The 5th International Conference

Sede Boqer Campus, Israel
16 – 20 November 2014

Drylands, Deserts & Desertification

The UNCCD Science-Policy Interface (SPI) - exploring the sustainable land management nexus among the Rio Conventions

UNCCD SPI Science - Policy Interface

UNCCD

United Nations Convention to Combat Desertification

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UNCCD SPI Science - Policy Interface

Universitat d'Alacant
Universidad de Alicante

PRACTICE
Prevention and Restoration Actions to Combat Desertification. An Integrated Assessment.

MARIE CURIE ACTIONS

What is the SPI?

At its 11th meeting in Windhoek/Namibia, in September 2013, the Conference of the Parties (COP) decided to establish a Science-Policy Interface (SPI) (decision 23/COP.11)

The goal of the SPI is to facilitate a two-way dialogue between scientists and policy makers in order to ensure the delivery of policy-relevant information, knowledge and advice on desertification/land degradation and drought (DLDD)

The SPI's mandate and scope of activities are designed to strengthen the work of the scientific community working on DLDD, including the UNCCD's Committee on Science and Technology (CST)

Who are the members of the SPI?

Twenty scientists from different parts of the world

Top, from left to right: Elena María Abraham, Mariam Akhtar-Schuster, Nicole Bernex, Martial Bernoux, Annette Cowie, Hamid Čustović, Mihail Daradur, Joris de Vente, Karma Dema Dorji, Alan Grainger.

Bottom, from left to right: Oleg Guchgeldiyev, Klaus Kellner, German Kust, Matthias Magunda, Graciela Metternicht, Barron Joseph Orr, Rajendra Prasad Pandey, Vanina Pietragalla, Uriel Safriel, Tao Wang.

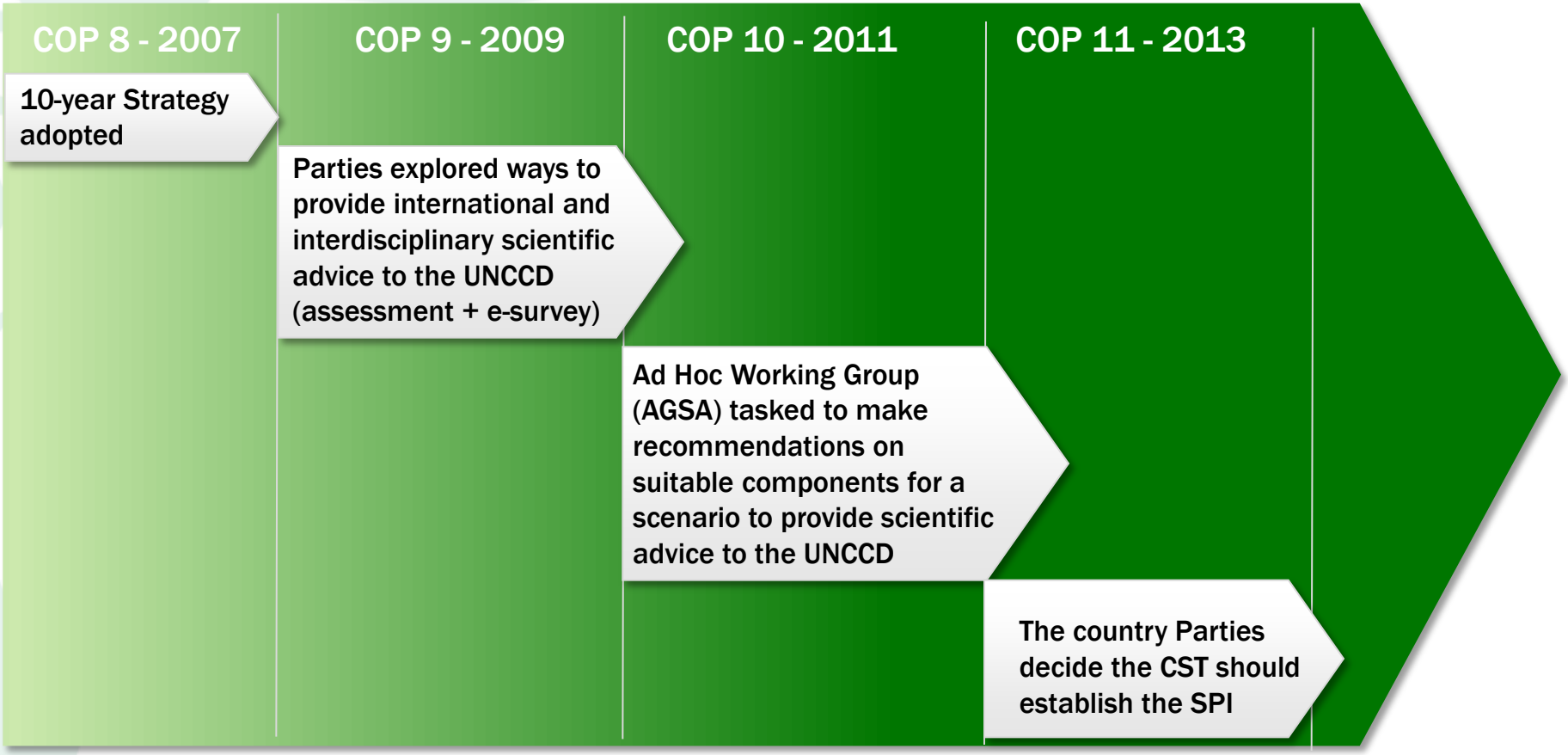
Observers to the SPI

(Nathalie Van Haren)

(Jonathan Davies)

(Mohamed Foday Sessay)

History of the SPI



Recent developments:

- 4-6 February 2014: Terms of Reference (TOR) of the SPI agreed on at CST Bureau meeting

- May 2014: Composition of the SPI announced

Mandate of the SPI (decision 23/COP.11)

- ✓ Establish the approach to deliver each task assigned to it by the CST
- ✓ Analyse, synthesize and translate relevant scientific findings and recommendations from DLDD-related scientific conferences (SC) (including upcoming UNCCD SCs), the roster of independent experts, as well as from relevant stakeholders and networks into proposals to be considered by the CST for the consideration of the COP
- ✓ Interact with existing multiple scientific mechanisms, in particular the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES), the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Technical Panel on Soils (ITPS) and other new and existing scientific networks and platforms
- ✓ Assist the CST Bureau in organizing the UNCCD scientific conferences and assessing their results

Making that mandate operational:

- ✓ Provide timely and policy-relevant scientific evidence on Desertification, Land Degradation and Drought (DLDD) issues to the UNCCD Committee on Science and Technology (CST).
- ✓ Support CST´s cooperation with ongoing science-policy initiatives that are relevant to the UNCCD and its parties.
- ✓ Develop partnerships with relevant stakeholders to allow preparedness and synergies in action to address DLDD to support human well-being and sustainable development and achieving land degradation neutrality (LDN).

To paraphrase…

- ✓ The SPI has been tasked with exploring if the assertion that SLM is an adaptation to climate change holds water, and whether indicators for the state of the land can be used for indicating the degree of adaptation to climate change, and may be also an indication for biodiversity change.
- ✓ Therefore, the function of the SPI is not to carry out field, experimental research on that, but **assess the existing science**.

Scope of activities of the SPI (TOR)

...for scientific and/or technological knowledge requirements

...such as:
- existing / new assessment processes
- research activities
- other mechanisms operated by existing / new institutions, organizations and other relevant entities at global, regional or national level

...into a language that is comprehensible to policymakers

Goal

...enabling, promoting and facilitating the use of the scientific and technological findings for DLDD-relevant policy-/decision making

SPI work programme up to COP 12 (Fall 2015)

Bring to the other Rio conventions the scientific evidence for the contribution of sustainable land use and management to climate change adaptation/mitigation and to safeguarding biodiversity and ecosystem services

Increase the effectiveness of the UNCCD scientific conferences in delivering policy relevant information, knowledge and recommendations

Ensure that the thematic assessment on land degradation and restoration conducted by the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) is of relevance to the UNCCD and its Parties

Cooperate with the Intergovernmental Technical Panel on Soils (ITPS) process in areas which are of relevance to the UNCCD and its Parties

SPI Objective 1:

Bring to the other Rio conventions the scientific evidence for the contribution of sustainable land use and management to climate change adaptation/mitigation and to safeguarding biodiversity and ecosystem services

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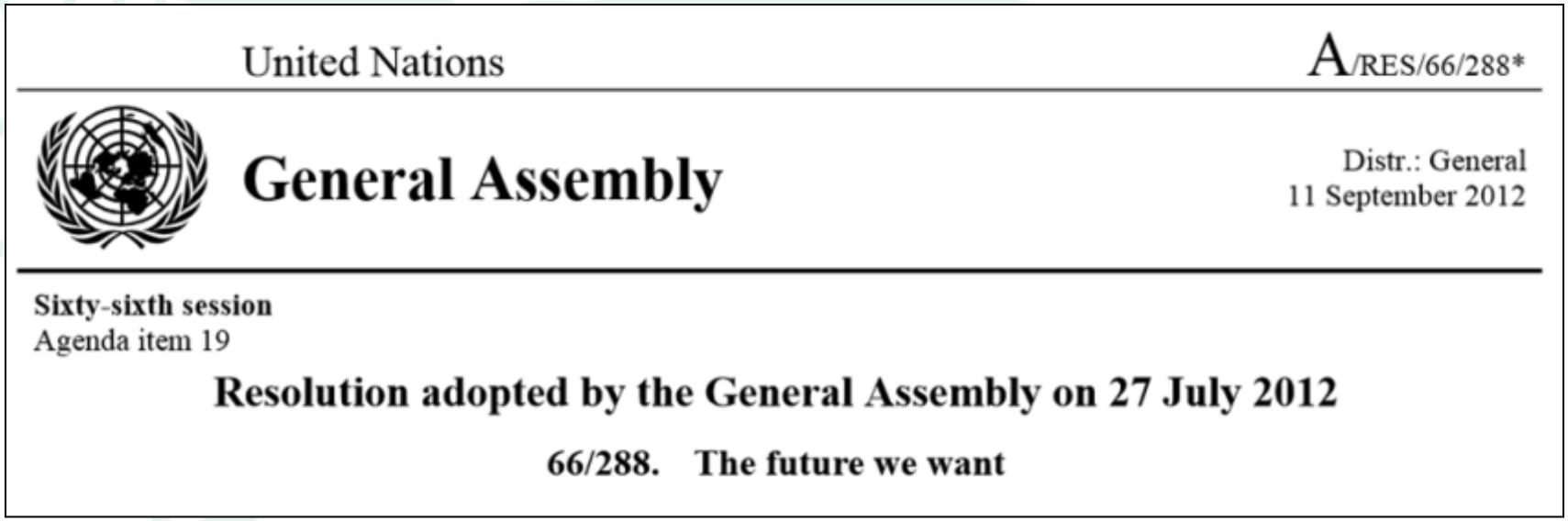
UNCCD

If we are worried about adapting to *climate change* and/or the *loss of biodiversity*, why concern ourselves with *land degradation*?

The SPI endeavors to explore the scientific basis for the contention that attending to land degradation is in and of itself an adaptation to climate change and contributes to the safeguarding of biodiversity and ecosystem services.

The future we want



United Nations A/RES/66/288*

General Assembly

Distr.: General
11 September 2012

Sixty-sixth session
Agenda item 19

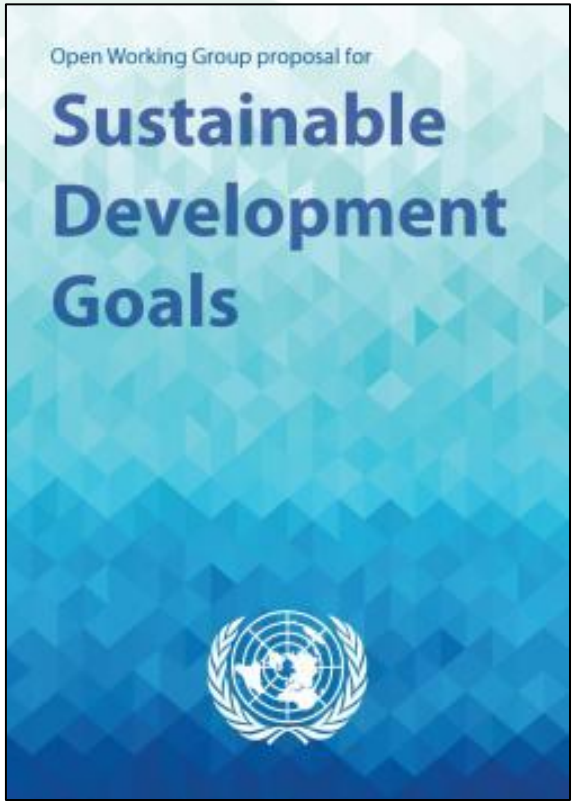
Resolution adopted by the General Assembly on 27 July 2012

66/288. The future we want

Defining “the future we want” for the planet we rely on, in 2012, world leaders at United Nations Conference on Sustainable Development (Rio+20) resolved to achieve a **land-degradation neutral world** (in paragraph 206).

Proposed Sustainable Development Goal 15

In the summer of 2014, the Open Working Group of the General Assembly on Sustainable Development Goals (SDG) generated a proposal now being consider by UN Secretary General.



Goal 15 reads:

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Land degradation neutrality

- ✓ A UNCCD Intergovernmental Working Group (IWG) is tasked with scientifically defining land degradation neutrality – their work is ongoing.
- ✓ Achieving a state of land degradation neutrality involves both reducing the rate of land degradation, and offsetting newly occurring degradation by restoring the productivity and the provision of other ecosystem services of currently degraded lands.
  Chasek et al. 2014 *Journal of Arid Environments*
- ✓ The Land Degradation Neutral World vision – where land is presented as a "nexus issue" uniting concerns around energy, food, water, climate, and biodiversity…
  Welton et al. 2014 *Sabin Center for Climate Change Law, Columbia Law School*

The policy imperative

Biodiversity is the basis for healthy and productive croplands and rangelands. Halving the loss and degradation of ecosystems and restoring at least 15% of degraded ecosystems by 2020, in line with the Aichi Biodiversity Targets, and achieving land degradation neutrality, are essential steps towards sustainable development, helping us to produce more food, mitigate and adapt to climate change and reduce our vulnerability to disasters.

— Dr. Braulio Ferreira de Souza Dias, *Executive Secretary of the UN Convention on Biological Diversity (CBD)*

The policy imperative

Arictle 4 of the UN Framework Convention on Climate Change (UNFCCC) text

1. All parties shall…

(e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by **drought and desertification**, as well as floods;

The practice imperative

[In the face of environmental change]…more productive and resilient agriculture requires transformations in the management of natural resources (e.g., land, water, soil nutrients, and genetic resources) and higher efficiency in the use of these resources and inputs for production. — FAO 2010 *"Climate-Smart" Agriculture Policies, Practices and Financing for Food Security, Adaptation and Mitigation*

The research imperative

Research into desertification and climate change has the potential to significantly enhance livelihoods of resident people. It also has the potential to contribute to their capacity for risk reduction, improved natural resources management and adaptation to climatic and other changes in multi-stressor systems.

— Seely et al. 2008 *Global and Planetary Change*

Recent research supports pursuing a synergistic approach:

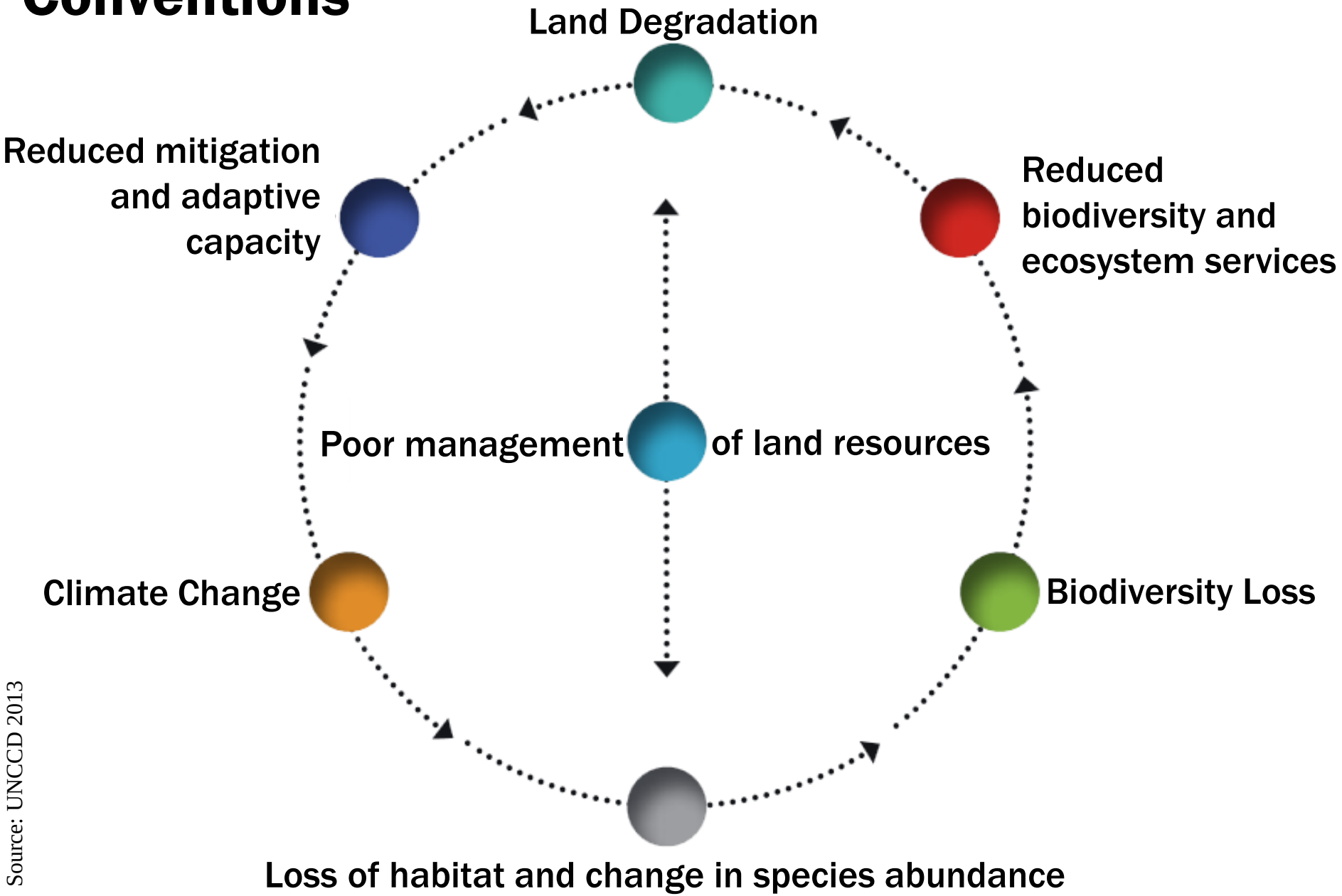
- ✓ A more nuanced vision of sustainably managed drylands is needed: one that reflects social and ecological realities and provides a framework against which policies and investments can be assessed. Such a vision should be based on the intersection between sustainable land management and biodiversity conservation.
  Gudka et al. 2014 *Biodiversity*
- ✓ The [recent years] higher turnover rates of carbon pools in semi-arid biomes are an increasingly important driver of global carbon cycle inter-annual variability and that tropical rainforests may become less relevant drivers in the future.
  Poulter et al. 2014 *Nature*

A note about adaptation vs. mitigation

While we aspire to achieve climate change mitigation (to reduce *exposure* to risk), the reality on the ground is we must also adapt to climate change impacts. **Addressing land degradation** can help us increase *adaptive capacity* and reduce *sensitivity* to climate change.

Source: The U.S. NOAA ART Project (2014) adapted this from the SWITCH Training Kit (2011)

Feedback loops and the objectives of the Rio Conventions



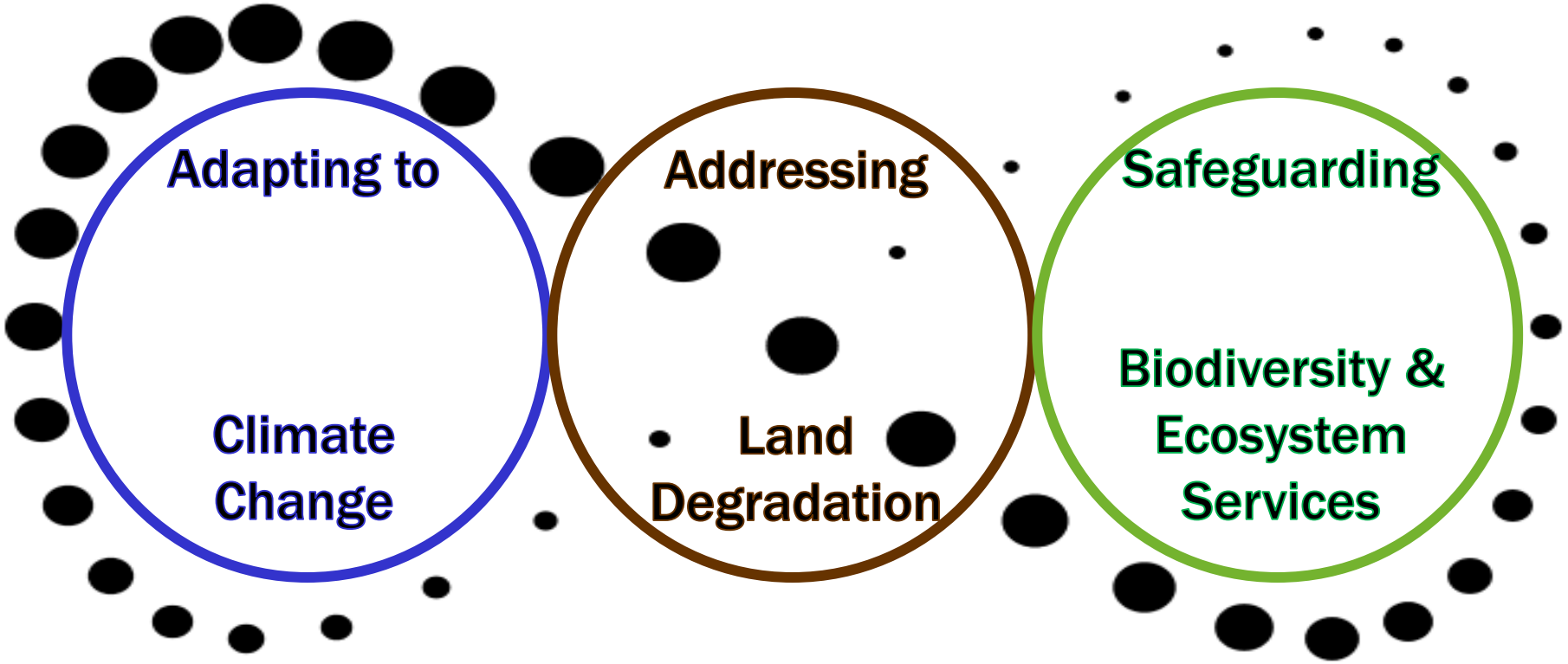
Source: UNCCD 2013

The SLM nexus

Many land-based practices, such as **sustainable land management (SLM)**, sustainable forest, integrated water resources management, ecosystem-based resource management, and community-based natural resource management can help communities and countries **adapt to the impacts of climate change and halt biodiversity loss.**

Source: UNCCD

The sustainable land use/management nexus:



Simple to draw, but not so simple to implement

Synergies between the three Rio Conventions may seem obvious – for example:

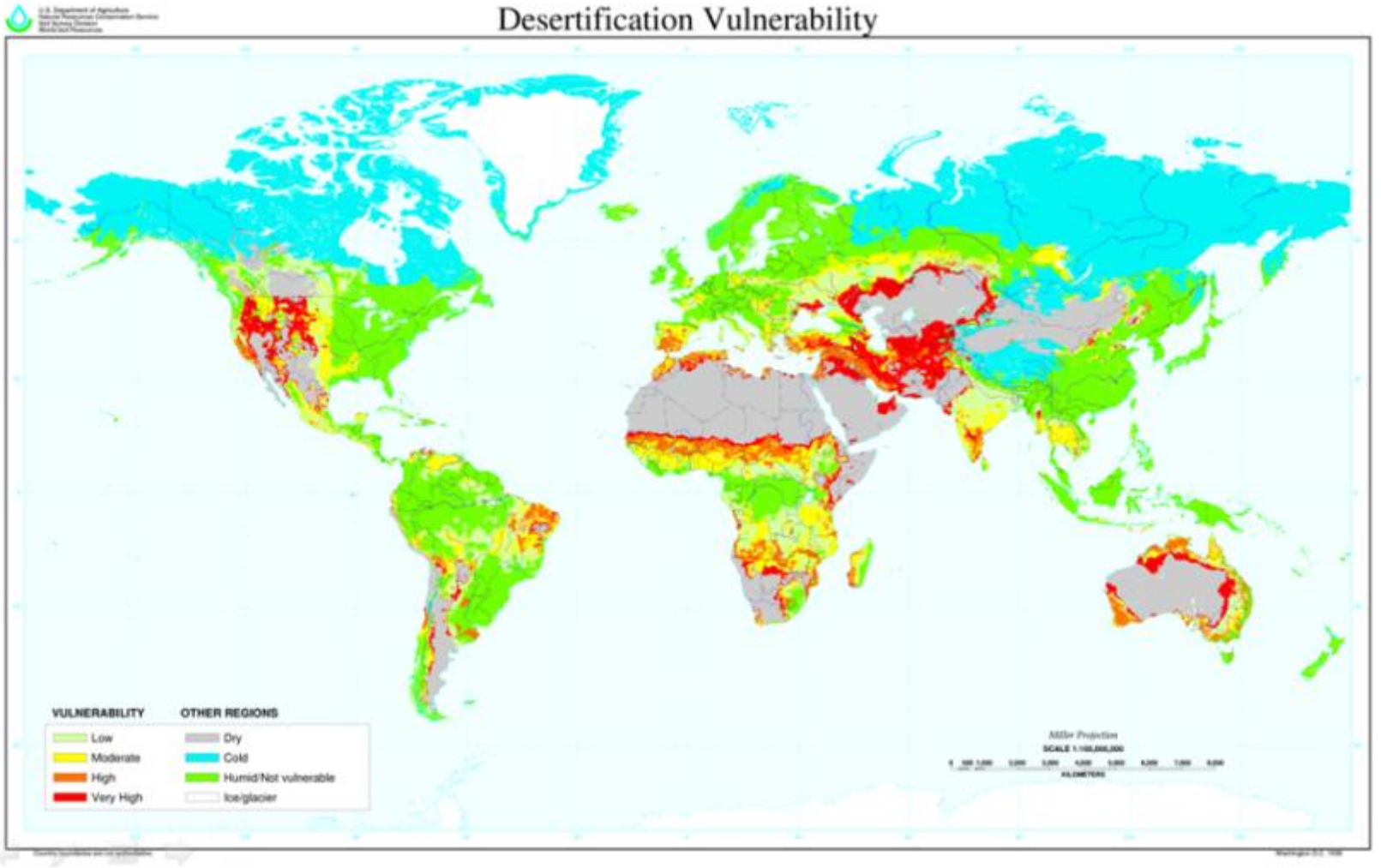
- ✓ changes in land productivity
- ✓ changes to the resilience to climate change
- ✓ changes in land use that reduce emissions
- ✓ changes in relevant biodiversity components

But the synergistic (across-Conventions) scoping, mapping, prescribing, acting, monitoring & assessing, and enabling (generating support) steps are less obvious.

What follows are just a few of the scientific challenges this integrative approach presents

Source: http://www.nadinemuller.org.uk/

It is important to keep in mind that the risk of desertification is a global problem...



Source: USDA NRCS -- http://soils.usda.gov/use/worldsoils/mapindex/desert.html

...manifest locally

Sources: Stefano Oronti, UNCCD, EcoMENA

...with local solutions

Nama Karoo, Namibia

Grazing management

Lagadas, Greece

El Castañon, Mexico

San Simon Arizona, USA

Range improvement

Las Cañas, Chile

Sack dykes

Mier, South Africa

Tire dune stabilization

Dune packing

Ayora, Spain

Post-fire management

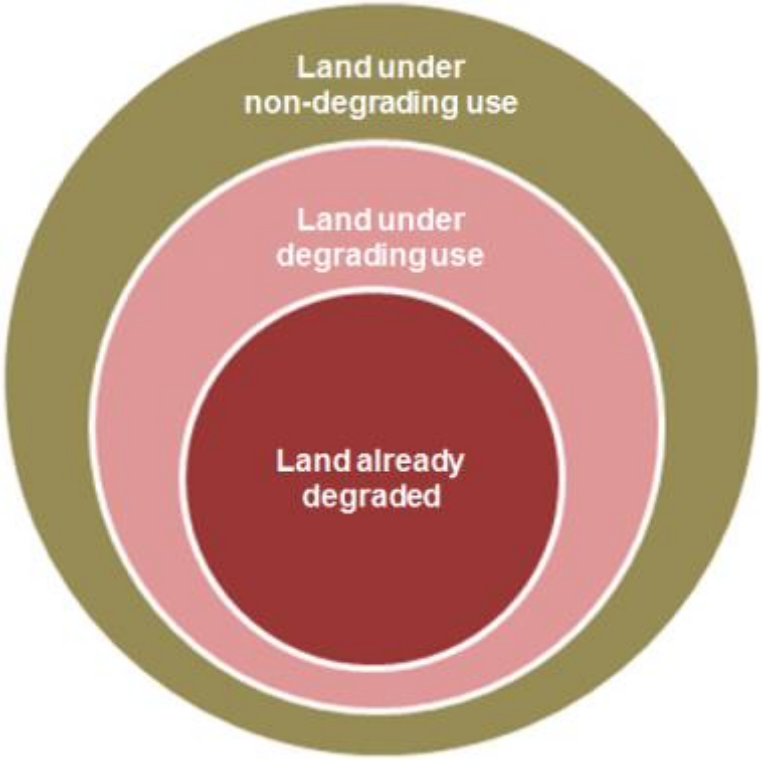
Source: PRACTICE Netweb -- http://practice-netweb.eu/

…which brings up the question of "where"

- ✓ Affected areas are not fixed in place and time, especially under conditions of climate change.
- ✓ Once this spatial domain is determined, the level of degradation must be classified
- ✓ Ideally this would involve a scheme that provides a simple but effective **link** between mapping/classifying degradation level **and** prescribing an appropriate action

One way to operationally slice up the land degradation continuum

- ✓ Land under non-degrading use
  - ❖ Land at potential risk (thus may need preventative resilience-conferring action)
  - ❖ Would serve as a benchmark
- ✓ Land under degrading use
  - ❖ Requiring degradation mitigation (e.g., SLM)
- ✓ Land already degraded
  - ❖ Requiring restoration efforts



What to measure?

Measure what matters!

- Choosing what to measure to capture land degradation, and through that, aspects of climate change adaptation and the conservation of biodiversity is not easy!
- Many people (including scientists) propose measuring the concern: **land degradation**
- Another approach is measuring what matters to people and the environment: **what the land produces**

Advantages to a "measure what matters" approach: simple, relevant, and sensitive to the concern at hand.

An example:

- Changes in biological productivity of economic value
  - *Simple:* routinely measured (e.g., crop yield)
  - *Relevant:* to the 7.1 billion people who depend on the biological products derived from the soil for their food, provided by the 2.6 billion farmers whose livelihoods depend on generating food from that soil
  - *Sensitive:* A decline in crop yield is an indicator of land degradation, it serves as an indicator of a key ecosystem provisioning service, and can contribute to capturing trends in above-ground carbon stocks
  - *Compatible:* counterpart indicator, net primary productivity (NPP), captures environmental value

Some alternatives:

- Trends in vegetation cover
  - A decline in vegetation cover is an indicator of the land's regulating and cultural services, contributes to understanding carbon stocks, and can be measured by remote sensing.
- Soil degradation
  - The chemical and physical degradation of the soil is an indicator of the land's supporting services and changes in soil carbon.

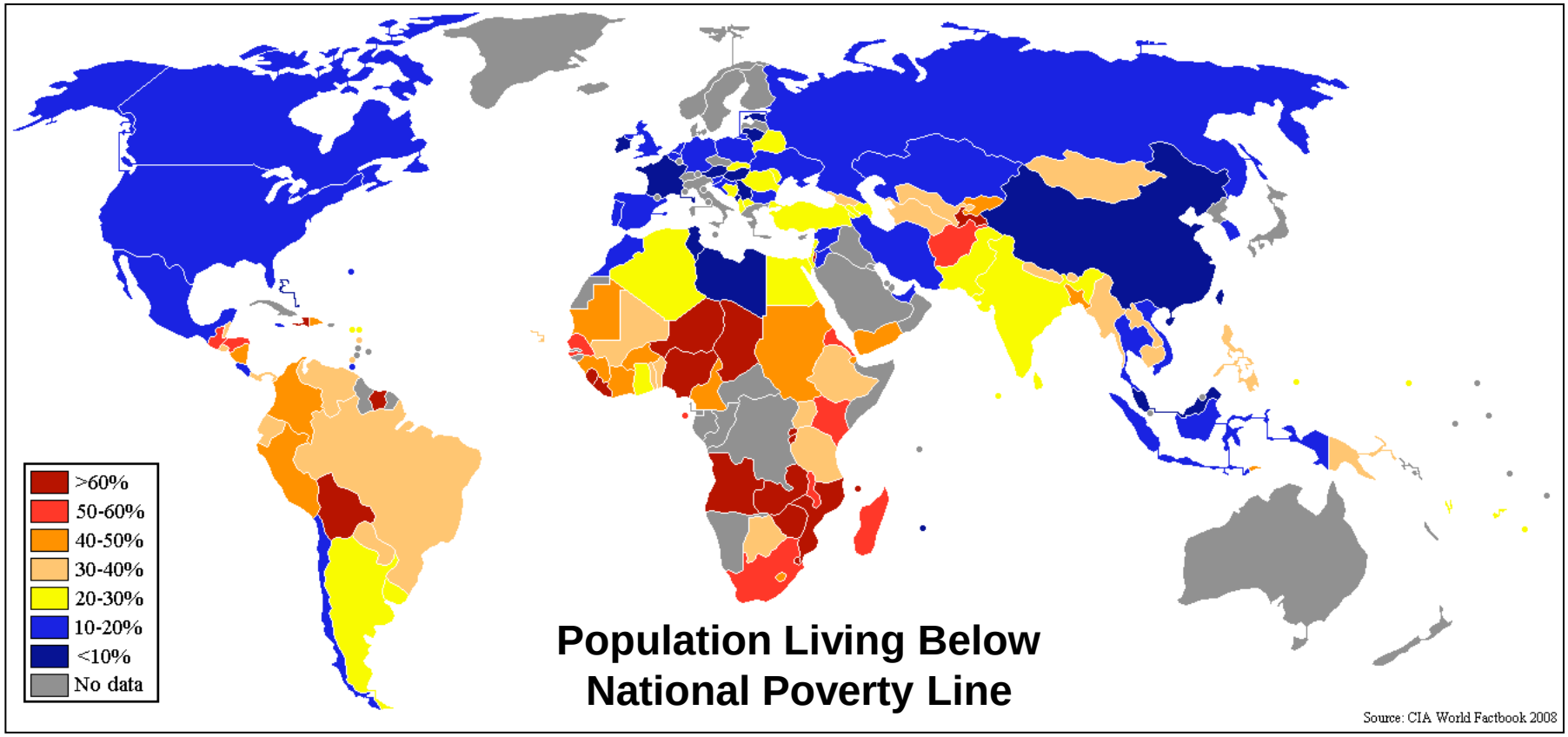
NB: This approach separates out what matters (target), what to measure (indicator), and how to measure it (metric). (Keeping these distinct also reduces unnecessary debate.)

Indicators are not equally indicative, everywhere.

Some may be used in common globally...

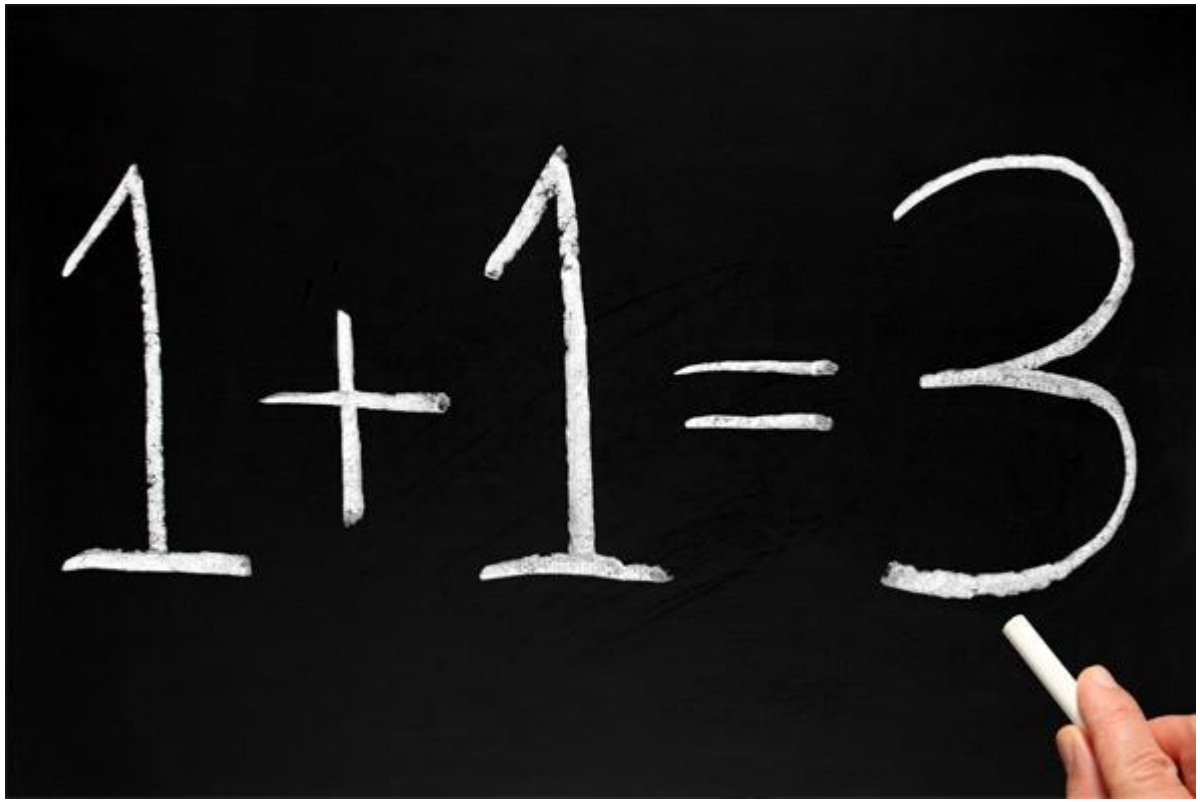
Source: European Space Agency - © ESA 2010 and UCLouvain

...but may not be equally sensitive to desertification in all countries



Source: World Factbook - http://en.wikipedia.org/wiki/File:Percent_poverty_world_map.png

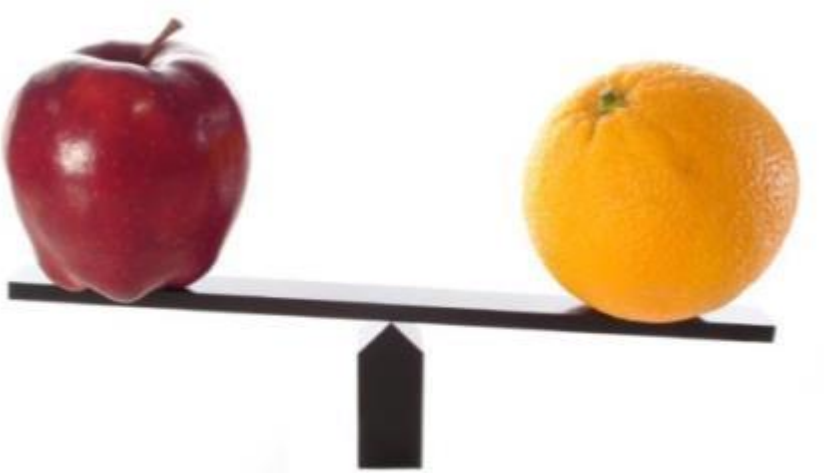
Scaling up (local > national > global) *cannot* always be accomplished by aggregation



Source: http://www.therevenution.com

...and then there are the apples and the oranges

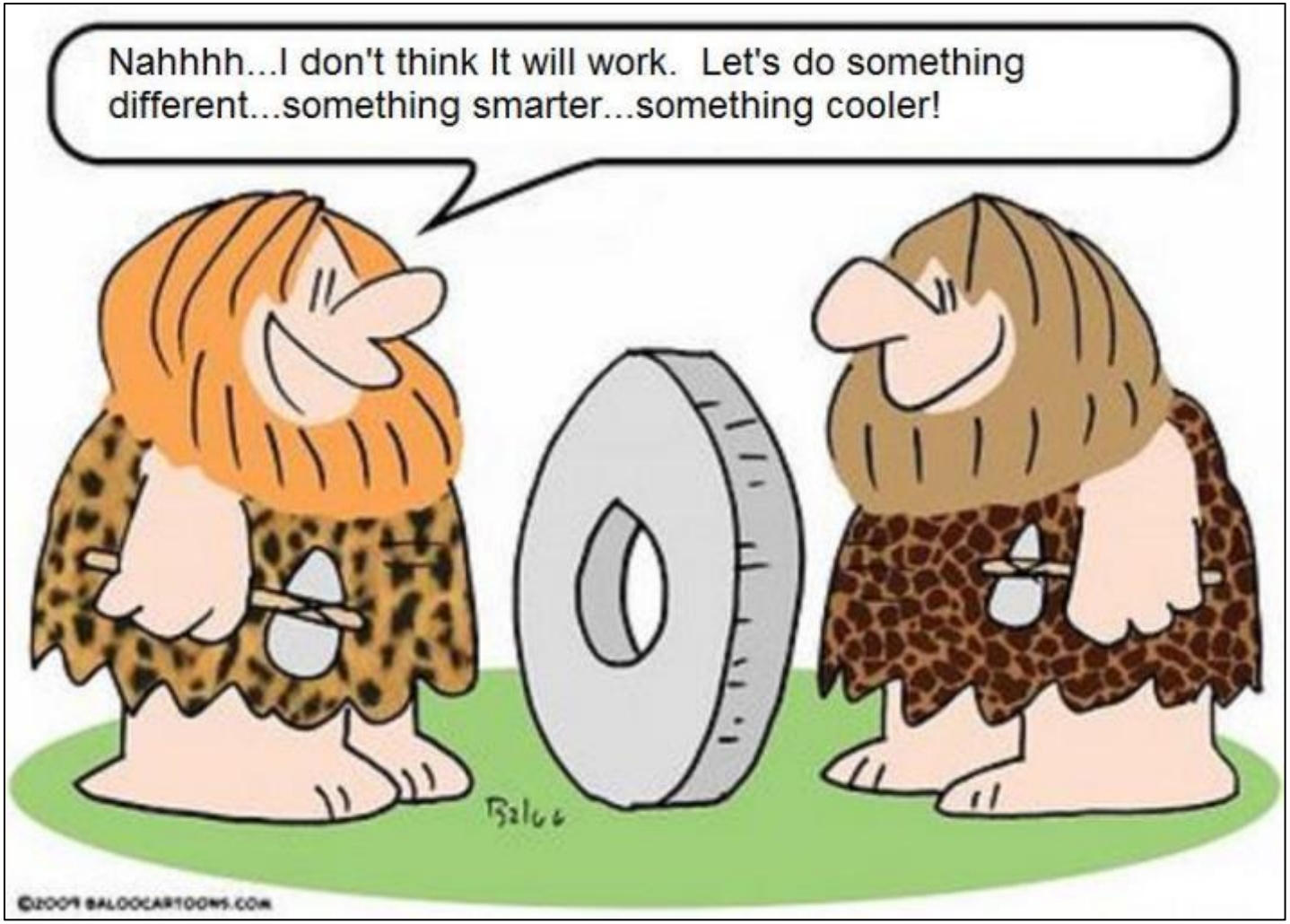
Addressing a problem in one ecosystem type or biome does not necessarily equal losses in another (as the ecosystem services are different).



Therefore some provision for balancing within (rather than across) ecosystem type is essential.

And one final word of caution:

Let's not reinvent the wheel!



Source: http://baloocartoons.com/ Copyright © 2009 by Rex F. May

Current status of the UNCCD impact progress indicators

(Ad hoc Group of Technical Experts (AGTE) and Decision 22/COP.11)

United Nations ICCD/COP(11)/CST/2

Convention to Combat Desertification

Distr.: General
10 July 2013

Original: English

…the work of the AGTE led to:

ICCD/COP(11)/23/Add.1

Decision 22/COP.11

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

ICCD/COP(11)/23/Add.1

Annex

Progress indicators for strategic objectives 1, 2 and 3

Proposed refinements to the provisionally adopted set of impact indicators

SO1: To improve the living conditions of affected populations

- Trends in population living below the relative poverty line and/or income inequality in affected areas
- Trends in access to safe drinking water in affected areas

SO2: To improve the condition of ecosystems

- Trends in land cover structure
- Trends in land productivity or functioning of the land

SO3: To generate global benefits through effective implementation of the UNCCD

- Trends in carbon stocks above and below ground
- Trends in abundance and distribution of selected species

Thank you!

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