Monitoring Desertification After the AGTE

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- 1. Has the AGTE advanced the science of monitoring desertification, by bringing us closer to measuring desertification on a global scale?
- 2. Has it brought us any closer to supplying the UNCCD with the information on its effectiveness?

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UN Plan of Action Surveys

- **Dregne (1977)**
- **Dregne (1983)**
- **Mabbutt (1984)**
- **UNEP Atlas (1992):** GLASOD, Middleton & Thomas
- **UNEP Atlas (1997):**GLASOD, Middleton & Thomas

Areas With At Least Moderate Desertification (million ha)

	Dregne (1983)	Mabbutt (1984)	UNEP Atlas (1992)
Africa	490	741	201
Asia	769	748	213
Australia	403	112	4
North America	399	208	66
South America	174	162	37
Europe	20	30	86
Total	2,255	2,001	607

UN Plan of Action Surveys

Sets of desertification indicators 1977-2005.

Dregne (1977) Dregne (1983) Mabbutt (1984)	Middleton & Thomas (1992)	LADA (2005)
Vegetation degradation	Biotic functions	Aridity index
Water erosion	Soil erosion	Rainfall variability
Wind erosion	Terrain suitability for farming	Soil moisture
Irrigated crop yields	Farm yields	Soil health
	Ease of restoring terrain	Soil loss
	Ease of restoring yields	Soil salinity
		Soil fertility
		Soil contamination
		Vegetation activity
		Vegetation density
		Water availability
		Groundwater level
		Water salinity
		Water contamination

The Impact Indicator Process

- **Three strategic objectives of the UNCCD Ten Year Strategic Plan and Framework:**

- 1. Improve the living conditions of affected populations.
- 2. Improve the condition of affected ecosystems.
- 3. Generate global benefits by effective implementation of the convention.

Impact Indicators 1 & 2

	a. Provisional indicators	b. Refined indicators
1.	Water availability per capita	Water availability per capita
2.	Change in land use	Change in land use
3.	Proportion of population in affected areas living above the poverty line	Proportion of population in affected areas living above the poverty line
4.	Childhood malnutrition and/or food consumption/calorie intake per capita in affected areas	Food consumption per capita
5.	Human Development Index	Capacity of soils to sustain agro-pastoral use
6.	Level of land degradation	Degree of land degradation
7.	Plant and animal biodiversity	Plant and animal biodiversity
8.	Aridity index	Drought index
9.	Land cover status	Land cover status
10.	Carbon stocks above and below ground	Carbon stocks above and below ground
11.	Land under sustainable land management	Land under sustainable land management

(Brief) Terms of Reference of the AGTE

- 1. Identify the best scientific approach to operationally delineate affected areas.
- 2. Develop a mechanism or framework that encourages country Parties to identify nationally and locally relevant impact indicators.
- 3. Further refine the set of the provisionally adopted impact indicators.
- 4. Develop a scientifically based approach for integrating, analysing and interpreting impact-indicator information.

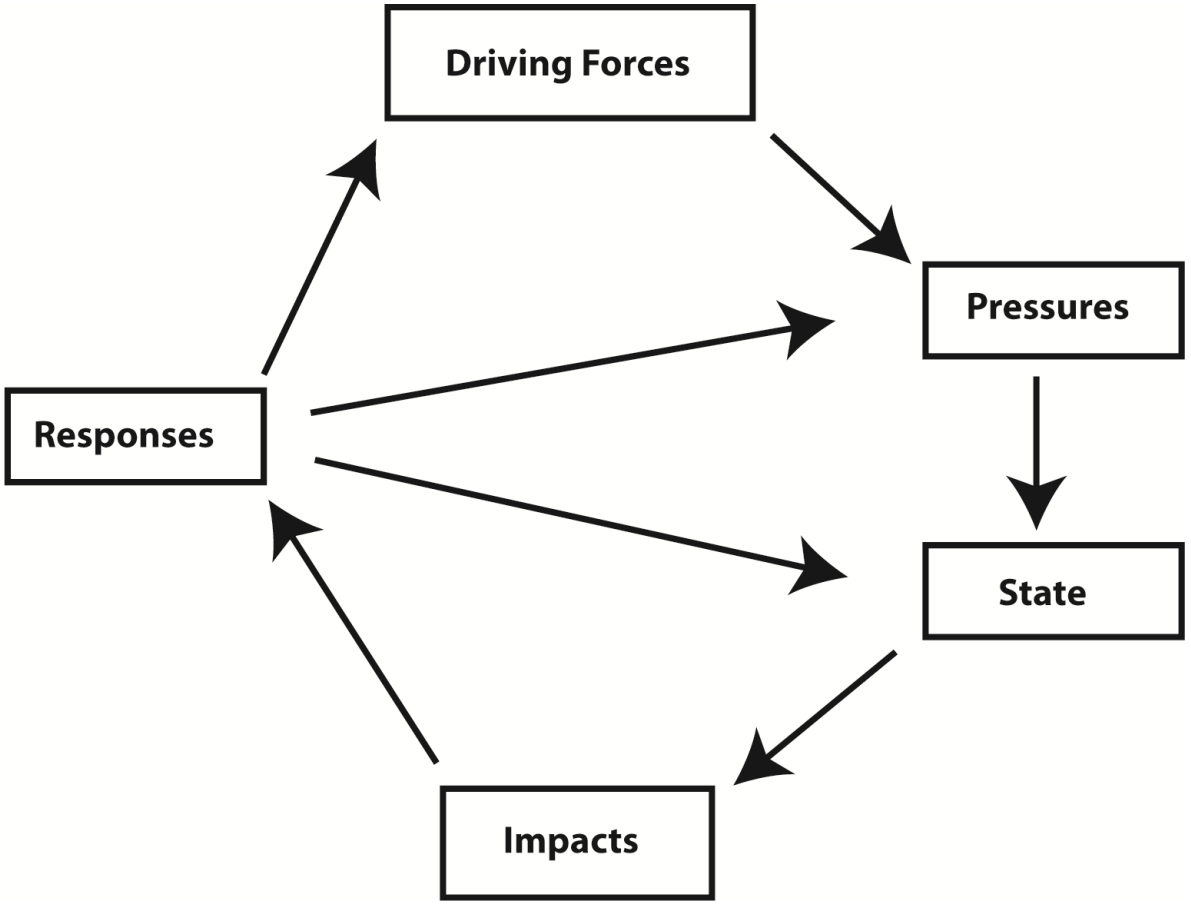
1. Delineate Affected Areas

- 1. Areas potentially affected but without evidence of risk.
- 2. Areas at risk of being affected: 'hot spots' where there is increased pressure.
- 3. Areas that are actually affected.
- 4. Areas affected in the past (inherited desertification) but lack current desertification drivers: 'cold spots'.

1. Delineate Affected Areas

- **Combines mapping of desertification status, and mapping of desertification risk**
- **Combines status, risk and drivers**
- Driving force-pressure-state- impact-response (DPSIR)
- Driving force-pressure-state-human/environment impact-response (DPSheIR)
- **Adjust vegetation growth for climatic fluctuation**

1. Delineate Affected Areas



3. Refining the Impact Indicators

- Reduced set from 11 to 6
- 'Progress indicators'
- Questioned the concept of impact indicators: cannot measure desertification
- Questioned viability of the key strategic objectives
  - Cannot meet them all at the same time
- *Surely – objectives no direct relevance to UNCCD*

3. Refining the Impact Indicators

	a. Provisional impact indicators (2009)	b. Refined impact indicators (2011)	c. Refined progress indicators (2013)
1.	Water availability per capita	Water availability per capita	Trends in access to safe drinking water in affected areas
2.	Change in land use	Change in land use	
3.	Proportion of population in affected areas living above the poverty line	Proportion of population in affected areas living above the poverty line	Trends in population living below the relative poverty line and/or income inequality in affected areas.
4.	Childhood malnutrition and/or food consumption/calorie intake per capita in affected areas	Food consumption per capita	
5.	Human Development Index	Capacity of soils to sustain agro-pastoral use	
6.	Level of land degradation	Degree of land degradation	Trends in land productivity or functioning of the land
7.	Plant and animal biodiversity	Plant and animal biodiversity	Trends in abundance and distribution of selected species
8.	Aridity index	Drought index	
9.	Land cover status	Land cover status	Trends in land cover structure
10.	Carbon stocks above and below ground	Carbon stocks above and below ground	Trends in carbon stocks above and below ground
11.	Land under sustainable land management	Land under sustainable land management	

AGTE Indicator Criteria

- Comprise a few common global indicators
- At least one indicator per strategic objective
- Potential to report on progress in the UNCCD
- Sensitive, yet robust to track change over time
- No overlap among indicators or with variables used to delineate affected areas
- Consistent with DPSheiR
- Report on DLDD impacts, not on drivers
- Measurable, practical, essential, scalable and feasible to apply
- Scientifically credible, with validated algorithm

2. Framework to identify national and local impact indicators

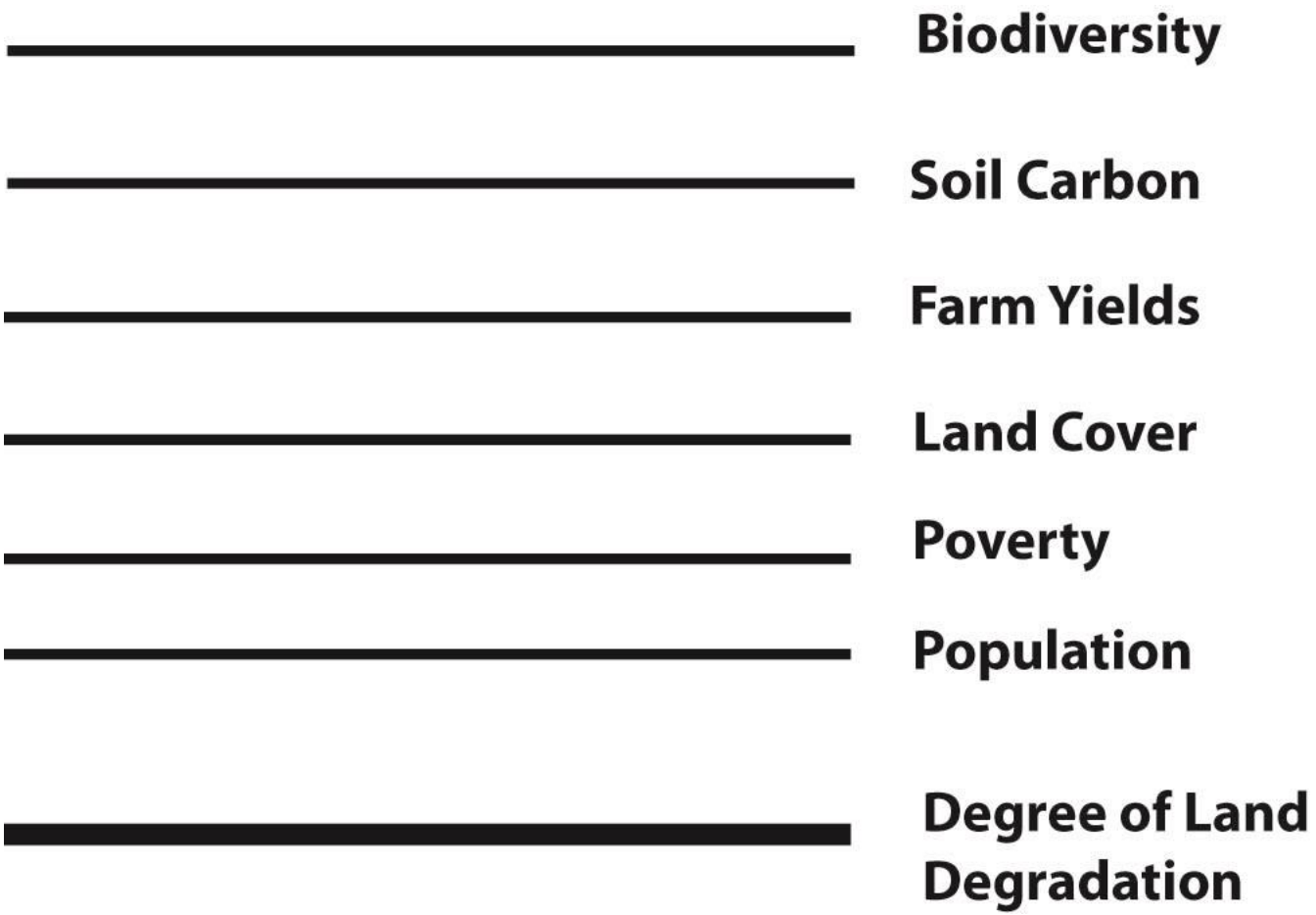
- Local information must be constructed using narratives, or "storylines"
- Harmonized approaches for getting inputs from local stakeholders
- Integrate local, national and global information by web portals, capacity building, and global to local feedback loop
- Governments should do research and implement national DPSheIR units

4. Develop scientific approach to integrate impact-indicator information

- For AGTE, integrating = "upscaling and downscaling" data, aggregating= synthesizing
- Progress indicators only a framework for listing data
- Geographical information system + suitable conceptual framework
  - Degree of desertification and impacts on...
  - Agricultural productivity, population, poverty, soil carbon and biodiversity

Indicator List Approach

GIS Approach



Conclusions

- AGTE recognized its limitations
- Showed creativity
- Has not advanced science of monitoring desertification
- Has not improved effectiveness monitoring
- Progress needs totally independent approach