	Reported on indicator	Metric reported	Proposed metric	Link to indicator purpose	Link to national priorities	Time series available	Data for affected areas	Comment
			Aridity index (Mean annual rainfall/Potential evapo-transpiration)					explicit	
IX Land cover status	Land cover	Yes	Area per land cover type	Area per land cover type	Yes	No	No	Uncertain	
	Land productivity	Yes	NDVI – T/Ha	NDVI	Yes	Yes	Yes	Uncertain	
X Carbon stocks above and below ground	Above ground organic carbon stocks	No	Carbon stocks in living forest biomass (millions of tonnes)	Carbon stocks in tonnes/hectare	No	No	Yes	Uncertain	
	Below ground organic carbon stocks	No	--	--					
XI Land under Sustainable Land Management (SLM)	Land under Sustainable Land Management (SLM)	Yes	Map - % of land conservation	Land under SLM in ha	No (Conservation is not sustainable management)	No	No	Yes/No – Map is spatially explicit but some areas blank	

10.4 Appendix – e-SMART Metrics

10.4.1 Water availability and use

Water availability and use				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	China	4	In arid areas, the per capita water resources availability reflects directly the abundance level of water resources, and shortage of water resources is the main driver of desertification
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	China	4	Water is a main component of the NAP
	Can policymakers easily understand the indicator?	China	5	The water resources are extremely important resource in the dryland ecosystem and understood by all policy makers
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	China	3	The calculation models are sound and capable of meeting DLDD process assessment procedures.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	China	5	Yes, The watershed based survey can meet desertification assessment requirement of impact affected areas
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	China	4	The definition and factors are clear.
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	China	4	China has carried out monitoring for many years and the methods are much improved.
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	China	2	The per capita water resources change is closely related with natural factors
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	China	3	The changes within short period of time are small, so in short time it is hard to monitor the indicator changes. But with the climate change and population change, in longer period of time there will be changes
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	China	4	China has established the monitoring system for the indicator and the related data is available.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	China	3	Timing of surveys depends on resources available to the Ministry of Water Resources.
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	China	1	Per capita water resources calculation needs multiple indicators, and the survey needs higher amount of human labour and costs. So the support of DLDD monitoring is inadequate.

10.4.2 Percentage of rural population with access to (safe) drinking water

Percentage of rural population with access to (safe) drinking water				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	Armenia	2	The information is not related to DLDD and UNCCD implementation. The water availability also depends on the services provided to population.
		Colombia	2	The indicator provides data related to water availability per capita, which is not necessarily related to areas with land degradation. In Colombia many regions both dry ecosystems as other ecosystems show deficits in drinking water.
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	Armenia	1	NAP was accepted in 2002, and there weren't issues connected with this metric. It is planned to elaborate new NAP in 2012-2013, and the discussions will be done for inclusion.
		Colombia	3	No, it is considered an additional activity to improve conditions in affected areas
	Can policymakers easily understand the indicator?	Armenia	2	Policymakers can easily understand the indicator. It is an important indicator to inform national health, growth and development policies especially in rural areas. But the interconnection with DLDD and UNCCD is not so clear.
		Colombia	4	Yes, water availability is of crucial importance
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	Armenia	4	The indicator is based on well-understood and generally accepted conceptual models of the system.
		Colombia	3	Changes in this indicator value have a clear meaning, since it involves the quality of life of people living in drylands and land degradation processes
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	Armenia	2	The requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes. This is true for national scale, but not for affected areas.
		Colombia	3	This scale allows the comparison of areas with access to safe drinking water nationwide vs. affected areas have access to potable water
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	Armenia	4	Access to safe drinking water is measured as the "proportion of the population using an improved drinking water source through pine line, i.e. centralized water supply system."
		Colombia	4	The definition of this indicator is clear as to water availability per capita, although not necessarily involve areas of land degradation processes
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	Armenia	4	The proposed methodologies for the measurement of this indicator are sufficiently clear to ensure reliable data.
		Colombia	4	Implemented methods are appropriate to guarantee that data are reliable
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	Armenia	2	The indicator is sensitive enough to detect important changes, but signals can be masked by natural variability.
		Colombia	2	The indicator may vary according to natural conditions (climate, floods, etc.).
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	Armenia	4	The indicator can detect changes at the required temporal and spatial scales. The up-scaling / cross-scaling rules are clear.
		Colombia	3	The indicator can detect changes in spatial and temporal scale, and can end up and down variations in each census made by DANE and DNP.
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	Armenia	4	Reliable data and monitoring systems are available to assess trends. Data collection is a relatively straightforward process.
		Colombia	3	The data provided by this indicator are reliable, but require increased monitoring to assess trends. The compilation of this indicator is complex and requires time to achieve a reliable result.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	Armenia	4	Annual data collection is in line with the monitoring and reporting requirements of the UNCCD.

Percentage of rural population with access to (safe) drinking water				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
		Colombia	2	No, surveys have only been conducted five time in the last 50 years
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	Armenia	3	The indicator is cost-effective. The cost of data collection is affordable and worthwhile.
		Colombia	3	The indicator is important to determine the quality of life, especially in affected areas. Surveys are part of national census surveys

10.4.3 Land Use

Land Use				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	Colombia	2	The indicator is very general and changes in its value can be due to many factors
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	Colombia	2	The indicator changes land use is not necessarily related to land degradation therefore is not of great importance in the national planning DDTs
	Can policymakers easily understand the indicator?	Colombia	4	This indicator can be understood by politicians, as it may determine expansion of cities, land degradation, increased generation of industries, floods, among others.
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	Colombia	1	Changes in value in this indicator does not necessarily have to be related to land degradation, since many variables for this indicator changes.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	Colombia	1	This scale allows changes buying land use at national level with changes in land use in affected areas. This scale does not allow timely monitoring of land degradation, since the change in land use due to many external variables.
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	Colombia	2	The definition of this indicator is ambiguous about the type of land use
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	Colombia	3	There are several appropriate methodologies to measure this indicator
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	Colombia	1	The indicator is not considered sensitive enough. Important that type of land use are specified
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	Colombia	4	The indicator can detect changes in spatial and temporal scale
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	Colombia	4	The data for this indicator is reliable and easy to understand, which can assess trends in the changes of land use. Data collection is relatively simple.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	Colombia	2	Data collection occurs infrequently, however changes in land use patterns occur over long periods of time
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	Colombia	5	The cost is borne by the specialized agencies as IDEAM and profitable thanks to the quality of information provided.

10.4.4 Rural Poverty Rate

Metric: Rural Poverty Rate				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	Armenia	4	There is close connection between welfare of population and desertification, land degradation and drought (DLDD). But there is no integrating information on environmental sustainability and human well-being.
		China	5	Land degradation is an important cause of local poverty and the local poverty is one dominant factor to intensify land degradation.
		Colombia	3	provides certain information regarding the implementation of the UNCCD DLDD and because there is not a specific study on poverty in areas of degradation processes
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	Armenia	3	The indicator is not directing relevant for DLDD national planning purposes. The indicator may be insensitive to DLDD mitigation because it is linked to other human well-being indicators such as net migration rate, adult literacy rate, proportion of chronic undernourished children under the age of 5 in rural areas, and maternal mortality ratio.
		China	5	Land degradation is an important cause of local poverty and the local poverty is one dominant factor to intensify land degradation.
		Colombia	4	Yes, the indicator is important for national planning
	Can policymakers easily understand the indicator?	Armenia	4	Yes, indicator of RPR is easily understandable for policymakers.
		China	5	Decision maker of policies can easily understand the importance of poverty for desertification
		Colombia	5	This indicator is easily understood by politicians
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	Armenia	4	Yes, but there is no integrating information on environmental sustainability and human well-being. Changes in indicators value have clear meaning.
		China	5	Yes
		Colombia	4	Changes in the value of this indicator shows some kind of low food productivity, unfavourable conditions for the population and some kind of degradation in soils.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	Armenia	4	No, but there is a need to find the connection between RPR and share of the national territory occupied by affected areas
		China	5	Poverty surveys may not be conducted at the same spatial scale as national data and desertification affected region.
		Colombia	4	Available data allows comparison of poverty levels at national level and affected areas. This allows determination of whether poverty is the cause of land degradation.
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	Armenia	3	Yes, but there is no integrating information on environmental sustainability and human well-being.
		China	4	Chinese rural poverty line adopts absolute poverty line with clear definition, so an explicit indicator.
		Colombia	3	The definition is ambiguous, since each country defines the poverty line differently
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	Armenia	3	Yes, but there is no integrating information on environmental sustainability and human well-being.
		China	4	China adopts sampling methods for rural poverty incidence rate monitoring and the methods are feasible.
		Colombia	4	Colombia utilises several methodologies to measure poverty (poverty line, rural poverty rate and poverty rate in the country). The data are clear and guaranteed

Metric: Rural Poverty Rate				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	Armenia	3	The indicator sensitive enough to detect important changes , but insensitive to DLDD mitigation because it is linked to other human well-being indicators
		China	3	The poverty incidence rate is heavily affected by natural conditions and disasters, especially droughts and floods. But this relationship needs further study.
		Colombia	4	This indicator is easy to detect and not masked by natural variability.
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	Armenia	2	The indicator of RPR detects changes at the required temporal and spatial scales but there is no integrating information on environmental sustainability and human well-being.
		China	3	The survey results are representative all national or provincial level poverty alleviation key counties. But the application of this data for affected areas has limitation.
		Colombia	4	The indicator can detect temporal changes in poverty levels
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	Armenia	4	Reliable data and monitoring systems are available. Data collection is straightforward process. But there is no integrating information on environmental sustainability and human well-being.
		China	3	China has developed survey of rural poverty incidence rate
		Colombia	5	Monitoring data are reliable, data collection is complex but this indicator is calculated annually.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	Armenia	4	Poverty assessments are conducted annually. The frequency of data collection is in line with the monitoring and reporting requirements of the UNCCD
		China	4	Poverty assessments are conducted annually
		Colombia	5	Yes, indicator is produced annually
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (<i>consider any required cost for personnel, capital but also, recurring costs</i>)	Armenia	4	The indicator is cost-effective. The cost of data collection of ILCS is affordable and worthwhile.
		China	2	Poverty incidence rate survey as specialized survey needs with higher cost. UNCCD impact assessment can only rely on data obtained from specialized survey conducted by the country
		Colombia	5	The indicator is important to determine the changes in poverty levels.

10.4.5 Standardized Precipitation Index (SPI)

Standardized Precipitation Index (SPI)				
Assessment Criteria (e-SMART)			Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	China	5	It is convenient, simple, objective, highly workable aridness indicator and method
		Colombia	4	Indicator is based on monthly data collections across the country including affected areas
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	China	5	Aridness monitoring an important indicator for desertification monitoring. The DLDD national action plan included actions regarding how to rationally use water resources and remove aridness impacts.
		Colombia	5	Yes, it is part of National Desertification Action Plan
	Can policymakers easily understand the indicator?	China	5	The policy decision maker understands the importance of aridness in desertification combating.
		Colombia	5	Yes, easily understood by politicians
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	China	5	Precipitation, aridness is closely related with land desertification
		Colombia	5	Changes in this indicator value have a clear meaning in terms of climate change and susceptibility to degradation processes in soils.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	China	5	China has conducted nationwide SPI monitoring, including desertification affected areas.
		Colombia	4	Yes, the scale is appropriate for assessing affected areas
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	China	5	China adopts the definition of the World Meteorological Organization
		Colombia	4	Yes
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	China	5	SPI adopted ground metrological station to get continuous observation values. The meteorological satellite data supply supplementation. The data quality is guaranteed.
		Colombia	5	Methods and implementation are clear and quality guaranteed
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	China	3	SPI is fully subject to impact of natural factors.
		Colombia	5	Indicator is sensitive enough to detect important changes in the climate
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	China	5	SPI can be monitored on day/ten-day/month basis for the whole country
		Colombia	5	Daily data collection across the country allows detection of temporal and spatial changes
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	China	4	China has established SPI continuous monitoring system which can guarantee data collection and data quality.
		Colombia	5	The data is reliable and weather stations used, monitored constantly, which allows for a reliable monitoring system capable of collecting data and trends.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	China	5	Yes
		Colombia	5	Daily data collection frequency can be obtain from website: http://institucional.ideam.gov.co/jsp/loader.jsf?l servicio=publicaciones&ltipo=publicaciones&lfuncion=loadcontenidopublicacion&id=952
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	China	5	China has established over 2000 meteorological observation stations, capable of having real-time automatic collection of such meteorological data as precipitation. The data collection cost is low and the SPI monitoring cost is low.
		Colombia	5	Yes, the indicator is cost-effective and important at national level

10.4.6 Land Cover

Metric: Land Cover				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	Armenia	5	Yes
		China	5	It is basic data for DLDD monitoring.
		Colombia	5	Yes, directly related to desertification
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	Armenia	5	Land cover is mentioned in NAP
		China	5	The national desertification combating project is based on land cover and its changes.
		Colombia	5	Land cover is included in NAP
	Can policymakers easily understand the indicator?	Armenia	5	Yes. Further improvements when adopting FAO land classification system
		China	5	Yes
		Colombia	5	Yes
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	Armenia	5	Yes
		China	4	In China, the land cover and land use in concepts are easily confused.
		Colombia	5	Changes in the value of this indicator can determine a level of land degradation and low productivity in soils nationwide.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	Armenia	5	Yes, but improvements are needed (e.g. remote sensing)
		China	5	Land cover should have clear spatial distribution scope.
		Colombia	5	Yes
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	Armenia	4	Yes
		China	4	Yes
		Colombia	4	
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	Armenia	4	The proposed methodologies for the measurement are sufficient, but for more reliable data remote sensing is needed
		China	5	Land cover is obtained mainly by remote sensing technology plus some ground survey results, so the data reliability.
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	Armenia	4	Yes, it is sensitive enough to detect the most important changes, however, for detecting signals due to natural changes, the Remote sensed mapping data is needed, which are more sensitive.
		China	3	Land cover changes are subject to impact of artificial activities, and to impact of natural factors
		Colombia	4	This indicator is sensitive to detect changes in land cover and productivity of soils, but can be influenced by natural variability (climate change).
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	Armenia	4	Yes the indicator can detect changes at the required scales based on monitoring results, classifying the land by FAO and using RS data.
		China	5	Existing remote sensing technology and means can monitor land cover by measuring temporal and spatial change trend and rules.
		Colombia	4	The indicator can detect changes in the temporal and spatial scales according to the change of land cover
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	Armenia	4	We are always doing studies yearly and in the near future Remote sensed data will be used, which have high accuracy and will easy works by classifying the land towards FAO data.

Metric: Land Cover			
Assessment Criteria (e-SMART)	Country	Score	Remarks (Please elaborate on the scores you gave)
	China	5	China has established monitoring system land cover and changes, for periodical land cover monitoring and survey.
	Colombia	4	Monitoring data are reliable, data collection is complex but have a high degree of accuracy.
	Armenia	5	Yes, the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD, studies are done each year.
	China	4	Chinese land cover monitoring is conducted once for every five years, and can meet UNCCD report requirement.
	Colombia	5	Data collection is carried out every 5 years but the interpretation of the data may take some more years
Economic	Armenia	5	Yes the indicator is cost-effective, the data collection affordable and worthwhile. It is easy in use.
	China	4	Due to adopting remote sensing technology, the land cover monitoring cost is comparatively low. Land cover is a compulsory UNCCD report indicator and the monitoring benefits are high.
	Colombia	5	The indicator is required to determine the changes in land cover and soil productivity. The indicator is profitable and worth the cost of data collection.

10.4.7 Above ground organic carbon stocks

Above ground organic carbon stocks				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	China	4	In arid areas, the above ground organic carbon stocks reflects directly the biomass level, and the low of carbon stocks reflects low land productivity.
	It the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	China	4	Increase of organic carbon stock by afforestation is one of the strategic objective of the NAP
Specific	Can policymakers easily understand the indicator?	China	5	At national level, most of the policy makers understand the indicator.
	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	China	4	Conceptual models are well understood and capable of meeting DLDD process assesses procedures in general.
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	China	4	Yes
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	China	4	Yes, the definition and factors are clear.
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	China	3	IPCC provides calculation methods and guidelines for above-ground biomass. The models are still in improving.
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	China	4	Sensitive to long-term changes. Short term changes may be caused by climate variation but not land degradation.
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	China	5	LADA project recorded changes in above ground biomass
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	China	2	Some data available from LADA but no updated national data available
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	China	2	No. The LADA project provides data on above ground biomass but it is limited to specific locations and no data at national level are available
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	China	2	At present, cost of data collection is higher, but if data could be shared with relevant authority, it would be affordable.

10.4.8 Land under Sustainable Land Management

Metric: Land under Sustainable Land Management				
Assessment Criteria (e-SMART)		Country	Score	Remarks (Please elaborate on the scores you gave)
Relevant	Does the indicator provide information about changes in primary processes unambiguously related to DLDD and UNCCD implementation?	Armenia	5	Yes, the indicator provides information about changes in primary processes related to DLDD and UNCCD implementation.
	Is the indicator relevant for DLDD national planning purposes, including monitoring of the National Action Programme (NAP)?	Armenia	3	The indicator is included in the NAP
	Can policymakers easily understand the indicator?	Armenia	3	It can be easily explained to policymakers.
Specific	Is the indicator based on well-understood and generally accepted conceptual models of the system to which it is applied so that changes in its value will have clear meaning regarding the process of concern?	Armenia	4	The indicator is well understood and well connected with land use and can be easily modified and adapted to assess the implementation of the convention
	Is the requested spatial scale (national vs. affected areas) of the indicator appropriate for its monitoring purposes?	Armenia	4	The proposed scale is well consistent with the purposes of monitoring.
Measurable	Are the definitions of the indicator and its constitutive elements clear and not ambiguous?	Armenia	5	Definitions of the indicator with appropriate metrics are quite affordable and understandable.
	Are the proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data?	Armenia	5	The proposed methodologies for the measurement of this indicator sufficiently clear to ensure reliable data if the suggested metrics are use. Proposed method to obtain the data will not cause difficulties for specialists.
Time-bound	Is the indicator sensitive enough to detect important changes but not so sensitive that signals are masked by natural variability?	Armenia	5	Indicator with the corresponding proposed metrics with regular long-term monitoring is quite sensitive and relates the corresponding tasks.
	Can the indicator detect changes at the required temporal and spatial scales and are the up-scaling / cross-scaling rules clear?	Armenia	5	Our proposed indicator is quite sensitive temporally and can be used to assess the long-term changes
Achievable	Are reliable data and monitoring systems available to assess trends and is data collection a relatively straightforward process?	Armenia	5	The proposed method enabled to receive data, as in Armenia each year a land balance is approved by Government, which shows the amount of land territories under irrigation and under specially protected natural areas and will not cause much trouble. As well as data received from Remote sensed methods will be used in the near future.
	Is the frequency of data collection in line with the monitoring and reporting requirements of the UNCCD?	Armenia	4	We can easily retrieve data by the proposed method, as in Armenia, each year a land balance is approved by Government, which shows the amount of land territories under irrigation and under specially protected natural areas. This will not cause much trouble.
Economic	Is the indicator cost-effective? Is the cost of data collection affordable and worthwhile? (consider any required cost for personnel, capital but also, recurring costs)	Armenia	4	By the proposed method, depending on the amount of land that are under irrigation and under specially protected natural areas will not require additional costs.